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Predicting Intention and Actual Use of Mobile Money Using the  
Technology Acceptance Model: The Case of University of  
Botswana Students

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## **Declaration**

The work contained in this thesis/dissertation was completed by the author at the University of Botswana between May 2019 and October 2020. It is original work except where due reference is made, and it has neither been nor will be submitted for the award to any other University.

**Signed:** .....

**Date:** 07/10/2020

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## **Abstract**

Mobile money has the potential to enhance the financial inclusion of the unbanked population; it also eases transactions for the entire population. Despite the many benefits that mobile money promises, it appears that its adoption in Botswana has been much slower than in countries such as Kenya, South Africa and the Philippines (Patsi, 2018; Correia et al., 2017; Safaricom, 2014). This study examines the extent to which Technology Acceptance Model paradigms predict intention to use (IU) and actual use (AU) of mobile Money in the case of University of Botswana students. This contribution used the quantitative research method with a descriptive research design. 203 students participated in the survey and data was collected through the use of self-administered questionnaire in a survey. Participants in the study were selected sampled using the convenience sampling technique. The findings revealed: firstly that there is a significant positive relationship between Perceived ease of use (PEOU) and Intention of use (IU), customer trust (CT) and actual use (AU), and IU and AU.; secondly, that there is a positive non-significant relationship between perceived useful perceived usefulness (PU) , perceived risk (PR) and IU; Thirdly regarding the first set, it was concluded that only PEOU was of relative importance in predicting IU as PU and PR were not significant predictors of IU, and regarding the second set, it was concluded that CT rated higher than IU in predicting AU as it showed a strong correlation. The findings lead to several recommendations for theory and practice. In theoretical terms, the study provides evidence for the predominance of PEOU over PU and PR in predicting intention to use and actual use of mobile money among students. In practical Commercial banks and Mobile service providers in Botswana should make their mobile money services more user-friendly. This recommendation is informed by the fact that PEOU rated highest in factors determining the IU and AU of mobile money services.

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## **Chapter 1: Introduction**

### **1.1 Background to the study**

Mobile money technology comes at a time when many people, especially those living in developing countries, are facing financial exclusion from mainstream financial institutions such as banks. Facets of this exclusion include access exclusion, market exclusion, self-exclusion and condition exclusion (Munongo & Bizah, 2017). Mobile money technology has therefore filled the gap created by such financial exclusion by providing banking and remittance services needed by the unbanked population (Munongo & Bizah, 2017; Gwahula, 2016; Alexandre & Eisenhart, 2013).

Mobile money services escalated significantly in 2018. Statistics indicate that 45.6% of the population in sub-Saharan Africa is actively registered for the use of mobile money, compared to 33.2% (South Asia), 11.0% (East Asia and the Pacific), and 5.6% (Middle East and North America) (Pasti, 2018).

In Africa, mobile money services have come as a cure for a number of liquidity challenges. These services originated in Kenya through Safaricom Limited and spread to other parts of the continent; for instance, Eco Cash in Zimbabwe was modelled after M-Pesa from Kenya and just like M-Pesa, Eco Cash has made cross-border remittances by mobile phones possible (Masocha & Dzomonda, 2018).

Mobile money has brought about largely desired financial inclusion especially for poor and unbanked populations. Mobile money has assisted the growth and expansion of agricultural sector, and remittances have contributed to poverty reduction. There are, nonetheless, challenges associated with the use of mobile money that raise customer concerns. These include agents'

liquidity issues; agent fraud; incorrect disclosure of service charges by agents; and system downtime. These issues raise concerns about the security of mobile services, something that disconcerts customers (Baganzi & Lau, 2017).

Mobile money usage is more on the rise in developing countries than in developed countries. A Global System of Mobile Association report indicates that between December 2013 and December 2014 there was a 41% rise in the use of mobile money accounts worldwide, from 73million to 100 million. In sub-Saharan Africa 51.7% of the unbanked population is using mobile money (Patsi, 2018).

