



**AN EXTENSION OF THE TECHNOLOGY ACCEPTANCE MODEL IN
RURAL ZIMBABWE: MOBILE MONEY ACCEPTANCE MODEL**

A Dissertation

by

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Declaration of authenticity

I declare that the research project, Title of the dissertation: subtitle, is my own work and that each source of information used has been acknowledged by means of a complete reference. This dissertation has not been submitted before for any other research project, degree or examination at any university.



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14 March 2017

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Abstract

Recent times have been characterized by accelerated developments in the information and communication technologies as noted by several scholars (Black et. al 2001; Devlin and Yeung, 2003; Remenyi and Cinnamond, 1996). Prendergast and Marr (1994) have noted how the aforementioned has seen a paradigm shift in the way banking is done around the world. Gone are the times when banking was confined to brick and mortar branches as digitalization has now seen the wide spread of branchless banking giving people access to banking services from anywhere and at any time. Within South Africa, the central bank has licensed the first fully digital bank called TYME Bank which is owned by the Commonwealth Bank and is to offer banking services via digital platforms such as mobile phones and kiosks. The digital platform is being set up by BPC Banking Technologies who have been recognized by industry analysts after FIS and ACI as the third biggest electronic payments company in the world and the fastest growing one within that industry. With a significant presence around the world represented by 19 offices globally, the company has sort to disrupt traditional banking.

In recent times mobile based payments have characterized the payment landscape. The absence of traditional payments within rural communities has seen the successful launch and continued growth of mobile money services use in those areas. Traditionally rural areas have always been characterized by poor infrastructure noticeable through the absence of brick and mortar bank branch networks. The Post Office which is found in many places, both rural and urban was seen as the provider of banking services. Various scholars have used TAM as the theoretical basis upon which mobile money services have been adopted in various communities across the world. The use of mobile money services for banking is characteristic of third world countries which are characterized by huge unbanked or under-banked populations. This study used a quantitative approach which sort to understand the causative explanation of mobile money services in rural communities in Zimbabwe. Having gone through existing literature, a conceptual model based on extending TAM was proposed. A total sample size of 2,000 participants was selected and data was analyzed using SmartPLS (Structured Equation Modeling) and SPSS statistical tools. Data was collected using a questionnaire.

Many scholars in the USA and other parts of Europe have come up with models and theories that seek to explain the adoption behavior of new technologies within their countries. The applicability of such models and theories within the African context has always been subject to debate as prevailing conditions between the countries in which the modeling was originally done is not comparable in whatsoever way to the African countries. USA and Europe are generally characterized as developed areas whenever Africa is seen as being developing nations. The respective models and theories have been crafted with different sets of determinants which could be largely related to their respective environments. This study sort to validate such determinates within the African context and come up with newer ones in the process. Scholars such as myself have identified the said disparity and hence embarked on coming up with theories or models that are more applicable to the African context.

The current study reviewed the existing literature paying particular attentions to models and theories explaining adoption behavior of new technologies. The study proposed a new model which is to be used as the basis for explaining the adoption of mobile money services within rural communities in Zimbabwe and potentially applicable to other rural communities in Africa. Data was gathered from a sample population which was used as the basis for validating the proposed model. The proposed model saw the addition of the following constructs to TAM (Davis, 1989); relative benefits, convenience, social norms/influence, perceived risk and cost. From the findings perceived usefulness H3 ($t=1.067$), perceived risks H4 ($t=1001$) and costs H7 ($t=1.738$) are all supported but are insignificant since the t statistics are less than 1.96. Finally, behavioral intention H8 ($t=7.519$) is strong and supported since both the t statistics are above 1.

A path coefficient of 0.211 was realized after testing H1. This means that relative benefits have has a positive influence on Behavioral Intention. Furthermore, the results indicate that the relationship of Relative Benefits (RB) and Behavioral Intention (BI) is significant ($t=3.236$).

The results obtained following the test of H2 confirmed that there is an association between Perceived ease of use (PEOU) and Behavioral Intention (BI). A path coefficient of 0.222 was realized after testing H2. This means that perceived ease of

use has a strong relationship with Behavioral Intention. Furthermore, the results indicate that the relationship between perceived ease of use and Behavioral Intention.

The results obtained following the test of H3 confirmed that there is an association between Perceived Usefulness (PU) and Behavioral Intention (BI). A path coefficient of 0.058 was realized after testing H3. This means that perceived usefulness has a negative influence on behavioral intention. Moreover, the results indicate that the relationship between Perceived Usefulness (PU) and Behavioral Intention is insignificant way ($t= 1.067$).

The results obtained following the test of H4 confirmed that there is an association between Perceived Risks (PR) and Behavioral Intention (BI). A path coefficient of -0.033 was realized after testing H4. This means that Perceived Risks have a negative influence on Behavioral Intention. Furthermore, the results indicate that the relationship of Perceived Risks (PR) and Behavioral Intention (BI) is insignificant way ($t=1.001$).

The results obtained following the test of H5 confirmed the existence of an association between Convenience (CE) and Behavioral Intention (BI). A path coefficient of 0.178 was realized after testing H5. This means that Convenience has a strong relationship with Behavioral Intention. Furthermore, the results indicate that the relationship between Convenience and Behavioral Intention is positive and significant ($t= 2.479$).

The results obtained following the test of H6 confirmed that an association between Social Norms (SN) and Behavioral Intention (BI) exists. A path coefficient of 0.104 was realized after testing H6. This mean that the relationship between Social Norms and Behavioral Intention is in a significant way ($t= 2.176$).

The results obtained following the test of H7 confirmed that there is an association between Cost (CO) and Behavioral Intention (BI). A path coefficient of 0.072 was realized after testing H7. This means that cost has a negative relationship with Behavioral Intention. Furthermore, the results indicate that the relationship between Cost and Behavioral Intention is in an insignificant way ($t= 1.738$).

The results obtained following the test of H8 confirmed that there is an association between Behavioral Intention (BI) and Mobile Money Service Use (MMSU). A path

coefficient of 0.532 was realized after testing H8. This means that Behavioral Intention (BI) is significantly related to Mobile money Service Use. Moreover, the results indicate that Behavioral Intention (BI) is positively related to Mobile Money Service Use (MMSU) in a significant way ($t= 7.519$).

An understanding of the proposed model will help respective stakeholders in coming up with mobile money services which are fit for purpose as they will be conforming to targeted market characteristics.

Dedication

I dedicate this work to Tsitsi Elizabeth Shapeta, my mother, who went to the next life when my brother and I were only kids.

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It goes without saying that studies at this academic level can be very stressful at times and hence one needs a proper support structure which can assist them as they go through this stage of their study life.

First and foremost I would like to thank my uncle, Nhodzo Matsangura who introduced me to the Da Vinci Institute of Management Leadership. Having completed my MSc in Information Technology I embarked on a search for an institute to which I would have a sense of belonging and have my needs met and understood. I found a family at the Da Vinci Institute of Management Leadership; this would be an incomplete statement without acknowledging the help Simon Gathua and Lebo Toona always extended whenever need arose.

Secondly, I would like to say a big thank you to my supervisor Professor Richard Chinomona who dedicated a lot of his time assisting me throughout the course of my studies. Without his dedicated support, I do not believe that my studies would have gone as well as they did; thank you Prof, for you are indeed a brother and fatherly figure and I applaud you for your efforts in lifting others up so that they can live their dreams.

Thirdly, a big thank you to Cheryl London who understood when I could not meet my fees obligations as a self-sponsoring student and always kept encouraging me to all possible in order to make payments towards my studies. Without this understanding it would have never been possible for me to embark on this journey so I am truly and will eternally be grateful for everything that you did for me, Cheryl.

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I would also like to thank my research assistants who went out into the field with me and gave me the encouragement that I so much needed whenever things seemed not to go so well as we collected the data.

To God, Almighty, I say thank you and may you continue shining in my life. You have always been the beacon in my life. I draw my strength, my hope and my inspiration from you. I am nothing without you. I will forever be thankful for everything that you have blessed me with; you are God, my Lord, yesterday, today and forever to come. Amen.

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List of Abbreviations

CAK - Communications Authority of Kenya

GSMA - Groupe Speciale Mobile Association

IFC – International Finance Corporation

MMAM – Mobile Money Acceptance Model

MNO – Mobile Network Operator

P2P – Person to Person

POTRAZ – Postal and Telecommunications Regulatory Authority of Zimbabwe

RBZ – Reserve Bank of Zimbabwe

REA - Rural Electrification Agency

UNDP – United Nations Development Programme

WFP – World Food Programme

USAID - United States Agency for International Development

ZESA – Zimbabwe Electricity Supply Authority

ZPO – Zimbabwe Post Office

ZINARA - Zimbabwe National Roads Administration

ZNSA - Zimbabwe National Statistics Agency

1.1 Background of Study

According to Jack and Suri (2011), the adoption and subsequent use of mobile technologies has experienced rapid growth across the world, a view which is supported by Mbiti and Weil (2011). Safeena, Hundewale and Kamani (2011) defined adoption as being the acceptance and continued use of a particular product, service or idea. It is reasonable to assume that the need to keep in touch through mobile social platforms has in part contributed to this rapid growth. Fixed telephone systems, whilst providing similar benefits as cited by Saunders et al (2011), have been expensive to roll out in remote areas within rural communities in Zimbabwe which has meant that landline phones are commonly found at district hospitals and schools and very rarely at private residences.

The availability of cheap and affordable mobile handsets in Zimbabwe, imported from China, has meant that as little as USD\$10 can buy a mobile phone which can perform basic functions. Specially tailored prepaid contracts are now a common offering from the MNOs which has brought about wide spread usage of mobile phones within rural communities in Zimbabwe. Khan (2015) highlighted the existence of substandard products in and noted that Africa is not the only intended market for such as locals in China are also targeted for potential usage. However the quality of mobile phones is not improving to an extent that the Ministry of Commerce and other related institutions have taken interest on this subject and are putting in place measures to counter this problem (Khan, 2015).

A large prevalence of the unbanked population is found within rural communities in Zimbabwe. Demirguc-Kunt and Klapper (2012) noted findings of a World Bank study in which it was stated that 50% of adults across the world have access to formal banking services, whilst only 41% are in developing countries, whereas access to mobile phones exceeds that. Formal banking account penetration is very low within most African countries, in particular Sub-Saharan Africa, which is noted in figure 1.0 below;

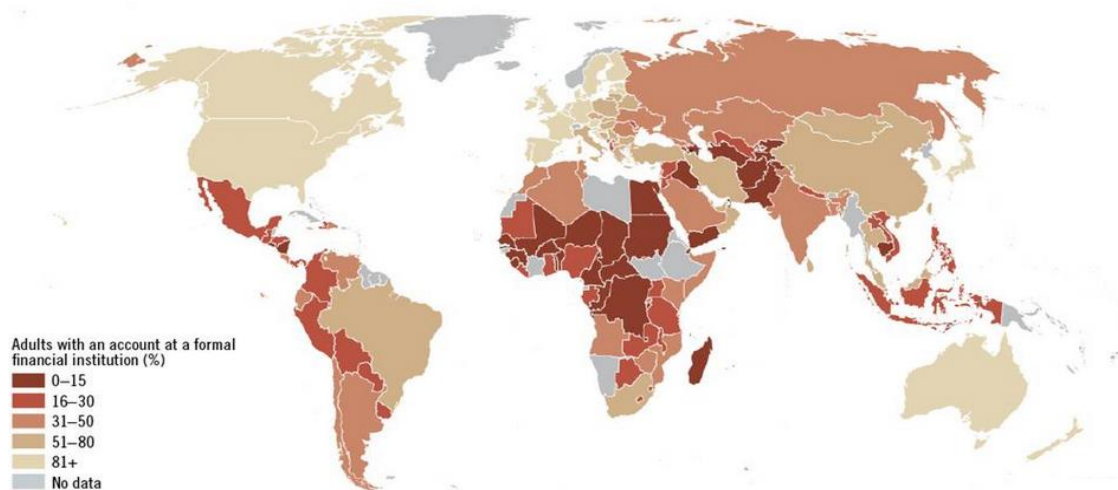


Figure 1.0 Account penetration around the world

(Source: Demircuc-Kunt and Klapper, 2012)

Demircuc-Kunt et al (2014) further went on to note that mobile money accounts penetration stood at 14% or more, and that all of those countries were in Sub-Saharan Africa. Within this region it is noted that the number of adults who have a mobile money account ranges from 10 percent in Namibia to 58 percent in Kenya (figure 1.5). More adults were reported to have a mobile money account than an account at a financial institution in Côte d'Ivoire, Somalia, Tanzania, Uganda, and Zimbabwe (Demircuc-Kunt et al, 2014).



Figure 1.1 Mobile money account penetration in Sub-Saharan Africa

(Source: Global Findex database, 2015)

As the usage of mobile money services spreads across rural communities within Zimbabwe, it is crucial to understand the user's perception and reaction to this

development. It therefore is important to study the factors influencing the adoption of mobile money services through a proposal to extend the Technology Acceptance Model as developed by Davis (1989) to what is to be known as the Mobile Money Acceptance Model (MMAM).

In addition to perceived ease of use (PEU) and perceived usefulness (PU), other factors also need to be taken into account. It has been found that other determinants of adoption include availability, perceived speed, reliability, perceived security hence trustworthiness, competitions and rewards and MNO assistance to small businesses. Thus, the results of such a study could be used to improve the mobile money services offered by the MNOs.

The applicability of the proposed model is based on findings of field work conducted within rural communities in Zimbabwe. The concept of mobile money has fast become popular in Zimbabwe and this study seeks to look at the reasons why this is so with particular attention to the rural communities. The rural population is excluded from the formal banking sector even though they have a significant impact on Zimbabwe's economy considering that they constitute the majority of the country's population. Mobile money has become an alternative to the traditional banking system within the rural communities.

Telecel, NetOne and Econet Wireless are the three Mobile Network Operators in Zimbabwe. According to the POTRAZ (2015) sector performance report for the fourth quarter of 2014, the number of active mobile subscribers grew by 3.5 percent to 11.8 million. For the fourth quarter of 2014, POTRAZ reported that a 7.3 percent increase in mobile money services was experienced which saw the number of subscribers for this service reach 5.3 million people whilst the number of agents shot up by 13.7 percent to 23,379.

Mobile Money Transfer	3 rd Quarter 2014	4 th Quarter 2014	Quarterly Change
Number of Subscribers	4,910,810	5,299,271	7.9%
Number of Agents	20,569	23,379	13.7%
Total Deposits	\$403,149,620	\$445,722,792	10.6%

Table 1.0 Mobile Money Transfer

(Source: POTRAZ, Operator Returns)

A 10.6 percent increase in deposits was experienced from the third to the fourth quarter in 2014 as shown in the table above. Growth of the mobile money subscriber base is depicted in Figure 1 below;

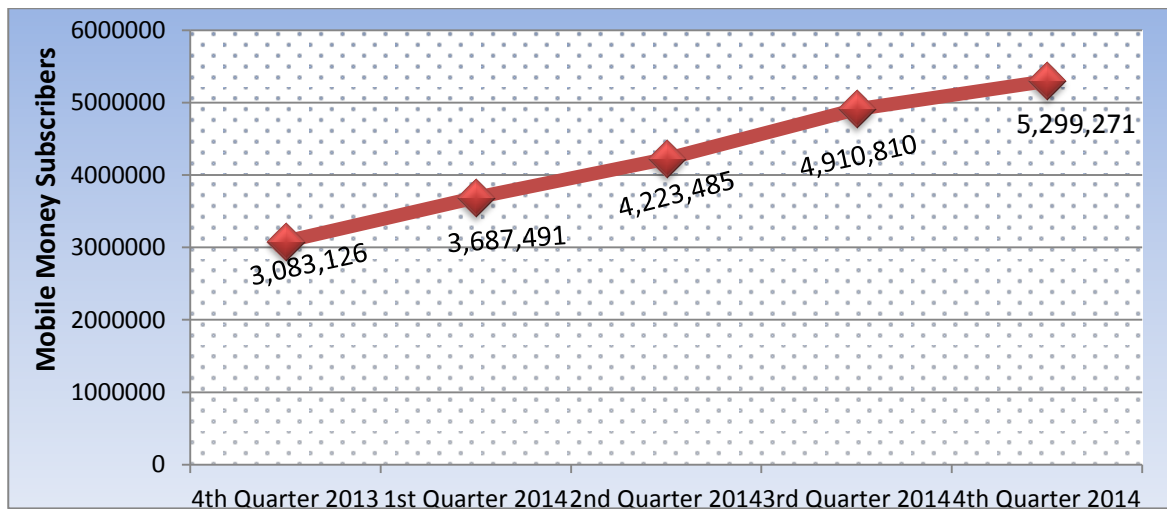


Figure 1.2 Growth of Mobile Money Subscribers

(Source: POTRAZ, 2014)

MNOs are not the only providers of mobile money services in Zimbabwe as shown in Figure 1.3 below.



Figure 1.3 Mobile money products in Zimbabwe

(Source: Techzim, 2011)

Poor infrastructure within rural communities in Zimbabwe has resulted in limited presence of bank branch networks; a view which is supported in the work of Curwen and Whalley (2010). Poor infrastructure has meant that road networks, which are a prerequisite for any meaningful development, including that of schools, hospitals and banking facilities, are poorly defined hindering accessibility to many remote places (Kufandirimbwa et al., 2013). With community development being founded on the exchange of money between parties, the lack thereof of formal bank branches has seen the adoption of an alternative money system in the form of mobile money within the rural communities. Curwen and Whalley (2010) term this as transformational banking. Kenya's M-PESA has been heralded as the most successful mobile money project in Africa, which is justifiably so considering that it is widely used by millions in that country (Kufandirimbwa, et al., 2013). Little "on the ground" research has been done or reported on the mobile money usage in Zimbabwe.

A new phenomenon that has now characterized rural communities within Zimbabwe is that more people now have access to mobile phones compared to electricity (Chifamba, 2013). This is backed by earlier findings from research conducted by Powell (2012) who established that 80% of Zimbabwe's households had mobile phones; a figure now disputed by an official from the Postal and Telecommunications Regulatory Authority of Zimbabwe (Majaka, 2014) who says the actual head count of people holding SIM cards is 60% of the total population.

Econet Wireless's EcoCash controls 98 percent of the total mobile money deposits whilst NetOne controls 0.1 percent with 1.9 percent controlled by Telecel (POTRAZ, 2015). At the end of 2014, USD\$1,442,258,588 was the total value of transactions which were done through mobile money services, representing an 80.8 percent jump for the same period in 2013. This sharp climb in transactions value shows just how significant mobile money services have become an integral part of the financial ecosystem in Zimbabwe.

EcoCash's dominance in Zimbabwe is attributed to Econet Wireless' very wide network coverage. Econet has 3,019 base stations while Telecel and NetOne trail behind as shown in Table 1.1 below;

OPERATOR	2G	3G	LTE	TOTAL
Econet	2,125	874	20	3,019
Telecel	658	322	-	980
NetOne	619	268	-	887
Total	3,402	1,464	20	4,886

Table 1.1 Base Stations by Operator

(Source: POTRAZ, Operator Returns)

Econet's significant lead in the mobile money market share is important to understand in drawing up the Mobile Money Acceptance Model. In POTRAZ's fourth quarter sector report, a market share analysis showed that the three MNOs hold the following market share percentages;

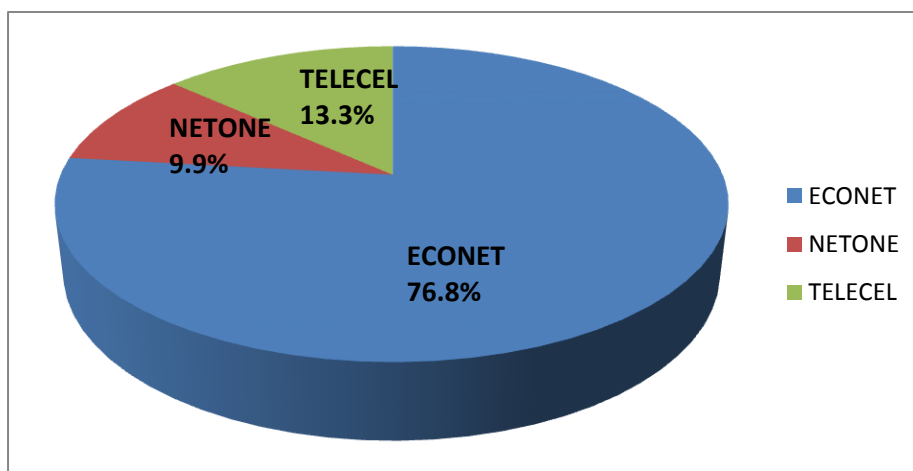


Figure 1.4 Market Share of Mobile Money Subscribers

(Source: Sector Performance 4th Quarter Report 2014 - POTRAZ)

With an estimated unemployment rate of 85 percent, the majority of Zimbabweans have become self-employed within the informal sector. Furthermore, the Reserve Bank of Zimbabwe's inflexible Know Your Client (KYC) requirements means that most of the self-employed people are unable to meet the requirements for opening a bank account. Furthermore, the few who hold those accounts are bearing the brunt of charges which are levied for maintaining and transacting using the bank accounts. Some financial institutions are reportedly charging as much as USD\$5 for a cash withdrawal as a minimum charge, a charge which is not affordable to most (Kachembere, 2014). According to a 2012 FinScope MSME Survey focusing on small business in Zimbabwe, respondents sighted affordability as being the main barrier to banking. Low and irregular incomes were highlighted as the main reasons why 69% and 21% respectively, were unbanked, 9% said they lacked financial

literacy. Without any doubt, mobile money services have become very popular within the informal economic sector of which those individuals constitute the majority of Zimbabwe's population, and in accordance to ZNSA, 85% of Zimbabwe's population is unemployed whilst the majority of the people reside in rural communities (ZNSA, 2013).

Success of mobile money in Zimbabwe has also been attributed to the lack of trust in the financial institutions on the backdrop of some unpopular decisions taken by the Reserve Bank of Zimbabwe (Laurine and Patrick, 2012), which saw millions of people losing their money overnight as the central bank tried to cut down on the rate of inflation through various unpopular means whose legality remains questionable to this day. For instance, holders of foreign currency based bank accounts woke up to news that the Reserve Bank of Zimbabwe had converted their hard currency to Zimbabwean Dollars, so as to fund government 'projects' such as purchases of high end luxurious ministerial vehicles (Mhute, 2012). A lot of confidence was lost in the whole banking system and keeping money at home became popular despite the risks, which resulted in massive withdrawals from banks across the country and consequently massive queues in virtually all cities (Mhute, 2012).

The absence of versatility within the financial services sector in Zimbabwe means that mobile money is a solution for banking the unbanked which may not be the case in a developed country such as the United Kingdom.

1.2 Problem Statement

With large rural populations excluded from the formal banking sector despite them constituting the majority of Zimbabwe's population, the use of mobile money as a solution to bank this "unbanked" population seems to be working across the country. However there seems to be more to this adoption than just the need for financial inclusion, with different people sighting different reasons for their use of mobile money. Mobile money being a technological offering, it seems that the commonly accepted Technology Acceptance Model (Davis, 1989) which has been cited way over 700 times (Bagozzi, 2007), requires an extension in order to be more relevant in the case of mobile money adoption. Besides TAM, within the context of technology adoption various models have been put forward which are used as a reference when

explaining the uptake of technological innovations, these are namely Innovation Diffusion Theory (IDT) (Rogers, 1962), Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et. al., 2003) as well as the Theory of Planned Behavior (TPB) (Ajzen, 1991). The problem with these theories is that they are generalized and most are based on empirical data from developed countries which then questions their applicability to the developing world context (Donner, 2009). It seems that not much attention has been provided beyond the acceptance of technology and its adoption. It seems that not much has been done in terms of studying customers' adoption decision process, the meaning and use that they put into the new technology within their social setups as well as taking a look at how social practices affect the adoption of new technology, all within the context of a rural setup within a developing country.

1.3 Aim of Study

The aim of this study is to expand the Technology Acceptance Model so as to include other important factors beyond PU and PEU which determine adoption of mobile money within rural communities in Zimbabwe.

1.4 Purpose of Study

To determine other variables that can be used to extend the TAM (Davis, 1989) so that a model which is more applicable to the adoption of mobile money can be derived. The proposed model is to be called Mobile Money Acceptance Model and the variables to be tested in this model have been derived by other scholars through extensive empirical studies.

1.5 Scope of Study

This study is designed to be the basis for further research on what really creates interest in and leads to the adoption of mobile money services within rural communities as well as establishing how effective these products really are. This study is confined to rural communities in Zimbabwe. Due to its widespread usage across the country, EcoCash will be made reference to in most instances compared to its rival offerings from Telecel and NetOne who collectively control 2 percent of the mobile money deposits whilst the rest is under EcoCash's command.

1.6 Justification of Study

As Zimbabwe's economy continues to melt down, the majority of the population is now playing a significant role within the economic space via the informal sector which has seen the exchange of hundreds of millions of United States Dollars per annum within this sector outside the formal banking ecosystem. This constitutes a very huge chunk of monetary movement which has been necessitated by the launch and adoption of mobile money within both urban and rural communities. With mobile money playing a significant part within different socio-economic setups within rural communities in Zimbabwe, there seem to be little evidence to suggest that studies have been conducted to determine what draws interest leading to a decision and adoption of mobile money. There does not seem to be a model which has been developed to explain the adoption of mobile money within these rural communities. Such a model would have to be applicable to similar areas with similar socio-economic conditions across Africa.

Whilst there have been a lot of studies carried out around M-PESA of Kenya, it seems not much attention has been focused on EcoCash in Zimbabwe which controls 98 percent of all mobile money deposits in the country hence the researcher's decision to base this study on EcoCash in a bid to obtain answers to fill what seems to be a gap in the research work done thus far. Sikupela (2015) in a report which projects that fees from mobile money transactions will reach USD\$1.5 billion by 2019, made reference to the map below which is dated sometime in 2013 and is not depictive of current happenings in Zimbabwe.

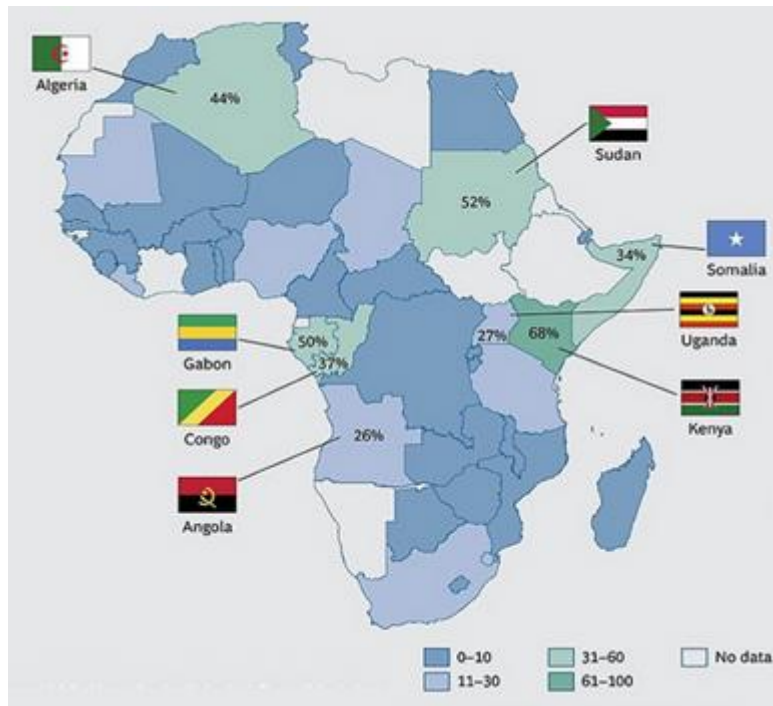


Figure 1.5 Percentage of adults using a mobile phone to conduct financial transactions
(Source: Global Findex database, 2015)

1.7 Contribution to the Knowledge Body

1.7.1 Theoretical Contribution

This study is going to contribute to Technology Acceptance Model with particular focus on the financial services industry through;

- a) The identification of other determinants of adoption and use of mobile money services within the developing country context,
- b) Addressing a gap in literature by coming up with the Mobile Money Acceptance Model (MMAM);
- c) Being a source for further empirical research on mobile money services within rural communities. Through the identification, conceptualization and operationalization of the major factors which predict acceptance and adoption of mobile money services in rural communities, the findings from this study can be used in further investigations which look at the success and failure of mobile money services.

1.7.2 Practical Contribution

Further to the theoretical contributions mentioned, this study seeks to make the following practical contributions;

- a) Provision of a basis on which bank marketing research within developing countries can be founded
- b) Bank marketers are going to be provided with a set of controllable variables that can be manipulated within the developing countries context to promote adoption of their services. The same can be said for MNOs and any other players who might want to come into the mobile money space by ensuring that their products offering are “fit for purpose”
- c) Outcomes of this study can be used by policymakers to come up with appropriate legislation for the governance of mobile money services within Zimbabwe

Lessons can be drawn from understanding the attitude of rural Zimbabweans towards mobile money usage in general and mobile phones for conducting financial transactions specifically. The mobile phone is now being seen as a “ means to a service,” a view which is not shared by Ling (2004; 2008) who took it for an artifact through applying the domestication approach in analyzing mobile phone adoption.

1.8 Objectives of Study

1. To determine whether rural communities know about mobile money
2. To understand why rural populations adopt or shy away from mobile money
3. To link adoption factors with PU and PEU as stated in TAM (Davis, 1989)
4. To establish proposals for consideration by legislative authorities in Zimbabwe
5. To establish any patterns of mobile money use in rural communities

1.9 Assumptions of this study

- (a) It is assumed that all respondents in this study will be truthful; no incentives will be offered to respondents
- (b) Respondents are free to contribute and withdraw from the study at any time during its course without any implications
- (c) Honesty; anonymity and confidentiality will be highly maintained so no names or other personal details will be recorded during the interviews which are going to be conducted within the various rural communities to be sampled
- (d) The sample size chosen is also assumed to be representative of the rural populace being investigated
- (e) There are no formal banking institutions within rural communities.

1.10 Limitations of this study

The major limitation of this study is the limited availability of prior research publications focused on mobile money services in rural Zimbabwe. As a fairly new technological concept within Zimbabwe, there are yet to be more authoritative publications regarding mobile money. Due to this limitation some of the referenced material will have to be directly sourced from institutions of higher learning in Zimbabwe. Poor road networks mean that access to the “back of the beyond” rural communities will be restricted. Due to limited financial resources and time, a 100 percent sample size covering all rural communities will not be feasible.

1.11 Conceptual Model Development

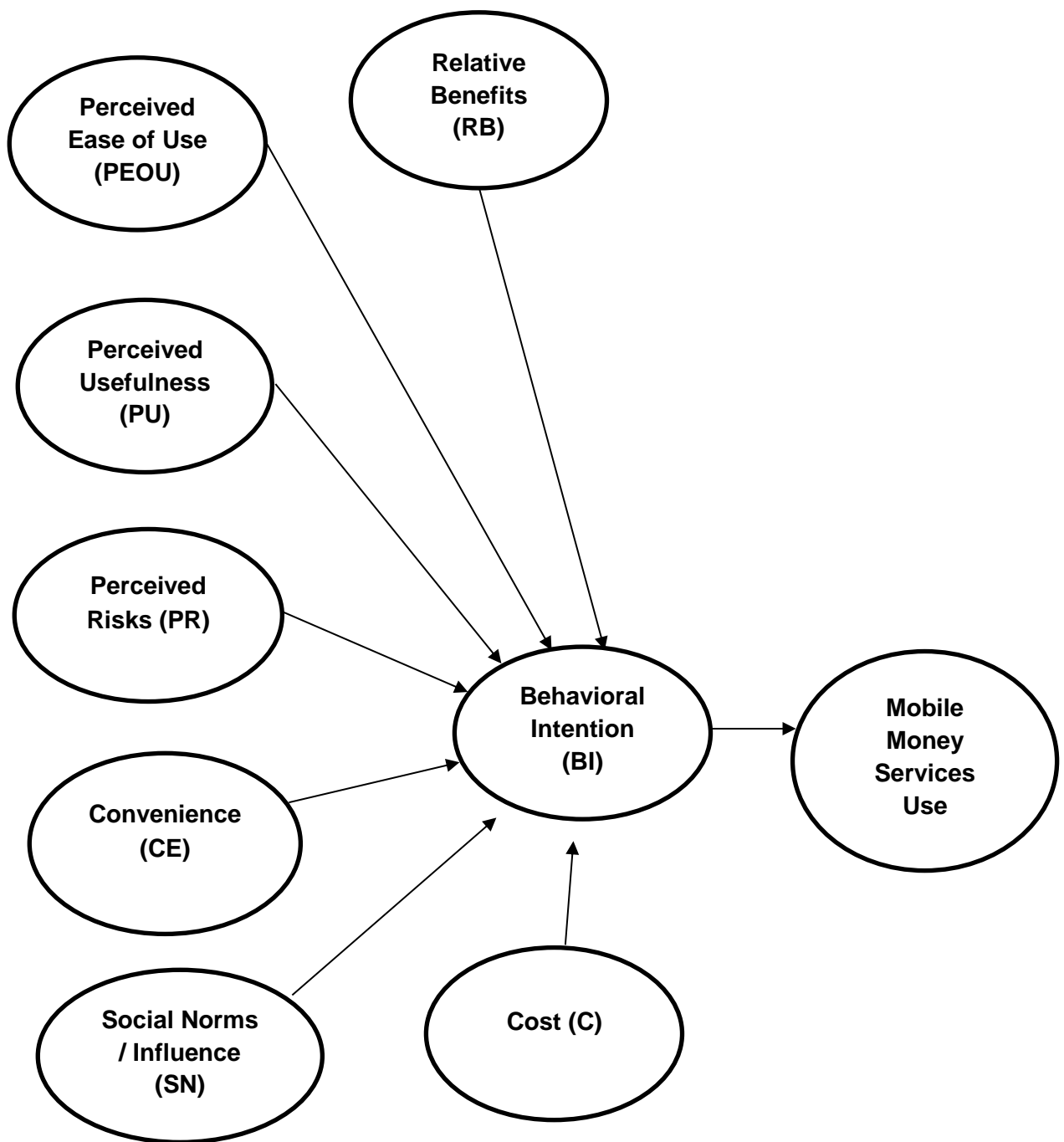


Figure 1.6 Conceptual Model

1.12 Hypothesis

This study is going to test the following hypotheses;

H₁: Perceived Ease of Use (PEOU) has a positive significant relationship towards mobile money services adoption.

H₂: Perceived Usefulness (PU) has a positive significant relationship towards mobile money services adoption.

H₃: Perceived Convenience (PC) has a positive significant relationship towards mobile money services adoption.

H₄: Perceived Risks (PR) have a negative significant relationship towards mobile money services adoption.

H₅: Social Norms/Influence (SN) has a positive significant relationship towards mobile money services adoption.

H₆: Relative Benefits (RB) have a positive significant relationship towards mobile money services adoption.

H₇: Cost (CO) has a minimal relationship towards mobile money services adoption.

H₈: Behavioral Intention (BI) positively influences mobile money services use.

1.13 Research Methodology

According to Engel and Schutt (2014), research is a process through which intellectual discovery is done, the result of which can transform people's knowledge and understanding of the world. In this section, there is an outline of the research methodology, which looks at the research design, data sources, and analysis methods and data presentation. In order to address the problem statement, the research design and methodology were chosen in a way which could validate the empirical findings which have been attributed to the adoption of mobile money services. On the other hand, the research methodology highlights the tools and methods which are used during the research process (Rencher and Christensen, 2012).

1.13.1 Research Strategy

A survey approach is going to be used to collect data from mobile money users in Dewedzo rural community which is located near Rusape, a small town in Zimbabwe. Babbie (2013), defined research strategy as being the instrument made use of in addressing the research question hence meeting the objectives of this study which is recognized in the work of Saunders et al., (2011). Within this study, the researcher is going to design a questionnaire which is going to be used as a data collection tool in getting answers to the research questions, a strategy which was supported by Blumberg et al (2011).

1.13.2 Research Philosophy

The researcher's philosophy is based on the positivism approach since a hypothesis has already been stated and field study findings are going to be compared to what is stated in the hypothesis. Logical positivism is the basis upon which this quantitative research approach is founded and whose use is very popular in social sciences (Babbie and Mouton, 2007; Saunders et. al, 2007). The positivist approach has it that research should be confined to that which can be observed and measured objectively whilst completely ignoring the opinions and feelings of the study's participants (Vogt et al., 2014). A deductive approach is adopted in the research process.

1.13.3 Research Approach and Design

The proposed mobile money services adoption model makes use of existing variables which have been derived from prior studies by other scholars. It then can be noted that the variables are valid and reliable which deemed appropriate the use of the quantitative approach as supported by Blumberg, Cooper and Schindler (2008). A quantitative approach has been noted to be applicable whenever there is testing involved as opposed to its counterpart; qualitative which is more suited for exploratory studies, (Creswell, 2013).

It should be noted that within the context of this study and as per the framework of conducting quantitative research, the study will start looking at theories, and a hypothesis about the adoption of mobile money services, this will be followed by gathering of data from the real-world (field) after which the data will be analyzed statistically to either reject or support the research hypothesis (Field, 2009; Ryan, Scapens, and Theobald, 2002; Welman, Kruger, and Mitchell, 2005). The deductive approach is going to be used as a guide to who the study is going to be designed and how the results are going to be interpreted (Field, 2009; Welman, Kruger, and Mitchell, 2005). Objectivity is applied throughout the research process with findings being generalized to be representative of the entire population being studied.

1.13.4 Sampling Design

A portion or subset of a larger set that has been selected by a researcher for a study is known as a sample (Walsh, 2001). Target population, sampling frame, sample size and method are components of a sampling design.

1.14 Target Population

Burns and Bush (2000) define a population as the entire group under study as specified by the research objectives. Given the time constraint for completion of this study, limited financial resources and the vast geographic spread of homesteads within the rural communities, community members who are aged 18 years and above found at rural community shopping areas is the target population for this study.

1.14.1 Sampling Frame

Oates (2006, p. 95) defined a sampling frame as being “some kind of list or collection of the whole population of people (or events or documents) that could be included in your survey, from which you will choose a sample.” Within this study the following frame will be used, results of census survey conducted by ZNSA (2013) in Dewedzo rural community located in Rusape, Zimbabwe.

1.14.2 Sample Size

A total of 2,000 participants are going to be approached, this number satisfactorily meets the minimum requirements for testing models through multivariate techniques (Rencher and Christensen, 2012).

1.14.3 Sampling Method

Sampling methods can either be probability or non-probability with the former offering an equal chance to be part of the sample whilst the latter does not offer such (Zikmund, 2005). The following methods are examples of probability sampling, proportional sampling, cluster sampling, systematic sampling, and simple random samples (Oates, 2006). Purposive sampling, quota sampling, stratified sampling, and convenience sampling are some examples of non-probability sampling (Oates, 2006). Convenience sampling is going to be used within this study as the sample will consist of people who are easy to reach (Fowler, 2013); mainly those located at the community shopping centers. The use of this method has been found to be relevant when looking at adoption of mobile money services as evidenced by its use by previous scholars such as Amin et al (2006), whose studies also looked at the said adoption within different communities.

1.14.4 Questionnaire Design

Oates (2006) defined a questionnaire as being “a pre-defined set of questions...assembled in a pre-determined order.” The questions will be structured according to the variables which are in the hypothesis, namely; relative benefits, perceived ease of use, perceived usefulness, perceived risk, social influence (norms) and cost.

1.14. 5 The Questionnaire (Likert Scale Method)

The data gathering tool of choice for this study is going to be a Likert scale survey questionnaire. The questionnaire will be designed to incorporate those variables which have been penned down by various scholars as being determinants of mobile money adoption in the various empirical studies that they did. The Likert scale was developed by Likert (1932), as a principal of measuring attitudes through asking participants to respond to series of questions about a topic, focusing on the extent to which they agreed with them (Garson, 2013). Thus, fixed choice response formats are used which are used to measure attitudes or opinions (Creswell and Clark, 2010). The rankings are going to show the extent to which the participants “Strongly Disagree” which is denoted by a ‘1’ to a scale of “Strongly Agree” which is denoted by a ‘5’; using a five-point scale for the structured questionnaire. It is assumed that participants will choose “Strongly Agree” as a way to show their agreement with a statement and “Strongly Disagree” to express their disagreement with a given statement.

1.15 Data Collection

Working with my two research assistants, questionnaires will be handed out to willing participants within the vicinity of the rural shopping centers within the Dewedzo rural community. Due to the very limited internet access within rural communities, it is deemed not appropriate to use a medium such as E-mail to send and receive the questionnaires. The use of a structured questionnaire will facilitate a wider reach to participants which will increase confidence in the research sample, a view which is shared by Neuman (2011). Punch (2013) went on to note the strength of using a structured questionnaire being that participants will be responding to the same questions using preset responses, which is not the case when using open ended questions which will allow users to respond in different ways which could potentially cause problems when it comes to interpreting the responses statistically.

1.15.1 Data Analysis Approach

The main types of data to be drawn from this research are numbers, as a positivist researcher, data analysis will involve looking at patterns in the data and draw conclusions (Oates, 2006). The survey data is going to be input and analyzed using SPSS Version 22.0 which was found to be ideal due to its statistical capabilities as

well as common use within the social sciences field (Babbie and Mouton, 2007; Bryman and Bell, 2015; Field, 2000, 2005, 2009, 2013). The researcher is going to get assistance from Dr. Richardson Shambare on how to effectively analyze the results and present the outcome using SPSS.

1.15.2 Data Analysis Procedure and Statistical Approach

Structural equation modeling (SEM) is going to be used for validation of the proposed model (hypothesis). Some scholars who have studied adoption of mobile money have preferred using it due to its superiority over other methods such as multiple regressions (Gefen, Rigdon and Straub, 2011). Gefen, Rigdon and Straub (2011) noted that SEM incorporated statistical techniques which facilitated a simultaneous investigation of relationships between multiple independent variables and multiple dependent variables. SEM will be able to analyze relationships between measured and latent variables as well as estimating and testing a theoretical relationship between variables affecting the behavioral intention to use mobile money services.

PLS-SEM has been chosen as the tool for the analysis mentioned above, which is in line with a suggestion by Gefen, Rigdon and Straub (2011) who advocated for its use when no formative scales are used in the research model. Smart PLS 2.0 M3 is the software package that is going to be used for the quantitative data analysis, being free of charge in comparison to its rival packages such as LISREL and Amos which come at a cost, it also includes PLS-SEM technique required for this study. The model evaluation is going to be done by going through the following steps which have been effective in testing Mobile Financial Services adoption models (Tossy, 2014);

- i. Collinearity among exogenous variables will be evaluated. Each set of predictor variables will be examined separately for each subpart of the structural model for significant collinearity. Therefore, collinearity between PC, PR, CN, RB and C will be assessed.
- ii. Next, significance and relevance of the structural model relationships will be assessed.
- iii. Level of R2 will then be assessed. The larger the value of R2 the better the model explains the variance of a given construct.

- iv. Effect size will be assessed (effect size is the measure of the impact of a predictor construct on an endogenous construct).
- v. Predictive relevance will be assessed (predictive validity of the model will be the outcome).

1.15.3 Pilot Testing Questionnaire

As supported by Malhotra (2011), scholars have made it a shared practice that a questionnaire will not be used without being “pilot-tested.” The importance of pilot-testing a questionnaire is summed up by Blaxter, Hughes and Tight (1996, p.122) who stated that, “You may think that you know well enough what you are doing, but the value of pilot research cannot be overestimated. Things never work quite the way you envisage, even if you have done them many times before, and they have a nasty habit of turning out very differently than you expected.”

1.16 Hypothesis Testing

Path analysis will be applied to specify the path coefficient and significance levels of the relationships between the proposed model constructs.

1.16.1 Validity and Reliability

Punch (2013) defined, validity as the extent to which a measure accurately represents the concept it claims to measure, whereas reliability is the degree to which an instrument measures the same way each time as long as it is used under the same circumstances and subjects. Carmines and Zeller (1979) noted that it would be next to impossible for an instrument to be 100% valid, with degrees being used as a general measure of validity. The instrument to be used in this study is a questionnaire which is to be subject completed. The questionnaire will be considered as being reliable only if the same result is obtained repeatedly when it is re-administered. In this regard, usability looks at the ease with which the questionnaire will be administered, interpreted by the subjects and the researcher. Usability problems are then addressed by looking at validity and reliability (Carmines and Zeller, 1979). How long an instrument takes to administer as well as problems which have been previously reported by other researchers are some of the usability problems that need to be addressed (Creswell, 2013). Creswell (2013) recommended the use of developed, tried and tested instruments.

Over the years, measures have been devised which ensure reliability and validity of research findings (Creswell, 2008). In this study, the instrument (questionnaire) to be used will conform to the following;

- (a) Protocol for questionnaire design
- (b) Protocol while administering a questionnaire
- (c) Measures to ensure data integrity
- (d) Measures to ensure validity and reliability (appropriate analysis strategy)

1.16.2 External Validity

This looks at the extent to which results from a research can be generalized from the study's sample population to the whole population. A sample population representative of the whole population ensures that external validity is there (Creswell, 2013).

1.16.3 Internal Validity (Content Validity)

The appropriateness of the content of an instrument is known as content validity (Creswell, 2013). The measure needs to accurately assess what needs to be known in order for it to be valid.

1.16.4 Cronbach's Alpha

Cronbach's alpha (α) coefficient has been traditionally used to measure internal validity and consistency reliability (Cronbach, 1951). This is a very commonly used coefficient when measuring reliability of a single administered test. It has been noted, however that items used in the test need to be tau-equivalent for coefficient alpha to be an unbiased estimator of reliability (Lord and Novick, 1968). "Tau-equivalent" has been described as being when the difference between the true scores for any pair of items is a constant and the items have equal true score variance, though they may have unequal error score variances, (Lord and Novick, 1968). Cronbach alpha values from 0.6 to 0.7 are deemed the lower limit of acceptability as recommended by Hair et al. (1998). An alpha of more than 0.7 would indicate that the items are homogeneous and measuring the same constant which is supported by Nunnally (1978), who noted that scores above 0.8 were considered very good.

1.17 Limitations of research methods and their mitigation

Ghuri (2005) and Kumar (2008) cited one of the advantages of using secondary sources of data as being cost saving in comparison with other means of data collection. Cost is a major limitation in this current research as all research is self-sponsored. Cost on its own has determined the ceiling for the number of questionnaires which are going to be distributed during this study. There is lack of data quality control as noted by Saunders (2011). Academic data collected is meant to address specific questions that the writer will be looking at and this means such data might not be really appropriate for meeting the objectives of this current research and this view is supported by Denscombe (2008). With some of the data written for other case studies outside Zimbabwe, its appropriateness comes into question when looking at the current study. However, secondary data is going to be useful as a basis for comparison with the findings of the study that is to be conducted (Kumar, 2008). Accuracy of data is always a concern, hence reference on the significant facts will be made to data published by Econet, Telecel, NetOne, Government publications, Reserve Bank and other authoritative organizations, such data is reliable and accurate argues Kumar (2008).

Kumar (2008) raises a very important question of how up to date the secondary data is considering the time needed to collect; analyze and tabulate the results. In some cases it can take up to three years to publish findings and by that time factors could have changed resulting in the publication being outdated.

1.18 Ethical Considerations

To maintain high ethical standards, the following measures were adhered to:

- (a) Informed consent and right to withdraw – The issue of how to treat research participants has been a subject of discussion with scholars debating on the right of participants' subjects to decide, without any pressure or constraint in a fully informed manner, whether or not they would want to be part of a study (Faden and Beauchamp, 1986). All participants are to be made fully aware of the nature of the research and how they are to participate in the study. This will involve highlighting to the participants that they are free to stop participating at any time during the course of the field study. As argued by

May (2011), some participants might be reluctant to state that they no longer want to continue during the field study. To counter this, the researcher and his assistants are going to be vigilant and be on the lookout for expressions of reluctance to continue to participate during data collection, such as an apparent lack of interest or irritation with the data collection (Langston et al, 2004; Rodgers, 1999). No respondent will participate without their express consent as their participation will be strictly on a voluntary basis. Informed consent seeks to protect participants' basic rights, through safe guarding them from mental or physical harm which could befall them during their participation (Bryman, 2012).

- (b) Dignity and privacy – The basic human right to dignity will be upheld during the field study. No participant will be subjected to any embarrassment. Participants' identities will not be requested so as to protect them from being identified as much as phone numbers or names will not be requested from the participants. The above are supported in the work of Creswell (2013) who also noted the need to uphold them for the purpose of conducting a social science related field study
- (c) Honesty – It is the researcher's principal to report without altering the results of the field study, as such no attempt will be made to manipulate the results so that they can support any view point
- (d) Prior authorization and clearance is going to be sought from the Commanding Officer at Dewedzo Police Post and from Chief Dewedzo who is the ruler of the area in which the study is going to be done.

1.19 Incentives

The trend nowadays has been a decline in response rates in surveys (Hansen, 2006; Curtin, Presser and Singer, 2005; de Leeuw and de Heer, 2002). Goritz (2004) found that financial incentives were once thought to have an effect of increasing the response rates; however on their application, the response rates have been found to be relatively low. Bonke and Fallesen, (2009) argue that financial incentives result in small increases of a quantitative (more respondents) nature whilst the impact on the qualitative (respondents' responses) outcome would remain unknown. There really is

no consensus when it comes to whether or not participants have to be paid for their cooperation with some researchers arguing that participants should be paid for their time and effort; whereas others argue that payments will encourage the less fortunate participate for the wrong reasons (Wright et al, 2004; Ensign, 2003). In order to prevent biased responses, no incentives will be offered to participants for their cooperation. It will be made clear from the outset that the participants would be involved out of their free will with no obligation to participate and withdrawal is open at any stage of participation. With the target population being rural based (where most people are impoverished), it should be noted that not offering incentives will be a very difficult thing (Smyth, 2004; Ensign, 2003). It should be noted as well that whilst payments are no restricted to money or gifts, some researchers compensate participants for their time using food (Smyth, 2004), which would have been the most appropriate considering the area to be studied, however due to limited financial resources, the researcher cannot afford to do the same.

1.20 Conclusion

The mobile money services phenomena is seeing millions of US dollars exchanging hands within Zimbabwe on a yearly basis. Others have predicted that the usage of mobile money will continue to rise as the masses do not have trust in the formal banking institutions. With the majority of adults in Zimbabwe now residing in the rural areas characterised by the absence of formal banking services, this study seeks to come up with a model which explains why mobile money is being adopted; this is in line with combating financial exclusion at current area of concern for the United Nations (UNSGSA, 2014). It seems that most of the research which has been published thus far has been based on empirical studies done by authors who do not reside on the African continent, and they came up with variables which have a causative effect in either adoption or rejection of mobile money services, this study seeks to test those variables using a survey approach.

The field survey outcome is going to be subjected to statistical measures in order to draw meaning from it. The researcher seeks to assist legislators, MNOs and other stakeholders who are part of the mobile money ecosystem in coming up with affordable solutions to the financially excluded. It is the researcher's passion to find

simple solutions to complex problems which will become readily available at affordable pricing for those who are economically marginalized.

2.1 Literature Review (Sub-Saharan Africa)

2.1.1 Introduction

GSMA (2010) defined mobile money as a service which makes use of a mobile phone to access financial services. In a publication by Ernst & Young (2009) mobile money is defined as being services that allow electronic money transactions over a mobile phone and denoted that mobile money can be referred to as mobile wallet, mobile payment or mobile financial services. Jenkins (2008) defined mobile money as money that can be accessed via a mobile phone. In its “State of the Industry Mobile Financial Services for the Unbanked 2014” report, GSMA makes the distinction between the various mobile financial services as follows;

MOBILE MONEY	MOBILE INSURANCE	MOBILE SAVINGS	MOBILE CREDIT
<p>Mobile money uses the mobile phone to transfer money and make payments to the underserved.</p> <p>The MMU team tracks mobile money services which meet the following criteria:</p> <ul style="list-style-type: none"> • The service must offer at least one of the following products: domestic or international transfer, mobile payments including bill payment, bulk disbursement, and merchant payment. • The service must rely heavily on a network of transactional points outside bank branches <p>and ATMs that make the service accessible to unbanked and underbanked people. Customers must be able to use the service without having been previously banked. Mobile banking services that offer the mobile phone as just another channel to access a traditional banking product, and payment services linked to a current bank account or credit card, such as Apple Pay and Google Wallet, are not included.</p> <ul style="list-style-type: none"> • The service must offer an interface for initiating transactions for agents and/or customers that is available on basic mobile devices. 	<p>Mobile insurance uses the mobile phone to provide microinsurance services to the underserved.</p> <p>The MMU team tracks mobile insurance services which meet the following criteria:</p> <ul style="list-style-type: none"> • The service must allow subscribers to manage risks by providing a guarantee of compensation for specified loss, damage, illness, or death. • The service must allow underserved people <p>to access insurance services easily using a mobile device. Services which offer the mobile phone as just another channel for the clients of an insurance company to access a traditional insurance product are not included.</p> <ul style="list-style-type: none"> • The service must be available on basic mobile devices. 	<p>Mobile savings uses the mobile phone to provide savings services to the underserved.</p> <p>The MMU team tracks mobile savings services which meet the following criteria:</p> <ul style="list-style-type: none"> • The service allows subscribers to save money in an account that provides principal security, and, in some cases, an interest rate. • The service must allow underserved people to save money <p>using a mobile device. Services which offer the mobile phone as just another channel to access a traditional savings account are not included.</p> <ul style="list-style-type: none"> • The service must be available on basic mobile devices. 	<p>Mobile credit uses the mobile phone to provide credit services to the underserved.</p> <p>The MMU team tracks mobile credit services which meet the following criteria:</p> <ul style="list-style-type: none"> • The service allows subscribers to borrow a certain amount of money that they agree to repay within a specified period of time. • The service must allow underserved people to apply for credit and <p>repay it more easily using a mobile device. Airtime credit products or services which offer the mobile phone as just another channel to access a traditional credit product are not included.</p> <ul style="list-style-type: none"> • The service must be available on basic mobile devices.

Figure 2.0 Mobile Financial Services (Source: GSMA 2015)

Etim (2014) made the generalization that mobile money refers to financial services that are conducted using a mobile phone or other mobile devices. As reported by Jenkins (2008), the IFC defines mobile money as money that can be accessed and used via a mobile phone. Within the Sub-Saharan Africa region, mobile money has been classified as either being transformative or additive (Etim, 2014). The former sees previously unbanked populations who have no bank accounts now being able to access financial services via their mobile phones through the services that are provided by MFIs, MNOs or other non-bank agencies (Porteous, 2006; Dias and McKee, 2010). Porteous (2006) and Dias and McKee (2010); have defined the additive model as being a situation whereby people with existing bank accounts now have access to mobile money services which allows them access to those bank accounts for the purpose of conducting activities such as view balances or transfer funds between accounts. According to Demombynes and Thegey (2012), 93% of the Kenyan population had mobile phones by March of 2012, with 73% of that population making use of mobile money services; and reportedly 23% of the same making use of the mobile money services on a daily basis. Oketch (2013) also noted that between the years 2011 and 2012, the number of mobile money subscribers in Uganda tripled from 2.9 million to 8.9 million which is humongous in comparison to the 4.9 million formal bank account holders in that country. Aginam (2014) cited a 2013 GSMA report in which it was reported that there were more mobile money subscribers than bank account holders in the following countries; Cameroon, Democratic Republic of Congo, Gabon, Kenya, Tanzania, Zambia and Zimbabwe.

A working definition used in this study to define the 'unbanked' is provided by Etim (2014) who argued that such people were typically found within the rural community setup in which the majority of the population would not have any bank accounts, and hence have no access to making deposits or applying for loans. Literature informs us that there are more people who have mobile phones compared to those holding bank accounts within Sub-Saharan Africa and reported by several authors (Weber and Darbellay, 2010; Etim, 2013). Etim (2014) took note of that aforementioned fact as being the basis for the success of the transformative approach should it be successfully implemented.

The underlying technology (a product called Mobiquity Money) behind mobile money in the Middle East, Asia, Latin America and Africa is provided by Mahindra Comviva who has become the leader in Africa's mobile money market boasting of 45

deployments in 32 countries as reported in the 2016 Nilson Report. One of the said deployments is EcoCash which has a network of agents where users initiate a cash-in transaction to open an account then convert their currency to emoney; with the same agents performing cash-out transactions through converting to the emoney to local currency (Nilson Report, 2016). Mobiquity Money is able to process transactions from multiple channels including the following, mobile apps, SMS, IVR, USSD, online consumer portals and NFC; and collectively the deployments processed transactions averaging more than USD\$4 billion per month. EcoCash platform processes person-to-person transfers, bill payments, international remittances, NFC-based payments; and savings and credit accounts (EcoCash, 2014). According to the Nilson Report (2016), EcoCash has managed to generate on average USD\$6.6 billion in transaction volumes accounting for 47% of Zimbabwe's GDP. EcoCash's integrations with banks in Zimbabwe allow consumers and merchants to receive money in their mobile accounts and then make transfers to their bank accounts and vice versa.

Etim (2014) asserted that the key to the success of the transformative approach lies in the fact that MNOs have seen the opportunity to provide financial services to the unbanked populations by making it possible for people to conduct financial transactions using basic phones via USSD for example (Etim, 2014). It has been reported that mobile subscribers in Southern Africa and Kenya who do not have access to bank accounts are now making use of mobile money services such as acceptance of salary disbursements, receiving money from the diaspora (EcoCash diaspora), pay for groceries, pay for hospital bills (Pariirenyatwa General Hospital in Harare is one such example now accepting this form of settling patients' bills), and pay fares on public transport.

The following table shows the relationships and services offered by the main participants within the mobile money services ecosystem.

Participant	Access, Capabilities and Roles
MNOs	<ul style="list-style-type: none"> • Provide mobile network infrastructure • Aggressively build large customer bases by marketing to low-income groups products such as airtime and pay-as-you-go mobile phone services • Generate revenue mostly through mobile payments, send/receive monies transaction fees, interest earned on floats, commission on B2B transactions and opening new accounts for partner banks
Banks	<ul style="list-style-type: none"> • Banking infrastructure and licenses • Facilitate the clearing of funds and foreign exchanges • Access to Central Bank's resources and monitoring • Compliance with many financial regulatory practices • Back MNOs with funds/line of credits as well as partner with them to recruit new customers
MFIs (Microfinance Institutions)	<ul style="list-style-type: none"> • Provide easier access to different types of microloans for low-income groups though often at high rate of interest • Direct impact on small business development entrepreneurship
Government Policy Makers and Regulators	<ul style="list-style-type: none"> • Ability to make policies that directly impact other participants • Ability to impose regulations and provide monitoring
End Users	<ul style="list-style-type: none"> • Having their financial needs met particularly where access to bank products is either denied or unavailable • Reduced the risk of traveling without carrying cash • Convenience of making payment for goods and services • Ease of sending and receiving money, remittances and handling other financial transactions

Table 2.0 Key Participants, Capability and Roles in Mobile Money

(Source: Etim, 2014)

Within this study, Safeena, Hundewale and Kamani (2011) definition of adoption which means acceptance and continued use of a particular product or service is used. Several authors have argued that customers go through a process of knowledge, persuasion, decision and confirmation before they can adopt any product of service (Rogers and Shoemaker, 1971; Sathye, 1999). It thus follows that a product or service can only be adopted or rejected after a potential customer becomes aware of it.

ISACA (2011), noted nonexistence of a clear separation of roles within the mobile payment ecosystem as financial institutions are competing head-on with MNOs for a huge chunk of the fees payable (determined by who will be holding the customer account) for the various transactions done through mobile money services. The same lack of clarity has resulted in bank-centric and nonbank-centric entities within

the mobile money ecosystem (ISACA, 2011). In the former, the customer's account is held by the bank whereas in the latter the account is held by a nonfinancial entity such as an MNO.

2.2 Population Distribution in Zimbabwe

According to Zimbabwe National Statistics Agency's Zimbabwe Population Census 2013 Report, 67% (8 777 094 people) of Zimbabwe's population resides in rural areas even though all the provinces have both rural and urban areas were as 33% (4 284 145 people) reside in urban areas, (ZNSA, 2013). As reported by "The FinScope Consumer Survey 2014" the 70% of Zimbabwe's adult population are now resident in rural communities (see Figure 2.1 below). With the continued economic meltdown which has resulted in company closures, the trekking of adults from urban to rural areas is on the increase as people look for ways to make a living.

2.3 The Past and Present

The history of mobile money can be traced back to 2003 when a service known as SMART Money was launched in the Philippines (Mas and Radcliffe, 2010). On the other hand, M-PESA was the first mobile money system in Africa launched in 2007, and according to Mbiti and Weil (2013), 40% of Kenya's adult population have either sent or received a text message generated by this system. The name M-PESA is coined from the Swahili word, "Pesa" which means cash whilst the "M" stands for mobile (Etim, 2014). It is estimated that 18 million users are registered users of the M-PESA system, which is a sharp contrast to 7 million who hold a debit card (Kasekende, 2014). It has been reported that M-PESA gained 2.37 million subscribers in about a year (Jenkins, 2008). As reported by Jack and Suri (2011), results of a survey done in Kenyan households in 2008 reviewed that 43 percent of the participants indicated that they used M-PESA; and in a repeat study which was conducted in 2009 an estimated 70 percent of the participants indicated that they were M-PESA users. With a staggering plus 12 million M-PESA customers and 16 000 agents spread across Kenya in 2010, Safaricom's M-PESA truly became the leading mobile money service provider within the Sub-Saharan region (Dias and McKee, 2010).

Furthermore, as of July 2012, Safaricom's M-PESA reported that they handled mobile money transactions to the tune of an estimated USD\$2.15 billion (over 185 billion Kenyan Shillings) through their control of 68 percent of the mobile money market within Kenya (Etim, 2014). According to Etim (2011), M-PESA has provided a solution for banking the previously unbanked rural populations whose communities are characterized by the limited presence of bank branch networks, and in the process this has created thousands of jobs for agents dotted across Kenya. The transformative model of M-PESA has seen that approach significantly contributing to its success within Kenya as it has allowed people who do not have bank accounts to access financial services as customers can now "convert" their cash into mobile money through participating dealers and or agents (Etim, 2014). The PIN protection as well as customer support service which is available on a 24/7 basis has also brought developed trust on the M-PESA users (Hughes and Lonie, 2007). On the contrary, the model which has been adopted for mobile money services in West Africa is an additive one which has seen a lower adoption of mobile money services as only those people with bank accounts are able to subscribe to making use of mobile money services (Etim, 2014). In a study conducted by Etim (2014) in Nigeria (most populous country in West Africa and has until recently been the biggest economy in Africa), through focus group interviews, it was found that the participants did not see any relevance in using mobile money services as they did not hold any bank accounts. A fewer of the participants highlighted that the fees that the banks were charging for making use of the mobile money services were exorbitant hence making the service unaffordable to most. Participants' preference to Western Union or Money Gram services was profound as these provided a readily available alternative for receiving money from relatives both inside and outside Nigeria without having to open a bank account as a prerequisite to making use of mobile money services offered by the banks (Etim, 2014).

However it needs to be noted that whilst M-PESA has been very successful as has been extensively reported by many authorities, it has not been without a disgruntlements and lot of complaints from its own agents. In an interview conducted by this researcher with an agent at one of the M-PESA outlets in Nairobi; the participant raised concern over the lack of any insurance or added security for the hordes of cash that she handled on a daily basis. According to the interviewee, she had to stock pile money in her tiny shop which she received from customers

“converting” to electronic money, and went on to use for cashing out, whilst bearing the full risk that should she be robbed there would not be any recourse from Safaricom making her solely liable for such a loss. Considering that the interviewee assisted between 100 and 150 customers on a daily basis (a transaction book was availed for viewing as evidence of these) on a very busy street, the amount in question is a lot such that recovering from a total loss through a robbery would be next to impossible; in the meanwhile no loss would have been incurred by Safaricom as the money would have been already “converted” to electronic form.

With M-PESA controlling 68 percent of the mobile money market share, this has posed a threat to alternative players such as Mobikash and Tangaza who are also offering mobile money services in Kenya. Dominance by one player within the market is not healthy, and as reported by Etim (2014), the World Bank called for interoperability among the MNOs so that all operators have a chance of operating across the networks and expand their reach; which is a similar call which has been made by Zimbabwe’s ICT Minister in which he firstly encouraged then threatened Econet to share the use of its base stations with rival but smaller MNOs; namely NetOne and Telecel as reported by Makura (2015). Similar to the case of Safaricom, Econet has not implemented this call and these two MNOs remain giants within Kenya and Zimbabwe respectively. The World Bank’s advocacy for sustainable financial inclusion solutions has seen this world body engage Sub-Saharan countries and Nigeria with a view that those countries would come up with regulations that help structure mobile money services within the regions (Etim, 2014). Furthermore, the World Bank’s objective is to prevent a single provider such as Safaricom or Econet, for example, from taking advantage of their dominance within the market which could potentially lead to price controls.

The ITU (2013) reported that interest in mobile money is very high within developing countries when compared to developed ones, this is mainly because in the latter, more people have bank accounts hence to such people mobile money is just another add on to the various existing payments channels. Within the developed economies in which smartphones have been adopted; the trend nowadays is a move from the use of debit and credit cards to smartphone based payment options. (Etim, 2014). Etim (2014) reported that a predicted USD\$1 trillion is going to be transmitted through mobile payments within the developed economies. Emerging economies on

the other hand, within Sub-Saharan Africa, are coming up with ways of making use of 2G and 3G phones to conduct financial activities, which is contrary to the developed nations where a transition is happening, seeing smartphone users who conduct cash-based transactions adopt digital payment methods such as the bitcoin (Hughes and Lonie, 2007; Jack and Suri, 2011; Bold, Porteous and Rotman, 2012; Donovan, 2012; Ehrbeck, Pickens and Tarazi, 2012). The adoption of smartphones within Sub-Saharan Africa has been slow as they are quite pricey compared to the 2G and 3G phones (Etim, 2012; Donovan, 2012; Bold, Porteous and Rotman, 2012). Aker and Mbiti (2010) have noted the evolution of mobile phones in Africa from being mere communication tools to becoming service delivery platforms. Several authors have asserted that the second (after communication) most important use of mobile phones within Sub-Saharan Africa is for accessing mobile money services (Jenkins, 2008; Ehrbeck, Pickens and Tarazi, 2012; Bold, Porteous and Rotman, 2012).

Mobile money has been seen as an empowerment tool for the rural populations (Maurer, 2012). The spread of basic phones within Sub-Saharan Africa has been noted to have a transformative effect on the emerging economies (Bishop et al., 1999; Butler, 2005; Elijah and Ogunlade, 2006; Ssewanyana, 2007). Economic growth and stability of emerging markets as well as poverty reduction have been noted as some of the positives of mobile money usage. Studies have been carried out which looked at whether positive economic development had a direct link to the impact of adopting phones (Hardy, 1980). On a macroeconomic level, financial constraints on the poor have been linked to slow economic growth and are an enzyme to inequality (Demirgüç-Kunt, Beck, and Honahan 2008). Besides offering financial inclusion to the poor, mobile money is expected to improve productivity by increasing the efficiency and lowering the cost of transactions, improving security, generating new employment opportunities, and creating a platform on which other businesses can grow (Demirgüç-Kunt, Beck, and Honahan 2008). Studies have been done which have shown that there is a positive relationship between mobile money adoption and financial inclusion (Porteous, 2006; Jenkins, 2008; Bold, Porteous and Rotman, 2012).

According to a 2015 report by the African Business Central the world's economic growth is shown in Figure 2.1 below; there is a clear indication that Sub-Saharan Africa is leading the rest of the world.



Figure 2.1 World economic growth, 2015 (GDP real % change, year on year)

(Source: The Economist Intelligence Unit)

Growth within the developing economies far surpasses that in developed ones with South Africa and Nigeria collectively having 63% of Sub-Saharan Africa's total GDP.

Within developing countries, mobile money has become a game changer in the absence of formal brick and mortar branch networks. According to Lawson (2015), globally 103 million mobile money users have been recorded and this number continues to grow with increased access to cheap mobile handsets. The high penetration rate of mobile handsets has been acknowledged by many authors as one of the factors that have influenced the adoption of mobile money in developing countries (Boadi et al., 2007; Donner, 2007; Cruz et al., 2010).

As with others stated before, Kasekende (2014) also noted that increased mobile phone usage has seen an increase in the use of mobile money which has seen the decline in the number of those who were previously financially excluded. Findings from a study done by Penicaud and Katakam (2013), 2012 saw more people being registered for mobile money services than bank accounts in Uganda, Tanzania, Kenya and Madagascar. The results of a 2012's worldwide mobile money survey carried out by Davidson and Penicaud (2011) showed that 80% of mobile money transactions were done in East Africa in 2011. The mobile money services developments in West Africa have spread to Sub-Saharan Africa, and significant usage has been seen in Zimbabwe; however there does not seem to be much

literature available around this development (Mukandatsama, 2013). According to GSMA (2014) the highest proportion of mobile money registered accounts is found in Sub-Saharan Africa which is reported as illustrated in Figure 2.2 below;

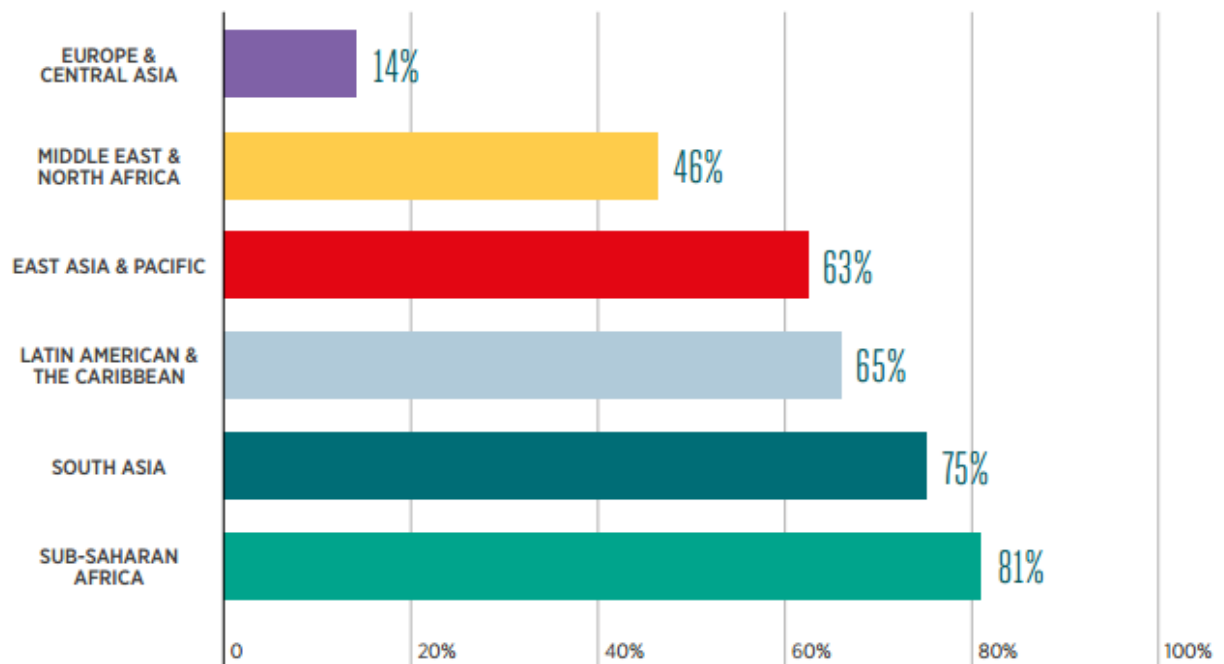


Figure 2.2 Percentage of developing markets with mobile money per region

(Source: GSMA, 2014)

Financial exclusion is prevalent within the rural communities in Zimbabwe; this is a phenomenon the World Bank (2008) has defined as the “absence of price or non-price barriers in the use of financial services”. Mobile money extends financial services to the unbanked poor (Dermish, 2011; Donovan, 2012). Mobile payments value is higher within Africa because of the prevalence of the unbanked populations as depicted in Figure 2.3 below;



Figure 2.3 Mobile Payments Transaction Value by Region 2009 – 16 (\$bn)

(Source: Gartner)

As reported by Ventures Africa (2015), WorldRemit has predicted that \$33 billion will be sent to sub-Saharan Africa through mobile technology this year, 2015, with Nigeria taking more than half of that figure. There are reportedly 261 mobile money service providers, and half of these are found in Sub-Saharan Africa (Ventures Africa, 2015). Africa continues to lead the world in the adoption and use of mobile money, and this trend is expected to continue as reported by Ventures Africa (2015). In 2015 African Development Bank stated that the average mobile money penetration rate stands around 33 percent in Africa. Besides the financial inclusion that has been brought about by mobile money, Africa is saving \$2 billion yearly which could have otherwise been spent on inefficient transfer means (Ventures Africa, 2015). With one billion people of the world's two and a half billion unbanked people having access to mobile phones, mobile phones adoption across Africa has created a value proposition for mobile money as each mobile handset presents a potential for mobile money adoption hence reducing financial exclusion (Ventures Africa, 2015).

2.4 Rural Areas

Kendall and Sonnenschein (2012) took note of findings from a 2012 Gallup research initiative which noted that the unbanked populations are predominantly resident within rural communities in developing countries. It was further noted that quantifying the rural and urban gap was not without its own difficulties; for one thing, what distinguishes rural and urban areas is not clear cut. As an example, if population size were to be used as the criteria for distinguishing rural and urban areas, an area in rural India could be considered to be urban within the context of a lesser populated country (Kendall and Sonnenschein, 2012). A consistent definition at global level of what defines rural areas is therefore not easy to come up with.

What defines rural areas has been a subject of debate as highlighted by Krause (2013) who cited the differing definitions from Murdock and Sutton (1974), Bunce (1982) and Wilkinson (1991). An attempt has also been made to define rural areas as those areas excluded from the definition of urban areas (Hawley, 1950, 1986). It has also been inadequate to define rural areas based on the numbers of those employed within the 'rural' industries such as agriculture and forestry as most people believe this does not capture the uniqueness associated with rural areas (Deweese, Lobao and Swanson, 2003). Furthermore, attempts to define rural areas using space and place have been quite difficult as they have relied on distance from a large urban center yet distances are linked to culture and geography (Deweese, Lobao and Swanson, 2003). A pictorial depiction (based on access to resources) of rural communities is show below;

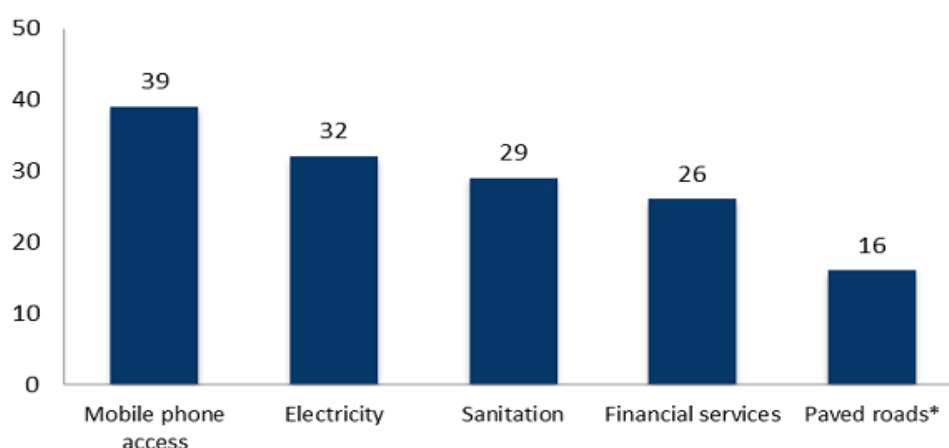


Figure 2.4 Access to resources by share of population in Sub-Saharan Africa

(Source: World Bank. Note: *percent of total roads)

It has been noted that a disparity exists when it comes to electricity supply between the urban and rural communities in Africa through a study which was conducted by Eberhard et al (2008) and whose findings are shown below in Figure 2.5.

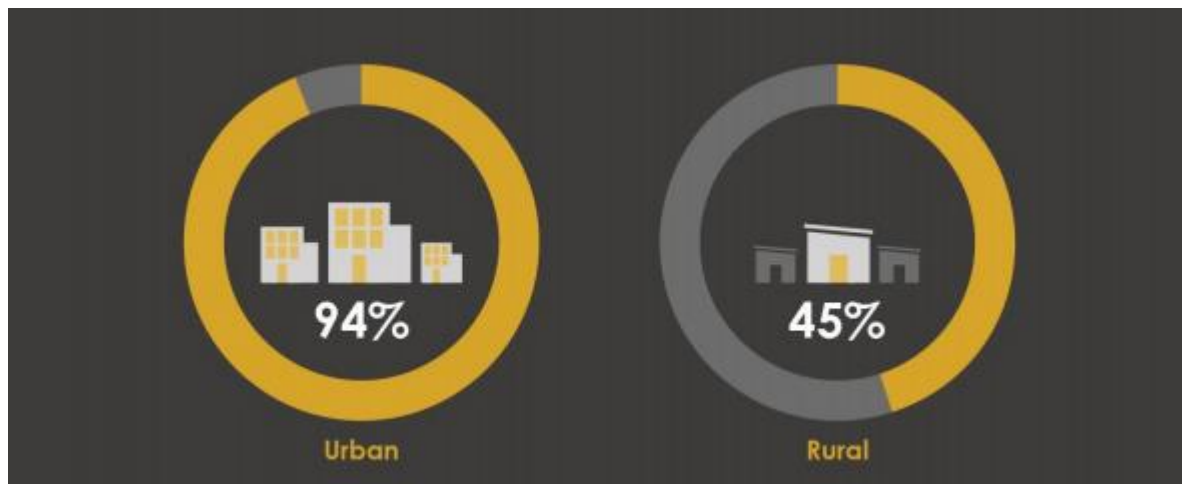


Figure 2.5 Urban-rural disparity in access to electric grid | 36 countries | 2014/2015

(Source: Afrobarometer 2016)

A position is therefore taken to use the definition provided by ZNSA as the definitions vary from those provided by similar agencies in other countries. Rural areas in Zimbabwe are therefore defined as being areas that do not meet the ZNSA definition of urban areas which states that urban areas are places which have 2 500 or more inhabitants, compact settlement pattern, more than 50% of the employed population is not within the agriculture sector and the places are designated urban areas (ZNSA, 2012).

According to Zimbabwe National Statistics Agency's Zimbabwe Population Census 2012 Report, 67% (8 777 094 people) of Zimbabwe's population resides in rural areas even though all the provinces have both rural and urban areas where as 33% (4 284 145 people) reside in urban areas, (ZNSA, 2012). According to Biljon and Kotze (2008) banks are mainly found in urban areas. Rural areas are thus characterised by the absence of bank branch networks, leaving inhabitants of such places financially excluded.

2.5 Mobile penetration in rural areas

The measure of the number of active mobile SIM cards on the market as a percentage of the total population of a country is referred to as mobile penetration rate. Gartner (2013), refers to this as the, “Number of (mobile) connections to a service divided by the population.” According to Etzo and Collender (2010), with Africa having over 350 million mobile phone subscribers, the growth in subscriber base is faster than anywhere else in the world.

Mobile phones are now being used for transferring money, delivering public health messages as well as monitoring elections while a large informal economy has now developed with people charging and fixing phones for a price as well as selling airtime (Etzo and Collender, 2010). Within the Zimbabwe context, Econet has significantly invested into its network and fiber-optic infrastructure working with its subsidiaries and associates which has seen milestone developments in Zimbabwe, with the mobile penetration having broken the 100% threshold (Econet, 2014).

As noted by POTRAZ (2014) in its 4th quarter report for 2013, the mobile penetration rate in Zimbabwe stood at 104.4% which is a 0.9% increase as recorded in the 2013's third quarter by the same agency and the same currently stands at 106% as noted in POTRAZ's 1st quarter report for 2014. The 2% jump has been so due to an increased Econet subscriber base. Econet now commands a subscriber base of 9 075 925 users solidifying its position as the largest MTO controlling 65.3% of the market share (POTRAZ, 2014).

With EcoCash increasing its popularity most Zimbabweans have consequently become Econet subscribers. It is important to note the effect of network externalities, which according to Katz and Shapiro (1985) are “products for which the utility that a user derives from consumption of a good increases with the number of other agents consuming the good.” Joining a network such as Econet which has the highest number of subscribers in Zimbabwe, thus making it the dominant firm, increases the EcoCash subscribers' utility and benefits of using the Econet network. Effectively that means that there is added incentive to joining EcoCash in comparison to rival MNOs such as Telecel and NetOne.

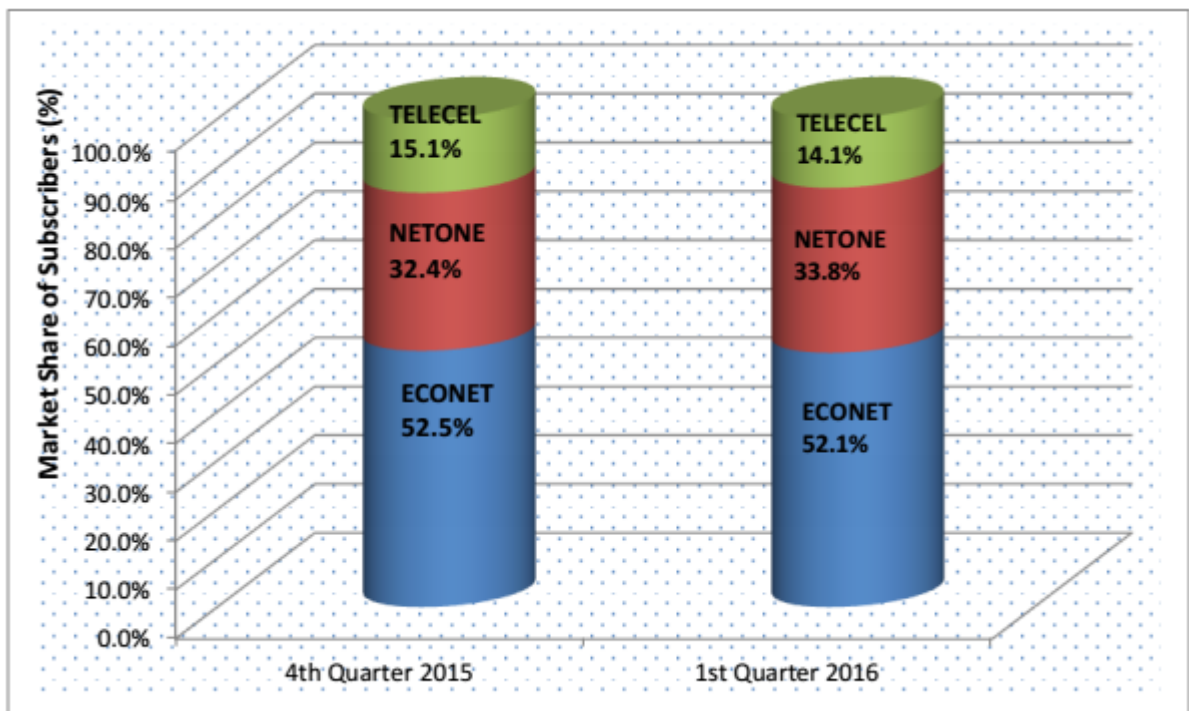


Figure 2.6 Market Share of mobile subscribers

The increased use of mobile money services has also been facilitated by increased accessibility to affordable mobile handsets being imported from China as well as affordable SIM cards (average cost is \$0.50), see Figure 2.7 below. Back around 2008, a SIM card in Zimbabwe used to cost around \$100 which was out of the reach of many people especially those based in rural areas (Chifamba, 2013). Powell (2014); notes that sub-Saharan Africa is the second largest market for mobile technology with the number of users estimated to reach 346 million by 2017 (Penicaud and Katakam, 2013). Econet's continued dominance within the mobile network industry has seen them continue to lead in terms of an active subscriber base.

	Percentage of households with at least one mobile phone in 2013	Average annual growth since 2008
Mauritania	96%	5%
Botswana	87%	3%
Senegal	82%	3%
Ghana	81%	6%
Zambia	81%	7%
Zimbabwe	80%	9%
Nigeria	78%	4%
Ivory Coast	76%	*
Uganda	76%	6%
Burkina Faso	73%	9%
South Africa	70%	-1%
Congo Brazzaville	68%	0%
Kenya	68%	3%
Mali	67%	7%
Chad	66%	2%
Cameroon	65%	1%
Ethiopia	64%	*
Tanzania	63%	5%
Rwanda	60%	7%
Angola	57%	0%
Benin	56%	3%
Guinea	54%	*
Malawi	54%	*
Sierra Leone	53%	5%
Congo Kinshasa	52%	*
Liberia	51%	5%
Niger	41%	5%
Madagascar	40%	3%

Figure 2.7 Gallup Survey Results

(Source: Gallup 2013)

As reported by Powell (2013) survey results from Gallup, above at least 63% of rural households have at least one mobile phone representing a 20% increase since 2007 putting Zimbabwe in the first spot in the mobile phone ownership in sub-Saharan Africa. This growth is also noted by Kachembere (2014), who added that its sustainability depends on how much is going to be invested by the MNOs to improve capacity in line with meeting increased demand. However it is notable in the 1st quarter report of 2014 by POTRAZ that total investment within the sector declined by 53% compared to the previous quarter. As such this trajectory growth pattern that

has characterised the period in question could slowly start declining due to restricted capacity.

Other factors which are attributable to this increased mobile penetration rate include the rural electrification programme, investment by Econet into more base stations being built around the country (cover 85% of the country), introduction of EcoFarmer, introduction of EcoCash (financial inclusion), unbundling of ZESA, and the wide spread distribution of agents.

“The 2015 Brookings Financial and Digital Inclusion Project Report” has suggested that developing countries need to remove barriers to accessibility, and affordability of smartphones by for example declassifying them from being “luxury goods” which subjects them to higher import duty hence pushing up the actual cost of purchasing those devices; this will increase accessibility to mobile money services.

2.6 Electricity Supply

According to Davidson and Mwakasonda (2004), most African countries fail to achieve meaningful development due to lack of reliable energy services. Due to poor infrastructure, unreliable electricity supply in Africa is a big problem as some base stations are powered by diesel generators (Aker and Mbiti, 2010). Nuclear power stations could have potentially been very useful for generating electricity in Africa as used on other continents however it is very uncommon and only available in South Africa (Davidson and Mwakasonda, 2004). The cost of setting up nuclear based power stations is very exorbitant and, and debate is currently raging on in South Africa regarding a proposed nuclear based power stations project which has been given an initial capital outlay of estimated ZAR1 trillion (Carte Blanche, 2014). Justifying such expenditure in any African country where most people live on a USD\$1/day or less is very difficult as critics see that as a waste of money that could have otherwise been used for provision of free or affordable housing and other physiological needs as noted by Maslow’s Hierarchy of Needs.

As reported by Oyuke, Penar and Howard (2016), a 2016 Afrobarometer study publication titled, “AD75: Off-grid or ‘off-on’: Lack of access, unreliable electricity supply still plague majority of Africans” delved into the day to day challenges of

accessing electricity within most of African countries. The report further noted how socioeconomic and human development continues to be impacted by the lack of reliable sources of electricity. Efforts are well underway to combat the issue of electricity, with high profile initiatives such as United Nations' Sustainable Energy for All partnership, Electrify Africa Act, Power Africa and the African Development Bank's New Deal on Energy for Africa being done so as to assist Africa combat the issue of electrification (Oyuke, Penar and Howard, 2016). As reported by Oyuke, Penar and Howard (2016), whilst looking at 36 African countries, it was seen that only for in ten Africans enjoyed reliable electricity supply whereas an estimated two-thirds of Africans reside in areas with access to an electric grid, which went down to nine in every ten people in some rural communities. It was further noted in the aforementioned report that being connected to the grid did not necessarily mean having access to electricity as exemplified by Nigeria, in which it was found that whilst 96% of households were connected, there were only 18% of such connections functioning more than half the time. This inconsistency is depicted in Figure 2.9 below in which 36 countries were surveyed.

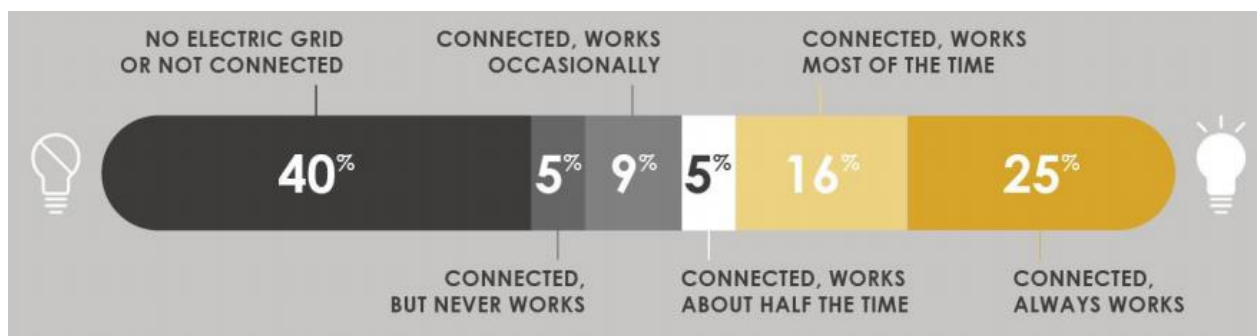


Figure 2.8 Household connection to electric grid – 36 countries (average)| 2014/2015

(Source: Afrobarometer 2016)

The majority of survey respondents believed that the unreliable electricity supply was mainly due to mismanagement by their respective governments which had consequently led to poor service, inadequate capacity or infrastructure which found to vary from country to country (Oyuke, Penar and Howard, 2016). Whilst reliable electricity supply is very important when it comes to economic development, the findings from the question on the “most important problems” faced by survey respondents in the surveyed 36 countries, curiously the results shown in Figure 2.9 say otherwise (Oyuke, Penar and Howard, 2016).

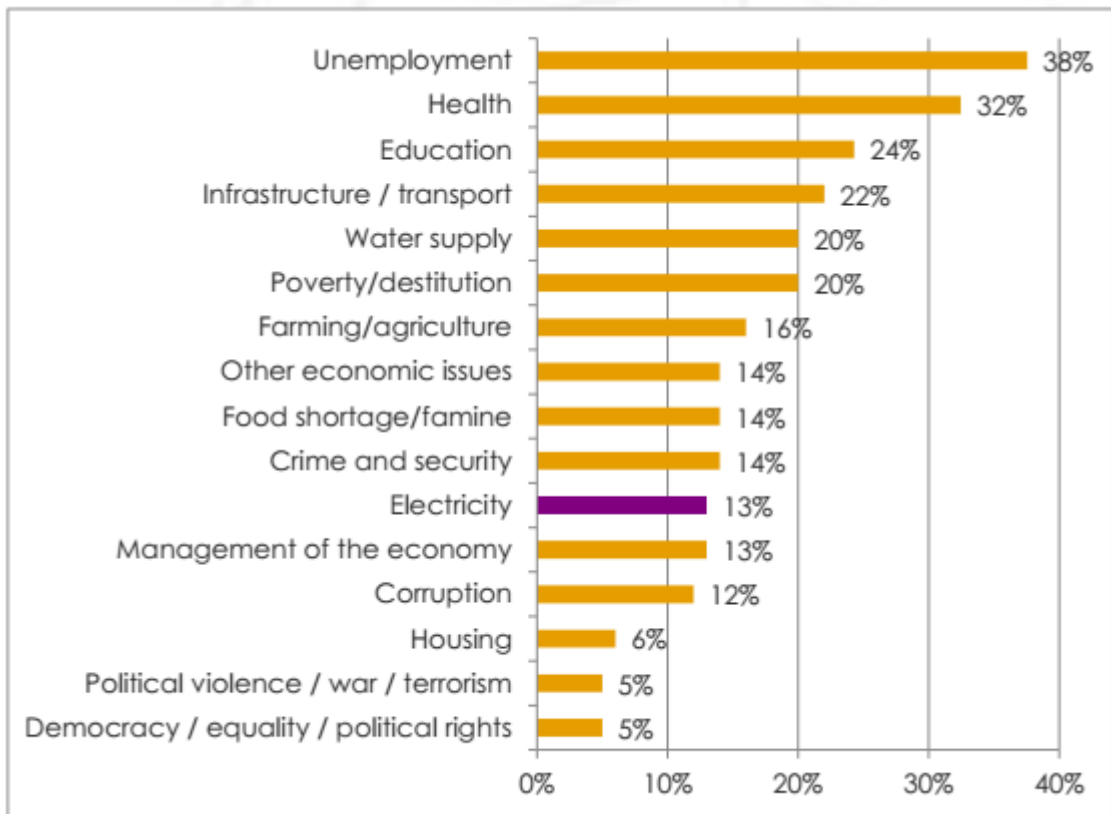


Figure 2.9 Most important problems | 36 countries | 2014/2015

(Source: Afrobarometer 2016)

On closer analysis of the surveyed countries as shown below, respondents ranked whether they saw unreliable electricity as the most important problem they faced in their countries with orange depicting that indeed electricity supply fell under the top 5 issues faced within a particular country.

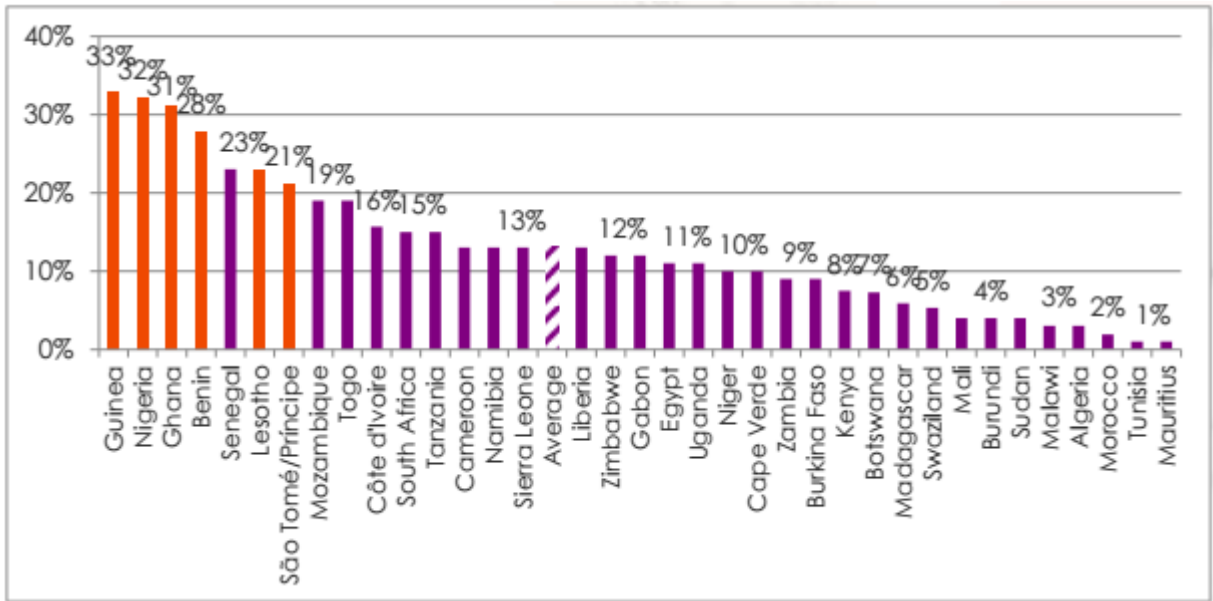


Figure 2.10 Most important problem: electricity | 36 countries |2014/2015

(Source: Afrobarometer 2016)

The International Energy Agency (2014), in its report noted that nuclear based power is mainly common in developed countries due to historical scientific advancement and the following nuclear power plants distribution map illustrates this.