The telecommunication and banking sectors in sub-Saharan Africa have developed strategies that harness the use of cell phones to offer mobile money services. This study comes at a time when mobile money in Botswana is relatively new and growing as opposed to countries such as Kenya, Uganda, Zimbabwe and South Africa (Munongo & Bizah, 2017), where mobile money is established. The purpose of this study is to explore what give rise the Intention to use (IU) and actual use (AU) of mobile money in the Botswana population using the Technology Acceptance Model for prediction (Masocha & Dzomonda, 2018).

## **1.2 Problem statement**

Mobile phones and their supporting technologies are becoming readily available in Botswana through the three main service providers Mascom, Orange and Botswana Telecommunications Corporation (BTC). In addition, internet connectivity has, on the one hand, evolved significantly from 2G and 3G to the latest and fastest 4G network, meaning that internet is now more reliable for mobile devices to operate (Mburu & Selapisa, 2012); on the other hand, financial institutions in Botswana as well as mobile service providers have also innovatively designed financial products

that aid in payments and other financial transactions—the most common ones being m-payments, m-banking, m-transfers, among others (Makgosa & Kootsholetse, 2012).

Mobile money in Botswana has been in place since 2010, with Orange providing Orange Money; Mascom, MyZaka; Absa, Cash send; First National Bank Botswana (FNBB), e-Wallet; and Stanbic, Instant Money. There has generally been an increase in the number of mobile money account holders across Africa, by about a third, Botswana included (Patsi, 2018).

Mobile money has the potential to enhance the financial inclusion of the unbanked population; it also eases transactions for the entire population. Despite the many benefits that mobile money promises, it appears that its adoption in Botswana has been much slower than in countries such as Kenya, South Africa and the Philippines (Patsi, 2018; Correia et al., 2017; Safaricom, 2014). This study has attempted to find out, in the case of Botswana, what leads to the IU and AU of mobile money, using the Technology Acceptance Model (TAM).

### **1.3 Aim of the study**

The aim of the study was to predict IU and AU of mobile money, using the TAM, in the case of students at the University of Botswana

### **1.4 Specific objectives**

The study has addressed the following specific objectives.

- To determine if PEOU predicts IU and AU of mobile money.
- To determine if PU predicts IU and AU of mobile money.
- To determine if PR predicts IU and AU of mobile money.
- To determine if CT predicts AU of mobile money.

- To explore the relative importance of the above factors in predicting IU and AU of mobile money.

### **1.5 Significance of the study**

This study contributes to existing knowledge about the use of mobile money, firstly by placing itself in the context of research on the use of mobile money in developing countries, secondly by focusing on a target group of students at the University of Botswana, and thirdly by suggesting to financial institutions and mobile money service providers that their service might be made simpler and more secure than they presently seem to be for readier adoption by Botswana customers.

### **1.6 Scope of the study**

This study has focused on predicting the IU and AU of mobile money by University of Botswana students using TAM, including the use of mobile money technologies both by mobile services providers and other financial institutions. The study was limited to the use of TAM in predicting the IU and AU of mobile money services. The geographical scope of the study was the University of Botswana. Customers for mobile service providers and financial institutions were readily available in this University.

### **1.7 Limitations and assumptions**

This study dealt with 203 student customers of mobile service providers and financial institutions that offer mobile money services. Constraints included not only the willingness of more students to participate in the research, also time and financial constraints on the part of the researcher. This means that generalisations about customers nation-wide is not possible. The study assumes, nevertheless, that customers that were sampled are a small indication of a general trend that might be confirmed by future research.

## **Chapter 2: Review of Related Literature**

### **2.1 Introduction**

This chapter reviews the literature relevant to mobile money services, covering mobile money services, the theoretical framework that supports mobile money, and the conceptual framework, and it develops hypotheses based on this review.

### **2.2 Theoretical framework**

The study is guided by the Technology Acceptance Model (TAM) postulated by Davis (1986). This model, as illustrated in Figure 2.1, posits that user motivation of technology is guided by two factors, PU and PEOU. Users readily adopt technologies that they feel bring a usefulness that exceeds their absence. Users also adopt technologies that they perceive to be easy. If technologies are complicated, users will shun them. PU and PEOU shape the attitude of the user towards technologies. This then generates motivation to want to use the technology. External variables determine a customer's adoption of technologies; these variables include such things as cost of technology, trust, security issues, its relevance and the knowledge of the technology, among others.

In addition to TAM, the study can be grounded further by introducing two more theories i.e Theory of Planned Behaviour (TPB) and Innovation Diffusion Theory (IDT). According to TPB, intention (I) is determined by three things, attitude towards behaviour (A), subjective norms (SN) and perceived behavioural control (PBC) (Masocha & Dzomonda, 2018). Intention and Attitude towards behavior are components of TAM. SN is defined as an individual's perception of the social pressure to make him do something while PBC is an individual's control over himself to perform a given behaviour (Masocha & Dzomonda, 2018).

TBP can therefore explain an individual's intention and by extension actual use of technology. In explaining the use of money, TPB asserts that one has to develop an intention towards the use of mobile money and also have a positive attitude towards mobile money. In addition to these two, some individuals will succumb to social pressure from friends and family to use mobile money so that transactions among those social circles can be easy. Therefore, according to TBP, an individual needs at least one of the three prerequisites in order to intend and adopt the use of mobile money.

The second theory that can explain the use of mobile money is Innovation Diffusion Theory (IDT). According to this theory, innovation represents a new technological idea and diffusion represents the transmission of this technology from one person to another (Zhang et al., 2018). IDT is determined by four factors. These are communication channels, attributes of the innovation, characteristics of the adopters and the social system (Zhang et al., 2018).

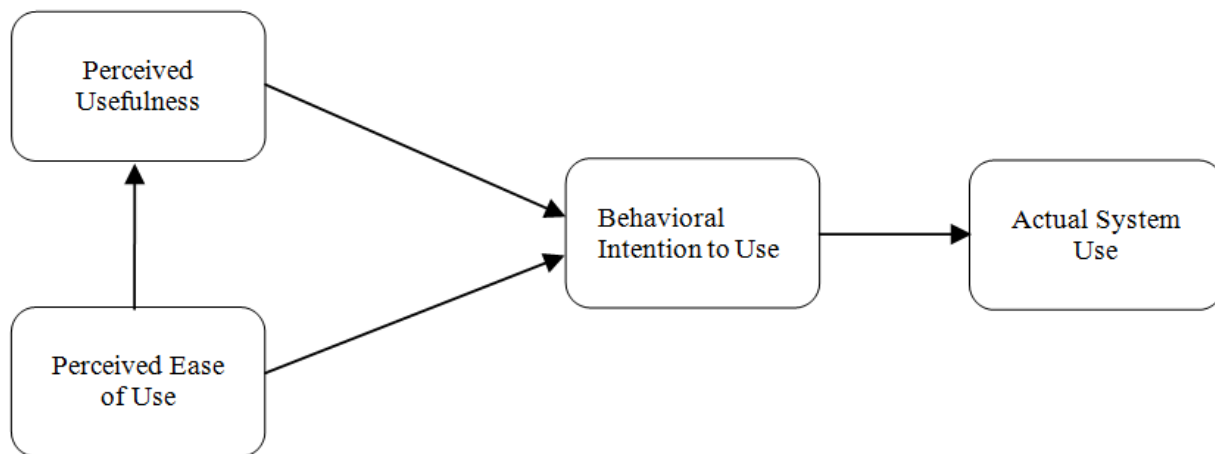
Communication channel refers to how the technology is conveyed to the users (Zhang et al., 2018). Currently, technological platforms such as social media are good channels for conveying messages about a new innovation (Zhang et al., 2018). Mobile money technology can therefore be conveyed through social media channels such as Facebook.

Attributes of the innovation point to five characteristics of the system which are relative advantage, compatibility, trialability, complexity and observability. Relative advantage is how a technology is better than existing ones; compatibility is how technology best fits into existing infrastructure and social environment; trialability is how ease a technology can be tried without high investment; complexity is the relative difficulty in the use of technology; and observability is the visible benefit of technology to the users (Zhang et al., 2018). In adopting mobile money technology, users will be informed by these five features of attributes of the innovation.