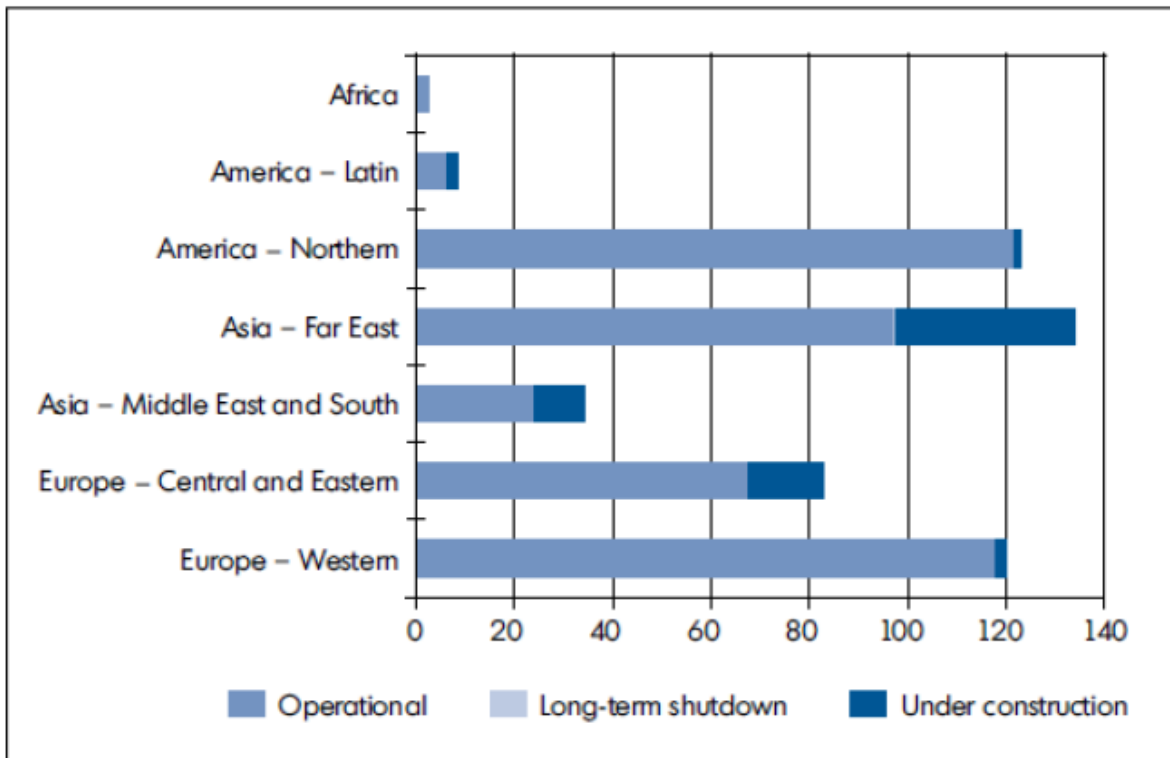


Figure 2.11 Nuclear Power Plants Distribution Map

(Source: International Atomic Energy Agency, Power Reactor Information System. The Database on Nuclear Power Reactors - 2013)

UNDP (2012) put the electrification rate in Zimbabwe at 20%, making 80% of the people unable to access this basic commodity and the majority of them in rural areas. In the past, energy requirements mainly in the rural areas Zimbabwe have been mainly in the rural areas have been met by the use of biomass, which accounts for 61% of the energy use in Zimbabwe. This over reliance on an unclean energy source has raised concern over environmental degradation as trees were cut down for firewood (UNDP, 2012). This modest electrification has had a major adverse effect on the development and adoption of payment systems within the rural communities leaving rural populations totally unbanked (RBZ, 2013).

Since independence in 1980, Zimbabwe's electrification strategy has focused on the expansion and growth of urban areas expending a great deal of resources on these communities. This strategy has impeded the provision and development of infrastructure required to support payment systems in the rural areas (RBZ, 2013).

ZESA's has however more recently revised its strategic objectives and now focus on total electrification of all areas across Zimbabwe (Davidson, and Mwakasonda, 2004). Established through an Act of Parliament (Chapter 13:20) of 2002, the Rural Electrification Fund resulted in the formation of the Rural Electrification Agency (REA) which was mandated with the task of speedily and equitably electrifying the rural communities in Zimbabwe. An important objective of this initiative is the stimulation of economic growth in rural areas of Zimbabwe through support of commercial and agriculture sectors (Ngwenya, 2013).

Rural development initiatives accelerate promote the . In Zimbabwe the National Energy Policy framework of 2012 placed emphasis on developing and advancing sustainable, clean energy leading to an increase in the electrification of many rural areas and a

Rural development initiatives accelerate economic development, and promote the use of environmentally friendly energy. In Zimbabwe the National Energy Policy framework of 2012 placed emphasis on developing and advancing sustainable, clean energy leading to an increase in the electrification of many rural areas and a marginal increase in the use of solar energy (UNDP, 2012).

According to the Ministry of Energy and Power Development more than 5000 rural institutions, villages, farms, boreholes, irrigation schemes and dam points have been electrified so far (Kazunga, 2014).

The relatively successful rural electrification program has led to an increase in the construction of base stations, significantly widening Econet’s mobile network in all corners of Zimbabwe. This has resulted in the inclusion of previously marginalised populations. To put the significance into context, communities that previously depended on fixed landlines commonly located at communal centers such as schools and clinics now have the convenience and freedom of portable handheld devices. The penetration rate for landlines in Africa is near zero as shown in Figure 2.12 below;

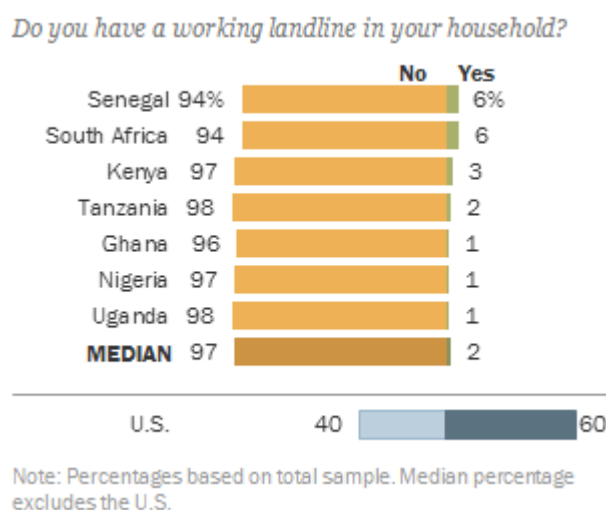


Figure 2.12 Landline phone holders in Africa

(Source: Spring 2014 Global Attitudes survey. Q160 & LL)

Availability of electricity drives economic development and the future for Africa looks very bright should the commitments that have been made to interconnect power grids from South Africa all the way up to Egypt by 2020 come to fruition, as reported by the Head of New Partnership for Africa’s Development (NEPAD) Mosad Elmissiry as reported by The Prepaid Economy (2015). As quoted by the same publication, Elmissiry stated that, “connections between Kenya and Tanzania, Kenya and Ethiopia, South Africa and Zimbabwe, Egypt and Sudan are at advanced stages of being commissioned.” The futuristic interconnections are depicted in the map below.

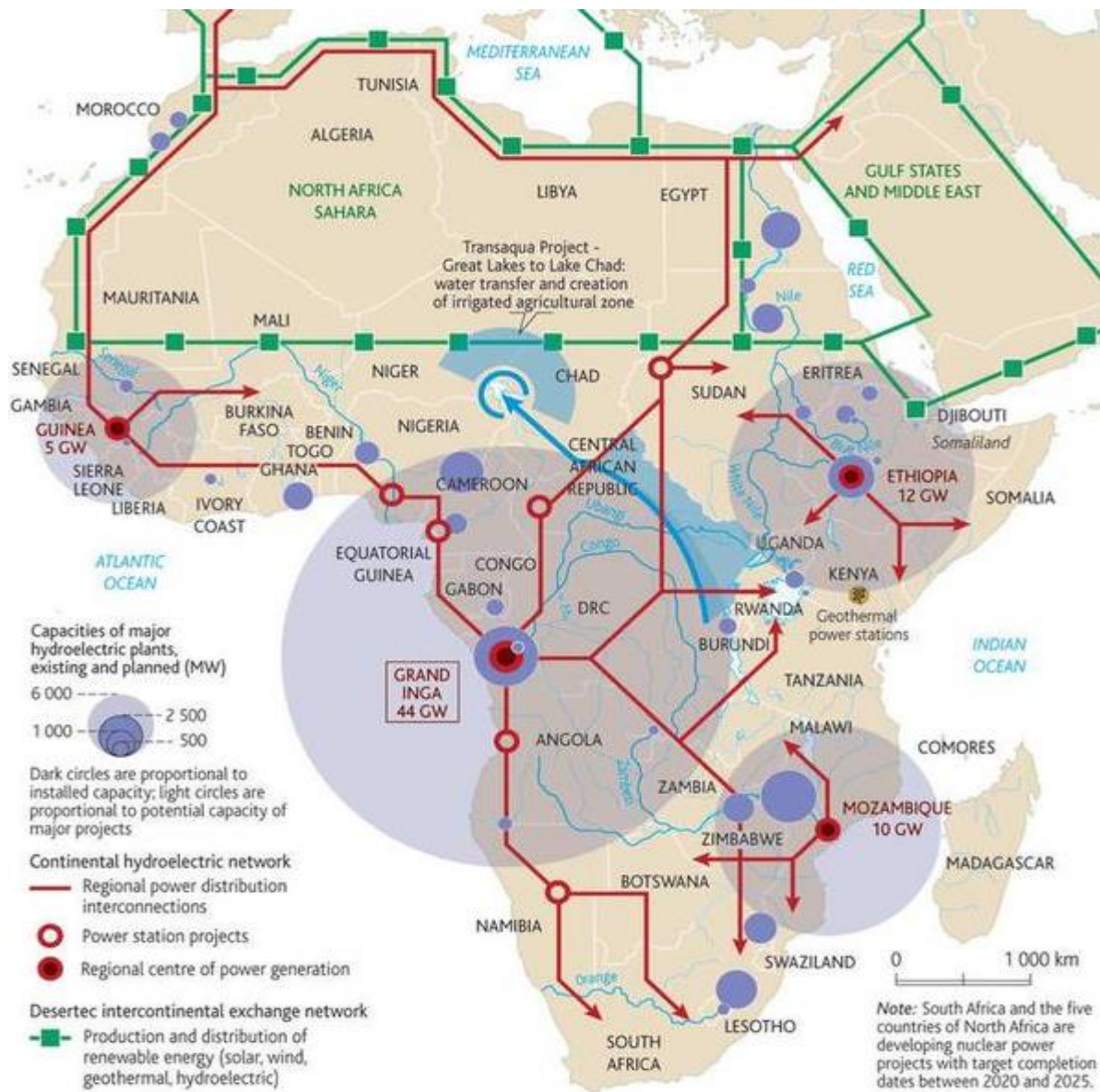


Figure 2.13 pan-African power grid

(Source: NEPAD, 2015)

Once completed the “pan-African-grid” will become a continent-wide power market which will enable those nations with excess power supply to sell that off to those who have deficits. Increased access to electricity stands to have a direct positive effect on the wide spread adoption of mobile money services as communities which previously did not have any access to power will now be able to charge their phones with ease. Organizations such as Oxfam and Practical Action are actively promoting the use of renewable energy within rural communities in Zimbabwe which has amongst other benefits, “increased production and boosted business and enterprise,” as reported by Magrath (2015). A Berlin based company called Little Sun developed a tool for recharging mobile phones (known as Little Sun Charge), whose prototype is being

tested within select rural communities since July 2014. Making use of sunlight, the Little Sun Charge has enabled rural populations to make use of their mobile phones which has allowed them to access financial services that they previously did not have access to. The significance of a product such as Little Sun Charge is rising as people seek alternative electricity sources. The efforts to electrify rural communities within Zimbabwe have not gone without notice as shown by the results below from a survey conducted by Afrobarometer.

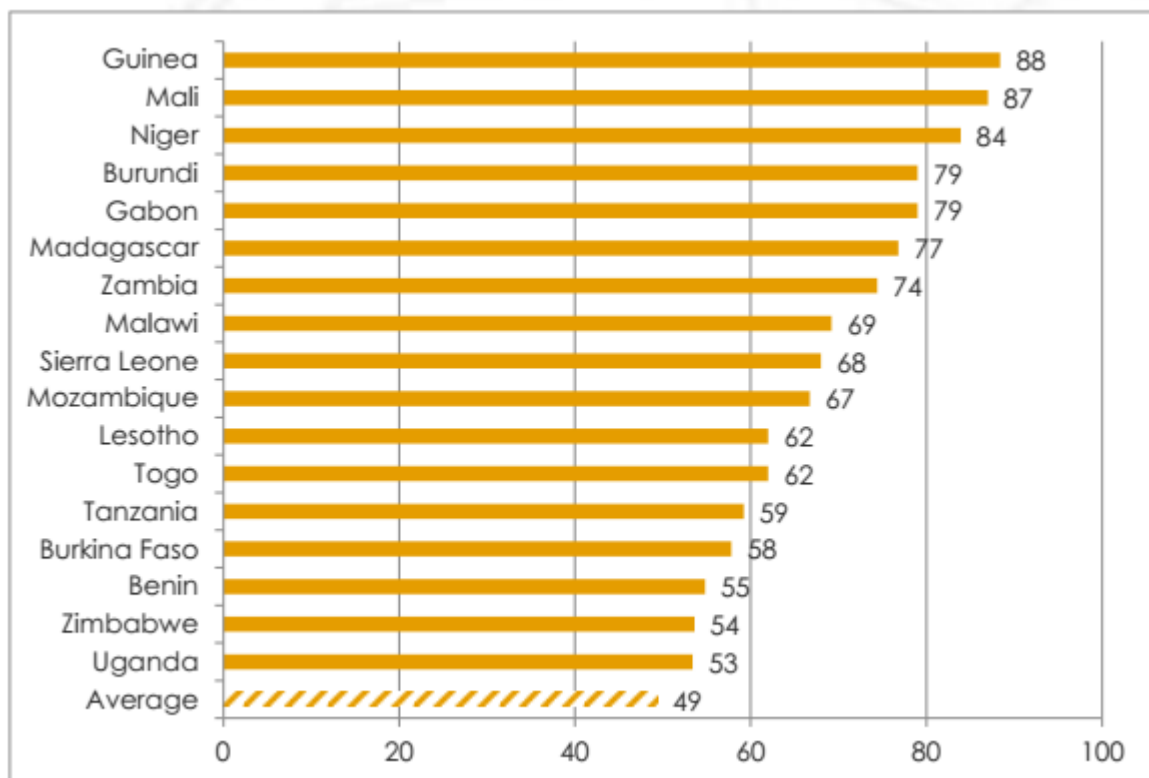


Figure 2.14 Rural-urban disparities in electricity access | countries with largest gaps

(Source: Afrobarometer 2016)

2.7 Road Network

Kamanga and Steyn (2013) carried out extensive research into the causes of delays in road construction projects in Malawi. Their well-documented findings exhibit a common trait throughout most African and developing countries. They highlighted the significance of foreign currency constraints which led to serious challenges in the importation of equipment, fuel, cement, bitumen, steel and even technical personnel.

In 2002, the Road Act (chapter 13:18) spelt the establishment of ZINARA, which is a body corporate mandated to enhance a good road network system throughout

Zimbabwe. ZINARA controls, manages, allocates and disburses funds from the Road Fund and is the sole authority of the country's road network and related infrastructure.

A good road network is an infrastructural prerequisite within any community. For Zimbabweans it means access to rural parts of the country has been enhanced. Urban roads (8,194 km) are mainly double tarred lanes whereas the rural road network (61,000 km) mainly consists of gravel and single lane tarred roads which are looked after by rural and district councils (ZINARA, 2012).

The extensive network of tertiary roads within the rural communities has allowed for the transportation of respective material required for building Econet's base stations which are now found in many of the rural and most isolated communities (Econet, 2014).

As reported by ZINARA (2012), the World Bank and the African Development Bank have played vital roles in the establishment and maintenance of the rural road networks through financial support that they have extended to the Zimbabwean government.

Zimbabwe's government continues in its effort to develop the road network through strategic partnerships such as engaging the private sector in the rehabilitation and maintenance of the rural road network (ZINARA, 2012).

2.8 M-PESA vs. EcoCash

The Kenya Communication Act (KCA 2008) was enacted into law by the Kenyan Parliament in 1998 as a way to regulate the country's communication sector. A monopoly had existed since 1977, the dominant player being Kenya Posts and Telecommunications Corporation, (Omwansa, 2009).

The liberation of the industry ushered in new players namely, Safaricom, Celtel, Telkom Orange and Econet. This surge in competitors has seen significant growth in the number of mobile phone subscribers over a 5 year period as depicted in Figure 2.15 below;

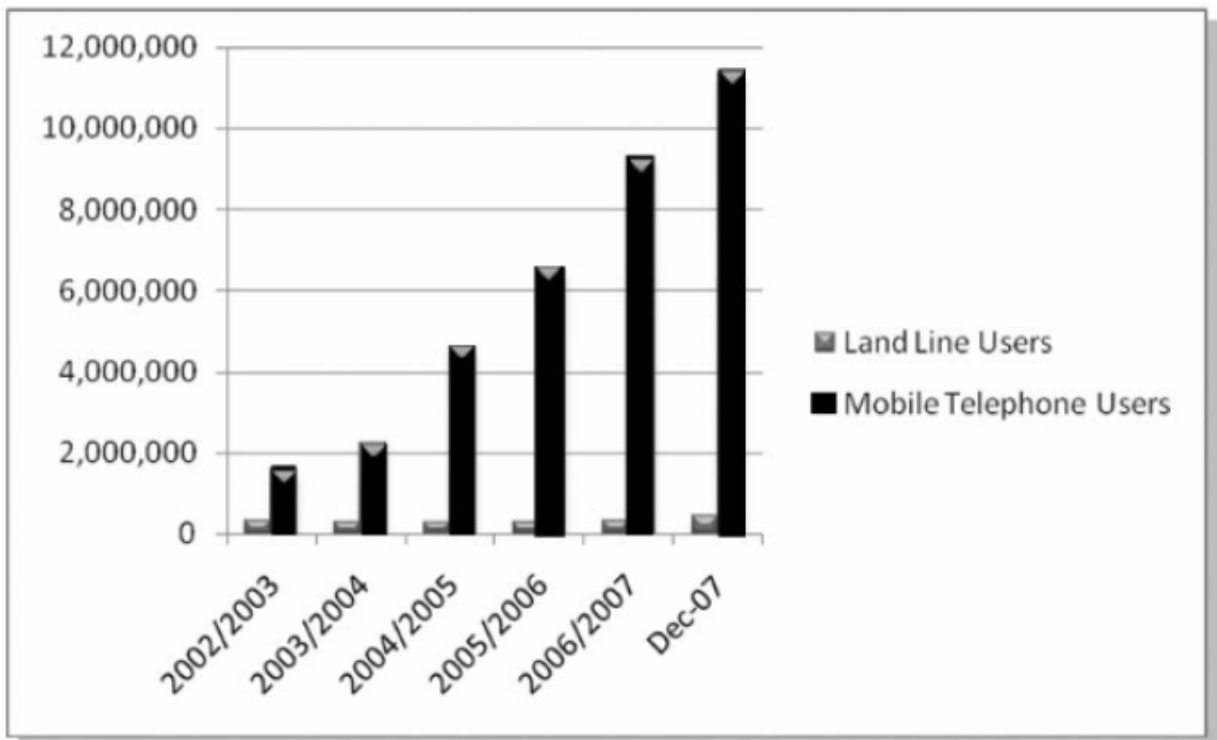


Figure 2.15 Growth of mobile phone and land line users in Kenya

(Sources: CCK website, June 2008; Safaricom prospectus for 2008)

With KCA being solely for the regulation and promotion of communications, the need for legislature specifically for the promotion of electronic services and electronic commerce saw the launch of the Kenya ICT Policy in 2006 (Omwansa, 2009).

Furthermore, the government published the Electronic Transactions Bill of 2007 as a way of detailing a framework for the electronic commerce (Mbiti and Weil, 2011). This contrasts sharply to Zimbabwe where no specific legislation has been established for electronic commerce. This has meant that mobile money systems such as EcoCash have basically operated 'freely' and unregulated.

Concerns about this unrestrained approach have been raised by several industry and commerce groups and organisations including the Bankers Association of Zimbabwe (Mukandatsama, 2013). They have urged a redress of what they perceive as unfair competition arguing the lack of parameters gives EcoCash and others an unjust competitive edge.

The premise of this argument hinges on the Reserve Bank of Zimbabwe's inclination to use the National Payment System Act and other legislature designed for the

banking sector to regulate mobile money services (Bara, 2013). It has been described as lacking clarity on how to address conflicts between players and regulators, product lines as well as how to deal with overlaps (Bara, 2013).

EcoCash at a glance	
Operator	Econet Wireless (Zimbabwe)
Launch date	October 2011
Active users	>1 million (90-day basis)
Product offering	Wallet-based service: P2P remittance, airtime top-up, bill payment, merchant payments, bank to wallet transfers, bulk & salary payments

Figure 2.16 EcoCash at a glance

(Source: GSMA, 2013)

Safaricom is not an authorised banking institution. To circumvent the legislative hurdles they engaged the Commercial Bank of Africa to accept cash deposits on their behalf while the processing of the transactions was through M-PESA (Omwansa, 2009).

Similarly, EcoCash is not a bank, and for years operated without the infrastructural and regulatory support of a major bank (Mukandatsama, 2013). This led to an outcry from the traditional banks that EcoCash was not only trespassing into banking space but threatening their very existence. This perceived “none compliance” continued until Econet bought an existing bank (TN Bank) which it rebranded to Steward Bank (Econet, 2014).

Jenkins (2008) and Ehrbeck (2012) made note of the importance of a strategy which entails collaboration between banks and the MNOs in delivering mobile money services.

Safaricom’s control of an estimated 80% of Kenya’s subscriber base gave a boost to M-PESA’s penetration compounded by the fact that only Safaricom subscribers could operate an M-PESA account, while subscribers from other MNOs only received SMS notifications from the M-PESA users (Omwansa, 2009). Similar dominance can be evident in Econet’s EcoCash operations. Econet has capitalized

on its 65.3% subscriber market share and aggressively marketed through its vast network and superior infrastructure.

With the majority of the less affluent populations based in rural Africa, pricing of mobile money services is a crucial factor for its adoption (Morawczynski, 2011). M-PESA's success has been largely attributed to its affordability (Morawczynski, 2011). EcoCash's pricing policy primarily targets low income earners, making it the cheapest way to send and receive money in comparison to alternative electronic transfer systems such as the RTGS (Real-Time Gross Settlement system) and Automated Teller Machine withdrawals (Econet, 2014).

The majority of Zimbabwe's rural population is not formally employed, and EcoCash's relatively low charges have appealed to them making it the predominant choice among this large part of the country's population (EcoCash, 2014).

EcoCash's presence has been further enhanced beyond the borders of Zimbabwe with those living in the diaspora now able to remit from any of 32 designated countries, through a service extension referred to as EcoCash Diaspora (Econet, 2014).

EcoCash Diaspora has captured a previously underserved market which historically relied on the likes of MoneyGram and Western Union. The International Organisation for Migration estimates that 4 million Zimbabweans live in the diaspora, the majority of them having fled political and economic strife which reached unprecedented levels in the year 2000 (Ndlovu, 2013).

With the younger economically active population having left the rural communities for urban areas as well as the diaspora, the very young, old and frail remain behind in the rural areas. These dependents are the main beneficiaries of EcoCash, which for them is an affordable, convenient and secure means of receiving remittances they depend on (Econet, 2014).

The need for financial services inclusion was reviewed in a national survey conducted in Kenya in 2007 which noted that only 19 percent of the country's population had access to formalised financial institutions.

The low penetration rate of banking services gave M-PESA a boost in its growth as it became the solution for financial inclusion providing a fast, convenient and low priced service (Omwansa, 2009).

Sub-Saharan Africa has been characterised by low investment in infrastructure (Aker and Mbiti, 2010). In Zimbabwe, the lack of basic infrastructure has in the past hampered the development of payment systems within rural areas as banks have traditionally not extended their services to such communities resulting in most of them remaining simply unbanked. EcoCash's rapid penetration took advantage of this situation.

Econet's EcoCash had impacted the lives of more than 4.2 million adults in Zimbabwe during the fiscal year ended 28th of February 2014, (Econet, 2014). This meant giving access to banking services to masses previously deprived of such a financial service and EcoCash's contribution to Zimbabwe's financial services penetration level amounted to 50% of the 30% registered penetration rate (Econet, 2014). EcoCash has evolved from being just a P2P money transfer platform into becoming a significant payment system in Zimbabwe (Penicaud and Katakam, 2013).

Beyond being a P2P money transfer system, EcoCash has set its aim to become the dominant payment system in Zimbabwe, servicing both the banked and unbanked populations by creating the biggest "cashless society in Africa", (Heinrich, 2014).

The facilitation of merchant payments across the various industries and sectors of the economy is just one of the ways EcoCash is engaging in order to achieve that aforementioned goal. More so, EcoCash is also making concerted efforts to bridge the divide between the informal and formal sectors, supported by full interoperability with all the banks in Zimbabwe (Heinrich, 2014).

This interoperability enables the banked individuals to use their existing bank accounts to transfer money to their mobile wallets and further on to the wallets of unbanked individuals in a seamless manner. In a population where informal vendors and artisans statistically outnumber those in employment and major users of the

formal banking system, EcoCash and similar platforms offer an unparalleled practical alternative. (Heinrich, 2013).

Innovative products are now being offered on the mobile money platform within the developing countries targeted at the urban and rural communities. One such initiative is EcoFarmer which is offered by EcoCash, which offers an informative service to rural farmers as well as an option for insuring farm produce (EcoCash, 2013).

2.9 Usability and liquidity

EcoCash operates a dedicated call center and numerous service points across the country. EcoCash customers have readily available assistance free of charge and on a short and memorable number whenever they require it. High literacy levels in Zimbabwe also make the user friendly menu fairly easy to navigate through and this simplicity is illustrated in Figure 2.17 below;

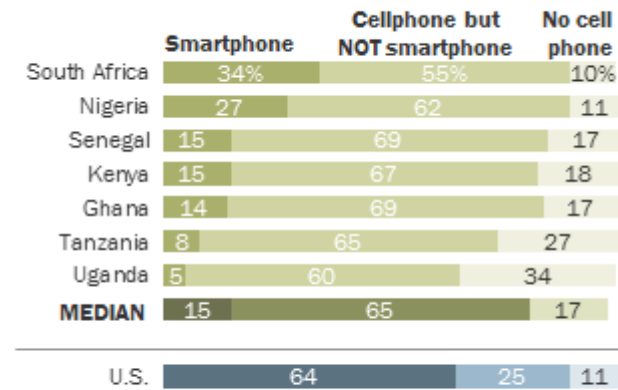


Figure 2.17 EcoCash Menu

(Source: Econet Wireless Zimbabwe)

Whereas some developing countries make use of mobile money applications, few people have smartphones in Africa as depicted in Figure 2.18, below; this has made USSD a popular platform for driving mobile money. This is one of the main findings from a study which was done by Pew Research Center in seven sub-Saharan African countries in which 7052 respondents participated.

Do you own a cell phone? Is it a smartphone?



Note: Percentages based on total sample. U.S. data from December 2014 Pew Research Center surveys. Median percentage excludes the U.S.

Figure 2.18 Smartphone holders in Africa

(Source: Spring 2014 Global Attitudes survey. Q160 & LL)

With liquidity problems currently negatively affecting the country’s economy, the scarcity of bank notes has proven to be a huge challenge requiring strategic thinking. Zimbabwe operates a multi-currency economy in which the RBZ has no control over money supply. The adoption of a multi-currency system came on the backdrop of hyperinflation during 2008 which saw banking systems facing capacity constraints as transaction volumes substantially increased whilst the currency lost its value, in some instances, multiple times a day (Chikwanha, Ncube and Chikwanha, 2014).

The year 2017 has ushered in perhaps the worst liquidity crisis ever experienced in the country’s history (RBZ, 2017). The EcoCash payment system has not been spared by the effects of the liquidity crunch. Liquidity problems disrupt agent pay-out operations (Chikwanha, Ncube and Chikwanha, 2014).

Econet’s innovative approach saw it adopt a strategy of entering into agreements with traders, where traders accept payments via EcoCash and then collect the cash directly from Econet themselves (Econet, 2013). This means recipients do not need to cash-out through agents at all times but could make payments for goods and or services through traders using their eWallet balances.

2.10 Distribution, Accessibility and Convenience

On a global scale, the number of players within the mobile money market has increased, thereby intensifying competition (GSMA, 2015). In the State of the Industry 2014, GSMA reported that across the 56 markets around the world that they looked at, it was found that at least two live mobile money services existed whilst 38 of the same market had three or more live mobile money services.

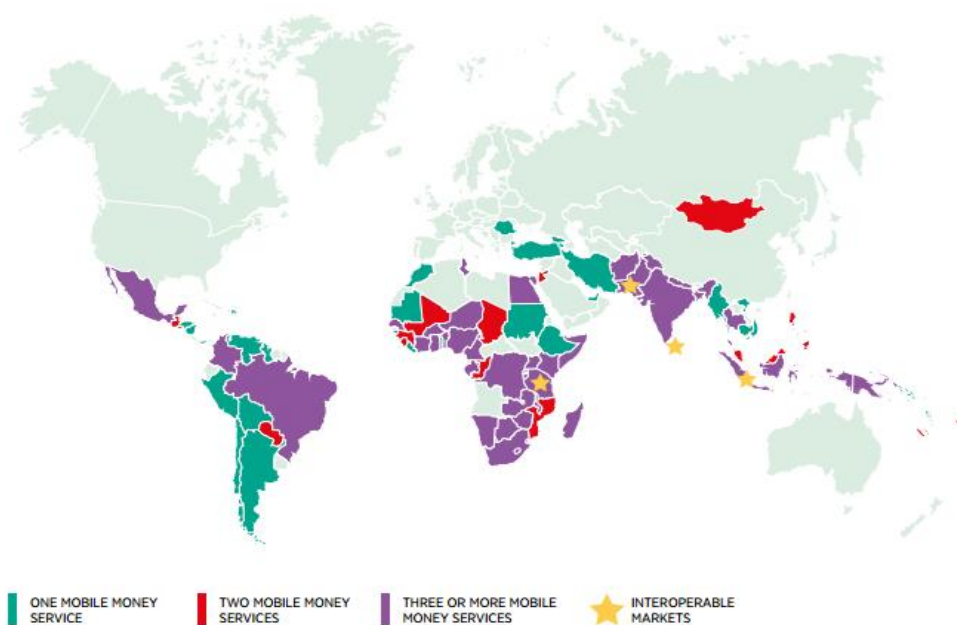


Figure 2.19 Number of live mobile money services for the unbanked by country

(Source: STATE OF THE INDUSTRY 2014 - MOBILE FINANCIAL SERVICES FOR THE UNBANKED)

GSMA (2014) noted that financial access via mobile money agents is the most accessible within the developing countries in Africa as depicted in Figure 2.20 below;

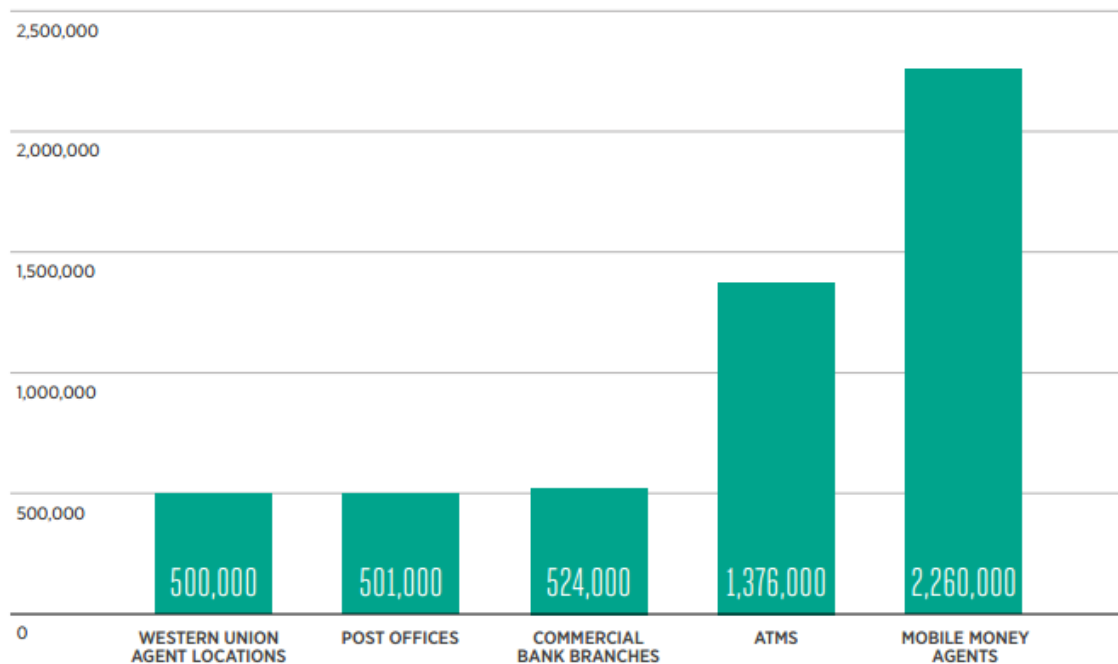


Figure 2.20 Number of Financial Access Points across Developing Countries

(Source: GSMA 2014)

Accessibility has played a pivotal role in promoting the adoption and continued use of mobile money services, whose growth has been notably significant when compared to other financial access points (GSMA, 2014). Across 10 provinces in Zimbabwe, EcoCash is now represented by more than 15,000 agents in the form of independent dealers, ZPO and Econet shops (Econet, 2014). Interestingly ZPO has also launched its own called ZipCash which provides a solution for those people without mobile phones to send and receive money (Mukandatsama, 2015). It should be noted that locally sending money via ZipCash is cheaper in comparison to using EcoCash; however, the 222 ZipCash branches across the country do not come anywhere close to matching the number of EcoCash agents who can be found inside most business establishments and street corners as reported by Mukandatsama (2015).

Econet leads the effort to increase the subscriber base and recruitment of agents whilst its bank (Steward Bank) ensures that compliance and risk are well managed. In addition to this function, the bank provides crucial liquidity support to EcoCash.

The geographic spread of EcoCash makes it possible for one to have access to their services in almost all corners of the country as depicted in the Agent Distribution

map below which details the location of registered EcoCash agents across Zimbabwe; from the urban areas such as Harare and Bulawayo right down to the rural areas such as Tshototsho and Zaka (Econet, 2014).

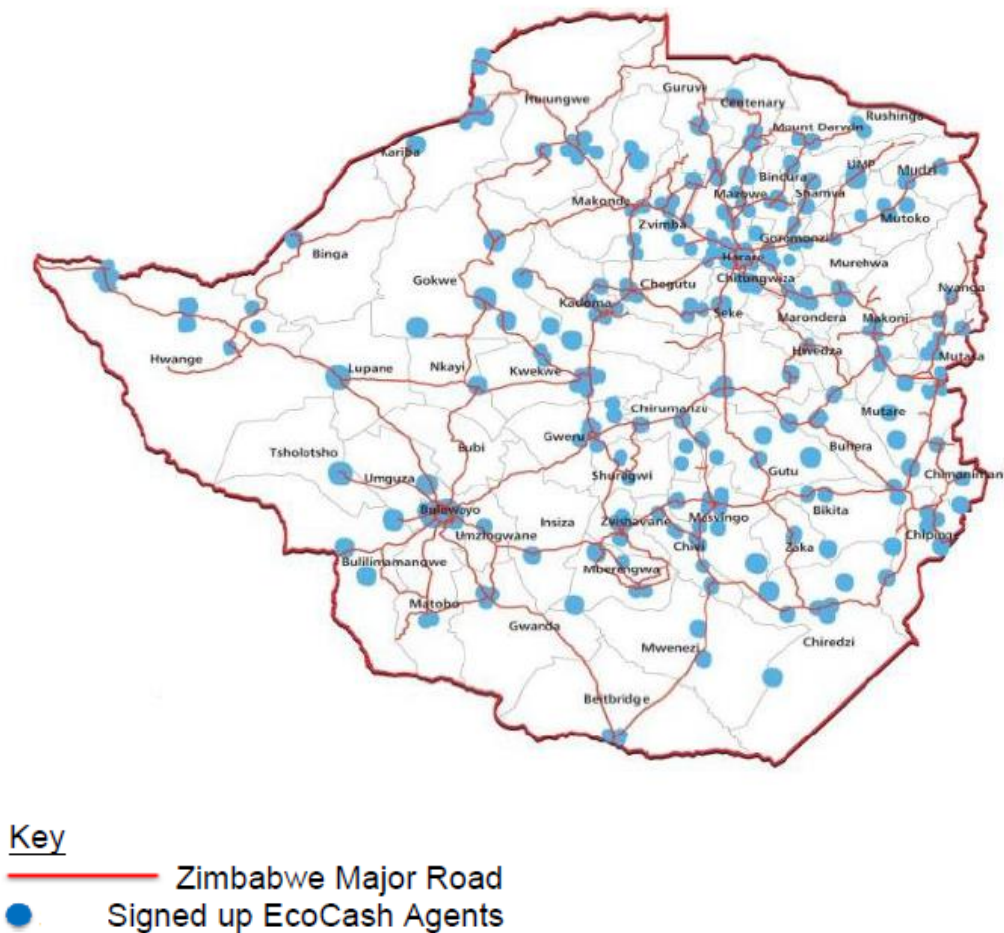


Figure 2.21 EcoCash Agents Distribution Map

(Source: Econet Wireless)

As argued by Chen (2008), consistent marketing campaigns are largely to attribute for the growth of EcoCash usage across the rural communities in Zimbabwe. Time and effort are the key factors that determine whether a product or service is convenient which makes the wide spread distribution critical in determining use of EcoCash services (Berry, Seiders and Grewel, 2002). A product or service that serves time of a user will be regarded as being convenient and it also follows that a product or service reducing cognitive, emotional and physical burdens of a user will be regarded in the same light.

2.11 Literacy Rate

According to The Economist (2013), Zimbabwe has the highest literacy rate of 90.70% in Africa. We are now living in a more technology driven world compared to the past decade, and as such, low levels of literacy and education will hamper a country's economic development (The Economist, 2013). This has eased the adoption of the EcoCash product across the country without any exceptions which could have been the case in countries characterised by an educated urban populace and an uneducated rural population. The elderly rural folk in Zimbabwe are competent enough to perform the basic steps required in running the EcoCash USSD menu options. This is contrary to some markets in which literacy barriers are very high and agents have to perform the transactions on behalf of the customers over the counter (Penicaud, 2012). This would effectively affect adoption and widespread usage of a mobile money solution as the intended customers might not find it to be for "easy to use."

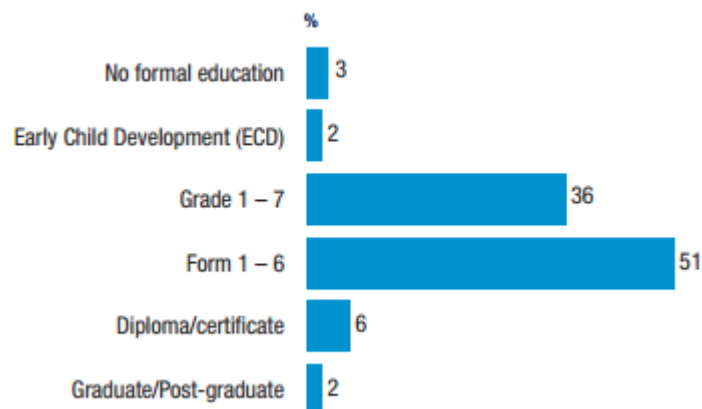


Figure 2.22 Education in Zimbabwe

(Source: FinMark 2014)

As reported by FinMark (2014) noticeable improvements have been seen in education with a 4 percent decline of people with no education down from 7 percent in 2014 as found in the FinScope Consumer Zimbabwe Survey.

2.12 Drought

According to Wright, Rouault and Sweijd (2015), Southern Africa is experiencing a dry spell with a 50 percent chance of drought occurring this summer which could have a regional impact to a region still rearing from the effects of last year's drought. Southern Africa suffered one of the worst droughts during the 2014/2015 summer which saw depletion of some water reserves and negatively affected the agricultural sector (Wright, Rouault and Sweijd, 2015). The Climate Prediction Center and Society (IRI) forecast the developing of an El Nino event between August and October 2014 continuing into 2015, (FEWS NET, 2014). An El Nino event has been attributed to this drought, which is periodically experienced every 3 to 5 years as it increases temperatures in the Pacific and Indian Ocean which can result in drought conditions (Wright, Rouault and Sweijd 2015). The WFP (2014) has weighed in on the El Nino, noting Zimbabwe as one of those countries to have been impacted in the early stages of the current El Nino leading to significant agricultural losses. A lot of livestock was killed whilst crop yields were devastated during the El Nino events which happened in Zimbabwe during 1997/1998. Below figure 2.23 shows the timing of the growing seasons along with the temporal coverage of seasonal forecasts showing how the El Nino event develops and influence most growing seasons.

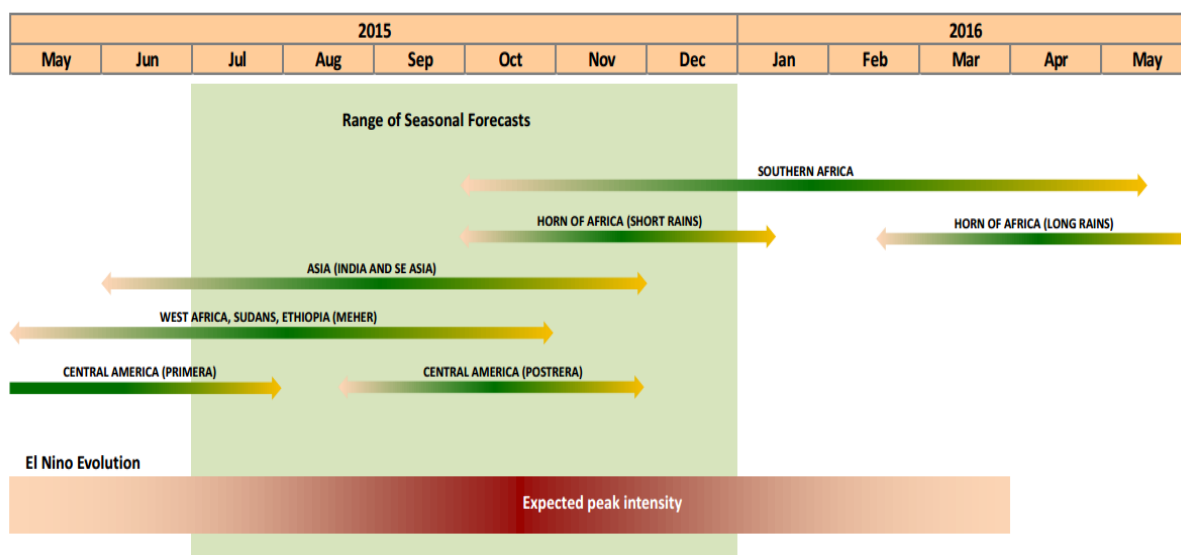


Figure 2.23 Seasonal Timings and El Nino 2015-2016

(Source: WFP, 2015)

The WFP (2015) reported that 30% of Zimbabwe's rural population is "food poor" or "extremely poor". The norm in these areas is that households' farm for their own food consumption needs. Such harvests unfortunately are now always sufficient to feed these families from one farming season to the next hence they have to supplement through buying from other farmers or offering their labour in exchange for food from the same farmers (Phiri, 2014). It has however been found that, the majority of these families are food buyers instead of being self-sufficient through a study conducted by WFP as reported by Phiri (2014).

In the past, WFP used to distribute cash vouchers to those households in need which would in turn be used for buying food. However, this is no longer the case as WFP is now working closely with EcoCash in electronically disbursing these food vouchers to cellphones. The said has significantly cut down on cost of administration and distribution of the food vouchers; offering convenience to the populace who would have had to travel long distances in the past to get to collection centers. The recipients can either directly buy food using their electronic vouchers or they may withdraw the money through EcoCash agents.

Famine Early Warning Systems Network (2015) has reported that very poor rainfall and crop production in 2014-15 has led to a very lean season mainly in the southern parts of Zimbabwe. ZimVAC has estimated that 10 percent of the rural population faces food insecurity from October to December 2015 (FEWS NET, 2015).

The majority of poor households in the southern areas of Matabeleland, Masvingo, Midlands, and Manicaland Provinces are now getting food assistance to alleviate starvation. DFID and USAID launched a programme for lean season assistance in early October of 2015 funded to the tune of USD \$43 million targeting 650 000 people in 29 food insecure rural districts for 2015 – 16 (FEWS NET, 2015). As reported by FEWS NET (2015) the aid is going to be distributed using mobile cash transfers and food, which had already started in September in some select districts. The use of mobile phones for accessing aid within these rural areas is the most ideal medium looking at the absence of alternative infrastructure which could have been used as distribution points, furthermore, accountability and security of the funds will be closely monitored. Further to the amount assigned to this cause so far, the UN has appealed to humanitarian and development organisation for a further injection of

USD \$86 million which will facilitate further assistance to an estimated 1.5 million people at the height of the lean season which falls between January to March of 2016) within the identified 52 rural districts (FEWS NET, 2015). As depicted in Figure 2.24 below, rural areas are mostly affected with the current drought.