In terms of characteristics of adopters, there are five categories of people. These are innovators, early adopters, early majority, later majority and laggards. Innovators understand technology and adopt it quickly. They are followed by a smaller proportion of adopters known as early adopters. These are then followed by early majority which is slightly larger and later majority which is even larger. Laggards are resisters who adopt the technology much later or even fail to adopt it because of lack of resources or knowledge on how the technology works (Zhang et al., 2018). These characteristics are expected from mobile money adopters and it is upon the service providers to ensure that the message about mobile money diffuses deeply to users so that they can have as many users as possible to come on board.

Lastly, the social system refers to a set of interrelated units in an environment within which innovation takes place. These affect the attitude of users of technology Zhang et al., 2018 (). In mobile money for instance, the availability of vendors, the requirements to carry out the transactions, and the limitations imposed on transactions constitute the social system and can inform users whether to adopt the technology or not.

**Figure 2.1: Technology Acceptance Model**

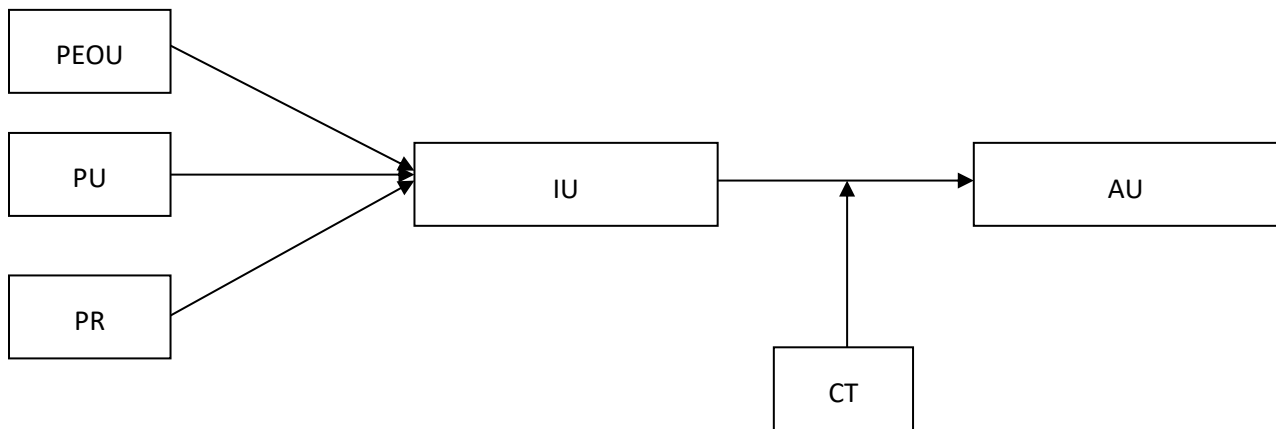




### 2.3 Conceptual framework and hypothesis development

In order to formulate hypotheses, the researcher developed a conceptual framework for the study as shown in Figure 2.2. The conceptual framework extends the TAM to include context specific elements that address mobile money technology and is based on the following review of literature on PEOU, PU, PR, AU and IU. As shown in the conceptual framework, IU for mobile money is pegged to PEOU of the technology, PU of the technology and PR of the technology. The AU of mobile money on the other hand is a function of the technology IU, mediated by trust. Perceptions of the customer with regard to IU for mobile money only become a reality if the customer trusts the technology and therefore decides to use it.

*Figure 2.2: Conceptual framework*



#### 2.3.1 Perceived ease of use of mobile money technology (PEOU)

Anthony & Mutalemwa (2014) define PEOU as the degree to which the user of a particular technology requires minimal effort to use that technology. According to Correia et al. (2017) PEOU of mobile money technology motivates the customer to use the technology. PEOU is

measured using (a) the flexibility of the technology, (b) the ease of understanding, (c) the ease of use, (d) the ease of learning, and (e) the ease of exercising control over the technology.

Faniran & Odumeru (2015) point out that PEOU is a success factor in determining the use of a certain technology. It includes but is not limited to ease of download of the application, ease of using what has been downloaded, duration of the transaction being affected, and ease of training and gaining experience in the use of the technology. PEOU as a motivating factor for the adoption of a technology diminishes as the technology becomes more user-friendly.

Bakar et al (2017) explore another dimension of PEOU and have concluded that easy availability of mobile phones facilitates access to transactions anywhere. Mobile money readily utilises all types of cell phones including the simplest, easy-to-operate ones, enhancing PEOU.

Based on the arguments above, the first hypothesis of the study is formulated as follows.

- H<sub>1</sub>: PEOU of mobile money technology is positively associated with IU and AU of mobile money.

### ***2.3.2 Perceived usefulness of mobile money technology (PU)***

Masocha & Dzomonda (2018) contend that people will be ready to adopt the use of mobile money if they feel that the usefulness, they derive from the technology is sufficient. Some of the usefulness derived from mobile money includes financial gains to vendors of the technology, convenience to the customer, reduced costs of transaction and time saving on the part of the customer.

Anthony & Mutalemwa (2014) define PU as the benefits resulting from the adoption of a particular technology, for example for making quick and convenient payments. Correia et al (2017) define PU as the level to which technology enhances the job performance of an individual.

Items that are used to measure PU include (a) benefits derived from the technology, (b) convenience and comfort, (c) reduced transaction costs, and (d) knowledge gain (elitisation) (Faniran & Odumeru, 2015).

Based on the discussion of PU, the following hypothesis was developed.

- H<sub>2</sub>: PU of mobile money technology is positively associated with IU and AU of mobile money.

### ***234.3 Perceived risk of mobile money technology (PR)***

PR is described by Faniran & Odumeru (2014) as what customers feel they may lose by using mobile money technology. The authors identify four common risks associated with mobile money as (a) technical risk, that is risk that the system may be hacked or manipulated by fraudsters, (b) privacy disclosure risk, that is risk of unauthorised access to one's personal information such as PIN numbers, passwords, account numbers and account balances, (c) legal risk, that is risk of failure to get remedy in the event of fraud or disagreement between users, service providers and third parties, and (d) reputational risk, that is risks likely to be suffered by customers as a result of the bad reputation of the service providers.

Moorthy et al (2017) contends that PR presents itself as an antecedent of the adoption of technology systems which negatively impact the adoption of the technology. Komlan, Yi & Owusu (2016) point out that PR is subjective as opposed to real risk in that customers themselves cannot describe the risks they perceive but continue to have a feeling of uncertainty associated with adopting mobile money technology. The four PRs of mobile money identified by Komlan, Yi & Owusu (2016) that may befall customers of mobile money technology are (a) performance risk, that the service or system may not perform as advertised thus failing to deliver expected

results; (b) financial risk, associated with monetary loss; (c) time risk, due to time wasted in making and effecting transactions; and (d) privacy risk, of fraudsters and hackers compromising mobile money technology security leading to potential losses to the customer.

Based on the above discussion of PR, the following hypothesis was developed.

- H<sub>3</sub>: PR of mobile money technology is positively associated with IU and AU of mobile money.

#### ***2.3.4 Mediating effect of trust on mobile money technology***

Research on CT originated with the analysis of personal relationships (Boohene, Agyapong & Gonu, 2013). Trust is the belief that a promise is reliable, and a party will fulfil his/her obligations in the relationship. It is a level of someone's confidence in another party's competence and his/her performance based on predictable ethical principles (Errol & Bruce, 2005). Trust is an important construct in relational exchange. Relationships characterised by trust lead to parties desiring to commit themselves to such relationships. Studies in mobile money banking indicate that trust, as a mediating factor is very important in determining the IU and AU of the technology (Koloseni & Mandari, 2017).

In examining trust, Lafraxo et al (2018) also argue that trust is a crucial mediating factor in the use of mobile money. They state that due to the existence of certain security threats to mobile money such as Trojans and viruses in online terminals, customers' trust in mobile money platforms is eroded. They conclude that trust is therefore essential in dispelling the high uncertainty and risks that users of mobile money are likely to face; hence trust motivates the IU for the service.