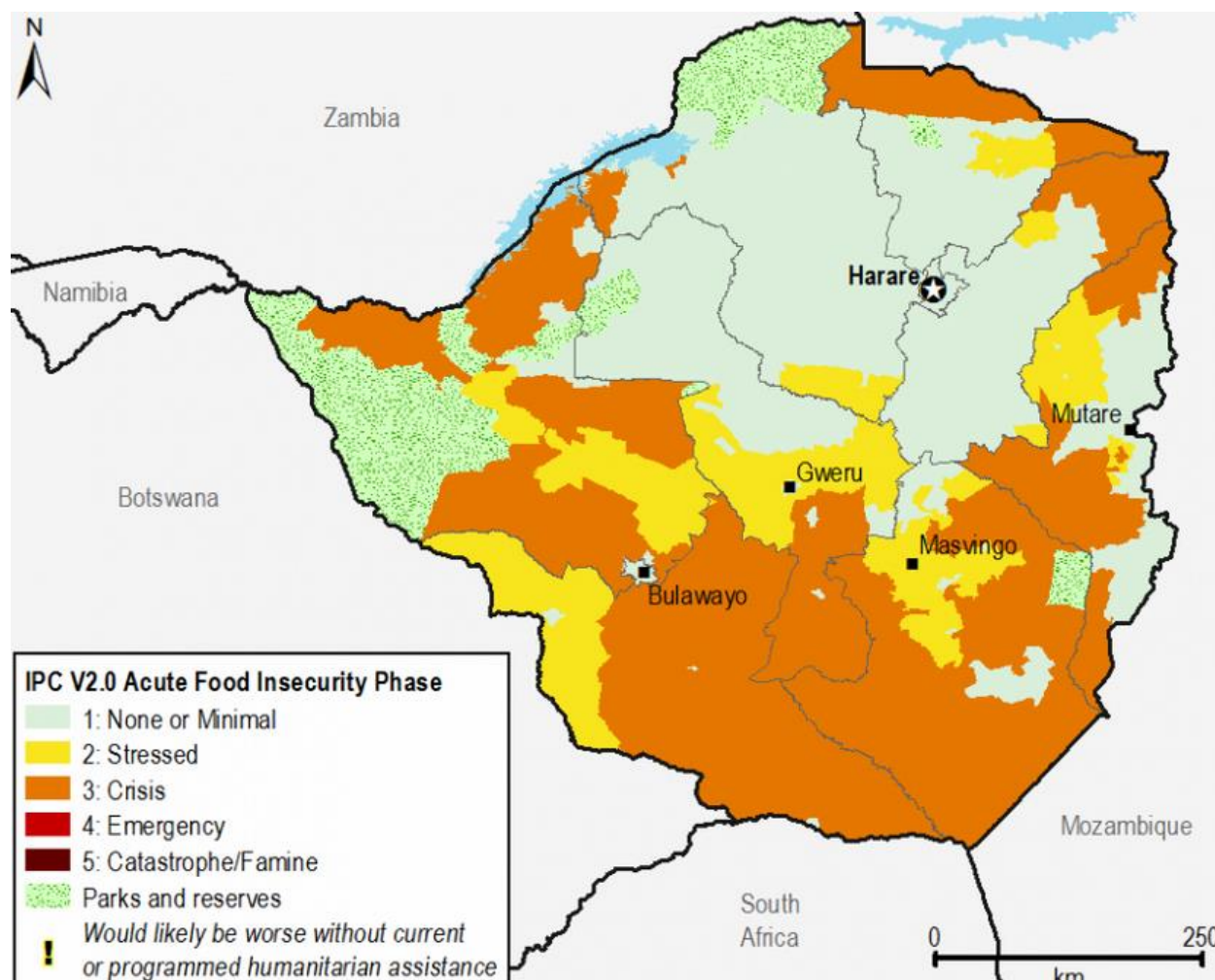


Figure 2.24 Current Acute Food Security Outcomes, October 2015

(Source: FEWS NET 2015)

2.12.1 EcoFarmer

With the majority of Zimbabwe’s population being based in rural areas, their main source of money is through farming activities as depicted in Figure 2.25 below which was drawn up from a FinScope survey carried out in 2014. As reported by FinMark (2014), farming is the most important source of income with tobacco, maize and vegetable farming paying the most to farmers.

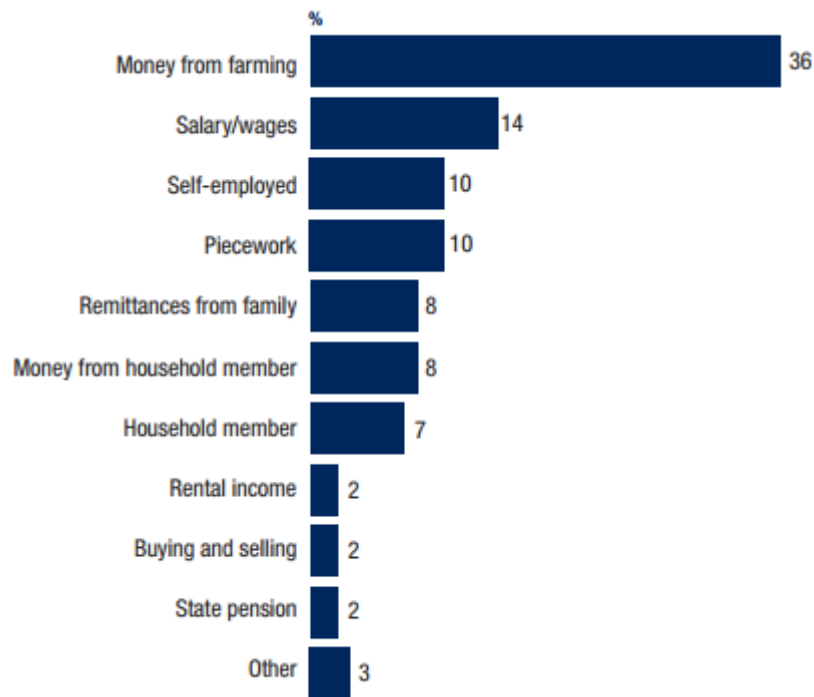


Figure 2.25 Farming Activities in Rural Zimbabwe

(Source: FinMark 2014)

The EcoCash's launch of EcoFarmer has been a welcome development within the farming communities in Zimbabwe. Zimbabwe is an Agro-based economy with the majority of the population solely dependent on income from agricultural activity. Natural disasters (weather related) threaten this way of life for these (Barnett and Mahul, 2007; Fuchs and Wolff, 2011).

Fuchs and Wolff (2011) found that whilst there are means to reduce the impact the effects of flooding; such are not always feasible or cost effective. Farming is risky and thus the need of insurance within farming communities, especially rural ones is very important as stated by Chantararat (2009). Rural households are better off having transferred risk to a service provider in case of a disaster such as flooding; such is covered by the weather index insurance. That being said, a micro insurance product is now being offered to the farming communities in Zimbabwe through EcoFarmer; covering against loss of inputs and crops due to excessive rains and or droughts (Econet, 2013).

According to Econet (2013), farmers who subscribe to their EcoFarmer services (for a fee of \$0.08 per 125 days) receive weather updates, produce pricing offered by different buyers as well as farming tips.

2.13 MasterCard Debit Card

The need to focus on banking the unbanked and underbanked has sort to implement cheap solutions for the affected populations. eWallets as offered by EcoCash is one such solutions especially within the underdeveloped rural communities. However, EcoCash also saw the need to offer MasterCard debit cards which are usable both within and beyond the borders of Zimbabwe.

The EcoCash debit card has further brought convenience to those who wish to travel outside Zimbabwe as well as pay for such things as subscriptions (could be professional membership related or even DSTV) and other bills payable online. Given the wide global MasterCard network which comprises of well over 47 million access point across the world, access to one's money using the card is global. (Econet, 2014).

EcoCash subscribers are not subjected to the stringent KYC which are mandatory for bank cardholders which means that many people who are not formally employed can now enjoy the services enjoyed by their counterparts who bank with the traditional banking institutions. Below is the a distribution map for MasterCard debit cards acceptance across Africa;

Acceptance locations include both ATM and POS data as reported by MasterCard customer banks in Q1 2015.

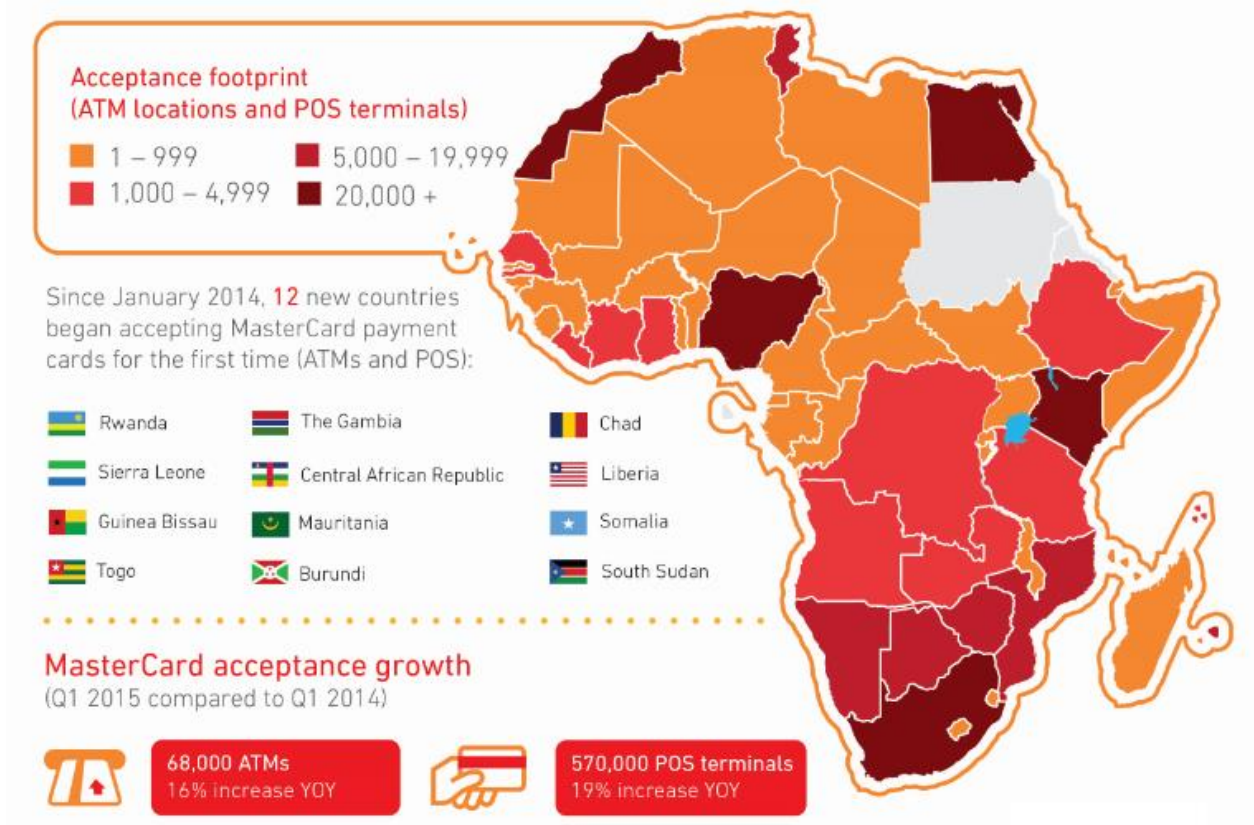


Figure 2.26 MasterCard Access Points

(Source: MasterCard WorldWide)

3.1 Literature Review (Acceptance Theories)

The process of product adoption entails consumers going through being made aware of the product, being persuaded followed by making a decision of whether or not to adopt the product then confirming their intention before the actual product adoption (Rogers and Shoemaker, 1971; Sathye, 1999). Therefore there cannot be any adoption or rejection of a service or product without awareness of its existence.

External environmental factors have been noted for their influence on the adoption of technology oriented products as noted by Chong (2001). Chong (2001) gave examples for such factors as critical mass, pressure from trading partners, government influences, and environmental uncertainty, issues related to infrastructure, industry-specific competitive pressures and accepted industry standards. More than 50 factors have been identified by IFC (2011) as influencing the growth of mobile money, and highlighted the three important ones as being namely user perceptions and skills, regulation and competition with other instruments which are briefly delved into below.

3.1.1 User Perceptions and Skills

User related factors play an important role in determining the success of mobile money (IFC, 2011). Mistrust, as has been witnessed within the formal banking sector in Zimbabwe can lead to potential depositors holding onto their money. As reported in the “2015 Brookings Financial and Digital Inclusion Project Report”, mistrust and lack of awareness remain an inhibition to adoption of formal financial services. The mobile money value proposition therefore needs to be clear and trustworthy whilst fitting into cultural and social practices (IFC, 2011).

3.1.2 Regulation

With money and telecommunications interplaying in the provision of mobile money services, this has meant that regulation comes from the financial and telecommunications sectors. The development of mobile money services hence depends on whether or not regulation promotes inclusiveness whilst minimizing risk and fraud (IFC, 2011). Mobile money as a tool for financial inclusion controls funds

for the economically disadvantaged making it imperative that caution has to be exercised, a view which is supported by USAID (2010). A successful working relationship between stakeholders (government, civil society and industry) can strike a balance for a good working relationship of the parties involved. As agents handle cash, they need to know the KYC (Know Your Customer) requirements so as to curtail money laundry especially in light of the need to stop funding for terrorism activities (IFC, 2011). IFC (2011) further alludes that ongoing development of regulation is necessary as the mobile money services evolve and become sophisticated whilst always taking into consideration the fact that the goal is to provide the poor with access to financial services.

3.1.3 Competition with rival MNOs and other Instruments

The extent to which other financial services' access mechanisms are readily available determines whether or not money services are a success or failure. Cooperatives and loan groups are popular within developing countries, and they provide an alternative to mobile money services (IFC, 2011). The accessibility and desirability of those two also plays a significant role in determining the adoption and usage of mobile money services. However, competition is very strong as the likes of Safaricom have also introduced services catering for loans and health insurance to their subscribers, namely M-Shwari and Linda Jammi (Kamau, 2014).

Mobile money service providers have brought the biggest competition to commercial banks and the financial sector; and whilst this has been healthy and for the benefit of the general population who seek cheaper banking services, the lack of adequate or absence of legislation to govern mobile money service providers has meant that the likes of M-PESA and EcoCash have established significant market power hence the likelihood of abusing such dominance is very probable with some subscribers already saying that is already happening amidst accusations that the regulators and competition authorities are turning a blind eye. However this is not entirely true as the Competition Authority of Kenya (CAK) instituted investigations against Safaricom, on allegations that they were charging higher transaction fees for unregistered M-PESA users, furthermore; issuing threats to their agents who were also keen on offering rival MNOs services. The latter allegation resulted in Airtel filing a complaint with CAK so as to compel Safaricom to remove that exclusivity so that rival MNOs would also be able to make use of such agents. Airtel went on to further

argue that Safaricom's double charging for mobile money transfers applied to its subscribers, in comparison of the fees charged for Safaricom-to-Safaricom based transfers was a clear abuse of Safaricom's dominant market position. In light of these allegations, Safaricom tried to justify its exclusive agent network use by highlighting that it has invested billions of shillings in its development (Mutegi and Fayo, 2014). As reported by Nleya and Robb (2014), in the end CAK ruled that the agent exclusivity would be barred so that their services would be open to other MNOs. However the issue of "double charging" was not ruled on with the tribunal making a recommendation that further investigations should be conducted by the Communications Authority and the Central Bank of Kenya. It can be argued that Safaricom's higher charges meant that entry of other players within the mobile money space was laced with barriers consequently resulting in stagnant growth of the rival firms as argued by Nleya and Robb (2014).

Looking at Econet's market dominance within the mobile money space, there are incentives of maintaining proprietary control of this market and enjoy monopoly profits through excluding competitions from Telecel and NetOne as in the case of Safaricom. The argument that the dominant market holders invested loads of capital into growing their networks is valid hence they rightfully deserve an opportunity to recoup their investment capital. However a relationship should be established between their investments and the returns that they get, ensuring that they do not accumulate additional monopoly rents due to their dominant market status (Nleya and Robb, 2014). It is very interesting to take note of Safaricom's 'coincidental' move upon the announcement of the partnering of Airtel and Equity Bank (reportedly the biggest lender within Kenya commanding 9.1 million customers within the banking sector); cutting its tariffs by 67% with effect from August 21st of 2014 as reported on Safaricom's website. The rationale behind this huge climb down on fees was that Safaricom said that 65% of its mobile money transfers were conducted by low to medium earners and hence they saw it fit to reduce the tariffs in the interest of the provision of financial services to those who were previously financially excluded (Nleya and Robb, 2014). Authors such as Nleya and Robb (2014), argue that more than anything else this move was a reaction to the market entry of rival mobile money services providers such as Zioncell, Finserve and Tangaza through acquisition of Mobile Virtual Network Operation (MVNO) licenses with their operations being hosted by Airtel.

3.1.4 Comparative Analysis of Tariffs

A study conducted by Nleya and Robb (2014), reviewed that across Africa, Econet charges the highest tariffs for transfers valued at USD\$10 or more for both EcoCash registered and non-registered customers whilst charging relatively lower tariffs for USD\$1 value transactions done by its registered users. This questions the argument that the EcoCash platform is meant to address the question of financial inclusion to those previously excluded from the system. It has been shown that it indeed is possible to charge exactly the same tariffs to both registered and unregistered mobile money services users, as exemplified by M-PESA and Airtel in Tanzania, instead of the common pattern across other countries in which unregistered users are charged more for making use of the mobile money services (Nleya and Robb, 2014). It can be argued that the charges in Tanzania are like that because there is no dominant market player in terms of scale of operations and market share hence the need to promote interoperability between the MNOs whilst keeping the tariff models the same, as it more than likely that should either Airtel or M-PESA charge aggressive rates for their voice and mobile money services, they will more than likely lose customers.

Furthermore, the Zimbabwe's Competition and Tariff Commission (CTC) opened investigations into allegations that EcoCash had contravened competition law whilst conducting its business with suppliers and banks (Nleya and Robb, 2014). It was further alleged that Econet had denied access to the banks of its USSD platform whilst pushing them to make use of its EcoCash platform; even though it should be noted that they eventually allowed use of the USSD (separate from its EcoCash one) platform it is important to note that they charge high fees for this service (Nleya and Robb, 2014) which is also seen as a way to "kill the competition". The higher charges for making use of EcoCash services have been seen by the banks as being discriminatory against non-EcoCash users, and it has been alleged and argued that such a move is meant to protect Econet's market share so that it maintains its dominance (Nleya and Robb, 2014).

3.1.5 The history of the Technology Acceptance Model

Over time several theories and models explaining human behavior when it comes to the adoption and use of new technology, have been established and tested. Of those models, TAM (Davis, 1989) stands out from the rest and has been cited over 700 times in trying to explain why as humans we adopt new technologies (Taylor and Todd, 1995; Bagozzi, 2007). However it has to be noted that after studies on TAM conducted by several scholars, they raised their regarding this accuracy in terms of adoption of new technologies (Legris, Ingham and Colletette, 2003)

3.1.5.1 Past to Present

The Diffusion of Innovation Theory was proposed by Roger in 1962 as a means to explain the adoption of new technologies. Over the years other scholars have also modified this theory and added other constructs that they identified as being also relevant in influencing the said behavior (Moore and Benbasat, 1991). Moore and Benbasat (1991) added the following constructs; relative advantage, ease of use and image (social status) influence. In more recent times, mobile money services offer the convenience non-existent in the traditional banking channels which has been dubbed as being a relative advantage(s).

Fishbein and Ajzen (1975) came up with the Theory of Reasoned Action (TRA) which states that an individual's attitude and subjective norms influences their behavioral intentions towards their behavior to adopt. As with other theories, modifications to incorporate other constructs also took place which saw the birth of the Theory of Planned Behavior (TPB) by Ajzen (1991). Ajzen (1991) added an individual's perception of control behavior.

TAM was the output proposal of applying TRA to the Information Technology field (Davis, 1989). According to Jiang, Chen and Lai (2010) the models which have been discussed above fall under a category of rational choice, emphasizing a conscious inclination towards making decisions of commonsense.

3.1.6 Diffusion of Innovation Theory

Developed by Rogers (1962), this is regarded as one of the oldest theories in the field of social sciences. With its origin in communication, this theory looked at how a product or technology gains momentum and spreads out to a specific population over a given time. The result of this spread (or diffusion) is that people adopt the new product or technology. Rogers (1962) defined adoption as being a case in which a person does something differently from what they are used to; for example the acquisition of a mobile phone and subsequent conducting of mobile money based transactions on it. Rogers (1962) argued that this adoption would only happen after an individual perceives a product as being new or innovative. Rogers (1962) went on to allude that the diffusion and adoption of the new product or innovation would not be even within a given social system or population noting that some people are more adapted to adopt the new innovation than others.

Various scholars have noted that early adopters of a new product or innovation have different characteristics from late adopters (Mahajan and Peterson, 1985; Rogers, 1962, 1995; Utterback, 1996; Valente, 2005). Innovations are then targeted at specific populations after understanding their specific characteristics which means different strategies are needed for different populations (Valente, 2005). Adopters were categorized into five groups as follows and depicted in Figure 3.0;

- 1 Innovators – 2.5%
- 2 Early adopters – 13.5%
- 3 Early majority – 34%
- 4 Late majority – 34%
- 5 Laggards – 16%

Innovators

These are individuals who are keen on being the first to try out new products or innovations. They are risk takers and in most cases are involved in coming up with the new innovations and little, if any, effort is required to persuade them to adopt new products.

Early Adopters

These individuals play a leadership role and represent opinion leaders; they welcome new products or innovations.

Early Majority

These individuals need to see evidence that the new innovation works before adopting it through success stories for example.

Late Majority

Skeptic individuals who will only adopt an innovation after the majority has done; these individuals require to see statistics of those making use of the innovation, for example, in order for them to buy into the innovation.

Laggards

Represent the most conservative individuals who need a lot of convincing by people in the aforementioned categories. Instilling fear in these individuals has been seen to work when it comes to convincing them to adopt new innovation.

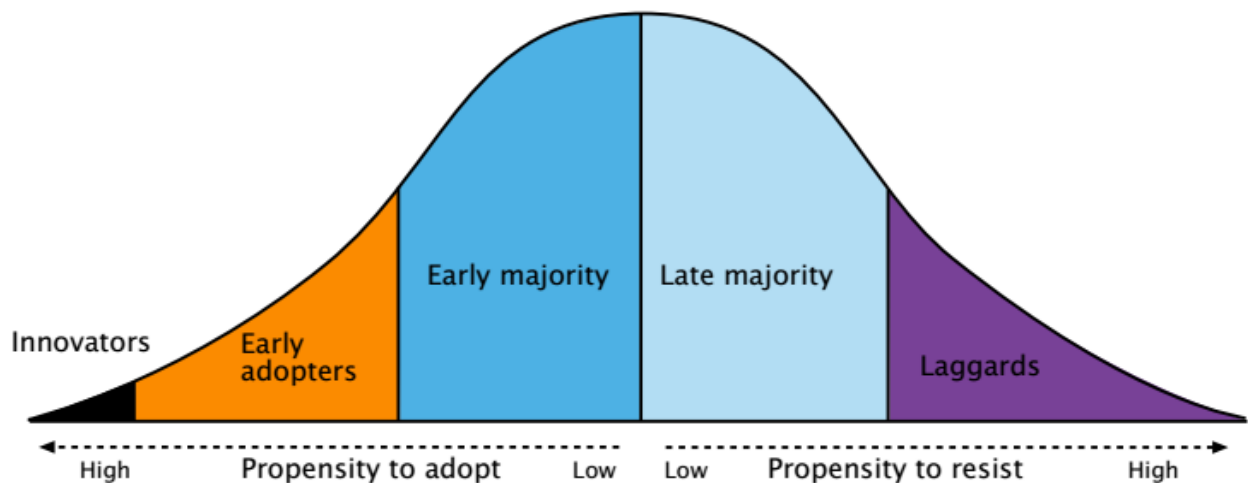


Figure 3.0 Adopter Categories

(Source: Rogers, 2003)

A depiction of Roger's (2003) Diffusion of Innovation Model is shown in Figure 3.1, below;

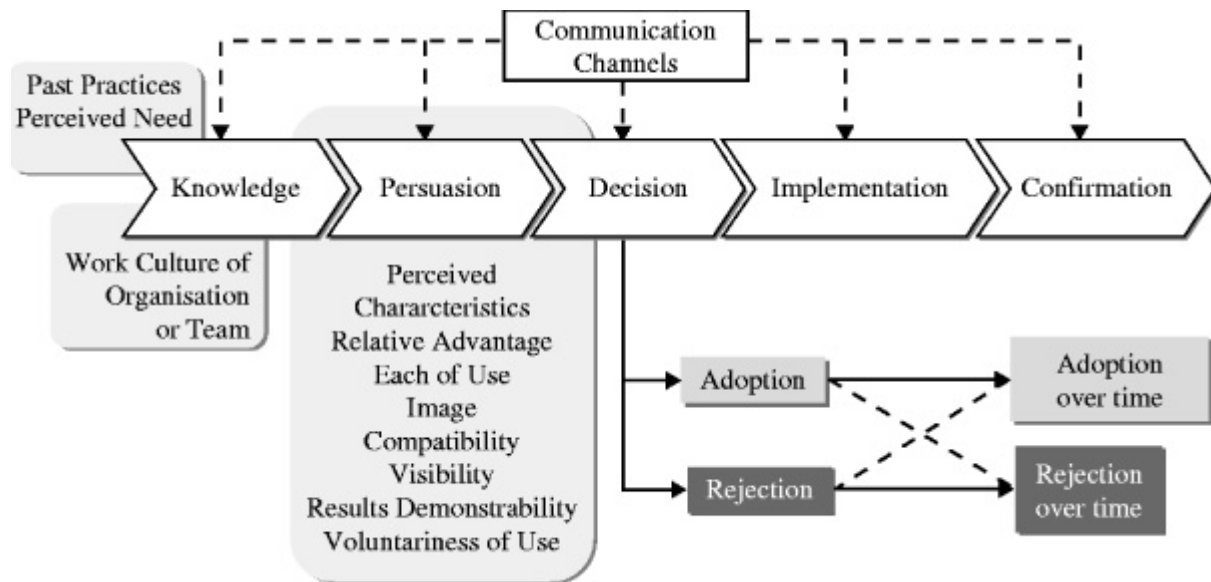


Figure 3.1 Rogers' diffusion of innovation model

(Source: Rogers, 2003)

The stages of adoption of the new product or innovation requires awareness of the need to make use of the innovation, a decision to either adopt or reject the innovation, initial use of the innovation and the continued use of the innovation (Rogers, 2003).

Rogers (2003) noted five factors influencing adoption of an innovation, namely;

1. Relative Advantages
2. Compatibility
3. Complexity
4. Trialability
5. Observability

Relative Advantages

This is a measure of the degree to which an innovation is seen to be better than what it is replacing.

Compatibility

This looks at the consistence of the innovation towards potential adopter's values, experiences and needs.

Complexity (simplicity or ease of use)

This looks at how difficult it is to make use of the innovation.

Trialability

This looks at whether an innovation can be tested and or experimented with before making a commitment to adopt it.

Observability

This looks at the degree to which an innovation provides tangible results.

Criticism of Diffusion of Innovation Model

Over-adoption has been cited as one of the problems associated with the Diffusion of Innovation Approach (Yang, 2009). An illustration of this could be an over development of housing which would lead to environmental degradation. Some scholars even argue that good innovations should not be adopted by those who lack sufficient knowledge of how to use them or those who cannot afford them (Szmigin and Foxall, 1998).

The implication of the pro-innovation bias is that the innovation will only be adopted by those within a certain social system (Haider and Kreps, 2004). It has been noted that whilst new innovations have eased the day to day burdens of life, their failures have also had catastrophic consequences which has made it important that sociologists investigate any potential negative impacts which such innovations might bring about (Juma, 2016). Some scholars have argued that sociologists need to critically examine the new innovations bearing in mind that they are products from the elite and powerful in society hence could be used to further the gap of inequality between that class and the less powerful and hence disadvantaged populations (Juma, 2016).

Other scholars have also argued that there is a tendency to blame non-adoption on "individual-blame bias," (Rogers, 1976; Savage, 1985; Haider and Kreps, 2004). It has been noted that some laggards simply take time to adopt because they do not like change, whilst others are just simply slow to understand how the new innovation works (Haider and Kreps, 2004). It then follows that whilst trying to understand non-adoption, stereotyping that all laggards are lazy, ignorant or resistant to change or have a natural bias to always reject new technologies does not hold.

It has been noted by some scholars that society plays a very important role in the adoption or rejection of the new innovation (Talukder and Quazi, 2011). The infrastructure within a certain society could simply hinder adoption of an innovation, it can be noted that the powering of motor vehicles using ethanol mixed with petrol in Zimbabwe took a long time to take effect as there was no legislature in place to mandate that (Jumbe, Msiska and Madjera, 2009). The influence of societal practices also needs to be understood if adoption or rejection is to be fully studied.

3.1.7 Theory of Reasoned Action

Founded at the background of a need to come up with consistency in studies between attitudes and behavior, TRA came to being in 1967 (Fishbein and Ajzen, 1975; Ajzen 1988; Werner 2004). According to Fishbein and Ajzen (1975) and as further noted by Ajzen (1988), TRA is founded on two notions, namely “principles of compatibility” and a concept of “behavioral intention.” It was argued that prediction of one’s behavior towards a specified object, within a given setting at a specific time requires that a closer look be taken at specific attitudes that relate to that specific individual at that particular time and within that particular setting (Ajzen 1988; Fishbein and Ajzen 1975). On the other hand, “behavioral intention” was defined thus, attitudes towards a certain behavior have an influence towards how someone behaves, and one’s behavioral intention was a sign of how much effort they had to commit in order to perform such a behavior; consequently meaning that a higher commitment led to a higher likelihood for an individual to behave in a certain way (Fishbein and Ajzen 1975).

Fishbein and Ajzen (1975) stated that a behavioral intention is determined by attitudes and subjective norms, which the later further, supported (Ajzen, 1988). Werner (2004) defined the said attitude as being how an individual perceived a specific behavior, noting that such a perception could either be negative or positive. Werner (2004) went on to note that “subjective norm” refers to an individual’s subjective judgement regarding how other preferred and supported a certain behavior. TRA diagrammatically look like Fig. 3.2 below;

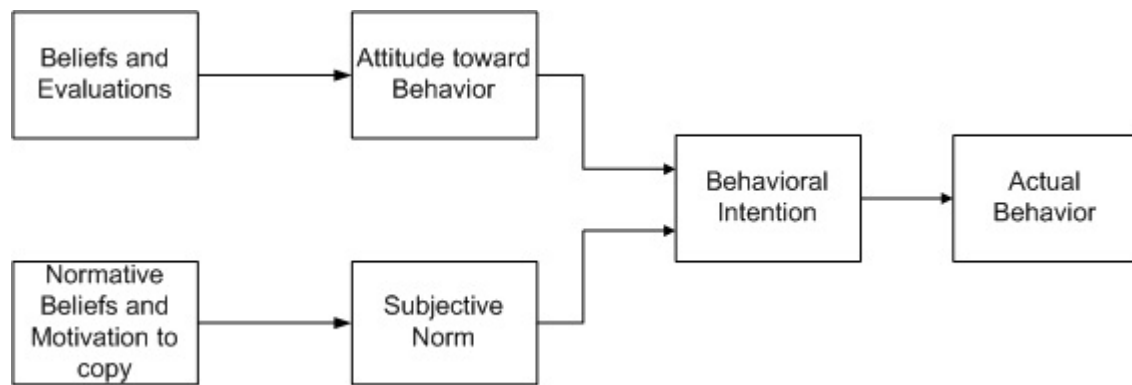


Figure 3.2 Theory of Reasoned Action (adopted from Fishbein & Ajzen 1975)

(Source: Fishbein & Ajzen 1975)

Critics of TRA have highlighted the neglect of social factors which in the real world played a pivotal role in the determination of how an individual would behave (Werner 2004; Grandon and Mykytyn, 2004). Ajzen (1991) these social factors being all environmental influences surrounding an individual could influence that's individual's behavior. As a way to counter this significant weakness in TRA, Ajzen (1991) went on to propose another construct which he called "Perceived Behavioral Control," then derived what was to be known as the Theory of Planned Behavior.

3.1.8 Theory of Planned Behavior (TPB)

Ajzen (1991) developed TPB as an extension of TRA taking the mandatory (Lee, and Larsen, 2003; argued this was not the case in its application instead noting its voluntary situation applicability) situation into consideration by an addition of a new construct dubbed "perceived behavioral control." Ajzen (1991) defined perceived behavioral control is as "the perceived ease or difficulty of performing a specific behavior," and went on to argue that it could have an indirect influence on behavior. Taylor and Todd (1995), whilst specifically looking at the Information Systems domain, defined perceived behavioral control as "perceptions of internal and external constraints on behavior." There is an underlying assumption that says that individuals are rational decision makers which is a shared postulation between TRA and TPB (Basu, 1996; Eppen et al. 1998). Multiple scholars have alluded how TPB has been widely used to explain how individuals accept and make use of different technologies (Mathieson 1991; Taylor and Todd 1995b).

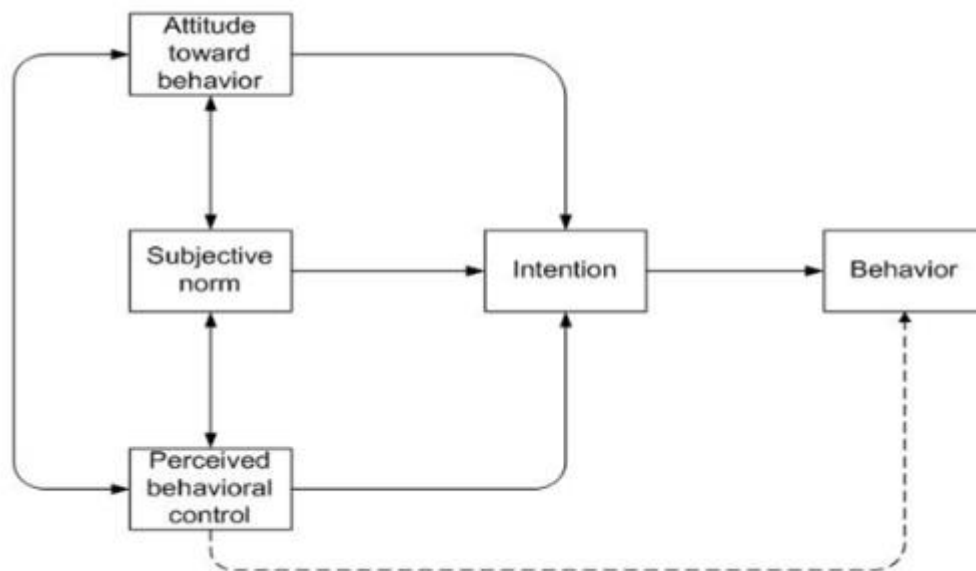


Figure 3.3 Theory of Planned Behavior

(Source: Ajzen, 1991)

Even though TRA and TPB have gained wide acceptance and usage within the Information System for their ability to predict behavior, some limitations have been noted (Werner, 2004). Werner (2004) argues that what determines an individual's intention cannot be limited to subjective norms, attitudes and perceived behavioral control which essentially is the cornerstone of the TPB (Ajzen, 1991). It has been noted that other factors have the potential to influence behavior. Werner (2004) went on to argue that there was a possibility of a substantial time gap between assessment of behavior and actual behavior, and put this forward as the second limitation of making use of TPB highlighting the possibility that an individual's intention could actually change within that time period.

Werner (2004) further argues that both TRA and TPB act as predictive models which predict an individual's behavior based on certain criteria, reality though does not always see individuals behave as predicted by those criteria. Several scholars have noted how TRA and TPB have been used to explain how individuals adopt IT, with the former being modified so as to predict how users accepted new technology (Karahanna and Straub 1999; Chin and Marcolin 2001; Legris, Ingham and Colletette 2003).

3.1.9 Model of PC Utilization (MPCU)

A competing perspective to TRA and TPB is found in Triandis's (1977) theory of attitudes and behavior. There is a clear distinction between cognitive and effective components of attitude (Triandis, 1980). Triandis (1980) postulated that beliefs belong to the cognitive component of attitudes; Thompson et al (1991, p.126) went to state that, "behavior is determined by what people would like to do (attitudes), what they think they should do (social norms), what they have usually done (habits), and by the expected consequences of the behavior". Further refinement of Triandis's (1977) model to predict PC utilization was conducted by Thompson et al. (1991) making use of the following constructs;

Facilitating Conditions: "provision of support for users of PCs may be one type of facilitating condition that can influence system utilization" (p. 129),

Social Factors: "individual's internalization of the reference group's subjective culture, and specific interpersonal agreements that the individual has made with others, in specific social situations" (p. 126),

Complexity: "the degree to which an innovation is perceived as relatively difficult to understand and use" (p. 128),

Job-fit: "the extent to which an individual believes that using [a technology] can enhance the performance of his or her job" (p. 129),

Long-term consequences: "Outcomes that have a pay-off in the future" (p. 129),

Affect Towards Use: "feelings of joy, elation, or pleasure, or depression, disgust, displeasure, or hate associated by an individual with a particular act" (p. 127).

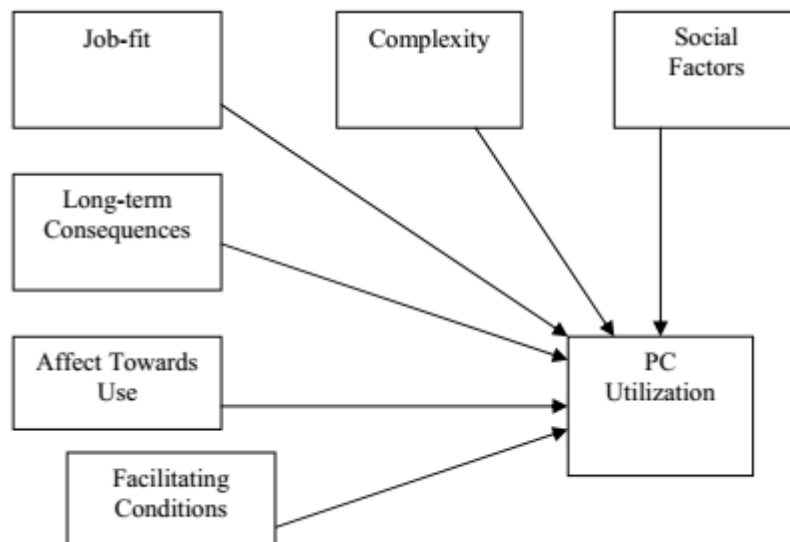


Figure 3.4 The Model of PC Utilization (Thompson et al., 1991)

3.1.10 Motivational Model

The motivational theory was applied to the study of information technology adoption and use by Davis et al. (1992). The principles behind the Motivation Model are that an individual's behavior is based on extrinsic and intrinsic motivations. The former is seen as a perception that users want to perform an activity "because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, pay, or promotions", (Davis et al., 1992, p. 1112; Cheng and Yeh, 2009). Vallerand (1997) argued that intrinsic motivation relates to perceptions of pleasure and satisfaction from performing the behavior. Davis et al (1992, p. 1112) suggested that users want to perform an activity "for no apparent reinforcement other than that of performing the activity per se". Several scholars recognized computer enjoyment and playfulness as being examples of intrinsic motivation (Davis, et al., 1992; Venkatesh, 2000). On the other hand, extrinsic motivation is exemplified by perceived ease of use, subjective norm and perceived usefulness (Davis, et al., 1992; Venkatesh, 2000).

3.1.11 Technology Acceptance Model (TAM)

TAM is a brainchild of Davis (1986) which he proposed in his doctoral studies. Davis's motivation and justification of his study was to find new and better constructs for predicting and exploring the use of technology in the form of perceived ease of use and perceived usefulness. TRA which was modified to become TAM, postulates that an individual's behavior intention (BI) to act on a behavior is dependent on the

person's attitude (A) and subjective norm (SN) in reference to the behavior in question (Fishbein, and Ajzen, 1975; Davis et al., 1989).

$$BI = A + SN.$$

Human behavior is predicted and explained through TRA. In TRA's modification, Davis (1986) went on to remove subjective norm as he lacked understanding of that concept (Ajzen, 1991; Davis et al., 1989). TAM suggests the importance of two factors: perceived ease of use and perceived usefulness (Gao, Krogstie and Gransaether, 2008). Several scholars have postulated the importance of perceived usefulness and ease of use in predicting system adoption (Brown et. al, 2002).

Davis (1986) went on to define perceived usefulness as being an individual's belief of the extent to which technology can help the individual to perform better at a job, this in turn determines whether or not to make use of that technology. Venkatesh et al., (2003) went on to define perceived usefulness as being "performance expectancy," and it has been noted that perceived usefulness has a strong positive effect on a user's intention to adopt a new innovation.

Davis (1986) further went on to allude that perceived ease of use comes from an individual's belief that whilst a technology is useful, if it is too hard to learn in the face of a greater effort to learn when compared to the benefit to be gained. Dholakia and Dholakia (2004) defined perceived ease of use as being the degree to which a person believes that using a particular system does not require any effort. Rogers (1995) and Venkatesh et al (2003) argued that complexity and effort expectancy are constructs which determine perceived ease of use. Several scholars support the notion that complexity can cause frustration which consequently could impair adoption of new technologies (Davis, 1989; Venkatesh, 1999; Venkatesh and Davis, 2000; Taylor and Todd, 2001). It has been noted, for example, that mobile phones with tiny user screens and or miniature keypads can present a challenge to users when viewing or typing which could potentially result in errors which consequently negatively affect the whole mobile money experience (Etim, 2014). Numerous literatures capture how perceived ease of use directly or indirectly affects the adoption of new technologies.

According to Gao, Krogstie and Gransaether (2008), TAM tested in different domains and has proven to be quite reliable in the prediction of user acceptance of new technologies notably computer technology and mobile phone technology amongst others. TAM (Davis, 1989) is depicted in Figure 3.5 below.

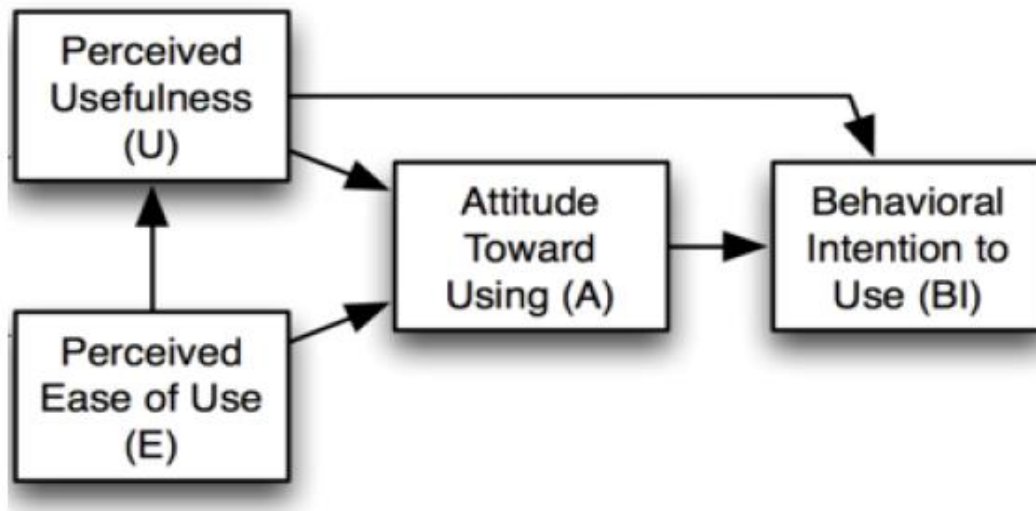


Figure 3.5 Technology Acceptance Model

(Source: Davis, 1989)

TAM, as a tool for predicting acceptance of new technologies has received wide recognition and validity from many authors (Segar and Grover, 1993; Doll, Hendrickson and Deng, 1998; Adams, Nelson and Todd, 1992; Plauffe, Hulland and Vandebosch, 2001; Legris et al., 2003). The study of the acceptance of mobile banking applications has been done by many authors using the TAM as well as its extended versions (Chung and Kwon, 2009; Gu, Lee, and Suh, 2009; Kleijnen, Wetzels, and Ruyter, 2004; Luarn and Lin, 2005; Yu and Fang, 2009). It has been noted that TAM extensions have been done with the outcome being tested to see the significance of the various factors such as perceived costs, social influence and the quality of the system (Yang, 2009; Kleijnen, Wetzels and Ruyter, 2004). Luarn and Lin (2005) weighed in and defined costs as being the extent to which a user believes that using mobile money services will cost them money examples include mobile network charges, mobile device cost.

High costs hinder adoption of mobile money (Mallat, 2007; Cruz et. al, 2010). Trust as a factor has also been found to influence the adoption and acceptance of mobile money services (Gu, et al., 2009; Luarn and Lin, 2005). Some scholars have focused

on the actual characteristics of the mobile devices as being deterrents of adoption and use of mobile money services, taking note of things such as small screens and poor usability (Laukkanen and Pasanen, 2007; Mallat, Rossi and Tuunainen, 2004). It has also been noted that further to the factors highlighted above, customer demographic factors also play a role in the adoption of mobile money services with one example of a study which found that one's education level and age were major determinates of whether or not they would adopt and make use of mobile money services (Polatoglu and Ekin, 2001; Suoranta, 2003; Amin, et al., 2006). Gender was also noted to play a part in determining the said adoption (Laukkanen and Pasanen, 2007).