Based on the discussion of trust, the following hypotheses were developed.

- H<sub>4</sub>: CT of mobile money technology is positively associated with AU of mobile money.

- H<sub>5</sub>: IU has a positive association with AU of mobile money.

## **2.4 Critical evaluation of TAM**

In terms of the behavioural intentions of customers to adopt a certain type of technology, TAM only explains two of these, namely PEOU and PU. However, there are several other behavioural intentions that motivate users to adopt a particular kind of technology (Correia et al., 2017). TAM has been criticised, for example, for focusing only on the service aspect and disregarding the context in which the service is offered, which significantly affects intention to adopt certain technologies. These contextual factors include (a) organisational (e.g., organisational culture, organisational innovativeness, support from management, and availability of resources), (b) environmental (e.g., interdependence of organisations), (c) individual (e.g., education level, gender, age), (d) technological (e.g., platform, interface, software/hardware), and (e) motivational (e.g., economic incentives) (Anthony & Mutalemwa, 2014).

## **2.5 Summary**

This chapter has reviewed literature on mobile money. Mobile money services have existed for slightly over a decade, since the inception of mobile phone technology. These services take care of the banking needs of a majority of the unbanked population, offering a means of remitting funds both at home and across country borders. However, there are still concerns relating to the adoption and use of mobile money that TAM must address, relating to the PEOU and the PU and how these affect the IU and lead to the AU of mobile money services. The next chapter discusses the methodology of the study.

## **Chapter 3: Methodology**

### **3.1 Introduction**

This section deals with the methodology chosen for this research, including research approach, research methodology, research design, research strategy, population and sampling, data collection, data analysis, data transformation, reliability and validity, and ethical issues.

### **3.2 Research approach**

This study adopted a positivist approach. Aliyu, Bello, Kasim & Martin (2014) explain "...that positivism could be regarded as a research strategy and approach that is rooted on the ontological principle and doctrine that truth and reality is free and independent of the viewer and observer" (p. 71). This means that the truth of research exists independently of the researcher, and that different researchers conducting the same study should come up with the same findings. Two broad categories of research paradigms are ontology and epistemology.

#### **3.2.1 Ontology**

Wahyuni (2012) posits that ontology refers to the existence of truth, independent of social actors. As a result, truth is seen as external and objective. Ontology gives rise to three paradigms, namely post-positivism, interpretivism and pragmatism. In post-positivism, truth is perceived as objective, independent of human thought, and is interpreted through social conditioning (critical realism). Interpretivism views truth as subjective, socially constructed and subject to change. Pragmatism views truth as external, with perspectives that can be adopted to respond to research questions. This study adopts the post-positivist approach towards predicting the IU and AU of mobile money using TAM. The researcher believes it is important to be objective in establishing and reporting

customers' experiences so that they can help businesses understand and address mobile money strategies that influence IU and AU.

### ***3.2.2 Epistemology***

Wahyuni (2012) argues that epistemology is the belief that truth can be generated and validated. In post-positivism, only observed phenomena are credible and can explain occurrences. Interpretivism holds that situations can be assessed contextually, so that meaning can be assigned to them. Pragmatism perception holds that both observable and contextual assessments can be combined to give meaning to an occurrence.

This study used the ontological paradigm and confined itself to the positivist approach. Castellan (2010) explains that the positivist paradigm is tied to quantitative approaches. This philosophical underpinning means that reality exists.

### **3.3 Research methodology**

Saunders, Lewis & Thornhill (2009) define research methodology as the methods that researchers employ in order to answer research questions and to achieve research objectives. In this section the researcher justifies the choice of method in line with the stated research objectives and questions. Research methodology comprises (a) research design, (b) study population sampling technique, (c) data collection method, and (d) instruments used to analyse the data. As previously explained, this research aimed to predict IU and AU of mobile money by 207 University of Botswana students.

The study followed a quantitative approach. According to Castellan (2010), quantitative study or research is concerned with frequency. The major aim of quantitative research is to develop and utilise mathematical models, theories and/or hypotheses regarding the phenomenon being

investigated. In quantitative research, the process of evaluation or measurement is focused mainly on quantity because it provides the fundamental connection between empirical observation and the mathematical expression of quantitative relationships. In quantitative research, the researcher asks specific, narrow questions and collects numerical data from participants to answer such questions. Thereafter, the researcher analyses the data with the help of statistical software. Castellan (2010) elaborates that quantitative research is the best situated method for base line surveys.

This study used a quantitative approach to collect data because although the sample was small, it was possible to get a large number of respondents to respond to the questionnaire within a very short time and at minimal cost.

### **3.4 Research design**

The study adopted a descriptive approach in which prior knowledge about the phenomenon under study was used to lay a foundation for the study. The TAM was used as modified by other researchers to add two more variables that are context specific. These variables are PR and CT. The study was guided by specific hypotheses that the researcher tested and validated through data analysis. Overall, the procedure was deductive.

### **3.5 Research strategy**

Rahi (2017) defines research strategy as the step by step method of collecting data and interpreting it within the confines of predetermined objectives. It is like a plan laid out to answer the research questions. According to Rahi (2017) there are five research strategies, namely, experiments, surveys, archival analysis, history and case study. This study used the survey strategy, the instrument of data collection being a questionnaire.



### 3.6 Population and sampling

The population of the study was all the University of Botswana registered students for the academic year 2019/2020. Convenience sampling was used to select 270 students out of the whole population that was available. According to Etikan, Ilker. (2016), convenience sampling is a type of nonprobability or nonrandom sampling where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study. The survey was conducted using self-administered questionnaire. This resulted in a total of 203 questionnaires returned. A total of 203 students from the University of Botswana filled in the questionnaire and returned it to the researcher. This was calculated as follows.

$$\text{Sample size} = [(Z\text{-score})^2 \times (SD) \times (1-SD)] / (\text{margin of error})^2$$

At 90% confidence interval, the Z-score=1.64, SD=.5, and margin of error=.05

Therefore,

$$n = ((1.64)^2 \times .5(.5)) / (.05)^2$$

$$= (2.6896 \times .25) / .0025$$

$$= .6724 / .0025$$

$$= 268.96$$

The sample size = 270

### 3.7 Data collection methods

For this study primary data was collected using self-administered questionnaires (see Appendix 1). The questionnaire was divided into two sections. The first section established the demographic

characteristics of participants such as age, gender, income, and level of education. The second section established to address each of the objectives of the study. Each section had several five Likert-scale questions ranging from strongly disagree to strongly agree. This questionnaire was adapted from Faniran & Odumeru (2015).

### **3.8 Data analysis**

Data was entered into an SPSS spreadsheet. For questionnaires, data was entered directly into SPSS. Kent (2001) suggests that the use of computer-assisted software to analyse data is not just a case of cut-and-paste activities but also of the researcher operating beyond this by looking at connections between code and text. The results have been presented in graphs, tables and charts. Descriptive statistics were analysed using means and standard deviation. Regression analysis was used to determine relationships between the dependent and independent variables.

#### ***a) Data Transformation***

Data was prepared for the main analyses (regression) which involved data transformation into new variables. The aim of data transformation was to create variables in the TAM. This transformation involved clustering and collapsing the variables that measure each construct into a single variable. For example, the seven items used to measure PEOU was consolidated into a single variable by determining the mean of the items within each scale, as demonstrated by Table 3.1.

***Table 3.1: Grouping of Subject Matter Variables***

<b>Construct</b>	<b>N of Items</b>	<b>Grouping Statistics</b>	<b>Type of Variable</b>
PEOU	7	Mean	Explanatory
PU of mobile money	6	Mean	Explanatory
PR	5	Mean	Criterion/Explanatory
IU	2	Mean	Criterion/Explanatory

<b>Construct</b>	<b>N of Items</b>	<b>Grouping Statistics</b>	<b>Type of Variable</b>
CT	1	Mean	Criterion/Explanatory
AU	1	Mean	Criterion/Explanatory

### **3.9 Reliability and validity**

Firstly, content validity was verified by ensuring that the instrument measure (questionnaire) was designed by deriving the questionnaire from previous studies that had gone through validity verification and had been found to be valid. Furthermore, internal consistency was checked using Cronbach's alpha, and consistency was found to be reliable. Table 4.2 in the next chapter shows the Cronbach's alpha values for various objectives of the questionnaire.