Since its inception, TAM has been extended numerous times by several scholars such as Agarwal and Prasad (1998a, 1998b) who added the construct of compatibility. Cognitive absorption, playfulness and self- efficacy were also added to TAM in a study done by Agarwal and Karahanna (2000). The focus on cognitive research has now increased covering topics that look at adoption and use of IS (). Several scholars have written about how a user's beliefs and intentions has an impact on their behavior toward IS and hence plays a role in how the information system (IS) is designed and implemented from an organizational level right down to an individual level (Robey, 1979; Davis, Bagozzi and Warshaw, 1989; Adams, Nilson and Todd, 1992). Whilst the concept of Cognitive Absorption (CA) was introduced way over a decade ago by Agarwal, Sambamurthy and Stair (1997) and its development was grounded on technology acceptance research (Davis, 1989; Davis et. al., 1989; Davis et. al., 1992) and intrinsic motivators (Deci, 1975). CA is defined as being a state of a user's deep involvement with software; most of the studies on how user beliefs and intention to use IS do not seem to suggest that this concept is being considered (Venkatesh et al., 2003; van der Heijden, 2004; Lu, Yao and Yu, 2005). A revised model of CA is shown below which illustrates how CA has a positive influence on perceived ease of use justified through creating a perception of a lower cognitive burden (Agarwal and Karahanna, 2000). CA as a construct influences behavioral intention

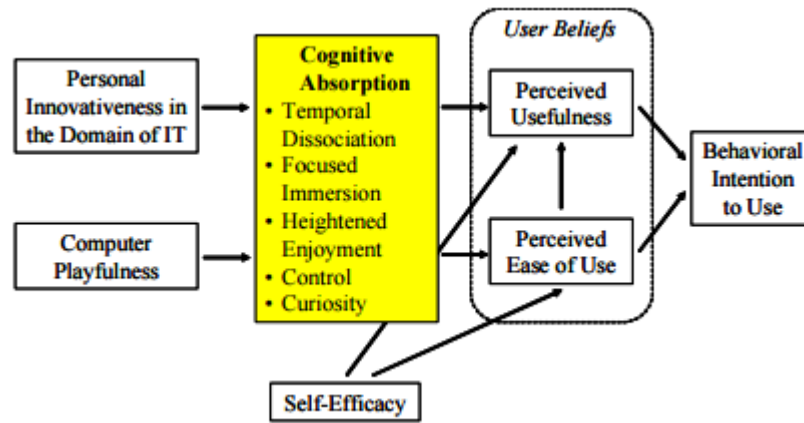


Figure 3.6 Extended CA Research Model

(Source: Agarwal and Karahanna, p. 674)

There have been a lot of studies which have been done around the effects of Cognitive Absorption and illustrated below;

Author(s), Journal (Year)	Focus (IS)	Cognitive Absorption Dimensions	Direct Determinants of Cognitive Absorption	Direct Outcomes of Cognitive Absorption
Agarwal, Sambamurthy, Stair AoM Proceedings (1997)	IT adoption, software usage (Windows 95, Lotus 1-2-3)	Flow Computer playfulness Perceived ease of use	Personal innovativeness in the domain of IT ☒ Self-efficacy ☒	Perceived usefulness ☒
Agarwal, Karahanna, MISQ (2000)	Beliefs about IS usage (Internet)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity	Computer playfulness ☒ Personal innovativeness in the domain of IT ☒	Perceived ease of use ☒ Perceived usefulness ☒
Wright, Granger, IAIM Proceedings (2001)	Using the web as strategic resource (Internet)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity		Perceived ease of use ☉
Leong, Ho, Zhang, World Conf. on E-Learning in Corporate Government, Healthcare, and Higher Education Proceedings (2005)	Intention to use online learning environments (Internet-based learning systems)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity	Social presence (?)	Satisfaction (?)
Saade, Bahli, Information & Management (2005)	Intention to use online learning systems (Internet-based learning systems)	Temporal dissociation Focused immersion Heightened enjoyment		Intention to use ☒ Perceived ease of use ☒ Perceived usefulness ☒
Shang, Chen, Shen, Information & Management (2005)	Online shopping beliefs and behavior (Internet)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity		Actual behavior ☒ Perceived ease of use ☒ Perceived usefulness ☒
Thomas, AMCIS Proceedings (2006)	Antecedents and effects of CA (Microsoft Access)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity	Computer playfulness ☉ Normative influence ☉ Personal innovativeness in the domain of IT ☉	Perceived ease of use ☉ Perceived usefulness ☉
Wakefield, Whitten, EJIS Proceedings (2006)	Hedonic and utilitarian mobile device usage (Blackberry PDA)	Temporal dissociation Focused immersion Control Curiosity		Hedonic context: Intention to use ☒ Perceived enjoyment ☒ Perceived usefulness ☒ Functional context: Intention ☒ Perceived enjoyment ☒ Perceived usefulness ☒
Zhang, Li, Sun, HICSS Proceedings (2006)	Extending TAM with intrinsic motivation variables (Internet)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity	Perceived affective quality ☒	Perceived ease of use ☒ Perceived usefulness ☒
Jia, Hartke-Jia, Pearson, ICIS Proceedings	Antecedents of problematic IS usage	Temporal dissociation Focused immersion Heightened	Computer playfulness ☒ Personal innovativeness in the domain of IT ☒	Actual usage ☒ Problematic usage ☒ Social/Leisure use ☒

(2007)	(Internet)	enjoyment Control Curiosity		Study/Work use ☑
Lapointe, Rivard, Organization Science (2007)	Information System Implementation (Enterprise System)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity		Perceived ease of use ☑ Perceived usefulness ☑
Leonhard, Riemenschneider, Electronic Markets (2008)	Factors influencing the individual impact of the web (Internet)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity	Computer playfulness ☑ Personal innovativeness in the domain of IT ☑	Usability ⊖
Suki, Ramayah, Suki, Direct Marketing: An Int'l Journal (2008)	Internet shopping acceptance (Internet)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity		Actual behavior ☑ Perceived ease of use ☑ Perceived usefulness ☑
Chandra, Srivastava, Theng, PACIS Proceedings (2009)	Virtual world usage (Virtual worlds)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity	Computer playfulness ☑ Familiarity ☑ Perceived compatibility ☑ Personal innovativeness in the domain of IT ☑	Intention to use ☑ User trust ☑
Lin, Behaviour and Information Technology (2009)	Intention to use virtual communities (Virtual community website)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity		Intention to use ☑ Perceived ease of use ☑ Perceived usefulness ☑
Roca, Chiu, Martinez, Int'l Journal of Human Computer Studies (2009)	E-Learning Continuance Intention (E-learning system)	Temporal dissociation Focused immersion Heightened enjoyment Control Curiosity	Confirmation ☑	Perceived ease of use ☑ Perceived usefulness ☑ Satisfaction ☑

Symbols: ☑ confirmed, ☒ rejected, ⊖ inconclusive/partially supporting, (?) not tested yet

Figure 3.7 Cognitive Absorption Effects

(Source: Agarwal and Karahanna, 2000)

Playfulness as a variable was added during a study of acceptance of the World Wide Web by Moon and Kim (2001). Experience, self-efficacy, perceived risk and social influence were also added as variables to TAM by Lim (2000). Riquelme and Rios (2010) argued that there is need for consideration of other factors which influence adoption behavior such as perceived risk. Gerrard and Cunningham (2003) defined perceived risk as being the uncertainty about the use of an innovation. Scholars such as Benamati and Serva (2007) have said that adoption of mobile money services means that users will have to consider concerns around password integrity and hacking for example. Other scholars have said that the perceived loss of information during mobile money transaction is another consideration that users take into account when they are thinking of adopting mobile money usage (Mallat, 2007; Gu,

et al., 2009). The recognition of perceived risk or uncertainty as an important construct influencing adoption has been widely supported by different scholars (Donner and Tellez, 2008; Chung and Kwon, 2009; Luo, Zhang, and Shim, 2010). Other scholars such as Chau and Hu (2001) broke down TAM's perceived usefulness into near-term and long-term. Peer influence was also added to TAM in a study by Chau and Hu (2001). Franco and Roldan (2005) explored the relationship between perceived usefulness and behavioral intention, and found out that behavioral intention was strong among goal-directed users. Perceived entertainment value and perceived presentation attractiveness variables were also added to TAM through a study which looked at how an individual would accept and use a website (Van der Heijden, 2000).

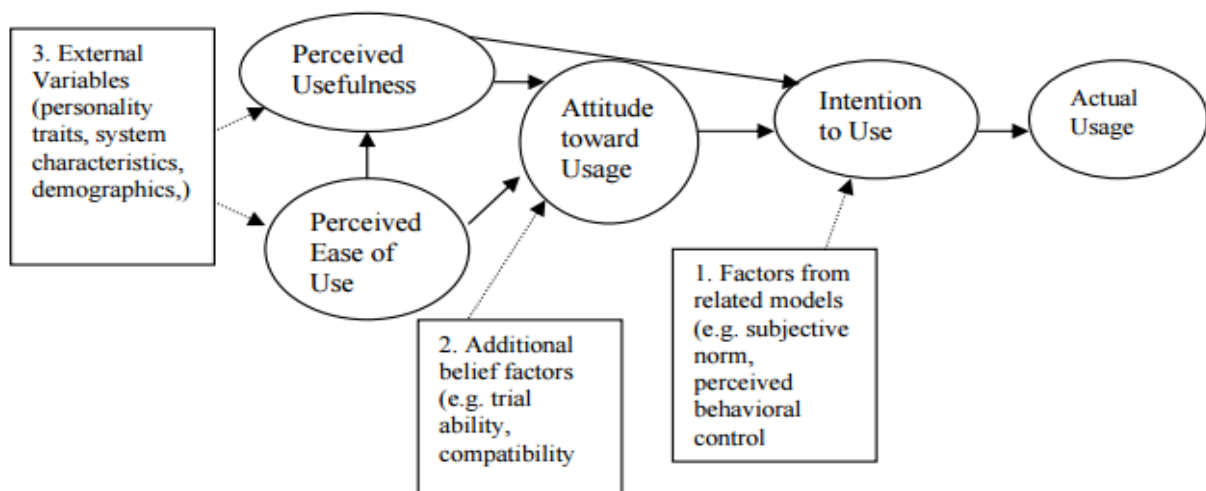


Figure 3.8 Some of the Extensions to TAM

(Source: Wixom and Todd, 2005)

It however seems there is no literature to suggest a comprehensive study having been conducted around developing a model which explains adoption of mobile money services within rural communities as undertaken in this study (Mobile Money Acceptance Model).

3.1.11.1 Criticism of TAM

It has been argued by several scholars an innovation's form has an influence on how potential users perceive its ease of use (Mathwick, Malhotra and Rigdon, 2001). Knutsen, Constantio and Damsgaard (2005) alluded that, within the context of mobile money, PEOU represents the degree to which users' associate freedom of difficulty with the use of mobile technology and services in their day to day use. It should be noted that even though TAM is very popular, it has not been without criticism and attempts have been made to refine it (Venkatesh et al., 2003).

TAM's simplicity makes it impossible for it to be used in explaining different decisions and behavior across different technologies found in differing situations with the adoption decision being done by different decision makers (Dass and Pal, 2011). Dass and Pal (2011) noted that there are more considerations that are taken into account when a decision is being made in the process of forming one's intention. According to Bagozzi (2006), TAM does not take out the likelihood of the absence of compelling motivations for acting on putative reasons; it can be found that whilst a person (with a positive attitude towards the same) might perceive the usefulness of a technology, this might not translate to adoption and use should they not desire to act. Adding to this criticism is Mathieson (1991) who argued that even though TAM has received wide acceptance as a predictor of technology adoption, it remained insufficient to base a user's adoption behavior solely on two constructs, PU and PEOU.

It is further noted that TAM focuses on an individual person and does not take into consideration group, social and cultural issues which could play a significant role in one's decision making process (Dass and Pal, 2011). Social influences cannot be ignored as they play a role in our actions as we seek approval, acceptance of fear of being judged. It has been proven through social science studies that people have a tendency to respond to social normative influences in order to have a favorable image within a reference group. Human beings have a tendency to want a high social standing, and it has been proven that making use of new innovations can play a huge role in the accomplishment of that (Kulviwat, Bruner, and Al-Shuridah, 2009). Scholars such as Pedersen and Ling (2002) have argued that the social norms construct cannot be ignored in any adoption model, a point which has been validated in various studies around group-oriented IT (Taylor and Todd, 1995; Lu, Yao and Yu,

2005; Schepers and Wetzels, 2007; Riquelme and Rios, 2010). Ajzen and Fishbein (1975) noted that whilst the effect of social norms is significant, it is only most significant during the initial adoption phase. Mobile money services adoption tend to also fall under the influence of social norms as the literature states.

Studies have been done which have shown the inconsistencies in TAM predicting adoption behavior (Legris, Inghamb and Colletettec, 2003). Legris, Inghamb and Colletettec (2003); through a qualitative meta-analysis of TAM, came to the conclusion that TAM did not always predict adoption behavior. Legris, Inghamb and Colletettec (2003) examined the 10 relations between the TAM's constructs. Below is Table 3.0 showing where TAM failed to predict.

Author	PEO U- PU	PU-AT	PEOU -AT	PU - BI	PE OU- BI	AT -BI	AT -U	BI- U	PE OU -U	PU -U
Davis et al.(1989) Post Training			No							
Subramanian(1994) Voice mail Customer dial-up	No No									
Taylor and Todd(1995a)						No				
Keil et al. (1995)									No	
Taylor and Todd (1995b) With experience Without experience						No No				
Jackson et al. (1997)	No	No		No		No				
Bajaj and Nidumolu (1998)	No	Reverse								No
Gefen and Keil(1998)									No	
Lucas and Spitler (1999)				No	No				No	No
Hu et al.(1999a)	No		No							
Szajna (1996) Pre-implementation Pos-implementation									No No	No No

Table 3.0 Where TAM failed to predict (**Source:** Adapted from Legris et al 2003)

No – relation was found to be insignificant

Yes – relation was found to be significant

Contradictory and inconsistent empirical results have been noted for all major relations in TAM (Legris, Inghamb and Collettec, 2003). Furthermore, no empirical evidence could be found to support the relation between PU and AU (Szajna, 1996; Bajaj and Nidumoulu, 1998; Lucas and Spitler, 1999). Moreover, TAM ignores self-defining relationships that an individual has with other individuals or a group phenomenon Kelman (1974) referred to it as 'identification' which is termed "social identity" by Tajfel (1981, 1982). It has been shown through studies that social identity does have an influence to decision making (Bagozzi and Lee, 2002; Bagozzi and Dholakia, 2006). Not taking this into account presents a major flaw in TAM as a model which predicts and explains adoption behavior.

3.1.12 The Social Cognitive Theory (SCT)

A shortfall that has been recognized with the IDT, TAM and TPB is their assumption that relationships among the models constructs are unidirectional. Bandura (1986) through the Social Cognitive Theory contrasted that postulation and instead introduced the following factors were periodically determined; cognitive, environmental and behaviors. Some scholars have argued that individual cognitive competences can influence an individual's use of a technology (Compeau, Higgins and Huff, 1999). Compeau and Higgins (1995a, 1995b) put forward the concept of self-efficacy is highlighted by the Social Cognitive Theory.

Significant cognitive factors influencing user's behavior as being outcome expectations, including performance and personal related ones (Compeau and Higgins, 1995a, 1995b). Other scholars then suggested that self-efficacy has an influence on both performance and personal related outcome expectations (Compeau and Higgins, 1995a, 1995b). Affective factors were recognized as being anxiety and affect (Compeau and Higgins, 1995a, 1995b).

3.1.13 Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh et al. (2003) developed UTAUT through the fusion of extensive literature on technology acceptance research. Eight models and theories were reviewed and synthesized in coming up with UTAUT which are Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), Motivational Model (MM), Model Combining the Technology Acceptance Model and Theory of Planned Behavior (C-TAM-TPB), Model of PC Utilization (MPCU), Social Cognitive Theory (SCT) and Innovation Diffusion Theory (IDT), as noted by Sundaravej (2010). Sundaravej (2010) postulated that constructs of the said models and theories, inclusive those of UTAUT are as shown in table 3.1 below;

Models and Theories	Constructs
Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975) derives from psychology to measure behavioral intention and performance.	Attitude Subjective norm
Technology Acceptance Model (TAM) by Davis (1989) develops new scale with two specific variables to determine user acceptance of technology. Technology Acceptance Model 2 (TAM2) by Venkatesh and Davis (2000) is adapted from TAM and includes more variables.	Perceived Usefulness Perceived Ease of Use Subjective Norm* Experience* Voluntariness* Image* Job Relevance* Output Quality* Result Demonstrability* * indicates TAM2 only
Motivational Model (MM) also stems from psychology to explain behavior. Davis et al. (1992) applies this model to the technology adoption and use.	Extrinsic Motivation Intrinsic Motivation
Theory of Planned Behavior (TPB) by Ajzen (1991) extends TRA by including one more variable to determine intention and behavior.	Attitude Subjective norm Perceived Behavioral Control
Combined TAM and TPB (C-TAM-TPB) by Taylor and Todd (1995).	Perceived Usefulness Perceived Ease of Use Attitude Subjective norm Perceived Behavioral Control
Model of PC Utilization (MPCU) by Thompson et al. (1991) is adjusted from the theory of attitudes and behavior by Triandis (1980) to predict PC usage behavior.	Social Factors Affect Perceived Consequences (Complexity, Job-Fit, Long-Term Consequences of Use)

	Facilitating Conditions Habits
Innovation Diffusion Theory (IDT) by Rogers (1962) is adapted to information systems innovations by Moore and Benbasat (1991). Five attributes from Rogers' model and two additional constructs are identified.	Relative Advantage* Compatibility* Complexity* Observability* Triability* Image Voluntariness of Use * indicates Roger's constructs.
Social Cognitive Theory (SCT) by Bandura (1986) is applied to information systems by Compeau and Higgins (1995) to determine the usage.	Encouragement by Others Others' Use Support Self-Efficacy Performance Outcome Expectations Personal Outcome Expectations Affect Anxiety

Table 3.1 Models and Theories of Individual Acceptance

(Adopted from Sundaravej, 2010)

UTAUT marks another attempt to explain user intentions to make use of an information systems and their usage behavior (Gao, Krogstie and Gransaether, 2008). As noted by Gao, Krogstie and Gransaether (2008), there are four determinants of usage intentional and behavior as follows; performance expectancy, effort expectancy, social influence and facilitating conditions. Gender, age, experience and voluntary use were noted to mediate the impact of the aforementioned four constructs. A pictorial depiction of UTAUT is shown in Figure 3.9 below;

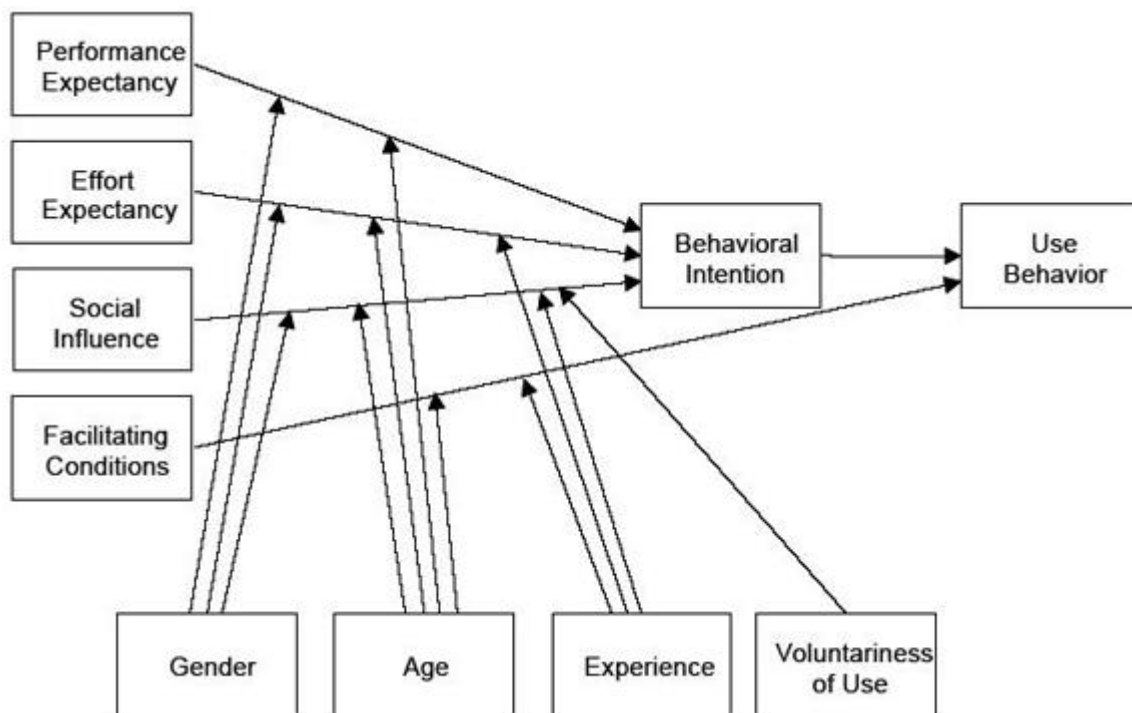


Figure 3.9 Unified Theory of Acceptance and Use of Technology (UTAUT)

(Source: Gao, Krogstie and Gransaether, 2008)

Previous studies have used UATAUT to explain adoption of various information technologies, namely Internet banking and mobile banking. UTAUT's use of four variables has been criticized as being less parsimonious than TAM (Vanraaij and Schepers, 2008). Vanraaij and Schepers (2008) further argue that the grouping and labeling of items and constructs was problematic because a variety of disparate items were combined to reflect a single psychometric construct. Bagozzi (2007) has been quoted saying, "“UTAUT is a well-meaning and thoughtful presentation,” but that it presents a model with 41 independent variables for predicting intentions and at least 8 independent variables for predicting behavior,” and that it contributed to the study of technology adoption “reaching a stage of chaos.” Instead, Bagozzi (2007) proposed an alternative of having a unified theory that coheres the “many splinters of knowledge” to explain decision making.

Numerous scholars have taken note of how technology acceptance models have failed on numerous times to explain adoption as shown in Table 3.2 below.

Author	PEOU- PU	PEOU -U	PEOU - BI	AT - BI	Social Influences	Facilitating Conditions
Chau and Hu (2001)	No					
Hu (2001)	No					
Agarwal and Prasad (1997)		No				
Subramanian(1994)			No			
Chau (1996)			No			
Hu et al. (1999)			No			
Venkatesh et al. (2003)				No		
Hartwick and Barki (1994)					Yes	
Karahanna and Straub (1999)					Yes	
Lu et al. (2005)					Yes	
Lucas and Spitler (1999)					Yes	
Taylor and Todd (1995)					Yes	
Schepers & Wetzels (2007)					Yes	
Chau and Hu (2001)					No	
Davis et al.(1989)					No	
Dishaw and Strong (1999)					No	
Mathieson (1991)					No	
Gallivan et al. (2005)						No
Igbaria et al. (1997)						No
Mawhinney and Lederer (1990)						No
Karahanna and Straub (1999)						No
Thompson et al. (1991)						No
Taylor and Todd (1995)						Yes

Table 3.2 Where technology acceptance models have failed to predict

(Source: Li, 2010)

No – relation was found to be insignificant ***Yes** – relation was found to be significant

3.1.14 The Cumulative Adoption Model

The Cumulative Adoption Model is the brainchild of Dass and Pal (2011) who attempted to come up with an exhaustive list of constructs which influence user adoption behavior of mobile money services; depicted in Figure 3.10 below. According to Dass and Pal's (2011) study, many factors interplay in the determination of one's behavioral intention (BI) to use mobile financial services. The various factors were tested and their significance (derived from number of published articles looking at a particular factor) are denoted in Figure 3.10 which is to be interpreted as those factors which were found to be prevalent during multiple studies, darker lines were used to represent significant factors whereas the not so significant ones used the thin lines (Dass and Pal, 2011).

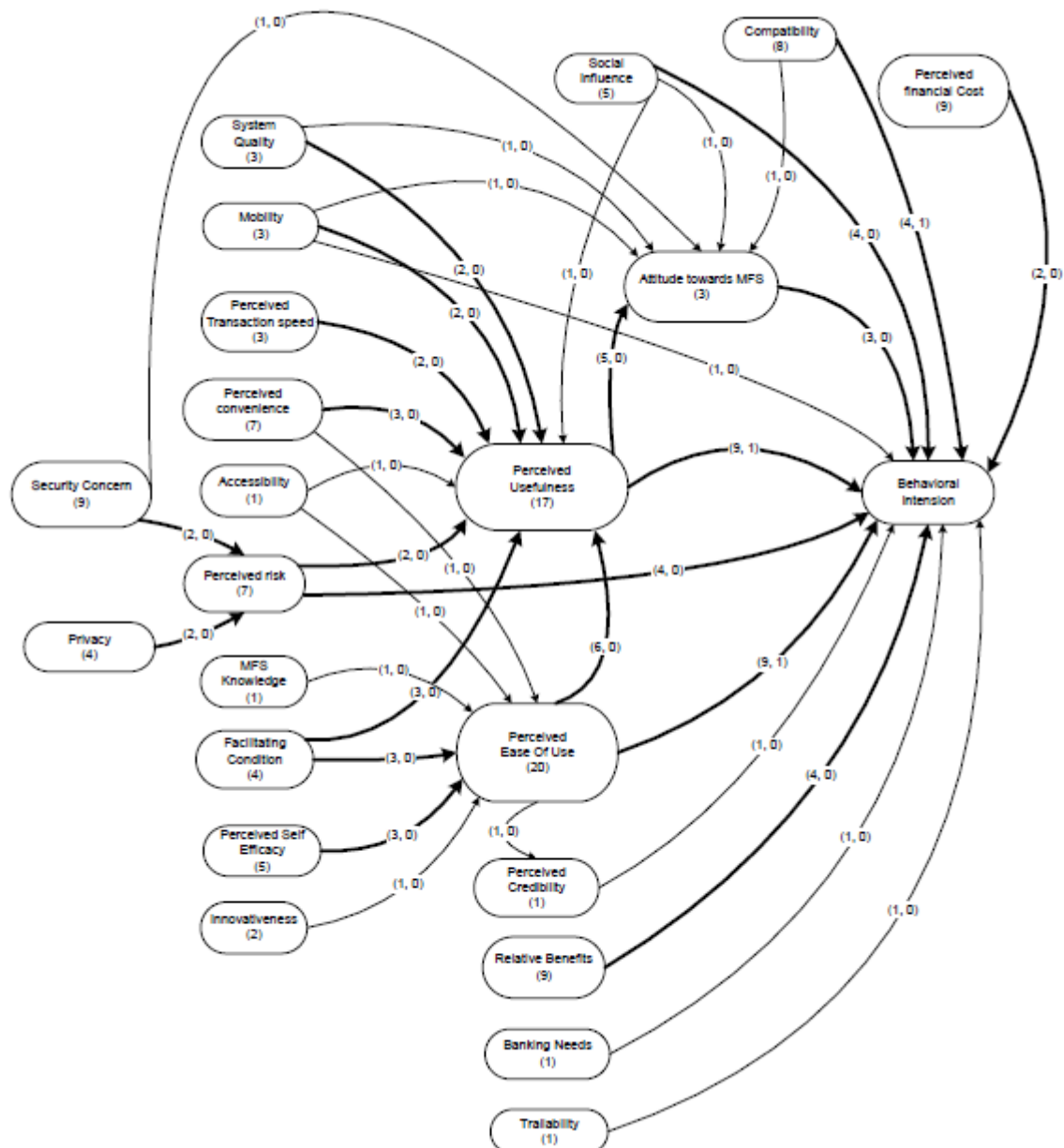


Figure 3.10 Cumulative Model Derived from Existing Literature Showing Linkages between Factors

(Source: Dass and Pal, 2011)

Dass and Pal (2011) went through 29 published papers on mobile financial services adoption written for studies which were conducted mostly outside Africa, with one exception for a study conducted in South Africa as shown in Table 3.3 below. Dass and Pal (2011) conducted an extensive literature search using Jstor, Google and EBSCO scholar search tools. Whilst their research was quite extensive, it however mostly excluded covering the case studies of the phenomenon of mobile money services which are prevalent in Africa. Dass and Pal (2011) looked at the following papers in deriving their cumulative adoption model which is the basis upon which this study's conceptual model is based.

Paper	Reference	Country of Study
P1	(Chung & Kwon, 2009)	Korea
P2	(Luarn & Lin, 2005)	Taiwan
P3	(Gu, et al., 2009)	Korea
P4	(Kleijnen, et al., 2004)	USA
P5	(Zmijewska, Lawrence, & Steele, 2004a)	Japan
P6	(Zmijewska, Lawrence, & Steele, 2004b)	Japan
P7	(L. D. Chen, 2006)	USA
P8	(Dewan & Chen, 2005)	USA
P9	(Yu & Fang, 2009)	Taiwan
P10	(Niina Mallat, 2006)	Finland
P11	(Heijden, 2002)	Sweden and Netherlands
P12	(Dahlberg & Oorni, 2006)	Finland
P13	(Brown, et al., 2003)	South Africa
P14	(Pousttchi, 2003)	Germany
P15	(G. Kim, Shin, & Lee, 2009)	Korea
P16	(Anckar & D'Incau, 2002)	Finland
P17	(Y. Lee & Benbasat, 2003)	---
P18	(Looney, Jessup, & Valacich, 2004)	---
P19	(Laforet & Li, 2005)	China
P20	(C.-P. Lee, Warkentin, & Choi, 2004)	South Korea and USA
P21	(Viehland & Leong, 2007)	New Zealand and USA
P22	(C. Kim, Mirusmonov, & Lee, 2010)	Korea
P23	(Cheong, Park, & Hwang, 2004)	Korea
P24	(L.-d. Chen, 2008)	USA
P25	(Schierz, Schilke, & Wirtz, 2010)	Germany
P26	(Rose & Fogarty, 2006)	Australia
P27	(Linck, Pousttchi, & Wiedemann, 2006)	---
P28	(Barati & Mohammadi, 2009)	---
P29	(Luo, Li, Zhang, & Shim, 2010)	USA

Table 3.3 - Reference Papers for The Cumulative Model depicted in Figure 3.10

(Source: Dass and Pas, 2011)

In deriving the Cumulative Adoption Model, references to the various adoption factors were tabulated in order to determine which ones were prevalent or otherwise and this is depicted in a matrix which is shown in Table 3.4 below. Through the literature based study conducted 34 factors were found to have an effect on the adoption of mobile financial services.

	Perceived ease of use / Complexity	Perceived usefulness	Perceived financial cost	Relative benefits/advantage	Security	Compatibility	Perceived risk	Convenience	Trust	Subjective norm / Social influence	Perceived self-efficacy	Facilitating conditions	Privacy	Mobility	Speed of transaction	Attitude towards MFS	System quality	Technology anxiety	Familiarity with bank	Mobile experience	Initial trust	Structural assurance	Network externalities	Innovativeness	Perceived credibility	Triability	Banking needs	Situational normality	Expressiveness	Mobile Payment Knowledge	Accessibility	Need interaction	Interpersonal relationship	Awareness		
P1	1	1																																		
P2	1	1	1								1														1											
P3	1	1								1	1	1																1								
P4	1	1	1							1							1																			
P5	1	1	1		1					1																										
P6	1	1	1							1				1																						
P7	1	1			1	1	1	1					1	1																						
P8	1	1			1			1					1	1																						
P9	1			1	1										1																					
P10	1		1	1		1	1		1																											
P11	1		1				1																		1											
P12	1	1				1	1	1	1	1																										
P13	1			1		1	1				1	1									1						1	1								
P14			1		1			1																												
P15				1															1		1															
P16				1																																
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P21	1	1	1	1	1			1																												
P22	1	1				1		1						1											1											
P23	1	1	1	1								1				1																				
P24	1	1			1	1	1	1					1		1																					1
P25	1	1			1	1				1				1		1																				
P26	1	1					1				1					1		1																		
P27					1								1																							
P28	1	1							1																1											
P29		1					1		1		1											1	1													
	20	17	9	9	9	8	7	7	6	5	5	4	4	3	3	3	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	

Table 3.4 Concept Matrix

(Source: Dass and Pas, 2011)

Dass and Pal (2011) sought to validate the factors that they had established through their literature based research through an exploratory study involving conducting of in-depth interviews and focus group discussions of the under-banked within three rural locations in India. The target population comprised of people having bank accounts as well as those not having banking accounts and banking agents in the states of Gujarat, Jharkhand and Rajasthan. Dass and Pal (2011) conducted 15 interviews and 10 focus group interviews (consisting of an average of five participants). Selection of the interviewees was done at random whereas that of the focus group participants looked at individuals who knew each other, and thus

encouraged openness during participation, an approach several scholars are in support of (Krueger and King 1997; Liamputtong, 2011; Kamberelis and Dimitriadis, 2013; Krueger and Casey, 2014; Brinkmann, 2014). Further to the above they also sort find out if there were other factors that had not been captured within the available literature that they consulted.

Dass and Pal (2011) through their exploratory field study found the following factors for and against the adoption of mobile money services. A table depicting the drivers, inhibitors and antecedents was drawn up as below;

Factors	Antecedents
Demand for banking and financial services	Awareness
	Realized Need
	Affordability
Hardships faced in existing channels of banking	Accessibility
	Corruption
	Quality of Service
Perceived usefulness of MFS	Safety and Security
	Convenience
	Reduced cost
Trust	Training
	Agent / Merchant Network
	Peer Feedback / Social Influence
Technology readiness	Awareness and Adoption of ATM
	Awareness and Adoption of Mobile Phones
	Demographics
Ease of use	Perceived Self Efficacy
	Local Language
Perceived financial cost	Cost of Handset
	Transaction Charges

Table 3.5 Factors Affecting Adoption of MFS among Rural Under-banked

(Source: Dass and Pal, 2011)

The current study incorporated the findings and recommendations of the study done by Dass and Pal (2011). The outcome of the study by Dass and Pal (2011) was used as the basis for building the proposed Mobile Money Acceptance Model.

4.1 Conceptual Model and Hypothesis Development

An adoption from the Cumulative Adoption Model by Dass and Pal (2011), the proposed Conceptual Model depicted below looks at those constructs which Dass and Pal (2011) concluded to have significant effects on the Behavioral Intention on whether or not to adopt a new technology (innovation). This study looks at the previous work done by Dass and Pal (2011) and proposes the Mobile Money Acceptance Model shown below in Figure 4.0

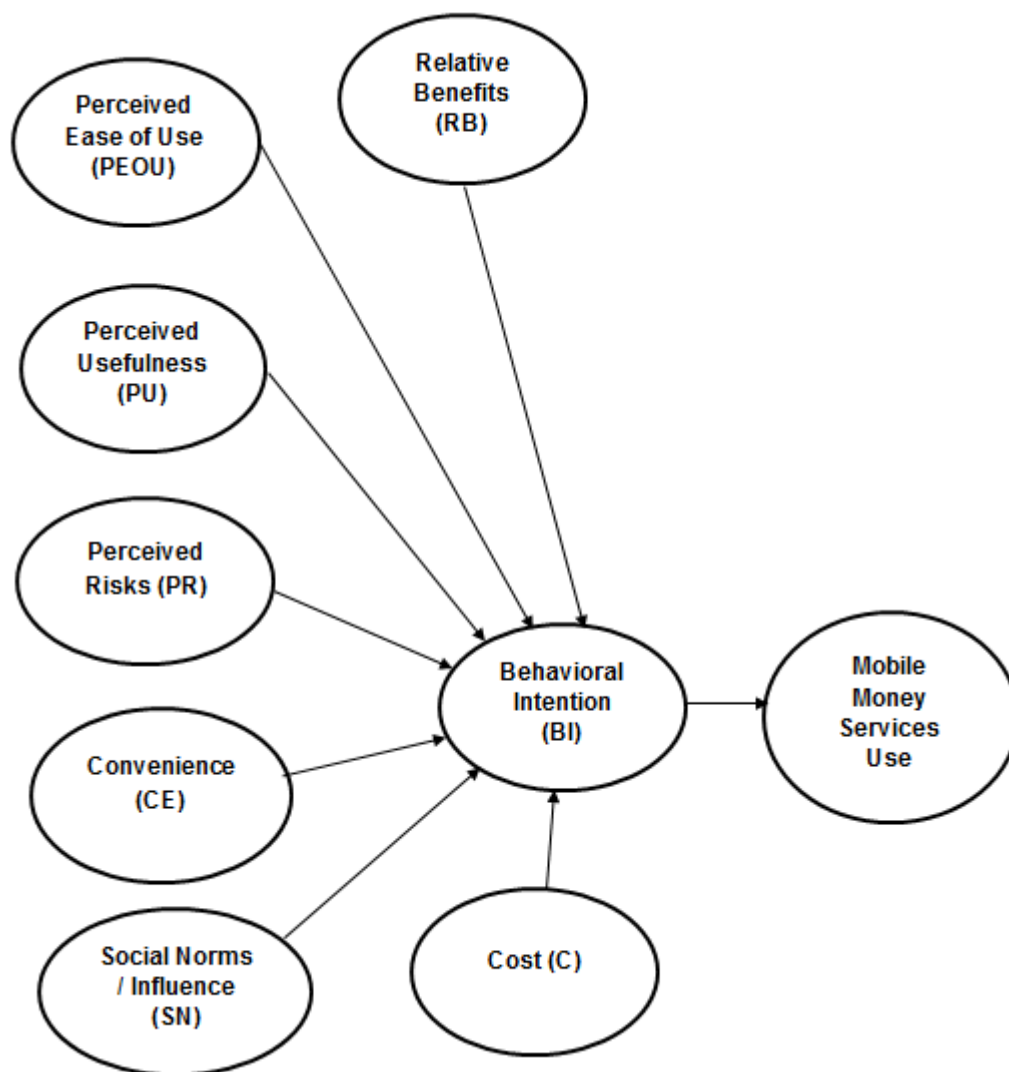


Figure 4.0 Conceptual Model (MMAM)

(Source: This Study)

Studies by different scholars have shown that perceived ease of use has a positive effect on adoption of new technology (Bhattachajee and Hikmet, 2008; Cater-Steel and McBride, 2007; Loo et al., 2009; Sentosa and Mat, 2012; Teo and Noyes, 2011). Results from an empirical test which was conducted on the original TAM showed that perceived ease of use has a positive influence on adoption of mobile money services (Walczuch, Lemmink and Streukens, 2007). Prior studies by Gefen and Straub (2000) also found that PEOU has a positive effect on intention to use technology. According to Morgan (2012, p. 119), “if the platform isn’t easy to use and intuitive don’t bother with it”, thus for the purpose of this study we concur with the thinking that people tend to use technologies that they perceive to be easy to use and therefore, hypothesis H_1 is proposed as follows:

H_1 : Perceived Ease of Use (PEOU) has a positive significant relationship towards mobile money services adoption.

As one of the constructs in TAM (Davis, 1989), perceived usefulness (PU) is seen as a major determinant when it comes to adoption of new technologies. In the context of this study, perceived usefulness influences the rural inhabitants towards using mobile money services which they believe have a positive influence on the activities that they do within the rural communities. Hu et al. (1999) found perceived usefulness was a significant factor that influenced physicians to make use of technology in performing their job. Hypothesis H_2 is proposed as follows:

H_2 : Perceived Usefulness (PU) has a positive significant relationship towards mobile money services adoption.

According to Brown (1990), within early marketing usage, convenience denoted the time and effort one put in purchasing a product rather than an attribute of the product. Several researchers found that convenience, control and efficiency are thought to be the main drivers for customers to bank online (Jayawardhena and Foley, 2000; Sohail and Shanmugham, 2003; Tan and Teo, 2000). An adoption decision was found to have been influenced by financial benefits, prior adoption and perceived convenience in a study that was done on electronic commerce options (Eastin, 2002). It is important to note that availability of the Econet network which is used by EcoCash has made it possible for the rural inhabitants to transact from places (anywhere) more convenient to them. In this study, perceived convenience is taken to be the ability to conduct financial transactions from any location and at any

given time that best suits the mobile money services user and H_3 is hypothesized as follows:

H_3 : Perceived Convenience (PC) has a positive significant relationship towards mobile money services adoption.

Perceived risk is quite broad, however it is most commonly linked to feelings that are associated with uncertainty, cognitive dissonance, concern, discomfort and anxiety, and in the context of this study, all such feelings will be associated with the use of mobile money services. Chan and Lu (2004) defined perceived risk as being consumers' perceived risk and their tolerance of risk taking that influence their financial decision. There has been an increased interest in the study on perceived risk, in the context of TAM (Santana and Loureiro, 2010; Kailani and Kumar, 2011; Cheah, 2011; Zheng et al, 2012, Wiedemann, et al, 2013). A study conducted by Jarvenpaa, Tractinsky, and Vitale (2000) found that perceived risk reduced consumers' intention to make use of Internet based financial transactions. Al-alak and Alnawas (2010) argued that banking is based on trust and how consumers perceived risk of the banking entity, and thus a lack of trust and or a perception of high risk will negatively impact any banking activities. Brown et al. (2003) first noted that the establishment and use of new financial systems was mainly influenced by trust and security. Given the increased concern around breaches of security around financial systems managing consumer's perceived risk is a major strategy for banks (Pienaar, 2009). Ho and Ng (1994) concluded that the lower the perceived risk of using computerized banking technologies, the more likely they would be adopted. Therefore the hypothesis for H_4 is as follows:

H_4 : Perceived Risks (PR) have a negative significant relationship towards mobile money services adoption.

It is important to note that TAM completely ignored social influence even though it is a significant factor in determining consumer behavior as seen within the body of knowledge of marketing (Fahy and Jobber, 2012). Ajzen (1991) defined social influence as the perceived social pressure to perform or not to perform the behavior. The importance of understanding how significant social influences affect one's desire to make use of an information system was deemed to be worthy of study (Malhotra and Galletta, 1999). However it is important to note that contradicting findings have been found by different researchers around how social influence affects an

individual's intention to make use of a new technology. One such study done by Gradon, Alshare and Kwan (2005) concluded that social influence had a significant effect on determining university students' intention to use e-learning. A later study by Ndubisi and Sinti (2006) concluded that social influence had no significant impact on university students' intention to use e-learning. For the purpose of this study, Structured Equation Modeling is used to resolve such an inconsistency which indicates spurious effects and indirect effects as well as direct effects (Sobel, 1987). The hypothesis for H₅ is as follows:

H₅: Social Norms/Influence (SN) has a positive significant relationship towards mobile money services adoption.

The merits of using a service or product can be defined as being a relative benefit. Anckar and D'Incau (2002) postulated that mobile banking in comparison with alternative banking channels offered the convenient benefit in terms of agility which is not found in brick and mortar branches. The relative benefits are seen as the advantages associated with making use of a new innovation in comparison with the technology's substitutes. According to Agarwal and Prasad (1997), adoption of the innovation will mean that the consumer(s) will derive more advantages from the service or product which means that a product or service's relative benefit is positively related to the rate of its adoption. Within the context of this study, adoption of mobile money services is in part determined by their relative advantage over training brick and mortar branches. The following are some of the relative benefits of mobile money services:

- (a) **More convenience** – customers can now do most of the financial transactions from the comfort of their homes at a time convenient to them without the need to visit a bank branch. Using mobile money services customers can do a variety of transactions, examples being, withdrawals (through EcoCash Agents), bill payments, transfers and balance enquiries. With the current cash shortages being experienced in Zimbabwe, mobile money services have become a real alternative to queuing at banks for cash as consumers now conduct most of their financial transactions using money stored in their e-wallets (mobile wallets).

- (b) **Protection (Security)** – mobile money services is creating cashless communities in which there no longer is need to move around with loads of cash which in the past would make one a target of robbery.
- (c) **Bank at any time of day or night** – customers now bank on demand contrary to having to wait for branches to open. They can bank at any given time or place according to their needs without the restriction which comes about because of banking hours. After all, all they need is mobile phone network reception in order for them to conduct their financial transactions.
- (d) **Cost-cutting** – since no bank branches are located within rural communities, in the past rural inhabitants used to travel long distances from their communities to their respective bank branches. In the context of this study, individuals would catch the very early morning bus from Dewedzo rural community to Rusape Township. This was a costly exercise in comparison to the charges for conducting financial transactions using mobile money services.
- (e) **Hassle-free banking** – mobile money services remove the need for interaction with bank tellers characteristic of the brick and mortar branches which often times is associated with rudeness or simply product ignorant bank employees which could consequently lead to repeated trips back to the bank as well as physical altercations in some instances.

Mobile money services meet the requirement for efficient service which is now a thing expected by modern day consumers (Brown et al., 2003). The hypothesis for H_6 is as follows:

H_6 : Relative Benefits (RB) have a positive significant relationship towards mobile money services adoption.

In mobile money services terms, cost would include the cost of buying a handset, registered for the services, charges for transacting as well as charges for sending SMS messages (Luarn and Lin, 2005). The subscription and service fees for using mobile money services were seen to have a negative effect on adoption (Mallat, 2007; Laukkanen and Cruz (2010). Furthermore, Karnani (2009) argued that people within rural communities have limited financial resources (disposable income) and thus focus on spending on essentials only, referred by Maslow's Hierarchy of Needs

as Physiological Needs (Poston, 2009) . The current study sort to test the applicability of those conclusions within the Zimbabwe rural communities to determine their applicability, which according to the above mentioned conclusions means that rural inhabitants should shun away from mobile money services. In the context of this study, the hypothesis for **H₇** is as follows:

H₇: Cost (C) has a minimal relationship towards mobile money services adoption.

Lastly as this study is focused on looking at the intentions to use mobile money services, actual usage becomes of interest. According to Davis (1986) behavioral intention exerts a positive effect on usage. Several other scholars found out that behavioral intention might influence usage (Bagozzi, 1992; Szajna, 1996; Venkatesh et al, 2003). Therefore in the context of this study, the hypothesis **H₈** is as follows:

H₈: Behavioral Intention (BI) positively influences mobile money services use

Behavioral Intention that's positive leads to the actual adoption and use of a technology.

5.1 Research Design and Methodology

It is through the analysis of available literature presented in chapters 2 and 3 that the research problem was identified. The outcome of the literature review is that a gap in the body of knowledge on the adoption of mobile money services within rural communities and specific to this study, rural Zimbabwe. A conceptual model as presented in chapter 4 was then developed to try and fill the gap previously mentioned. A cross-sectional approach was taken which enabled the researcher to take a “snap shot” of the research data at a given point in time with the collected data being analyzed thereafter.

5.1.1 Justification of Paradigm

According to Kuhn (1962) a research paradigm is “the set of common beliefs and agreements shared between scientists about how problems should be understood and addressed.” Guba (1990) went on to characterize research paradigms according to their ontology, epistemology and methodology which diagrammatically can be exemplified as shown in Figure 5.0 below:

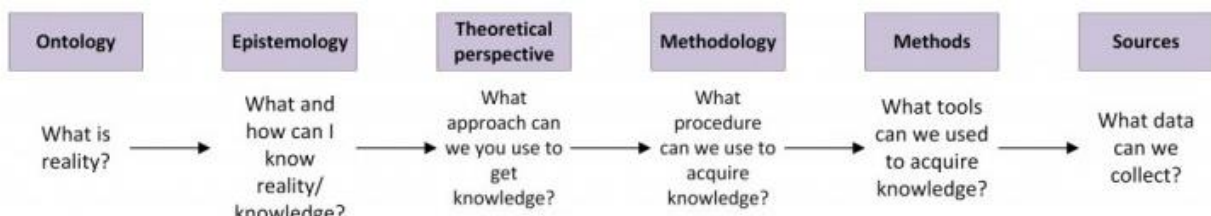


Figure 5.0 Adapted from Hay (2002) p. 64 and Crotty (1998)

Several paradigms have been identified as follows:

- Positivism – Individuals who adopt this paradigm are known as positivists and they believe that there is a single reality, which can be measured and known, and therefore they are more likely to use quantitative methods to measure and this reality (Giddens, 1974; Dubé and Paré, 2003; Mackenzie and Knipe, 2006).

- Constructivism – This is adopted by constructivists, who believe that there is no single reality or truth, and therefore reality needs to be interpreted, and therefore they are more likely to use qualitative methods to get those multiple realities (Mills, Bonner and Francis, 2006; Corbin and Strauss, 2014; Charmaz, 2003).
- Pragmatism – Those who used this paradigm are known as pragmatists and they believe that reality is constantly renegotiated, debated, interpreted, and therefore the best method to use is the one that solves the problem (Darke, Shanks and Broadbent, 1998; Goldkuhl, 2004, 2012; Biesta, 2010).

The various research paradigms can be summarized as shown in table below.

Paradigm	Ontology <i>What is reality?</i>	Epistemology <i>How can I know reality?</i>	Theoretical Perspective <i>Which approach do you use to know something?</i>	Methodology <i>How do you go about finding out?</i>	Method <i>What techniques do you use to find out?</i>
Positivism	There is a single reality or truth (more realist).	Reality can be measured and hence the focus is on reliable and valid tools to obtain that.	Positivism Post-positivism	Experimental research Survey research	Usually quantitative, could include: Sampling Measurement and scaling Statistical analysis Questionnaire Focus group Interview
Constructivist / Interpretive	There is no single reality or truth. Reality is created by individuals in groups (less realist).	Therefore, reality needs to be interpreted. It is used to discover the underlying meaning of events and activities.	Interpretivism (reality needs to be interpreted) <ul style="list-style-type: none"> • Phenomenology • Symbolic interactionism • Hermeneutics Critical Inquiry Feminism	Ethnography Grounded Theory Phenomenological research Heuristic inquiry Action Research Discourse Analysis Feminist Standpoint research etc	Usually qualitative, could include: Qualitative interview Observation Participant Non participant Case study Life history Narrative Theme identification etc
Pragmatism	Reality is constantly renegotiated, debated, interpreted in light of its usefulness in new unpredictable situations.	The best method is one that solves problems. Finding out is the means, change is the underlying aim.	Deweyan pragmatism <i>Research through design</i>	Mixed methods Design-based research Action research	Combination of any of the above and more, such as data mining expert review, usability testing, physical prototype
Subjectivism	Reality is what we perceive to be real	All knowledge is purely a matter of perspective.	Postmodernism Structuralism Post-structuralism	Discourse theory Archaeology Genealogy Deconstruction etc.	Autoethnography Semiotics Literary analysis Pastiche Intertextuality etc.
Critical	Realities are socially constructed entities that are under constant internal influence.	Reality and knowledge is both socially constructed and influenced by power relations from within society	Marxism Queer theory feminism	critical discourse analysis, critical ethnography action research ideology critique	Ideological review Civil actions open-ended interviews, focus groups, open-ended questionnaires, open-ended observations, and journals.

Table 5.0 Adopted from Patel (2015)

In this study, the researcher's philosophy is based on the positivism approach. A hypothesis was developed and is going to be tested against results from a field research to be conducted. According to Carson et al (2001) and Hudson and Ozanne, (1988) a positivist ontology believes that the world is external and that

there is no single objective reality to any research phenomenon or situation regardless of the researcher's perspective or belief.

5.1.2 Justification of the Methodology

In meeting the requirements for a positivism approach, the nature of this study is controlled and structured in that a clear topic was put forward and an appropriate hypothesis and suitable research methodology selected, which is supported in the work of (Carson et al., 2001). The researcher remained detached from the research participants through creating distance whilst remaining emotionally neutral so as not to mix feelings and reason (Carson et al., 2001).

Carson et al (2001) argued that a positivist needs to maintain a clear distinction between personal experience and science, and fact and value judgement whilst maintaining objectivity and consistently applying rational and logical approaches to research.

Mathematical and statistical approaches are to be adopted in this study as they are central to the positivist approach that has been adopted on this study so as to uncover single and objective reality through the structural nature of the research (Carson et al., 2001). During the course of this study, the researcher sought to make time and context free generalizations. The research participants and the researcher were independent of each other and did not have any influence on one another which is an important positivism requirement (Hudson and Ozanne, 1988).

The constructs that are being measured in this research are "real-life" phenomena (Healy and Perry, 2000) that have been identified and tested in past research by several researchers (Rugimbana, 1998; Parasuraman, 2000). This study made use of a quantitative approach and adopted the survey method of data collection (Calder, Phillips, and Tybout, 1981).

5.1.3 Survey Methods

The survey approach was chosen because of the following factors:

- **Affordability** – The cost of conducting a survey is relatively cheaper as the researcher had to pay for the production of survey questionnaires. No incentives were paid to the participants (Allison, 2001).
- **Good Statistical Significance** – A high representativeness is characteristic of the survey method making it easier to find statistically significant results in comparison to other data gathering methods. Multivariate data analysis is also appropriate on the survey data (Kalton, 1983; Lewis-Beck, 1995).
- **No Researcher Subjectivity** – It been found that surveys are ideal for scientific research as they provide all the participants with a standardized stimulus. With such high reliability obtained, the researcher's own biases are eliminated (Bennett et. al, 2011).
- **High Representativeness** – Scholars have asserted that surveys provide a high level of general capability in representing a large population. A sample size of 2,000 participants presented a better description of the relative characteristics of the general population involved in the study. In comparison to other methods of data gathering, surveys are able to extract data that are near to the exact attributes of the larger population (Weisberg, Krosnick and Bowen, 1996; Blumberg, Cooper and Schindler, 2011; Fowler, 2013).
- **Past Use** – In the interest of ensuring reliability and validity, past use of the survey method by several authors and scholars was an important consideration for this study (Healy and Perry, 2000; Hubbard and Armstrong, 1994; McKinnon, 1988).
- **Tried and tested scales** – Tried and tested scales ensured rapid data collection with a small team of research assistants as recognized by Perry (1998a).

- Lastly due to the research objectives and the hypothesis that was put forward, it became necessary to collect data for quantitative analysis, an approach which is supported by Field (2009).

5.1.4 Sampling Approach

It is always important to ensure that a study's sample is representative of the total population. It thus follows that a criteria has to be set for choosing the sample to be studied, such as the one adopted from Blumberg, Cooper and Schindler (2008) and Malhotra (2011). These two scholars came up with a seven-step sampling design structure/approach.

The resultant seven-step sampling design constitutes the following: (1) population of interest, (2) parameters of interest, (3) sampling frame, (4) sampling technique, (5) minimum sample size required, (6) cost and budget of obtaining such a sample, and (7) execution of research design. Although these criteria are sequential in nature, Blumberg, Cooper and Schindler (2008) caution that specific aspects of one criterion almost always result in revision of earlier criteria. Each of these seven criteria is discussed next.

Population of interest

In line with the study's aim of mobile money usage in rural Zimbabwe, all subjects subscribing to EcoCash became part of the potential study population as supported in the work of Brown et al (2003). That being said, there was need to narrow this population and hence Malhotra's approach (2011) made this easier through defining the target population "in terms of elements, sampling units, extent, and time." In conformance with the above said, the population group was defined as show in Table 5.1 below:

Criteria	Rationale
Element	Registered EcoCash individuals
Sampling unit	Individuals residing in Dewedzo (Rusape, Zimbabwe) rural community
Extent	The extent of the research was Dewedzo growth point given the population volumes coming in and out of that area on a daily basis
Time	October and November 2016 is the time when the survey was conducted

Table 5.1 This Study, 2016
(Source: An adoption from Malhotra, 2010 p. 372)

In line with the target population, as defined, it became apparent that convenient sampling would be the approach adopted in this study.

Parameters of interest (variables of interest)

The way a research methodology is designed is majorly influenced by the variables under study in that they inform the researcher what type of data is needed, the type and size of the sample and finally the collected data will determine the data analysis approach to be used. It can be recalled that the objectives of this study were to find out which factors determine the adoption of mobile money services as highlighted in the proposed conceptual model. A 5-point Likert scale anchored at 1 = Strongly Disagree and 5 = Strongly Agree.

Why Zimbabwe was chosen as the survey country

Within the African context, mobile money services have largely been hailed for their success in the form of M-PESA in Kenya as evidenced in available literature with little or no mention of the revolution that mobile money services have brought to the southern part of Africa, namely Zimbabwe. As a country struggling with liquidity challenges evidenced by long queues at banking institutions on a daily basis, mobile money services are revolutionizing the way business is conducted in Zimbabwe. EcoCash offered by Econet Zimbabwe has stood out as the most popular mobile money service in Zimbabwe.

Sampling Frame and Technique

Given the researcher's limited financial resources, convenience sampling was chosen due to its inexpensive and least time-consuming nature. It has been noted that representativeness is a problem of non-random samples by several scholars hence this research sort to compensate that through using a large sample size.

Sample Size

Field (2009) noted that any meaningful analysis required having a large sample so as to yield better results. As multivariate statistical techniques were to be used as supported in the work of Field (2009), it became apparent that a large sample size was needed in this study. Given the limited finances and time, the best method of collecting data from a large sample had to be adopted. It should be noted that scholars such as Pallant (2010), made a recommendation that for a survey to be meaningful the minimum number of respondents had to be 300. A scholar like Field (2009), however argues that the recommended number of participants should fall within the range from 5:1 to 10:1 which means that for every question, at least 10 respondents should be applicable; a suggestion which is also supported by Pallant (2010 p. 183). Using the given argument, the minimum sample size for this study, taking into account the factors to be analysed is (30×10) 300 respondents. Pallant (2010) recommended a minimum sample size of 1 520 participants, however 2 000 respondents participated in this study.

Limited Financial Resources

It goes without saying that conducting field research can be very expensive more so for this researcher, the fact that this was a self-funded study cost was a constraint of note. Perry (1998) makes an argument that grants offered to sponsor such studies tend to determine research areas including the methodology applied. It then became sensible to use the chosen sample in the interest of keeping the data collection costs within the researcher's limited financial resources as well as taking into account the time constraint factor.

How the sample design was executed

6 research assistants were enrolled in this study, and one of their important tasks was to qualify a prospective respondent before giving them a questionnaire.

Dewedzo growth point has now become the focal business point within the Dewedzo rural community and surrounding areas. By virtue of the numerous business activities that have sprouted at this growth point large numbers of people flock to this place on a daily basis for business or pleasure and hence providing the respondents catchment area required for the data collection. October and December 2016 were the months chosen for this survey and this saw questionnaires being handed over to the qualified respondents and then given them an opportunity to respond whilst the researchers approached other respondents. A collection plan was arranged which saw the researcher reaching an arrangement with one of the local shopkeepers who agreed to have the participants drop off the completed questionnaires once they were done completing them and then the researcher having to collect them from him. Being a rural community and having his roots within that community, that helped a lot in getting people to participate as well as have the arrangement just mentioned above for the questionnaire collection method.

What instrument was used to collect the data?

A questionnaire was designed in line with the research objectives making use of previously developed, used and tested scales after adapting them to the Zimbabwean context. The questionnaire was used to collect different aspects of the respondents namely, responses to the variables of interest (Section A) and their demographic characteristics (Section B). In total the questionnaire had 4 pages constituting the 2 sections mentioned above. A Likert scale (1 = Strongly Disagree; 5 = Strongly Agree) was used in section A. A copy of the questionnaire is included in the appendix.

Pre-testing the measurement instrument (questionnaire)

As put forward by Blumberg, Cooper and Schindler (2011 p. 344), it is important that a questionnaire goes through a pre-test to assess its effectiveness and efficiency in measuring the constructs in the conceptual model. The questionnaire was subjected to two stages of testing. The initial draft was brought before various experts within

their respective fields namely; Electronic Funds Transfer (EFT) specialists, marketing gurus, financial inclusion scholars and an actuarial expert. Outcome of the first round of testing was that some questions had to be added so that the necessary data would be captured. The described process is known as content validity. It was important for this study to ensure that the questionnaire (questions) really assessed the constructs within the conceptual model whilst at the same time checking to see if the responses captured were influenced by other factors (Straub, 1989). Content validity thus required the researcher to depend on the subject-matter experts, and their feedback on how well each of the questions measured the construct in question (Aiken, 1980; Privette and Bundrick, 1987; Del Greco, Walop and McCarthy, 1987; Lambert et al. 1996; Hinkin, 1998; Bartolucci, Bacci and Gnaldi, 2015; Bourke, Kirby and Doran, 2016). A measurement scale needs to possess content validity failure of which it will not have construct validity (Garver and Mentzer, 1999). It was thus important to establish content validity of the research instrument in this study.

The second round focused on ensuring that the questions were easy to understand for the target population. In order to accomplish the second round of testing, a pilot run was done using a few students (50) from Dewedzo Secondary School and individuals (50) from the surrounding community. This became a confirmatory study based on the results of the pilot run which essentially confirmed that the measurement instrument was suitable for the current study.

Validity and Reliability considerations in this study

Scholars have noted the importance of validity and reliability when it comes to assessing the quality of a study. Several scholars have suggested that validity and reliability are key factors when it comes to looking at how robust a study is (Carmines and Zeller, 1979; Kirk and Miller, 1985; Healy and Perry, 2000; Malhotra, 2010). Scholars have said that validity looks at the extent to which a concept is measured as accurately as possible within the context of a quantitative study (Carmines and Zeller, 1979; Winter, 2000; Twycross and Shields, 2004.). A survey which seeks to measure the use Automated Teller Machines within rural communities but then goes on to look at Point of Sale devices would not be considered as being valid.

Reliability as a measure of the quality of a study is defined as the accuracy of a measurement instrument which is determined by several surveys to give consistent results on repeated occasions as long as it is applied under the same circumstances (Carmines and Zeller, 1979; Seidler, 1974; Carmines and Zeller, 1979; Grinnell and Unrau, 2005).

5.1.5 Limitations of the Chosen Methodology

Whilst it is important to have a high quality study, it should be noted that methodology limitations are inevitable (Wolf, 1986; Kothari, 2004; Zainal, 2007; Wrench et al 2012; Creswell, 2013) as follows:

- Limited data collection resources: the selected target population might not be a true representation of the mobile money users which means results might not necessarily be applicable for generalization of the rural population.
- Costs: limited financial resources had an impact on the research methodology adopted for this study.
- Time consuming: a study timeframe for the study programme meant that the survey had to be done within a limited time.
- Study area: Dewedzo in Rusape Zimbabwe was the study area; this might mean that results might not be generalizable to other rural communities within Zimbabwe or in Africa.

6.1 Data Analysis, Discussion and Results

6.1.1 Introduction

This study is founded on a gap that was identified through literature research which has been presented in the respective chapter. A problem was then derived with a conceptual model being developed as a response to the said problem. It was noted that from the available literature, there seems not to have much coverage of mobile money services within rural communities in the SADC region. Most of the available literature addresses mobile money services in East Africa, with a focus on M-PESA in Kenya which has been globally recognized as the success story of financial inclusion. The prominence of mobile money services usage within Southern Africa and Zimbabwe in particular has not been well covered, so it seems based on the literature review findings. This study sought to address this problem by contributing to the body of knowledge through investigating factors that could be used as An Extension of the Technology Acceptance Model In Rural Zimbabwe: Mobile Money Acceptance Model.

6.1.2 Descriptive Data Analysis

Demographic Characteristics of the study population

Sample Profile

Table 6 provides a sample profile of the 1863 respondents in terms of their gender, employment status, age category, education level and marital status.

Variables	Frequency (n=1863)	
	n	%
Gender		
Male	864	46.4
Female	999	53.6
Employment status		
Unemployed	575	31.0
Self-employed	798	43.0
Part time employed by an organisation	360	19.4
Full time employed by an organisation	124	6.6
Age category		
18-25	333	17.9
26-35	535	28.7
36-45	660	35.4
45-55	251	13.5
55-65	62	3.3
Over 65	22	1.2
Marital Status		
Single (never married)	481	25.9
Married	1049	58.9
Living with a partner	124	6.7
Divorced	95	5.1
Separated	21	1.1
Widowed	43	2.3
Education Level		
Primary school completed	34	1.8
Some high school completed	195	10.5
O level completed	155	8.3
A level completed	459	24.7
Certificate/Diploma completed	648	34.8
Degree completed	293	15.7
Post graduate degree completed	78	4.2

Table 6.0 Sample profile
(Source: Field Study/Research, 2016)

From 6.0 it is clear that 53.6 percent of the respondents were female and 46.4 percent were males. The table also shows that 31 percent of the respondents are unemployed, 43 percent are self-employed, 19.4 percent are part time employed by an organisation and 6.6 percent are full time employed by an organisation. Table 6.0 also shows that most of the respondents were between the age categories of 36 – 45 and the least age group of the respondents was those who are over 65.

In terms of education level, 1.8 percent has completed some primary school, 10.8 percent have completed some high school, 8.3 percent have completed Ordinary level, 24.7 percent have completed Advanced level, 34.8 percent have completed a certificate or diploma, 15.7 percent have completed a degree and lastly 4.2 percent have completed a post graduate degree.

Validity and Reliability

Validity

Principal factor analysis, using varimax rotation was undertaken to assess the construct validity of each of the constructs used in this study (Field, 2013 p.642), including perceived ease of use, social norms, perceived usefulness, perceived risk, relative benefits, cost, behavioral intention and convenience. The Bartlett's sphericity test should be significant ($p < 0.0001$) and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (MSA) should be greater than 0.5 (Field, 2013 pp. 684-686) for the data to be appropriate for factor analyses. The Bartlett's test of sphericity yielded significant results ($p < 0.0001$) for all the constructs. Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (MSA) had acceptable values for all the constructs for perceived ease of use (0.743), social norms (0.733), perceived usefulness (0.584), perceived risk (0.667), relative benefits (0.578), cost (0.620), behavioral intention (0.534) and convenience (0.500).

For perceived ease of use one factor was extracted to measure the respondents' perceived ease of use which was extracted based on the eigenvalue (>1) criterion. The factor explains 65.26 percent of the total variance. Further, all 4 items included in the measuring instrument loaded onto the one factor, and no items cross-loaded onto other factors. All the items yielded factor loadings ≥ 0.5 which is recommended (Williams, Brown and Onsman, 2012 p.5). The MSAs realised for all the pairs of

items reflected in the factor analysis ranged from 0.328 and 0.944. All the items measuring perceived ease of use were retained (Williams, Brown and Onsman, 2012 p.5).

For social norms, one factor was extracted to measure the respondents' social norms or influence. This was extracted based on the eigenvalue (>1) criterion. This factor explained 89.74 percent of the total variance in the data on social norms or influence. The 3 items included in the measuring instrument loaded onto the one factor. All the items yielded factor loadings ≥ 0.5 recommended (Williams, B., Brown, T. and Onsman, 2012 p.5). The MSAs realised for all the pairs of items reflected in the factor analysis ranged from 0.860 to 0.983. All the items measuring social norms were retained (Williams, Brown and Onsman, 2012 p.5).

For perceived usefulness, one factor was extracted to measure the respondents' perceived usefulness. This was extracted based on the eigenvalue (>1) criterion. This factor explained 56.78 percent of the total variance in the data on perceived usefulness. The 4 items included in the measuring instrument loaded onto the one factor. All the items yielded factor loadings ≥ 0.5 recommended (Williams, Brown and Onsman, 2012 p.5). The MSAs realised for all the pairs of items reflected in the factor analysis ranged from 0.632 to 0.919. All the items measuring perceived usefulness were retained (Williams, Brown and Onsman, 2012 p.5).

For perceived risk, one factor was extracted to measure the respondents' perceived risk. This was extracted based on the eigenvalue (>1) criterion. This factor explained 55.67 percent of the total variance in the data on perceived risk. The 4 items included in the measuring instrument loaded onto the one factor. All the items yielded factor loadings ≥ 0.5 recommended (Williams, Brown and Onsman, 2012 p.5). The MSAs realised for all the pairs of items reflected in the factor analysis ranged from 0.546 to 0.810. All the items measuring perceived risk were retained (Williams, Brown and Onsman, 2012 p.5).

For relative benefit, one factor was extracted to measure the respondents' perceived risk. This was extracted based on the eigenvalue (>1) criterion. This factor explained 51.85 percent of the total variance in the data on relative benefits. The 5 items included in the measuring instrument loaded onto the one factor. All the items

yielded factor loadings ≥ 0.5 recommended (Williams, Brown and Onsman, 2012 p.5). The MSAs realised for all the pairs of items reflected in the factor analysis ranged from 0.423 to 0.723. All the items measuring relative benefits were retained (Williams, Brown and Onsman, 2012 p.5).

For cost, one factor was extracted to measure the respondents' perceived cost of services. This was extracted based on the eigenvalue (>1) criterion. This factor explained 65.93 percent of the total variance in the data on perceived cost. The 3 items included in the measuring instrument loaded onto the one factor. All the items yielded factor loadings ≥ 0.5 recommended (Williams, Brown and Onsman, 2012 p.5). The MSAs realised for all the pairs of items reflected in the factor analysis ranged from 0.565 to 0.959. All the items measuring cost were retained (Williams, Brown and Onsman, 2012 p.5).

For behavioral intention, one factor was extracted to measure the respondents' behavioral intention. This was extracted based on the eigenvalue (>1) criterion. This factor explained 43.10 percent of the total variance in the data on behavioral intention. The 3 items included in the measuring instrument loaded onto the one factor. All the items yielded factor loadings ≥ 0.5 recommended (Williams, Brown and Onsman, 2012 p.5). The MSAs realised for all the pairs of items reflected in the factor analysis ranged from 0.317 to 0.644. All the items measuring behavioral intention were retained (Williams, Brown and Onsman, 2012 p.5).

For convenience, one factor was extracted to measure the respondents' perceived convenience. This was extracted based on the eigenvalue (>1) criterion. This factor explained 33.25 percent of the total variance in the data on convenience. The 3 items included in the measuring instrument loaded onto the one factor. All the items yielded factor loadings ≥ 0.5 recommended (Williams, Brown and Onsman, 2012:5). The MSAs realised for all the pairs of items reflected in the factor analysis ranged from 0.444 to 0.587. All the items measuring convenience were retained (Williams, Brown and Onsman, 2012 p.5).

From all the results of the factor analyses of all the constructs in this study that is perceived ease of use, social norms, perceived usefulness, perceived risk, relative

benefits, cost, behavioral intention and convenience it can be concluded that the measuring scales used in the study exhibit construct validity.

Reliability

Table 6 shows Cronbach Alpha’s coefficient values were used to determine the internal consistency (reliability) for the study’s constructs. Measurement of the reliability of the multi-item scales used in the questionnaire was done using Cronbach’s alpha as supported in the work of Mazzocchi (2011).

Constructs /Factors	Number of items	Cronbach’s alpha value
Perceived Ease Of Use	4	0.804
Social Norms/Influence	3	0.942
Perceived Usefulness	4	0.7
Perceived Risk	4	0.721
Relative Benefits	5	0.844
Cost	3	0.73
Behavioral Intention	3	0.712
Convenience	4	0.7

Table 6.1: Cronbach Alpha coefficient values for constructs used in the study

Table 6.1 shows that the Cronbach Alpha’s coefficient values were greater than the 0.7 threshold value, indicating that the scales used to measure perceived ease of use, social norms, perceived usefulness, perceived risk, relative benefits, cost, behavioral intention and convenience were reliable (Pallant, 2013 p.97). Cronbach’s alpha (α) coefficient has been traditionally used to measure internal validity and consistency reliability (Cronbach, 1951). Cronbach’s alpha (α) is a very commonly used coefficient when measuring reliability of a single administered test. It has been noted, however that items used in the test need to be tau-equivalent for coefficient alpha to be an unbiased estimator of reliability (Lord and Novick, 1968).

“Tau-equivalent” has been described as being when the difference between the true scores for any pair of items is a constant and the items have equal true score variance, though they may have unequal error score variances, (Lord and Novick, 1968; Ferketich, 1990; Tavakol and Dennick, 2011). Cronbach alpha values from 0.6 to 0.7 are deemed the lower limit of acceptability as recommended by Hair et al. (1998). An alpha of more than 0.7 would indicate that the items are homogeneous and measuring the same constant which is supported by Nunnally (1978), who noted that scores above 0.8 were considered very good. Field (2009) and Malhotra (2010) argued that the absolute minimum for the scales should be 0.6 which was met by all the scales in this study.

Missing Data Management

Bannon (2015) defined missing data as being absence of one or more values within a study variable(s) contained in a dataset which is typically a result of a respondent's absenting from providing a response(s) in a survey. It then follows that the greater the number of missing data the more challenging it becomes to come up with quality findings from the study. Several scholars have argued that there are four major ways of managing missing data in research and noted them as follows:

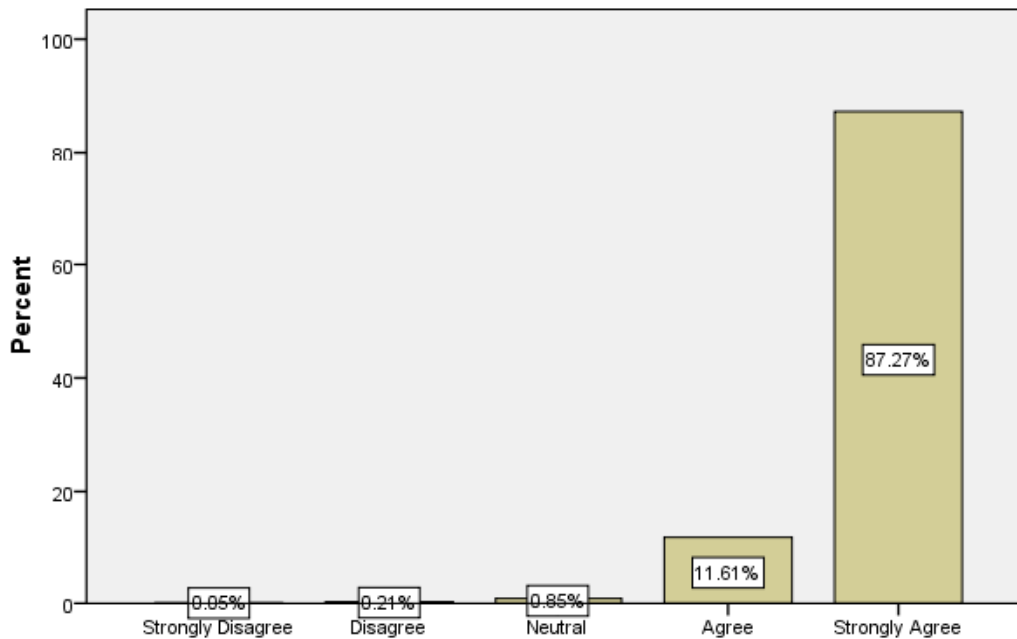
1. Analysis of data available and completely ignore the missing data
2. The input of missing data whilst assuming that it was an observed outcome, this could be using the mean of values predicted using regression analysis
3. The input of data through simple or multiple imputation methods taking into consideration any standard error adjustment(s)
4. The use of statistical models to take into account the missing data whilst drawing assumptions on relationships within the available data.

However, it should be noted that researchers have means of checking the extent of the missing data issue and have got tools to assist them get around this problem. 5% has been the generally acceptable limit of missing data within a research which as seen as not having any impact of the research outcome as agreed by several scholars (Gyimah, 2001; Pigott, 2001; Allison, 2001, 2002; Cooper, Schindler and Sun, 2003). During the data analysis stage of this study it was seen that the missing data accounted for 4% of the collected questionnaire and hence there was no need

to exclude any of the questionnaires as the 5% previously stated had not been breached as supported in the work of Osborne (2012) and Little and Rubin (2002, 2014).

My interaction with EcoCash services is clear and understandable.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	1	.1	.1	.1
Disagree	4	.2	.2	.3
Neutral	16	.9	.9	1.1
Agree	218	11.6	11.6	12.7
Strongly Agree	1638	87.3	87.3	100.0
Total	1877	100.0	100.0	



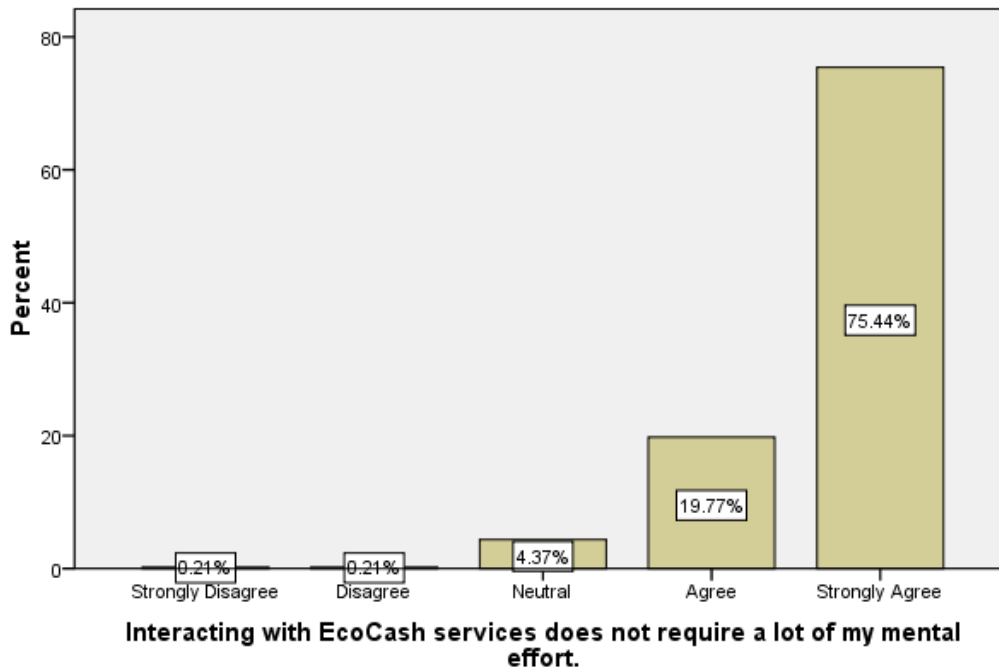
My interaction with EcoCash services is clear and understandable.

In terms of the determining whether the respondent's interaction with EcoCash services is clear and understandable. Most respondents (87.27 %; n=1638) indicated that their interaction with EcoCash services is clear and understandable. Followed by (11.61%; n=218) of the respondents who indicated that their interaction with EcoCash is clear and understandable. Furthermore, (0.85%; n=16) of the respondents revealed that their interaction with EcoCash services is clear and understandable. In addition, (2%; n=4) of the respondents stated that their interaction with EcoCash services is clear and understandable. The remainder of the

respondents, (1%, n=1) revealed that their interaction with EcoCash services is clear and understandable.

Interacting with EcoCash services does not require a lot of my mental effort.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	4	.2	.2	.2
Disagree	4	.2	.2	.4
Neutral	82	4.4	4.4	4.8
Agree	371	19.8	19.8	24.6
Strongly Agree	1416	75.4	75.4	100.0
Total	1877	100.0	100.0	

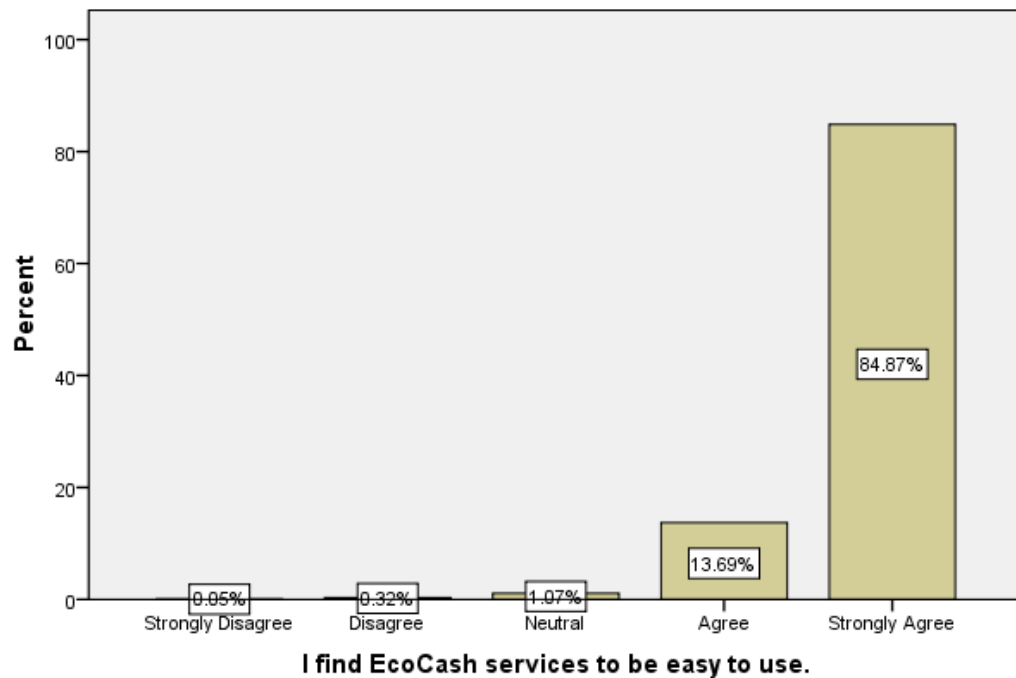


In terms of the determining whether the respondent's interaction with EcoCash services does not require a lot mental effort. Most respondents (75.44%; n=1416) indicated that their interaction with EcoCash services does not require a lot of mental effort, closely followed by (19.77%; n=371) of the respondents indicated that they do not require a lot of mental effort when interacting with EcoCash services. In addition, (4.37%; n=82) of the respondents indicated that their interaction with EcoCash services does not require a lot of mental effort. Furthermore, (0.2%; n=4) of the respondents indicated that they do not require a lot of mental effort when interacting with EcoCash services. Lastly the remainder of the respondents (0.2%; n=4)

revealed that their interaction with EcoCash services does not require a lot of mental effort.

I find EcoCash services to be easy to use.

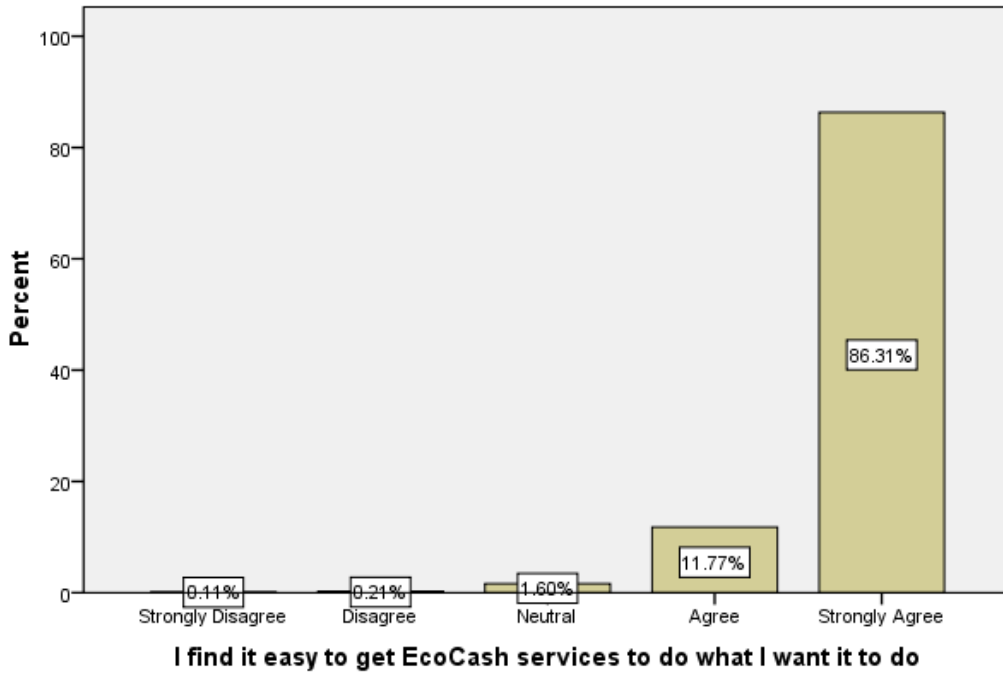
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	1	.1	.1	.1
Disagree	6	.3	.3	.4
Neutral	20	1.1	1.1	1.4
Agree	257	13.7	13.7	15.1
Strongly Agree	1593	84.9	84.9	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement "I find Eco Cash services to be easy to use". The majority of participants denoted by the 84.7% (of representative sample) strongly agreed with the statement. 13.69% of the representative sample agreed with the statement. 1.07% of the representative sample were neutral on the statement, with 0.32% disagreeing, and the remainder who strongly disagreed were (0.05 %) of the total sample.

I find it easy to get EcoCash services to do what I want it to do

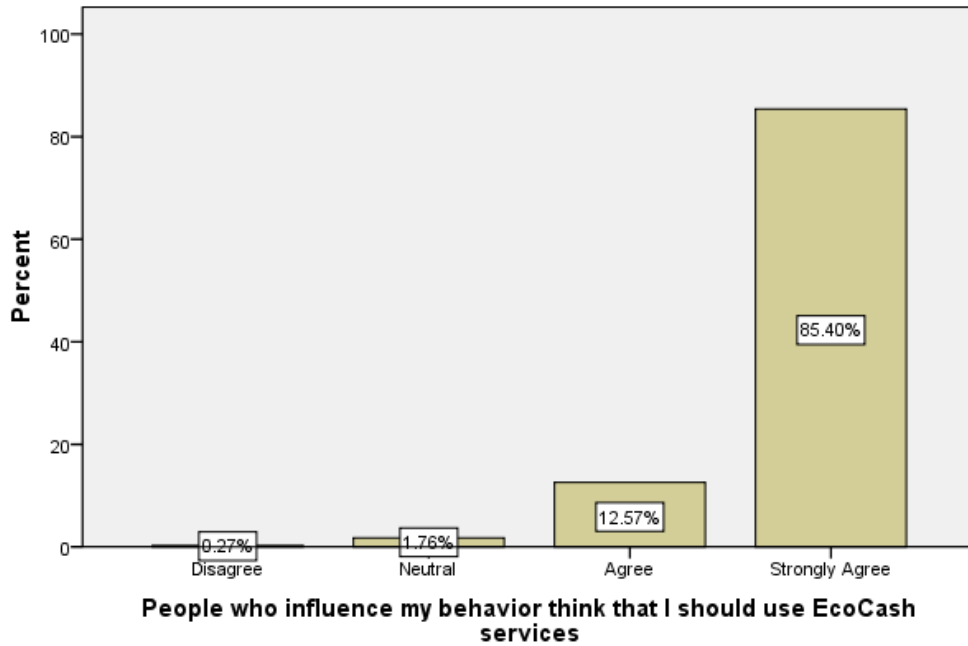
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	2	.1	.1	.1
Disagree	4	.2	.2	.3
Neutral	30	1.6	1.6	1.9
Agree	221	11.8	11.8	13.7
Strongly Agree	1620	86.3	86.3	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “I find it easy to get EcoCash services to do what I want it to do”. 86.31% of the representative sample strongly agreed with the statement. 11.77% of the representative sample agreed with the statement. 1.60% of the representative sample indicated those individuals who were neutral to the statement. 0.21% of the representative sample disagreed with the statement, and the remainder who strongly disagreed were (0.11%) of the total sample.

People who influence my behavior think that I should use EcoCash services

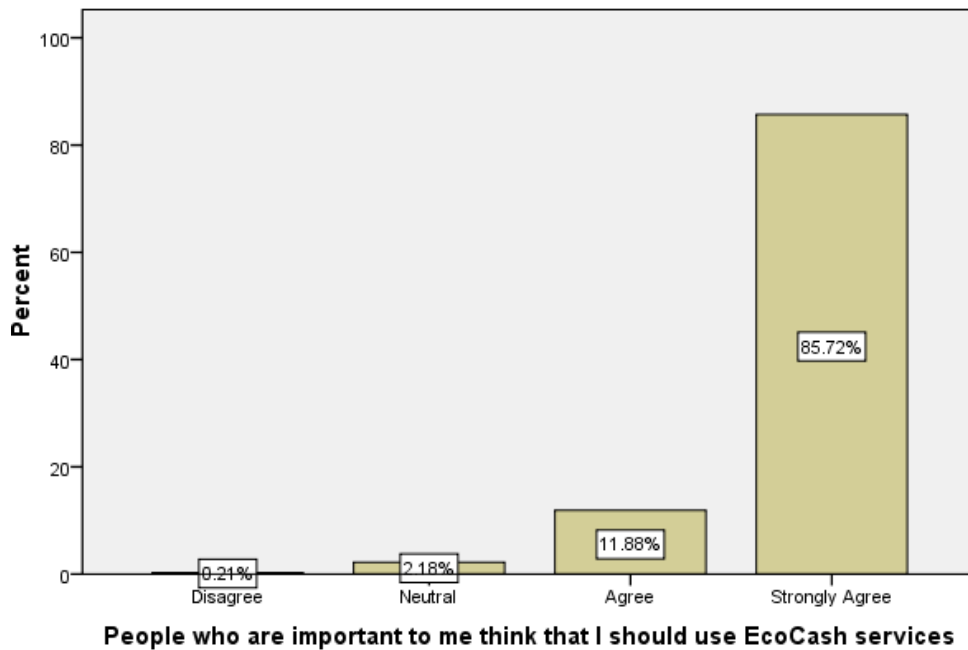
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	.3	.3	.3
	Neutral	33	1.8	1.8	2.0
	Agree	236	12.6	12.6	14.6
	Strongly Agree	1603	85.4	85.4	100.0
	Total	1877	100.0	100.0	



The figure above illustrates the statement “People who influence my behavior think that I should use EcoCash services”. 85.40% of the representative sample strongly agreed with the statement. 12.75% of the representative sample agreed with the statement. 1.76% of the representative sample was neutral to the statement and 0.27% disagreed with the statement.

People who are important to me think that I should use EcoCash services

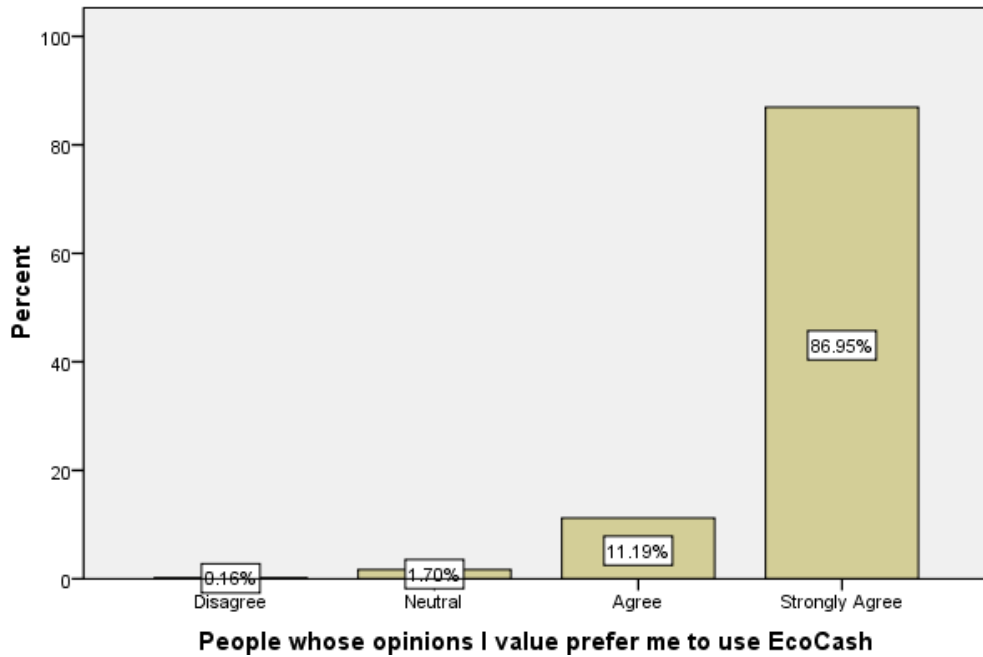
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Disagree	4	.2	.2	.2
Neutral	41	2.2	2.2	2.4
Agree	223	11.9	11.9	14.3
Strongly Agree	1609	85.7	85.7	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “People who are important to me think that I should use EcoCash services”. 85.72% of the representative sample strongly agreed with the statement. 11.88% of the representative sample agreed with the statement with neutral representative sample being 2.18% and those who disagreed 0.21%.

People whose opinions I value prefer me to use EcoCash

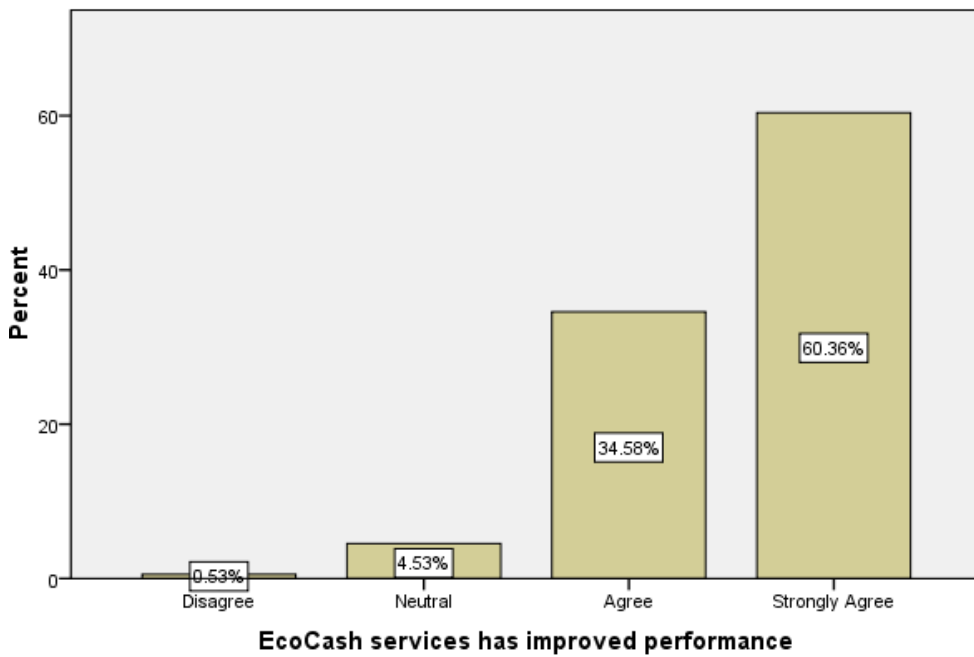
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Disagree	3	.2	.2	.2
Neutral	32	1.7	1.7	1.9
Agree	210	11.2	11.2	13.1
Strongly Agree	1632	86.9	86.9	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “People whose opinion I value prefer me to use EcoCash”. 86.95% of the representative sample strongly agreed with the statement whilst 11.19% of the representative sample agreed with the statement. 1.70% of the representative sample was neutral and those who 0.16% disagreed.

EcoCash services has improved performance

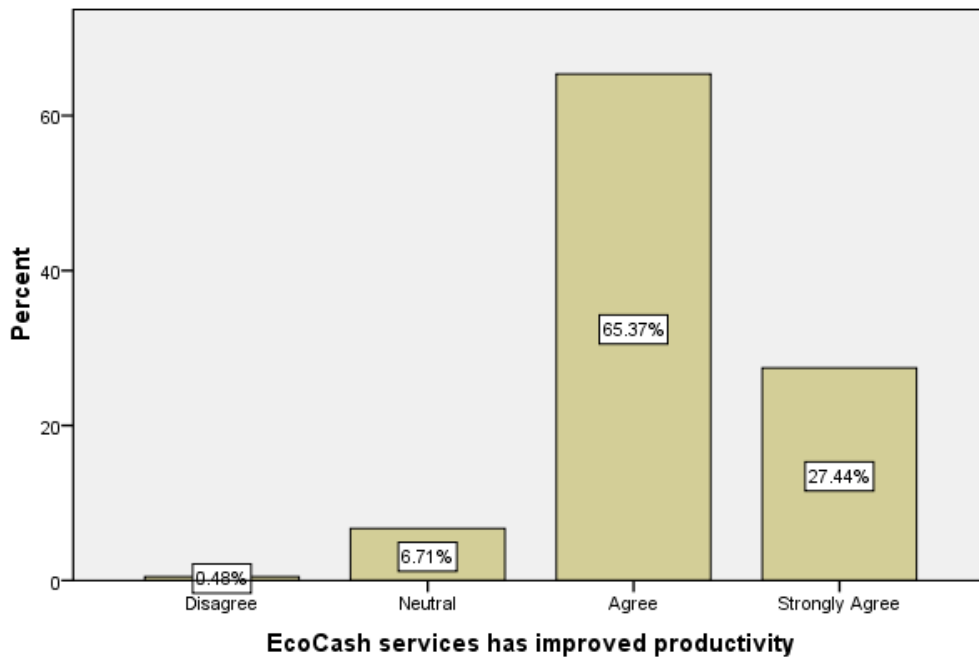
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	10	.5	.5	.5
	Neutral	85	4.5	4.5	5.1
	Agree	649	34.6	34.6	39.6
	Strongly Agree	1133	60.4	60.4	100.0
	Total	1877	100.0	100.0	



The figure above illustrates the statement “EcoCash services has improved performance”. 60.36% of the representative population strongly agreed with the statement whilst 34.58% agreed with the statement. 4.53% of the representative population was neutral with the statement and 0.53% of the representative population disagreed with the statement.

EcoCash services has improved productivity

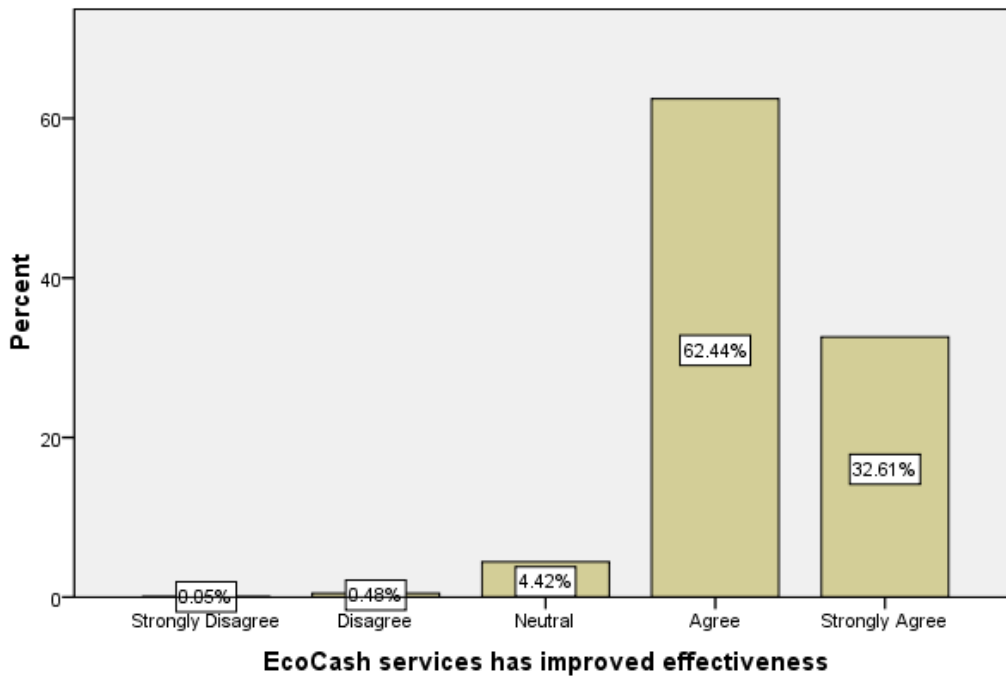
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Disagree	9	.5	.5	.5
Neutral	126	6.7	6.7	7.2
Agree	1227	65.4	65.4	72.6
Strongly Agree	515	27.4	27.4	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “EcoCash services has improved productivity”. 65.37% of the representative population agreed with the statement. 27.44% of the representative population strongly agreed with the statement. 6.71% of the representative population was neutral with the statement whilst 0.48% disagreed with the statement.

EcoCash services has improved effectiveness

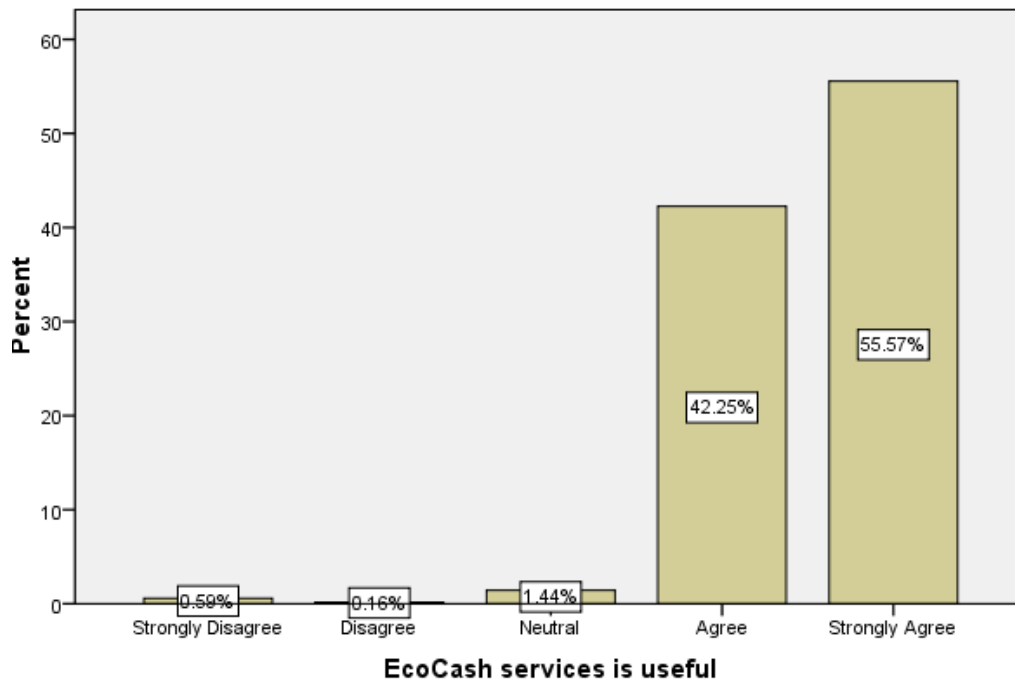
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	1	.1	.1	.1
Disagree	9	.5	.5	.5
Neutral	83	4.4	4.4	5.0
Agree	1172	62.4	62.4	67.4
Strongly Agree	612	32.6	32.6	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “EcoCash service has improved effectiveness”. 62.44% agreed with the statement whilst 32.61% strongly agreed with the said statement. 4.42% of the representative population was neutral to the statement which lastly 0.48% disagreed with the statement. 0.05% strongly disagreed with the statement.

EcoCash services is useful

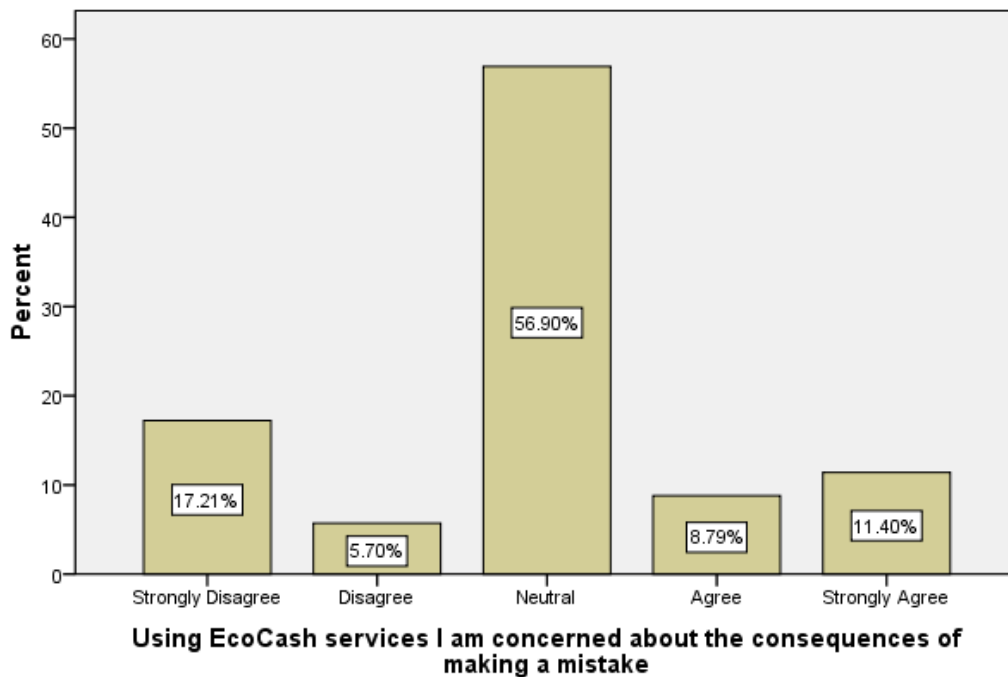
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	11	.6	.6	.6
Disagree	3	.2	.2	.7
Neutral	27	1.4	1.4	2.2
Agree	793	42.2	42.2	44.4
Strongly Agree	1043	55.6	55.6	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “EcoCash services is useful”. 55.57% of the representative population strongly agreed with the statement whilst 42.25% agreed with the statement. 1.44% of the representative population was neutral to the statement and 0.16% strongly disagreed. 0.59% of the representative population strongly disagreed with the statement.

Using EcoCash services I am concerned about the consequences of making a mistake

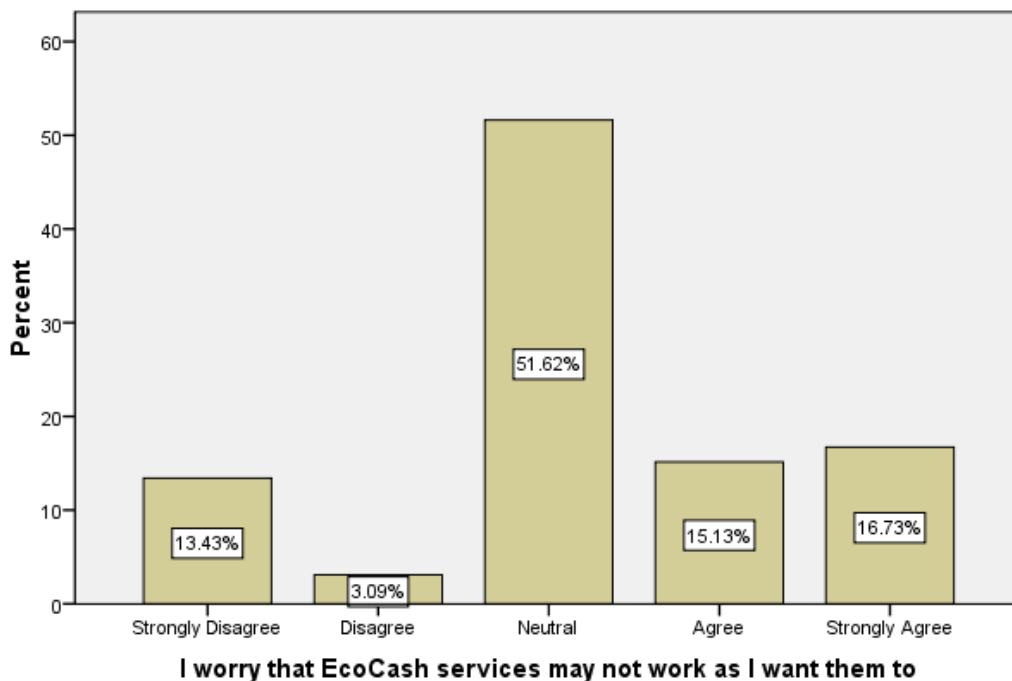
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	323	17.2	17.2	17.2
Disagree	107	5.7	5.7	22.9
Neutral	1068	56.9	56.9	79.8
Agree	165	8.8	8.8	88.6
Strongly Agree	214	11.4	11.4	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “Using EcoCash services I am concerned about the consequences of making a mistake”. 56.90% of the representative population was neutral with the statement with 17.21% strongly disagreeing with the statement. 11.40% of the representative population strongly agreed with the statement with 8.79% agreeing with the statement. 5.70% strongly disagreed with the statement.

I worry that EcoCash services may not work as I want them to

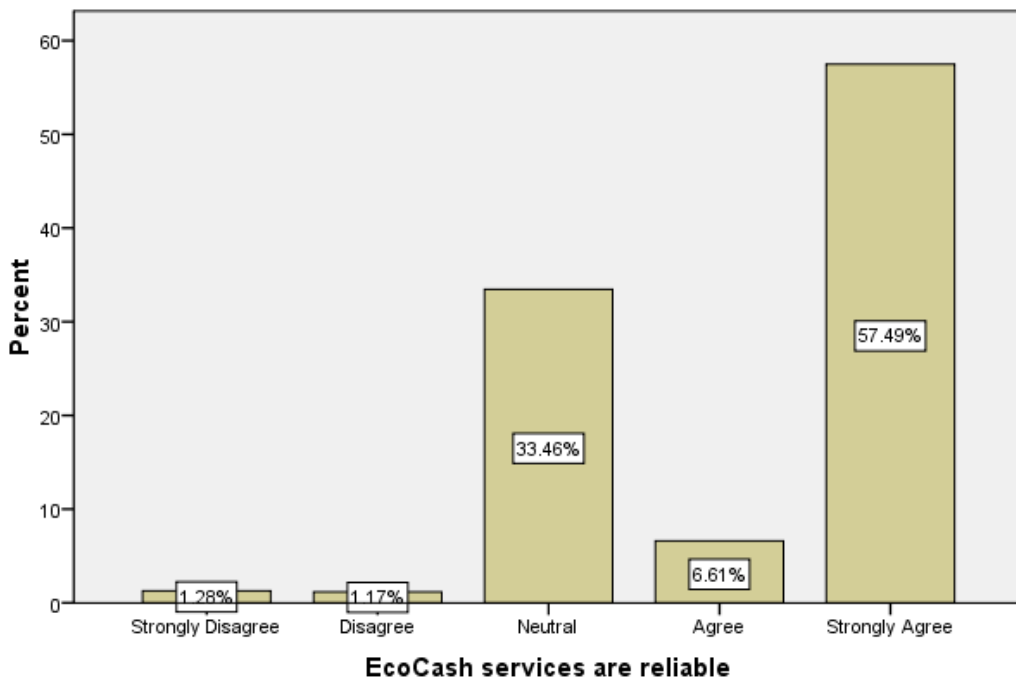
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	252	13.4	13.4	13.4
Disagree	58	3.1	3.1	16.5
Neutral	969	51.6	51.6	68.1
Agree	284	15.1	15.1	83.3
Strongly Agree	314	16.7	16.7	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “I worry that EcoCash services may not work as I want them to”. 51.13% of the representative population was neutral to the statement. 16.73% of the representative population strongly agreed with the statement. 13.43% strongly disagree with the statement and 3.09% disagreed with the statement.

EcoCash services are reliable

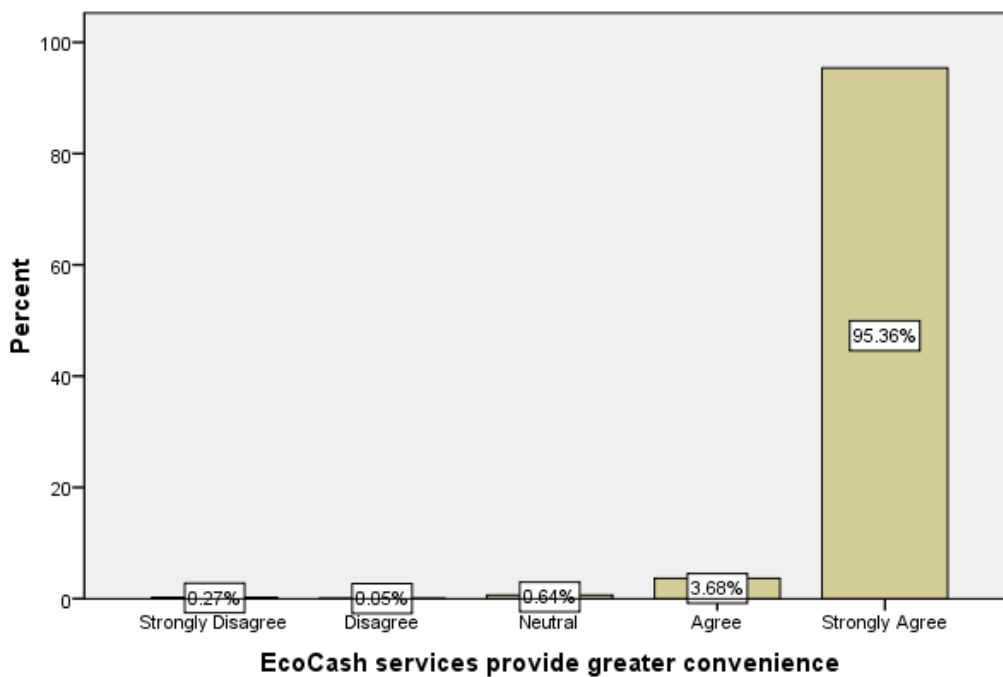
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	24	1.3	1.3	1.3
Disagree	22	1.2	1.2	2.5
Neutral	628	33.5	33.5	35.9
Agree	124	6.6	6.6	42.5
Strongly Agree	1079	57.5	57.5	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “EcoCash services are reliable”. 57.49% of the representative population strongly agreed with the statement. 33.46% of the representative population was neutral with the statement. 6.61% of the representative population agreed with the statement. 1.28% strongly disagreed whilst 1.17% disagreed with the statement.

EcoCash services provide greater convenience

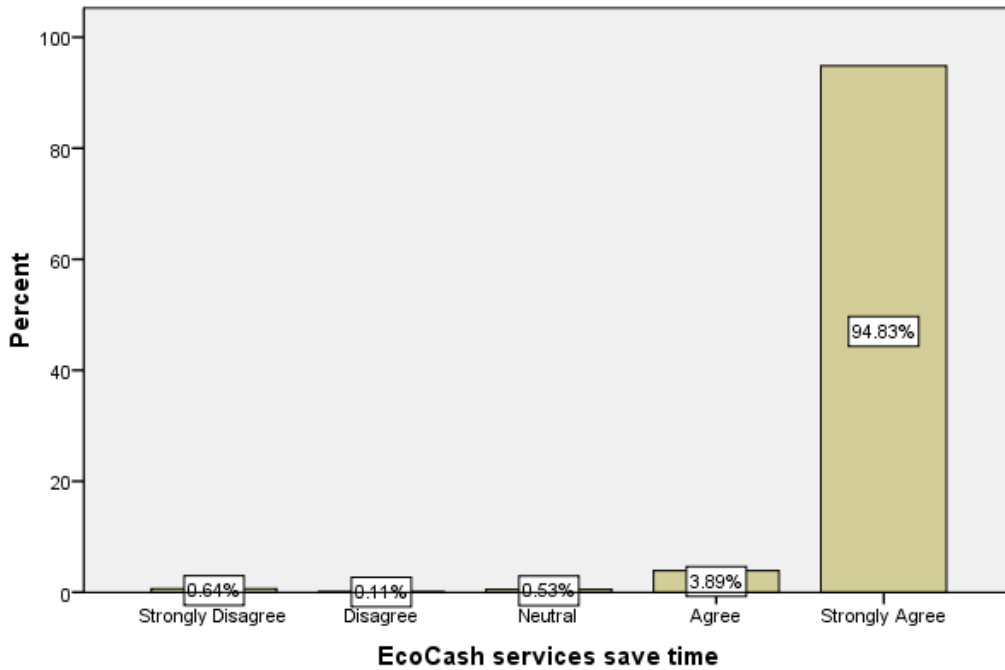
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	5	.3	.3	.3
Disagree	1	.1	.1	.3
Neutral	12	.6	.6	1.0
Agree	69	3.7	3.7	4.6
Strongly Agree	1790	95.4	95.4	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “EcoCash services provide greater convenience”. 95.36% of the representative population strongly agreed with the statement. 3.68% of the representative population agreed with the statement (3.68%). The neutral representative sample of the study was 0.64%. 0.27% of the representative population strongly disagreed with the statement whilst those who disagreed were 0.05%.

EcoCash services save time

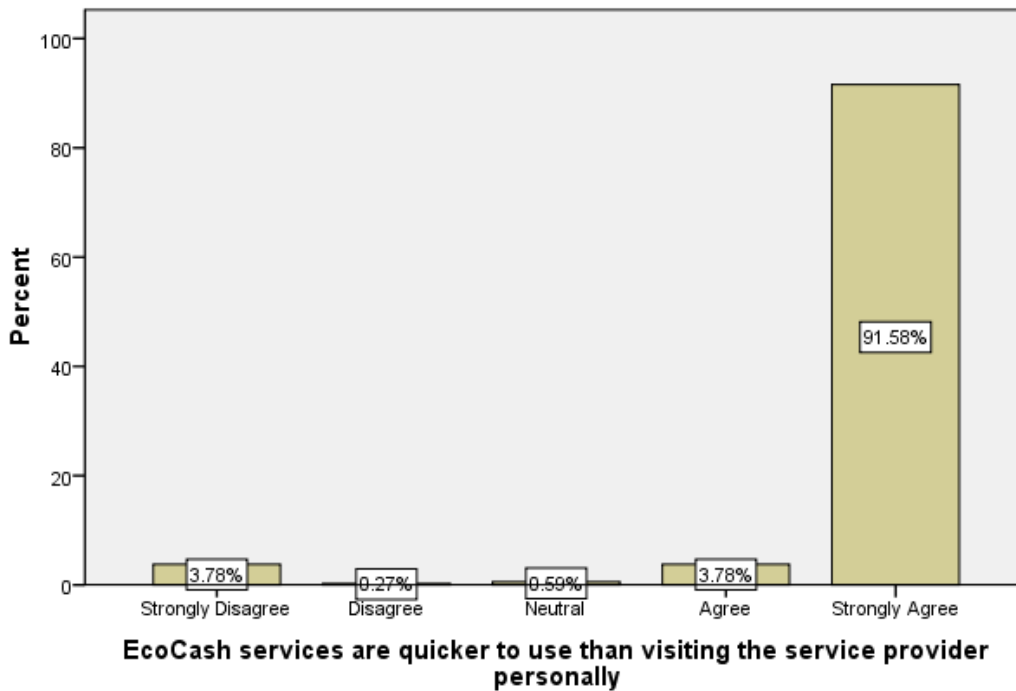
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	12	.6	.6	.6
Disagree	2	.1	.1	.7
Neutral	10	.5	.5	1.3
Agree	73	3.9	3.9	5.2
Strongly Agree	1780	94.8	94.8	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “EcoCash services save time”. 94.83% of the representative population strongly agreed with the statement. 3.89% of the representative population agreed with the statement. 0.53% of the representative population were neutral with the statement and whilst 0.64% strongly disagreed. 0.11% of the representative population totally disagreed with the statement.

EcoCash services are quicker to use than visiting the service provider personally

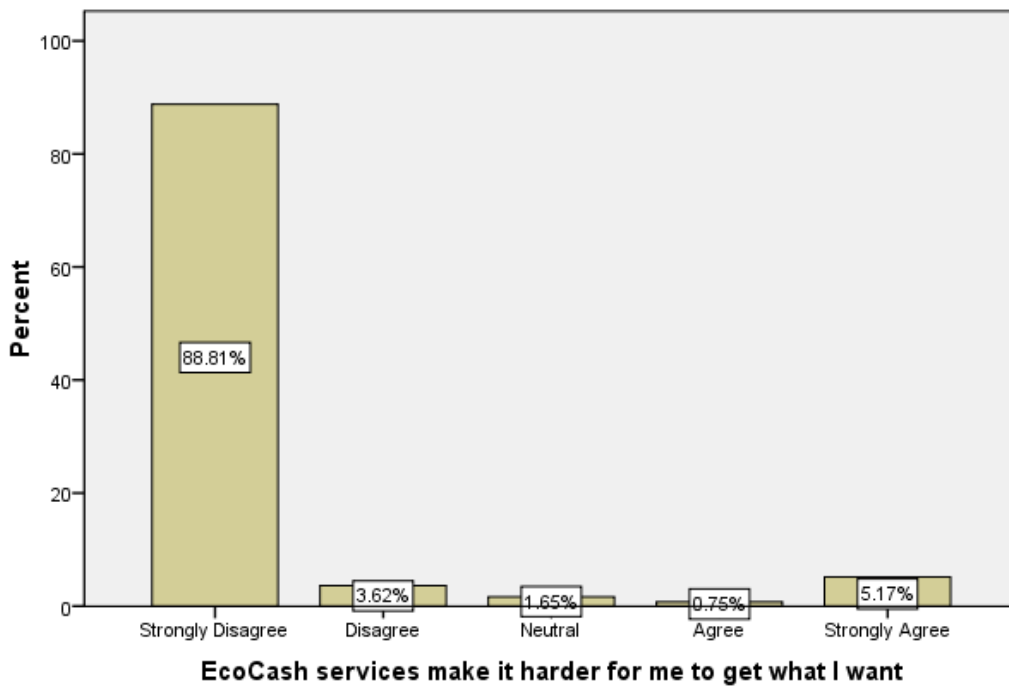
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	71	3.8	3.8	3.8
Disagree	5	.3	.3	4.0
Neutral	11	.6	.6	4.6
Agree	71	3.8	3.8	8.4
Strongly Agree	1719	91.6	91.6	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “EcoCash services are quicker to use than visiting the service provider personally”. 91.58% of the representative population strongly agreed with the statement. 3.78% of the representative population both strongly disagreed and agreed with the statement. 0.59% of the representative population was neutral with the statement whilst 0.27% disagreed.

EcoCash services make it harder for me to get what I want

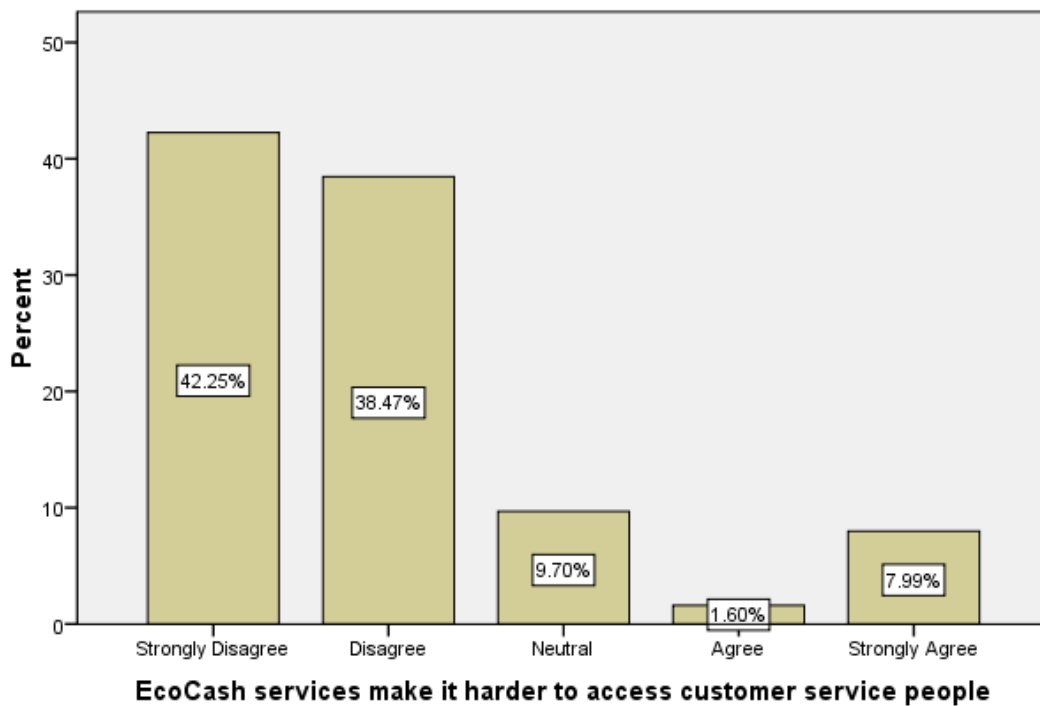
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	1667	88.8	88.8	88.8
Disagree	68	3.6	3.6	92.4
Neutral	31	1.7	1.7	94.1
Agree	14	.7	.7	94.8
Strongly Agree	97	5.2	5.2	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “EcoCash services make it harder for me to get what I want”. 88.91% of the representative population strongly disagreed with the statement. 5.71% of the representative population strongly agreed with the statement. 3.62% of the representative population disagreed with the statement and 1.65% were neutral with the statement. 0.75% agreed with the statement.

EcoCash services make it harder to access customer service people

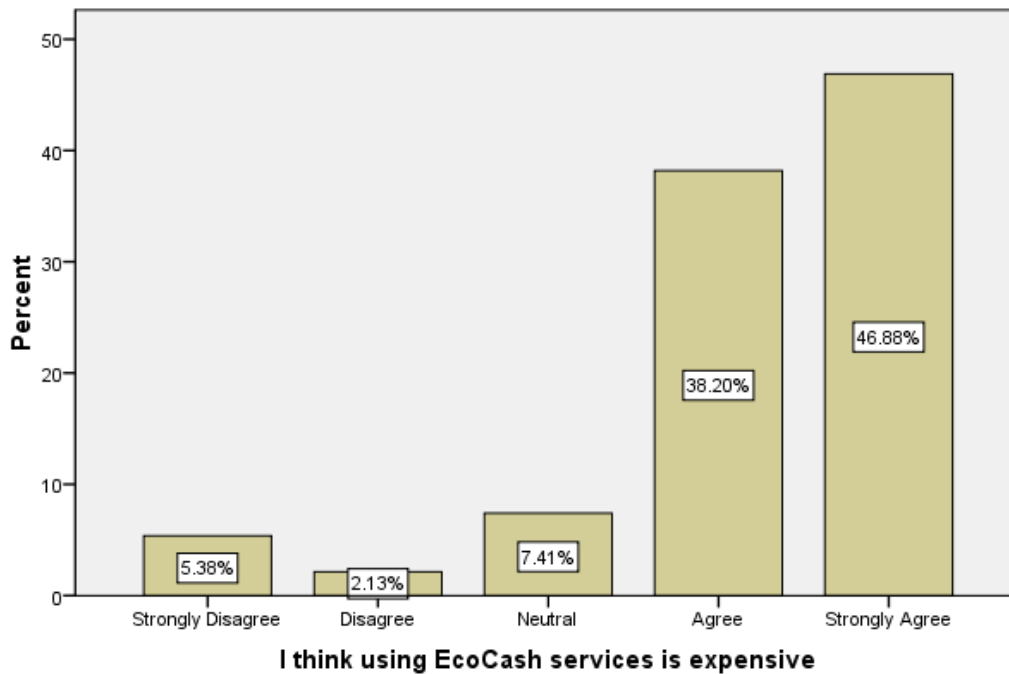
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	793	42.2	42.2	42.2
Disagree	722	38.5	38.5	80.7
Neutral	182	9.7	9.7	90.4
Agree	30	1.6	1.6	92.0
Strongly Agree	150	8.0	8.0	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “EcoCash services make it harder to access customer service people”. 42.25% of the representative population strongly disagreed with the statement. 38.47% disagreed with the statement. 9.70% of the representative population was neutral with the statement. The neutral representative population was represented by 7.99%. 1.60% of the representative population agreed with the statement.

I think using EcoCash services is expensive

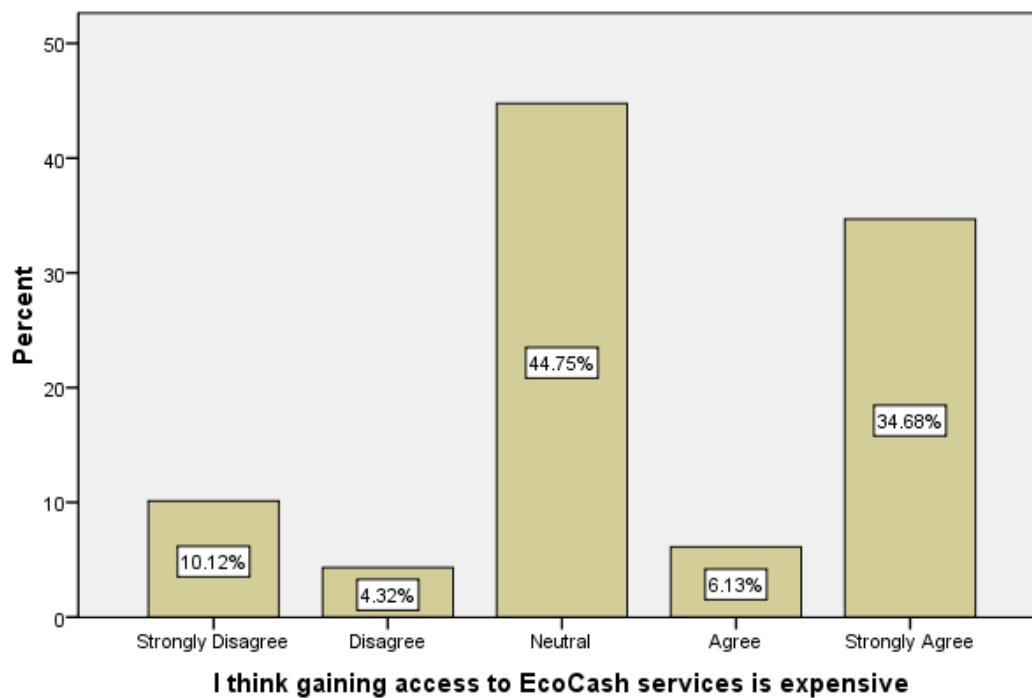
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	101	5.4	5.4	5.4
Disagree	40	2.1	2.1	7.5
Neutral	139	7.4	7.4	14.9
Agree	717	38.2	38.2	53.1
Strongly Agree	880	46.9	46.9	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “I think using EcoCash services is expensive”. 46.88% of the representative population strongly agreed with the statement. 38.20% of the said population agreed with the statement whilst 7.41% were neutral. 5.38% of the representative population agreed with the statement and 2.13% disagreed.

I think gaining access to EcoCash services is expensive

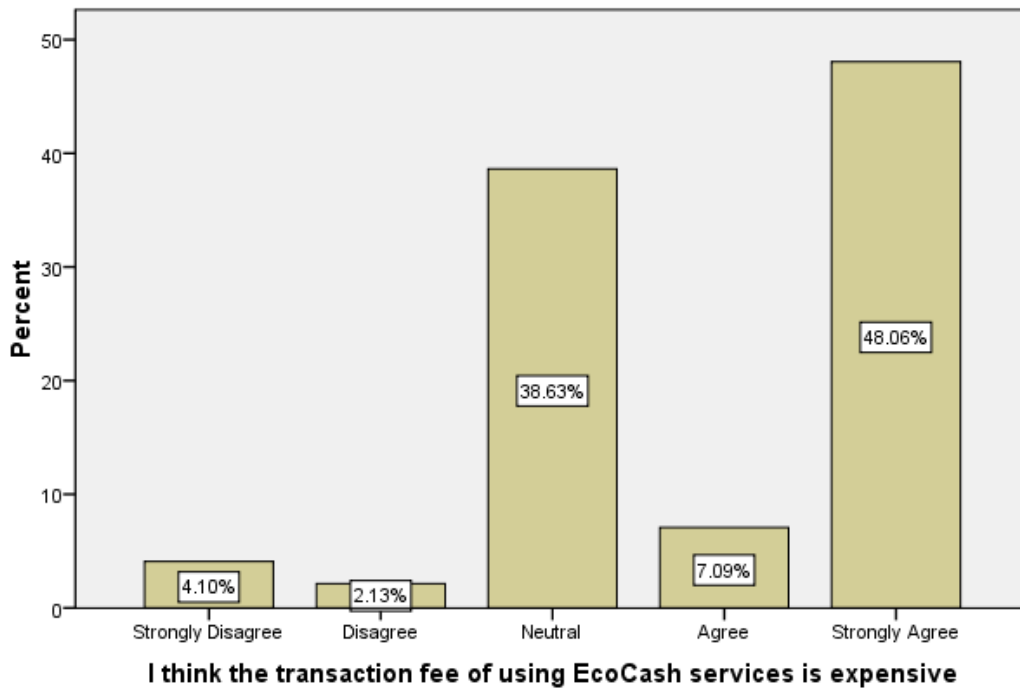
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	190	10.1	10.1	10.1
Disagree	81	4.3	4.3	14.4
Neutral	840	44.8	44.8	59.2
Agree	115	6.1	6.1	65.3
Strongly Agree	651	34.7	34.7	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “I think gaining access to EcoCash service is expensive”. 44.75% of the representative population was neutral to the statement. 34.68% strongly agreed with the statement with 10.12% stating that they did strongly disagree with the statement. 4.32% disagreed with statement.

I think the transaction fee of using EcoCash services is expensive

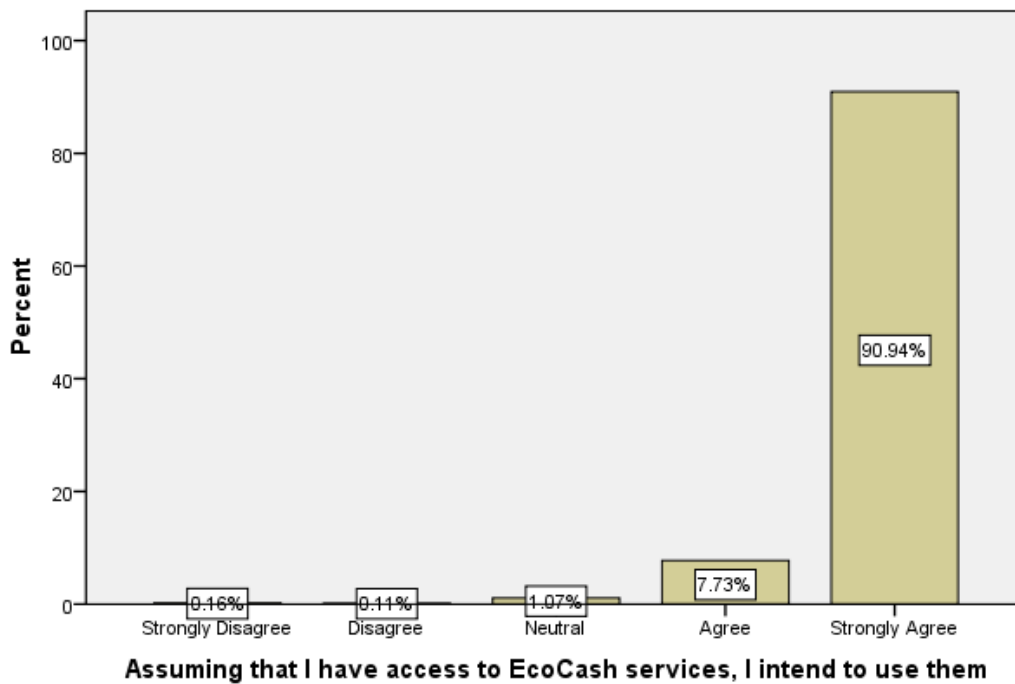
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	77	4.1	4.1	4.1
Disagree	40	2.1	2.1	6.2
Neutral	725	38.6	38.6	44.9
Agree	133	7.1	7.1	51.9
Strongly Agree	902	48.1	48.1	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “I think the transaction fee of using Eco Cash services is expensive”. 48.06% of the representative population strongly agreed with the statement. 38.63% of the representative population was neutral with the statement. 7.09% of the representative population agreed with the statement with those who strongly disagreed being 4.10%. Those who disagreed were 2.13% of the representative population.

Assuming that I have access to EcoCash services, I intend to use them

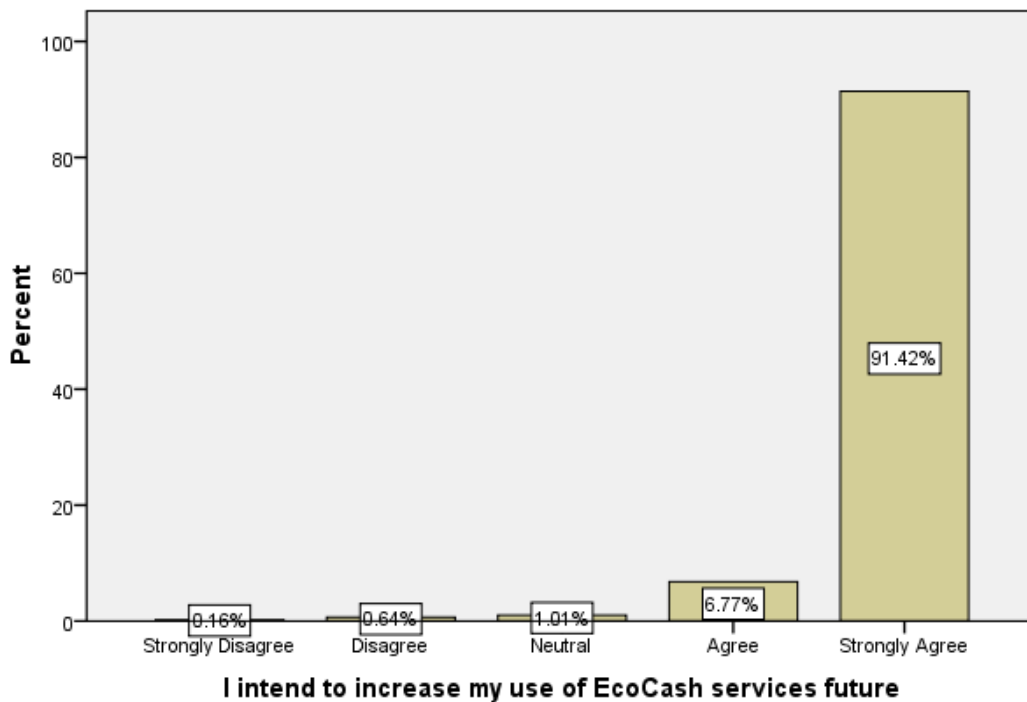
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	3	.2	.2	.2
Disagree	2	.1	.1	.3
Neutral	20	1.1	1.1	1.3
Agree	145	7.7	7.7	9.1
Strongly Agree	1707	90.9	90.9	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “Assuming that I have access to EcoCash services, I intend to use them”. 90.94% of the representative population strongly agreed with the statement. 7.73% agreed with the said statement with 1.07% being neutral with the statement. 0.16% of the representative population strongly agreed with the statement and 0.11% disagreed with the statement.

I intend to increase my use of EcoCash services future

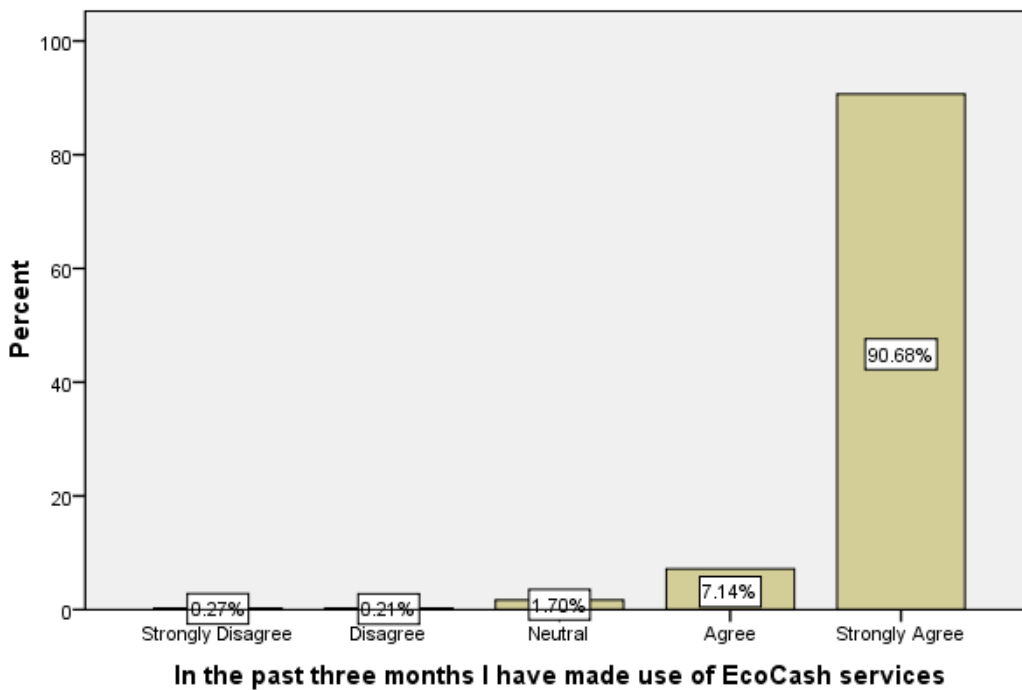
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	3	.2	.2	.2
Disagree	12	.6	.6	.8
Neutral	19	1.0	1.0	1.8
Agree	127	6.8	6.8	8.6
Strongly Agree	1716	91.4	91.4	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “I intend to increase my use of EcoCash services future”. 91.42% of the representative population strongly agreed with the statement. Those who agreed with the statement constituted 6.77% of the representative population. 1.01% of the representative population was neutral with the statement with 0.64% having disagreed with the statement. 0.16% of the representative population disagreed with the statement.

In the past three months I have made use of EcoCash services

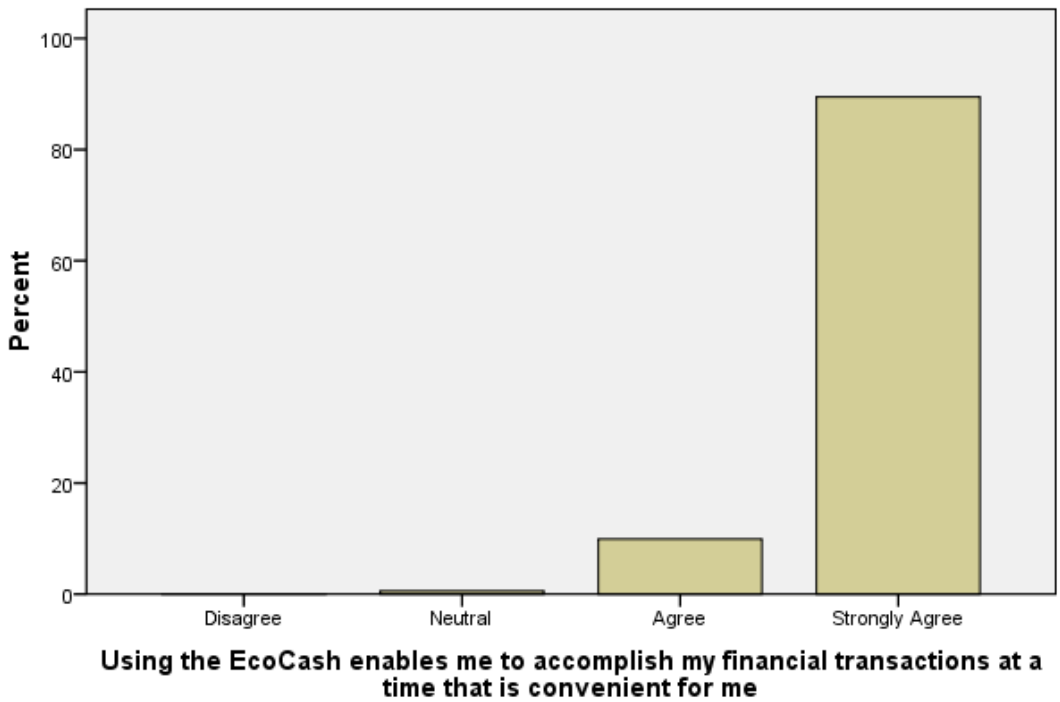
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	5	.3	.3	.3
Disagree	4	.2	.2	.5
Neutral	32	1.7	1.7	2.2
Agree	134	7.1	7.1	9.3
Strongly Agree	1702	90.7	90.7	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “In the past three months I have made use of EcoCash services”. Those who strongly agreed with the statement were 90.68% of the representative population. 7.14% agreed with the said statement and 1.70% maintained a neutral response to the statement. Those who strongly disagreed with the statement were 0.27% of the representative population. 0.21% disagreed with the statement.

Using the EcoCash enables me to accomplish my financial transactions at a time that is convenient for me

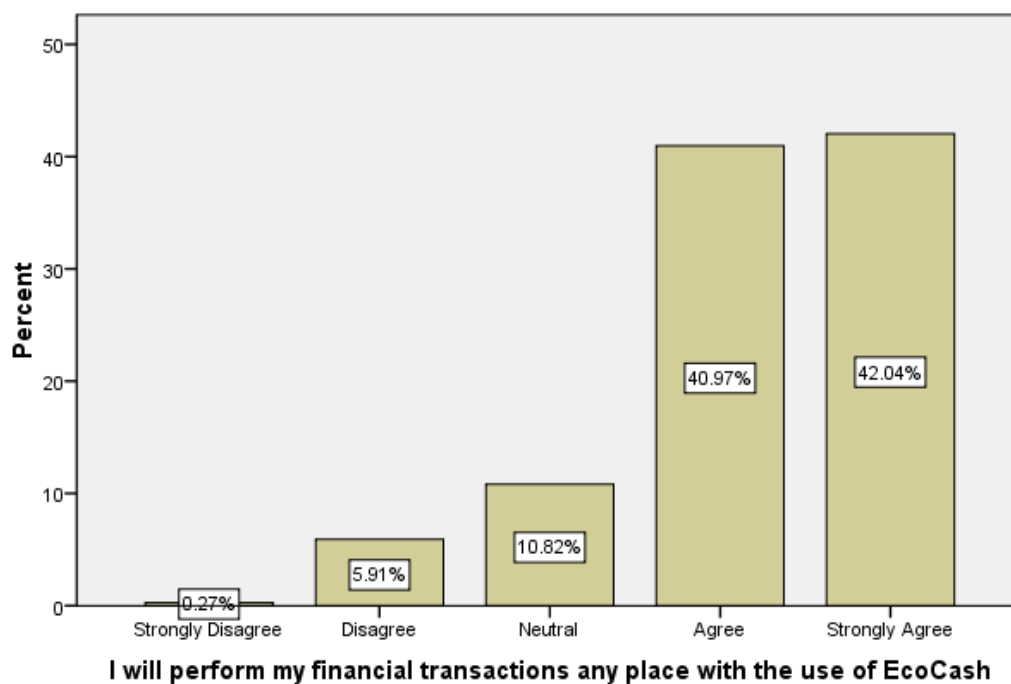
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Disagree	1	.1	.1	.1
Neutral	11	.6	.6	.6
Agree	186	9.9	9.9	10.5
Strongly Agree	1679	89.5	89.5	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “Using the EcoCash enables me to accomplish my financial transactions at a time that is convenient for me”. 89.5% of the representative population strongly agreed with the statement with those who agreed being 9.9%. 0.6% of the representative population was found to be neutral to the statement. Those who disagreed with the statement constituted 0.1% of the representative population.

I will perform my financial transactions any place with the use of EcoCash

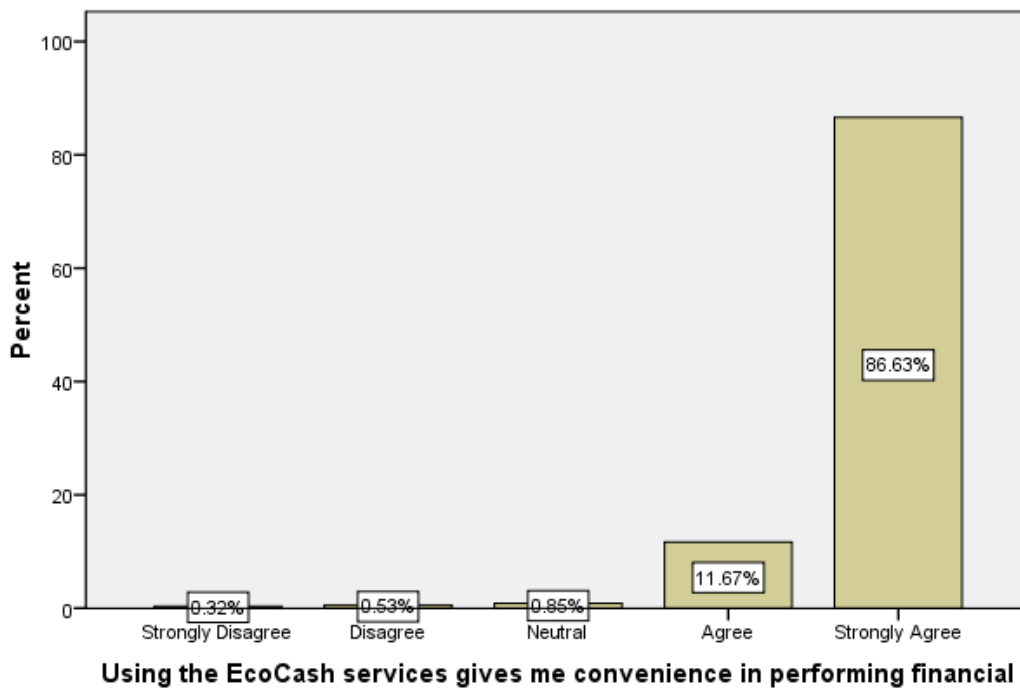
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	5	.3	.3	.3
Disagree	111	5.9	5.9	6.2
Neutral	203	10.8	10.8	17.0
Agree	769	41.0	41.0	58.0
Strongly Agree	789	42.0	42.0	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “I will perform my financial transactions any place with the use of EcoCash”. 42.04% of the sample population strongly agreed with the statement. Those who agreed with the statement constituted 40.97% of the sample population. Those who were neutral to the statement constituted 10.82% of the target population. 5.91% disagreed with the statement and 0.27% of the representative population disagreed with the statement.

Using the EcoCash services gives me convenience in performing financial

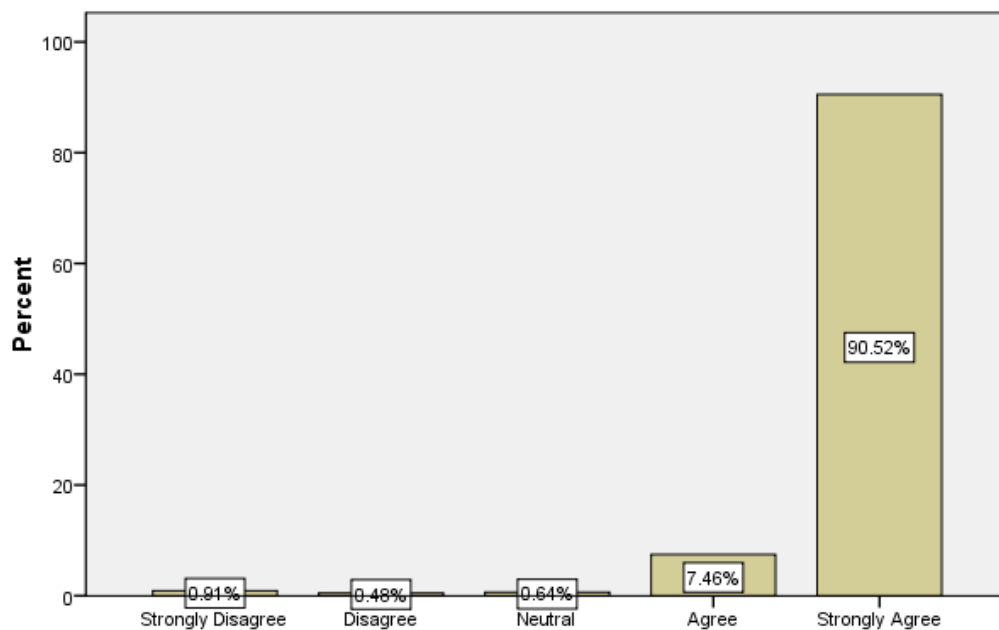
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	6	.3	.3	.3
Disagree	10	.5	.5	.9
Neutral	16	.9	.9	1.7
Agree	219	11.7	11.7	13.4
Strongly Agree	1626	86.6	86.6	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “Using the EcoCash services gives me convenience in performing financial”. As stated above, those who strongly agreed with the statement constituted 86.63% of the representative population. Those in agreement (agreed) with the statement were 11.67% of the representative population. The representative participants who were neutral with the statement constituted 0.85% of the sample population. Those who disagreed with the statement were 0.53% with 0.32% stating that they did strongly disagree with the statement.

I find the EcoCash services convenient for financial transactions

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	17	.9	.9	.9
Disagree	9	.5	.5	1.4
Neutral	12	.6	.6	2.0
Agree	140	7.5	7.5	9.5
Strongly Agree	1699	90.5	90.5	100.0
Total	1877	100.0	100.0	

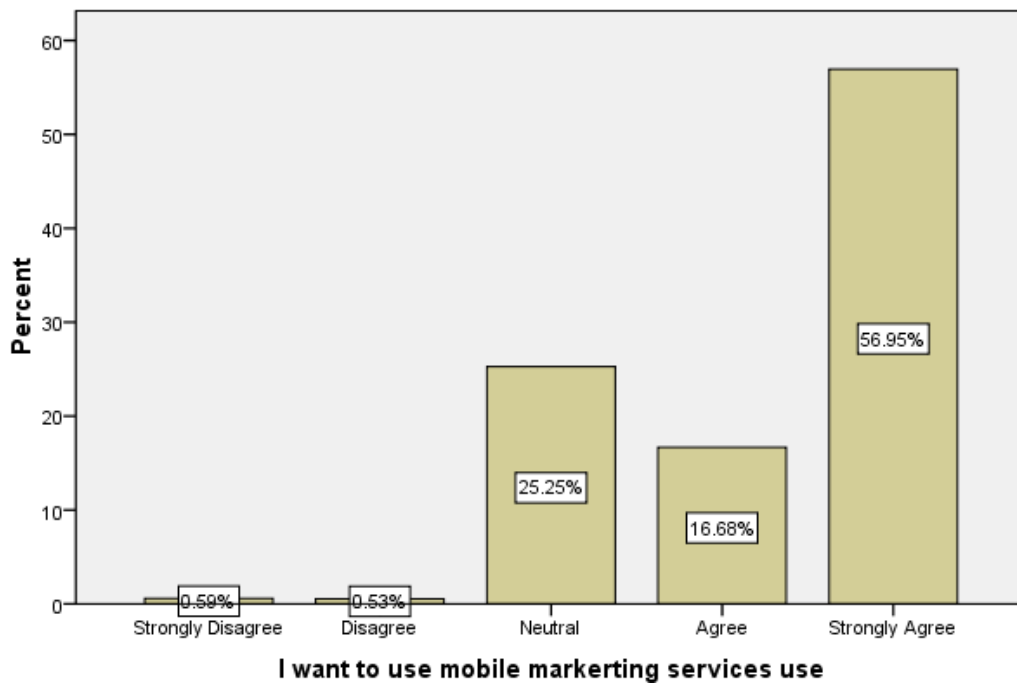


I find the EcoCash services convenient for financial transactions

The figure above illustrates the statement “I find the EcoCash services convenient for financial transactions”. The majority of the sample population (90.52%) strongly agreed with the statement. Those who agreed with the statement were 7.46% with 0.64% being neutral to the statement. Those who strongly disagreed with the statement constituted 0.91% of the representative population. 0.48% disagreed with the said statement.

I want to use mobile marketing services use

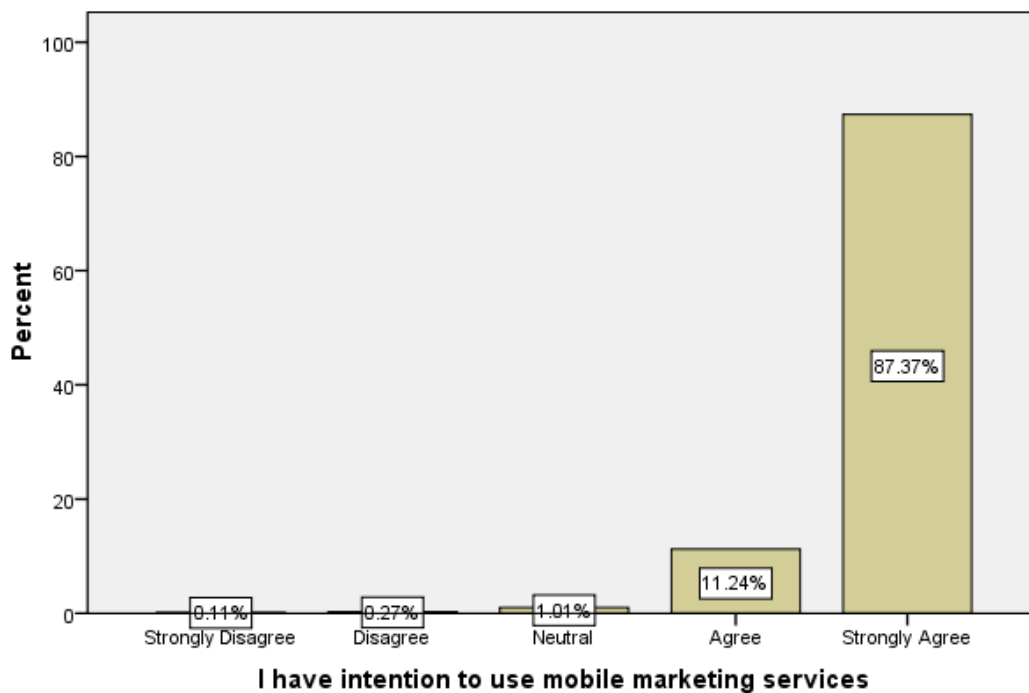
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	11	.6	.6	.6
Disagree	10	.5	.5	1.1
Neutral	474	25.3	25.3	26.4
Agree	313	16.7	16.7	43.0
Strongly Agree	1069	57.0	57.0	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “I want to use mobile marketing services use”. The largest part of the sample population constituting 56.95% of the target population strongly agreed with the statement. Some participants were neutral in response to the statement and these we found to be 25.25% of the representative population. Participants who agreed with the statement were found to be 16.68% of the sample population whilst 0.59% was found to strongly disagree with the statement. Those who disagreed with the statement were 0.53% of the total sample population.

I have intention to use mobile marketing services

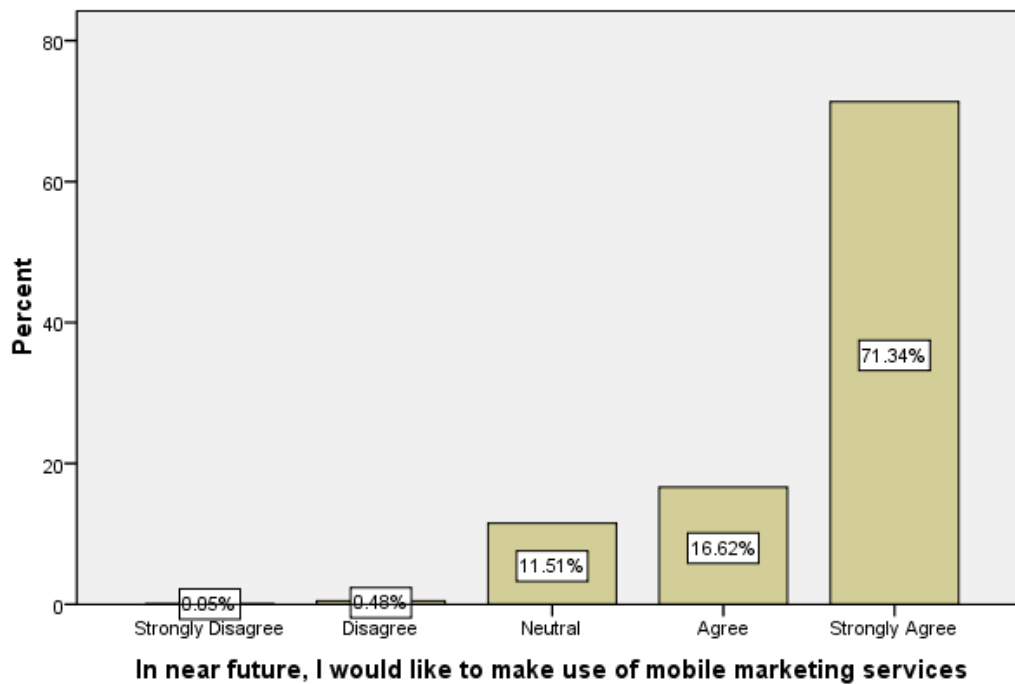
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	2	.1	.1	.1
Disagree	5	.3	.3	.4
Neutral	19	1.0	1.0	1.4
Agree	211	11.2	11.2	12.6
Strongly Agree	1640	87.4	87.4	100.0
Total	1877	100.0	100.0	



The figure above illustrates the statement “I have intention to use mobile marketing services”. As shown above, most of the respondents strongly agreed with the given statement as shown by 87.37%. Those who agreed with the same statement constituted 11.24% of the target population. 1.01% of the participants were neutral in their response to the statement with 0.27% having disagreed with the statement. Strong disagreement (strongly disagreed) with the statement was represented by 0.11% of the sample population.

In near future, I would like to make use of mobile marketing services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.1	.1	.1
	Disagree	9	.5	.5	.5
	Neutral	216	11.5	11.5	12.0
	Agree	312	16.6	16.6	28.7
	Strongly Agree	1339	71.3	71.3	100.0
Total		1877	100.0	100.0	



The figure above illustrates the statement “In near future, I would like to make use of mobile marketing services”. It was seen that 71.34% of the sample population strongly agreed with the statement. Those who agreed with the statement were seen to be 16.62% of the target population. The results also showed that 11.51% of the target population was neutral with the statement. 0.48% disagreed with the statement whilst 0.05% strongly disagreed with the statement.

6.1.3 Inferential Statistics

Following the descriptive data analysis mentioned in the previous section, the second data analysis focused on inferential statistics with a primary focus on Structural Equation Modelling (SEM) which was meant to validate the conceptual model. The collected data was transferred to MS Excel format. The proposed Mobile Money Acceptance Model, its underlying hypothesis were then tested using SmartPLS. PLS used for SEM is a component-based approach for estimation in this meta-analysis study. Wold (cf. 1974, 1982) has been credited for inventing PLS for the purpose of high dimensional data analysis in a low-structure environment.

Since its invention however, PLS has undergone various modifications and extensions. According to Lei and Wu (2007 p. 34), SEM is an advanced version of linear regression approaches used to assess “whether a hypothesized model is consistent with the data collected to reflect [the] theory”. SEM combines multiple regression analysis and factor analysis and is used to analyze structural relationships between latent constructs and measured variables. SEM has become a preferred analysis approach as it estimates both interrelated and multiple dependencies within a single analysis.

Even though covariance-based SEM (CB-SEM) is widely used, the partial least squares SEM (PLS-SEM) approach is now being increasingly used within social sciences research (Götz, Liehr-Gobbers and Krafft, 2010; Hair et al. 2012, 2014, 2016; Wong, 2013). Jöreskog and Wold (1982 p. 266) suggested that the main function of the PLS-SEM approach is to predict the indicators by means of components expansion. Taking that thinking into consideration, this then agreed with Hair, Ringle and Sarstedt, (2011 p. 144) and Hair et al. (2014) recommendation for PLS-SEM use which states that:

1. “If the goal is predicting key target constructs or identifying key 'driver' constructs, select PLS-SEM
2. If the research is exploratory or an extension of an existing structural theory, select PLS-SEM
3. The structural model is complex (many constructs and many indicators).
4. The plan is to use latent variable scores in subsequent analyses.”

Furthermore, there is preference to use PLS-SEM over CB-SEM when it is not known whether or not data's nature is composite-based or common factor. Antonakis et al. (2010) argued that PLS is less affected by model misspecification in some subparts of a model. It should be noted that PLS path modeling is useful for both predictive and explanatory research which determines how the model will be assessed. Shmueli and Koppius (2013) argued that predictive studies (modeling) are a rarity within business research. It has to be noted that PLS-SEM is based on parametric significance tests, such as the ones used in regression analysis; as it deals with data which is assumed not to be normally distributed. Instead several scholars have said that PLS-SEM relies on a nonparametric bootstrap procedure when it comes to testing the significance of estimated path coefficients in a PLS-SEM (Efron and Tibshirani, 1993; Davison and Hinkley, 1997).

Since its invention however, PLS has undergone various modifications and extensions. According to Lei and Wu (2007 p. 34), SEM is an advanced version of linear regression approaches used to assess "whether a hypothesized model is consistent with the data collected to reflect [the] theory". SEM is a multivariate statistical analysis technique that is used to analyze structural relationships. SEM combines multiple regression analysis and factor analysis and is used to analyze structural relationships between latent constructs and measured variables. SEM has become a preferred analysis approach as it estimates both interrelated and multiple dependencies within a single analysis.

6.1.4 Structural Equation Modelling Approach

Further to the tests done above, structural equation modelling (SEM) was used. SEM is described as “a multivariate, statistical technique largely employed for studying relationships between latent variables (or constructs) and observed variables that constitute a model”, (Qureshi and Kang, 2014). Validation of proposed casual relationships through two or more structural equations is supported by SEM (Malaeb, Summers and Pugeseck, 2000; Reckhow, 2005). It is recognized as being similar to regression analysis but more predominant in that it assesses the casual relationships among constructs while concurrently accounting for measurement error (He, Gai, Wu and Wan 2012 p. 853; Sarstedt, Ringle, Smith, Reams and Hair 2014). SEM’s ability to address numerous modelling difficulties, the endogeneity among constructs and composite underlying data structures found in various phenomena (Washington, Karlaftis and Mannering 2003 p. 42) can be assumed to be part of the reason for its popularity.

6.1.5 Measurement Model Assessment (Reliability and Validity of Measurement Instruments)

Reliability and Validity of Measurement Instruments

Reliability and validity is checked once an overall fit has been determined. Construct reliability was looked at through squaring of factor loadings. Chau (1997, p. 324) defined item reliability as being “the amount of variance in an item due to underlying construct rather than to error”. As postulated by several scholars, this study also made use of AVE in order to determine discriminant and convergent validity (Fornell et al, 1981 p. 39).

Path Modelling

With the above having completed path analysis was conducted as supported by Fornell et al (1981). The relationships between measured and theoretical constructs are described through path modelling as supported in the work of Roche, Duffield and White (2011). Anderson et al (1988) further said that path modelling tests the structural paths of the conceptualized research model.

Summary of Measurement Accuracy Statistics

Research constructs		Scale item		Cronbach's test		CR	AVE	Factorloadings
		Mean	SD	Item-total	α value			
PEOU	PEOU 1	4.75	0.969	0.816	0.923	0.945	0.813	0.901
	PEOU 2	4.79	0.944	0.763				0.842
	PEOU 3	4.76	0.931	0.865				0.940
	PEOU 4	4.06	1.131	0.858				0.920
PU	PU 1	4.03	1.022	0.518	0.819	0.811	0.687	0.984
	PU 2	4.36	0.812	0.768				0.715
	PU 3	4.98	0.807	0.513				0.568
PR	PR 1	4.97	0.826	0.502	0.758	0.784	0.611	0.502
	PR 2	4.67	0.866	0.705				0.735
	PR 3	4.09	0.831	0.768				0.787
	PR 4	4.15	0.956	0.533				0.509
BI	BI 1	4.34	1.116	0.803	0.780	0.870	0.691	0.859
	BI 2	4.19	0.801	0.764				0.803
	BI 4	4.01	1.020	0.771				0.831
CE	CE 1	4.75	0.949	0.776	0.707	0.834	0.626	0.829
	CE 3	4.79	0.937	0.690				0.770
	CE 4	4.76	0.963	0.695				0.773
SN	SN 1	4.24	1.011	0.858	0.943	0.963	0.897	0.928
	SN 2	4.03	1.023	0.861				0.966
	SN 3	4.36	0.820	0.858				0.947
CO	CO 1	4.98	0.802	0.897	0.759	0.863	0.649	0.995
	CO 2	3.97	0.816	0.512				0.554
RB	RB 1	4.67	0.806	0.725	0.739	0.885	0.793	0.888
	RB 2	4.09	0.828	0.868				0.893
MMSU	MMSU 2	4.15	0.996	0.899	0.700	0.711	0.513	0.996
	MMSU 3	4.34	1.566	0.618				0.650

Table 6.2 Scale accuracy analysis

Note: PEOU = Perceived Ease of Use; BI = Behavioral Intention; PU = Perceived Usefulness; RB = Relative Benefits; PR = Perceived Risks; CE = Convenience; SN = Social Norms/Influence; CO = Cost; MMSU = Mobile Money Service Use.

SD= Standard Deviation CR= Composite Reliability AVE= Average Variance Extracted

* Scores: 1 – Strongly Disagree; 3 – Moderately Agree; 5 – Strongly Agree

Cronbach's Alpha test

Chinomona (2011, p. 108) postulated that a higher Cronbach coefficient alpha indicates a higher reliability of a measurement scale. It can be noted that given the results in Table 6.2, the Cronbach's Alpha value for each research construct ranges from 0.700 to 0.943; scholars like Nunnally and Bernstein (1994, p. 43) said that values above 0.6 are an indicator of validity. The values derived from this study conformed to the minimum set by Dunn, Seaker and Waller (1994) that put 0.5 as the cut-off point. Thus, results in Table 6.2 confirm the reliability of this study's constructs.

Composite Reliability (CR)

Chinomona (2011) recommended researchers to conduct the composite reliability test as a way to investigate the internal reliability of constructs being studied. According to Nunnally (1967) a Composite Reliability index that is greater than 0.7 signifies sufficient internal consistency of the construct. Within this study the Composite Reliability results fall with this range: 0.711 to 0.963 as shown in Table 6.2. Validity tests were conducted and convergent and discriminant validity were evaluated. Both tests are described below as well as the findings.

Convergent validity

2014). Convergent validity is defined as the extent to which two measures of constructs that hypothetically should be related are indeed related and is a subtype of construct validity (Cunningham, Preacher and Banaji, 2001). The establishment of convergent validity comes about when two similar constructs correspond with each other. Discriminate validity is the opposite of convergent validity as it looks at two dissimilar constructs instead. A good convergence validity is found when constructs load strongly on their common construct. Scholars have said that a loading above 0.5 is an indicator of convergent validity (Duckworth and Kern, 2011). The loadings in this study were found to fall within this range: 0.502 - 0.996 as shown in Table 6.2, confirming the convergent validity.

Discriminant validity

Discriminant validity is also known as divergent validity investigates whether measurements that are not supposed to be related are, in indeed unrelated (Lucas, Diener and Suh, 1996). Scholars have argued that both discriminant and convergent validation techniques are needed when conducting new tests. Chinomona (2011) argued that discriminant validity is verified by looking at the correlation between constructs, and recommended 1.0 as being that value. Within this study, the respective values are indicated in Table 6.3 below.

RESEARCH CONSTRUCTS	RB	PEOU	PU	PR	CE	SN	CO	BI	MMSU
Relative Benefits (RB)	1.000								
Perceived Ease of Use (PEOU)	0.451	1.000							
Perceived Usefulness (PU)	0.566	0.601	1.000						
Perceived Risks (PR)	0.213	0.447	0.367	1.000					
Convenience (CE)	0.618	0.573	0.669	0.625	1.000				
Social Norms/Influence (SN)	0.227	0.372	0.337	0.112	0.575	1.000			
Cost (CO)	0.671	0.660	0.713	0.698	0.629	0.701	1.000		
Behavioral Intention (BI)	0.265	0.222	0.301	0.177	0.284	0.331	0.291	1.000	
Mobile Money Services Use (MMSU)	0.445	0.537	0.448	0.479	0.471	0.511	0.607	0.588	1.000

Table 6.3 Correlation between the constructs

Note: PEOU = Perceived Ease of Use; BI = Behavioral Intention; PU = Perceived Usefulness; RB = Relative Benefits; PR =Perceived Risks; CE =Convenience; SN = Social Norms/Influence; CO = Cost; MMSU = Mobile Money Service Use.

Average Variance Extracted (AVE)

Average Variance Extracted is defined as “The average variance extracted estimate reflects the overall amount of variance in the indicators accounted for by the latent construct” (Chinomona, 2011, p. 109). The AVE results fall within this following range: 0.513 to 0.897 (see Table 6.3) which is above the minimum 0.5 which is

recognized as being a good estimate and thus results from this study are indicative of a good representation of the latent construct by the items.

STRUCTURAL MODEL TESTING

The following model was derived using SEM.

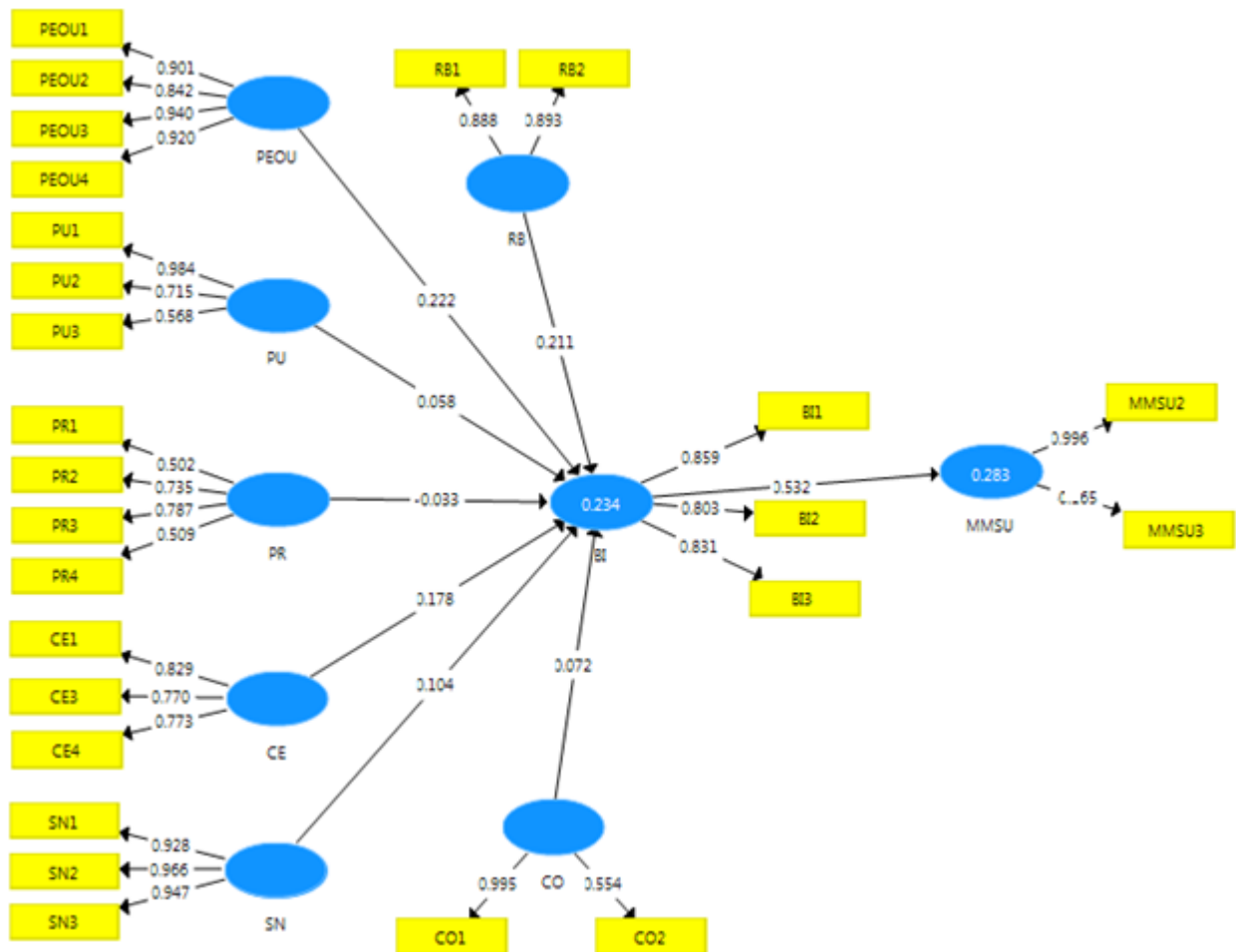


Figure 6.0 Structural model

Note: PEOU = Perceived Ease of Use; BI = Behavioral Intention; PU = Perceived Usefulness; RB = Relative Benefits; PR =Perceived Risks; CE =Convenience; SN = Social Norms/Influence; CO = Cost; MMSU = Mobile Money Service Use.

Hypothesis Testing

In line with the study objectives zeroing in on the proposed conceptual model it became important to investigate any causal relationships among latent variables using path analysis as supported in the work of Bentler (1980). SEM combines multiple regression analysis and factor analysis for investigating any structural relationship between latent constructs and measured variables. Multiple relationships and interrelated dependencies, if any, are computed within one analysis making use of exogenous and endogenous variables (Winer, Brown and Michels, 1971; Paternoster, et al. 1998). The respective estimations drawn from this study are indicated in Table 6.4 below. The hypothesis is stated and tested with end result being either it is supported or rejected based on *t*-statistic value. Different scholars have noted that a greater *t*-statistic is indicative of statistical significance whereas a value closer to zero is the opposite (Paternoster, et al. 1998).

Proposed hypothesis relationship	Hypothesis	Path Coefficients	T-Statistics	Rejected/Supported
Relative Benefits (RB) → Behavioral Intention (BI)	H1	0.211	3.236	Supported and significant
Perceived Ease of Use (PEOU) → Behavioral Intention (BI)	H2	0.222	3.786	Supported and significant
Perceived Usefulness (PU) → Behavioral Intention (BI)	H3	0.058	1.067	Supported but insignificant
Perceived Risks (PR) → Behavioral Intention (BI)	H4	-0.033	1.001	Supported and insignificant
Convenience (CE) → Behavioral Intention (BI)	H5	0.178	2.479	Supported and significant
Social Norms/Influence (SN) → Behavioral Intention (BI)	H6	0.104	2.176	Supported and significant
Cost (CO) → Behavioral Intention (BI)	H7	0.072	1.738	Supported and insignificant
Behavioral Intention (BI) → Mobile Money Service Use (MMSU)	H8	0.532	7.519	Supported and significant

Table 6.4 Hypothesis testing results

Note: PEOU = Perceived Ease of Use; BI = Behavioral Intention; PU = Perceived Usefulness;

RB = Relative Benefits; PR = Perceived Risks; CE = Convenience; SN = Social Norms/Influence;

CO = Cost; MMSU = Mobile Money Service Use.

As seen in Table 6.4, H3 ($t=1.067$), H4 ($t=1.001$) and H7 ($t=1.738$) are all supported even though they are insignificant as argued by Chinomona (2010) who said that the acceptable t-statistic value should be 1.96 so as seen in Table 6.4 those values are falling below that value. In conclusion H8 ($t=7.519$) is significant and supported as it is above 1.

H1: Relative Benefits (RB) and Behavioral Intention (BI) Relationship

The results obtained following the test of H1 confirmed that there is an association between relative benefits (RB) and behavioral Intention (BI). A path coefficient of 0.211 was realized after testing H1. This means that Relative Benefits have a positive influence on Behavioral Intention. A significant relationship ($t=3.236$) between Relative Benefits (RB) and Behavioral Intention (BI) is noted from the results.

H2: Perceived Ease of Use (PEOU) and Behavioral Intention (BI) Relationship

Based on the results in Table 6.4, it can be seen that a strong relationship exists between Perceived ease of use (PEOU) and Behavioral Intention (BI) with a path coefficient of 0.222. The said relationship is positive and significant given that $t=3.786$.

H3: Perceived Usefulness (PU) and Behavioral Intention (BI) Relationship

A test of H3 proved the existence of a relationship between Perceived Usefulness (PU) and Behavioral Intention (BI) with a path coefficient of 0.058. This means that perceived usefulness has a negative influence on behavioral intention. However it has to be noted that the said relationship is insignificant since $t=1.067$.

H4: Perceived Risks (PR) and Behavioral Intention (BI) Relationship

As shown in Table 6.4, there is a relationship between the following constructs Perceived Risks (PR) and Behavioral Intention (BI) with a path coefficient of -0.033. However the said relationship is a negative one in that Perceived Risks (PR) negatively influences Behavioral Intention (BI); thus is potential users perceive that a technology is risky then they will not intend to make use of such. The results in Table 6.4 further indicate that the mentioned relationship is insignificant since $t=1.001$.

H5: Convenience (CE) and Behavioral Intention (BI) Relationship

Based on the results shown in Table 6.4, it can be seen that a strong relationship exists between Convenience (CE) and Behavioral Intention (BI) with a path coefficient of 0.178; the relationship is both positive and strong (significant) $t= 2.479$.

H6: Social Norms/Influence (SN) and Behavioral Intention (BI) Relationship

Social Norms (SN) and Behavioral Intention (BI) are related as shown in Table 6.4 with a path coefficient of 0.104 even though, the relationship is significant as shown by $t= 2.176$.

H7: Cost (CO) and Behavioral Intention (BI) Relationship

Cost (CO) and Behavioral Intention (BI) have a relationship. However this relationship is a negative one given that the path coefficient is 0.072. It however should be noted that this relationship is an insignificant one given that $t= 1.738$.

H8: Behavioral Intention (BI) and Mobile Money Service Use (MMSU) Relationship

Given the results in Table 6.4 it is evident that Behavioral Intention (BI) and Mobile Money Service Use (MMSU) have a relationship. The relationship is significant as shown by the path coefficient of 0.532. Behavioral Intention (BI) is positively related to Mobile Money Service Use (MMSU) in a significant way ($t= 7.519$).

7.1 Conclusions and Recommendations

Based on the results of this study, it has been seen that the proposed extension of the Technology Acceptance Model through the addition of the proposed constructs is a good fit in respect of looking at the adoption of mobile money services within rural communities in Zimbabwe.

This study proposed the addition of the following constructs to the original TAM (Davis, 1989):

1. Relative Benefits,
2. Convenience,
3. Social Norms/Influence,
4. Perceived Risk and,
5. Cost.

It is through the said extension that we can understand the adoption intention of potential mobile money users within rural communities of Zimbabwe. It should be noted that this study follows several previous ones by scholars such as Amin (2009), Riquelme and Rios (2010); and Shambare (2010) who all sort to understand the reasons behind adoption of mobile banking services.

It was found that the strongest construct for the adoption of mobile money services is behavioral intention followed by perceived ease of use which was then followed by relative benefits; thirdly is convenience then lastly social norms/influence. These findings highlight major considerations that the banking sector as well as MNOs who are intending to enter, or are already in the mobile money services space should take into consideration.

Perceived ease of use could be underpinned by the “easy to follow” USSD menu options that have been made available for use when conducting mobile money based financial transactions. A language selection option could also be a

contributing factor since users are able to select their preferred language for conducting the respective transactions in.

Relative benefits also came out as being a significant construct in the proposed model. Thus it is important for potential service providers within the mobile money space to think of other “add-on benefits” that will also attract prospective users. EcoCash seem to have come right on this aspect, which is a lesson that NetOne and Telecel could also learn as they seek to increase their market share within the mobile money space.

The convenience of being able to conduct financial transactions from literally anywhere and at any given time of day or night is a serious consideration when it comes to whether or not one adopts mobile money services. This factor is mainly driven by the coverage offered by an MNO and the network’s reliability and stability. Significant investment is necessary in order to have the respective infrastructure required for the provision of the said coverage. As noted previously under the Literature Review section, Econet has invested significantly in this regard in comparison to their competition which explains why EcoCash is the dominant player within the mobile money space throughout Zimbabwe (rural and urban included). The sharing of mobile network infrastructure if implemented, could potentially give TelOne and Telecel access to the rural market which they do not currently have.

Social norms/influence are also an important consideration when it comes to whether or not an individual adopts mobile money services in rural communities as proved by the aforementioned results. Potentially linked to strong family ties which characterize families across Zimbabwe, service providers needs to take note of the fact that there is very strong influence from person to person within both a family setup as well as friendship. The people considered to be important in one’s life play a very significant role when it comes to the decisions that individual makes. The opinions of such individuals should be studied and potentially influenced so that mobile money services adoption may be accelerated within rural communities. It is the norm in Zimbabwe that the urban dwellers when they come visit their rural homes are looked at with admiration by the rural inhabitants who consequently seek “to be like them”, be it in terms of the not significant things such as dressing right up to the subject of this study; the use of mobile money services.

Perceived risk was found to have an insignificant impact on behavioral intention. This could be attributed to the 24/7 Helpdesk which is run by EcoCash for round the clock assistance to its subscribers. It goes without saying that fraud within the electronic payments industry is very high and mechanisms need to be always available in order to combat it. For those customers who have in the past erroneously sent money to wrong recipients, EcoCash has come up with a way of ensuring that the recipient's name pops up as soon as their mobile number has been entered for a payment which further removes the risk of sending money to an unknown individual.

Perceived usefulness also turned out not to be a significant consideration towards one's behavioral intention. Whilst the usefulness of mobile money services goes without saying, improved performance, productivity and effectiveness were not seen as being important or relevant by the target population.

Even though EcoCash charges are exorbitant in comparison to both regional and global service providers, this construct was seen not to be significant in this study. Whilst users generally were unhappy with the charges for the EcoCash services, to them the service still was a cheaper option than sending money through traditional means such as bus drivers. Through interactions with the target population it became apparent that individuals whom were previously entrusting with sending their money were not always reliable as they would at times convert that money to their own use and either never be seen again or come up with some excuses (such as, "the money was stolen at Mbare Musika" or "I must have dropped the envelope and did not notice this"). To them EcoCash represents a cheaper option than them having to physically travel to drop off money to their loved ones.

Thus it is very important for both service providers and potential service providers to be aware of the factors that have been allured above as they have the potential to determine whether or not mobile services launched within rural communities will be a success.

7.1.1 Research Implications

The implications of this study are categorized as follows:

- (a) Theoretical
- (b) Methodological
- (c) Practical

7.1.1.1 Theoretical Implications

The Mobile Money Acceptance Model offers a better understanding of mobile money services acceptances within rural communities. The significance of the constructs used to extend TAM has been well noted and measured in terms of importance. Summarily PEOU and RB were seen to be major considerations in determining adoption behavior towards mobile money services. Whilst these findings might be misconstrued to be insignificant, it should be noted that they do contribute to the practice of scientific enquiry as supported in the work of Hubbard and Armstrong (1994). Kuhn (1996) argued that such increased the expanse of the wider body of knowledge.

On the whole, the researcher found the results to be quite positive whilst also noting the need to further study this area.

7.1.1.2 Theoretical Contributions (Contributions to the body of knowledge)

This study sort to contribute to the body of knowledge and it should be noted that it has done so in several ways as noted below:

1. The lack of SADC specific research information on considerations for adoption of mobile money services has been tackled and a basis for further research within this field has been laid down. As previously noted it seems most of the currently available literature focuses on the like of M-PESA in Kenya and does not look at other success stories such as that of EcoCash in Zimbabwe. More importantly such studies have been done remotely through desktop research by individuals not resident on the African continent all

together. This study sort to take a practical approach by going onto the field and collecting the respective data for analysis.

2. Past related research has been known to study one construct at a time such as perceptions (Agarwal and Prasad, 1998; Alrafi, 1989; Rugimbana , 1994) or personality (Berndt et al., 2010; Parasuraman, 2000; Tsikriktsis, 2004); this study looked at a number of constructs simultaneously and came up with the Mobile Money Acceptance Model explaining the factors influencing adoption of mobile money services within rural communities.
3. Loosely put 'branchless' or 'digital banking' through the use of mobile phones seems to now be the way in which banking takes place. Throughout this study, there was not a single Automated Teller Machine or Point of Sale device which was seen by the researcher. The mobile phone is no longer just seen as a means of communicating as it now also acts as a tool for banking at any place and time. The notion that bank's still have a potential to enter the rural market needs to be revised even though the likes of Booz and Co (2003) believe that it is all about banks coming up with the right strategy. Instead banks should partner with Mobile Network Operators and see how best they can also play a part in this new phenomenon.
4. Findings from this study also show that as Africa, we need solutions tailored for our respective environments. Mobile money services exist in other third world countries outside Africa but factors influencing their adoption are not necessarily the same as those influencing the same on the African continent.
5. The World Bank's 2020 vision to significantly improve financial inclusion could also be assisted if the findings of this study are taken into consideration. The World Bank currently is on a drive to sponsor National Switches, globally; such as the National Switches of Iraq, Ethiopia and Malawi in order to facilitate interoperability within the financial services sector of those countries. Whilst that initiative is good for those national, findings from this study should be used as basis for considering funding Mobile Network Operators within areas where most people are financially excluded. The MNO's in partnership with the World Bank could see themselves get funding for the expansion of their network infrastructure within rural communities and thus providing

financial inclusion through mobile money services to those individuals who are currently unbanked or under-banked.

7.1.1.3 Practical Implications

1. Mobile Money Acceptance Model has shown which factors need to be considered the most in order to promote the use of mobile money services within rural communities through focus on factors which speak to. The respective stakeholders within the space need to know the impact of the following considerations when targeting rural communities for launching their respective services:
 - (a) Perceived Ease Of Use
 - (b) Relative Benefits
 - (c) Social Norm/Influence
2. Policymakers such as the government of Zimbabwe need to update their ICT Policy with a special consideration of mobile money services. Previous policies do not cater for this new phenomenon and hence there are a lot of loopholes when it comes to the legislation around mobile money services within Zimbabwe.
3. The question of agent liability needs to be addressed as well since currently they hold large amounts of cash at their own risk without any insurance of recourse provided for by the mobile money service provider in the unfortunate even that they get robbed. This is an Africa-wide problem as noted in this study and needs urgent attention.

7.1.1.4 Limitations of the Study

The research was based on a large population sample and took into consideration a wide range of theoretical standpoints; however it needs to be noted that limitations did exist. Very limited SADC related academic material was found hence reference was mainly to material covering East Africa which is the success ground of mobile money services through M-PESA. However due care was taken to ensure that the findings of this study add to the body of knowledge and provide the much needed foundation material for further researching the mobile money phenomena within the SADC region.

7.1.1.5 Suggestions for Further Research

Given the scope of this study as stated in 1.5, further research opportunities are available which all focus of enlarging the scope of this study. A wider scope could mean (1) a similar study on other rural communities in Zimbabwe for the purpose of validating whether the findings would be applicable as well, (2) an investigative analysis into other money services providers (Telecel and NetOne) with the main purpose of understanding why they have not been much of completion to EcoCash, (3) an investigation into why Perceived Ease Of Use was not found to be a significant factor when it comes to the adoption of mobile money services yet it has been heralded as being one of the key constructs according to several scholars. A bigger sample size could be applicable in this regard.

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Measurement Instrument (Questionnaire)

Respondent no:

Dear Respondent

Thank you for your willingness to complete the EcoCash survey. The purpose of this survey is to determine your perceptions about EcoCash and the services they offer. The survey should not take more than 10 minutes to complete. This is an anonymous and confidential survey. The answers you provide will be used for research purposes **only**.

Please answer all the questions by placing a cross (x) in the appropriate block. There is no right or wrong answer. We are interested in understanding your perceptions of EcoCash services.

Screening questions:

Do make use of Econet as your cell phone network provider	Yes	No
Have you used EcoCash services in the past 6 months	Yes	No


If you answered **“Yes” to both** questions please complete the, questionnaire. If you answered **“No” to any** of these questions, you do not have to complete the questionnaire.

Please answer the following questions regarding EcoCash services.


SECTION A

Please indicate, where 1 = strongly disagree and 5 = strongly agree, the extent to which you agree or disagree with each of the following statements.


Question 1:

Perceived ease of use	Strongly Disagree  Agree				
	1	2	3	4	5
My interaction with EcoCash services is clear and understandable.	1	2	3	4	5
Interacting with EcoCash services does not require a lot of my mental effort.	1	2	3	4	5
I find EcoCash services to be easy to use.	1	2	3	4	5
I find it easy to get EcoCash services to do what I want it to do	1	2	3	4	5


Question 2:

Social norms/influence	Strongly Disagree  Strongly Agree				
People who influence my behavior think that I should use EcoCash services	1	2	3	4	5
People who are important to me think that I should use EcoCash services	1	2	3	4	5
People whose opinions I value prefer me to use EcoCash	1	2	3	4	5


Question 3:

Perceived usefulness	Strongly Disagree  Agree				
EcoCash services has improved performance	1	2	3	4	5
EcoCash services has improved productivity	1	2	3	4	5
EcoCash services has improved effectiveness	1	2	3	4	5
EcoCash services is useful	1	2	3	4	5


Question 4:

Perceived Risk	Strongly Disagree  Agree				
I am concerned about the security of the EcoCash service	1	2	3	4	5
Using EcoCash services I am concerned about the consequences of making a mistake	1	2	3	4	5
I worry that EcoCash services may not work as I want them to	1	2	3	4	5
EcoCash services are reliable	1	2	3	4	5


Question 5:

Relative Benefits	Strongly Disagree  Agree				
EcoCash services provide greater convenience	1	2	3	4	5
EcoCash services save time	1	2	3	4	5
EcoCash services are quicker to use than visiting the service provider personally	1	2	3	4	5
EcoCash services make it harder for me to get what I want	1	2	3	4	5
EcoCash services make it harder to access customer service people	1	2	3	4	5


Question 6:

Cost	Strongly Disagree  Strongly Agree				
	1	2	3	4	5
I think using EcoCash services is expensive	1	2	3	4	5
I think gaining access to EcoCash services is expensive	1	2	3	4	5
I think the transaction fee of using EcoCash services is expensive	1	2	3	4	5


Question 7:

Behavioural Intention	Strongly Strongly Disagree  Agree				
	1	2	3	4	5
Assuming that I have access to EcoCash services, I intend to use them	1	2	3	4	5
I intend to increase my use of EcoCash services future	1	2	3	4	5
In the past three months I have made use of EcoCash services	1	2	3	4	5

Question 8:

Convenience	Strongly Strongly Disagree  Agree				
	1	2	3	4	5
Using the EcoCash enables me to accomplish my financial transactions at a time that is convenient for me	1	2	3	4	5
I will perform my financial transactions any place with the use of EcoCash	1	2	3	4	5
Using the EcoCash services gives me convenience in performing financial	1	2	3	4	5
I find the EcoCash services convenient for financial transactions	1	2	3	4	5

Question 9:

Intent to use	Strongly Disagree  Strongly Agree				
	1	2	3	4	5
I want to use mobile marketing services use					
I have intention to use mobile marketing services					
In near future, I would like to make use of mobile marketing services					

SECTION B

Question 10:
Please indicate your gender

Male	1
Female	2

Question 11:
Please indicate your employment status

Unemployed	1
Self- employed	2
Part-time employed by an organization	3
Full time employed by an organization	4

Question 12:
Please indicate your age category

18-25	1
26-35	2
36-45	3
45-55	4
55-65	5
Over 65	6

Question 13:
Please indicate your marital status

Single (never married)	1
Married	2
Living with a partner	3
Divorced	4
Separated	5
Widowed	6

Question 14:
Please indicate your highest level of education

Some primary school completed	1
Some high school completed	2
O Levels completed	3
A Levels completed	4
Certificate/ Diploma Completed	5
Degree completed	6
Post graduate degree completed	7

**Thank you for completing the survey.
We appreciate your assistance.**