### **3.10 Ethical consideration**

Though the office of Research and Development in the University of Botswana, the researcher was exempted from acquiring a research permit, a normal government of Botswana procedure for conducting research in Botswana. This exemption was done since the study was being conducted within the confines of University of Botswana. The participants were made aware that this was scholarly research and that the information they gave would not be used to victimise or harm them. The participants were also made aware of the fact that their participation was voluntary, that no one was forced to participate, that no rewards would be given and that a participant could quit being part of the study at any time. Bryman (2012) advises that the data collection instrument should inform respondents about the intentions of the study. The request to participate should be clear to participants so that they can make an informed decision whether to participate or not. This was done.

Thirdly, safeguarding the privacy of the respondents through anonymity was done by ensuring that participants did not positively identify themselves in their responses to the questionnaire by mentioning names, identity numbers or other information that could cause them to identify themselves (Bryman, 2012).

## Chapter 4: Results

### 4.1 Introduction

In this chapter the researcher presents, analyses and discusses the collected data. The presentation of data is predominantly through tables. Analysis is at three levels, namely, descriptive data, correlation data and regression analysis, intended for hypothesis testing. In chapter 5, a comprehensive critical discussion of the findings of the study is carried out.

#### *a) Demographics*

Table 4.1 shows the descriptive statistics relating to the demographic characteristics of the study's respondents. These characteristics enable the reader to reflect on the general features of the individuals upon whom the findings and conclusions of this study have been based. The majority of respondents was aged 21-30 (87.7%). The average age of mobile phone usage was 9 years with a standard deviation of 5 years. The majority of respondents from the sample was aware of Orange Money (80%). The majority of respondents had used the FNBB E-wallet (91.6%). The majority of respondents was not aware of Standard Chartered Bank's Bank2Wallet (74.9%).

**Table 4.1: Demographics**

<b>Age</b>	<b>Frequency</b>	<b>Valid percentage</b>	
21-30	178	87.7	
31-40	21	10.3	
41-50	4	2.0	
	<b>203</b>	<b>100.0</b>	
<b>MOBILE PHONE USAGE</b>			
N	Mean (Years)	SD (Years)	
203	9.02	5.061	
<b>MOBILE MONEY AWARENESS AND USAGE</b>			
<b>MOBILE MONEY TECHNOLOGY</b>	<b>AWARE OF (%)</b>	<b>USED BEFORE (%)</b>	<b>NOT AWARE OF (%)</b>
Orange (Orange Money)	98.0	68.5	2.0
Mascom (MyZaka)	91.1	26.6	8.9
BTC (Smega)	37.4	10.8	62.6
FNB (E-wallet)	96.6	91.6	3.4
Absa (Cash send)	62.1	40.9	37.9
Stanbic (Instant money)	37.9	22.2	62.1
Standard Charter (Bank2Wallet)	25.1	7.4	74.9

*b) Reliability of the subject matter variables*

Reliability tests were conducted on the results prior to analysis. This was done to generate Cronbach's alpha coefficient which is the basis of the reliability of the instrument used. Table 4.2 shows the Cronbach's Alpha for PEOU (0.77), PU (0.72), PR (0.75), IU (0.85), CT (0.87) and AU (0.86). They all have Cronbach's alpha of between 0.70 and 0.87 and are therefore accepted.

According to Manning & McMurray (2010), reliability refers to the ability of an instrument to produce consistent and replicable results over time. However, Cohen, Manion & Morrison (2007) describe reliability as the consistency and replicability of an instrument over time. An instrument is said to be reliable or consistent if the measurement produces the same result each time the same variable is measured.

Reliability is measured using Cronbach's alpha. Tavako & Dennick (2011) are of the opinion that acceptable values of Cronbach's alpha should be 0.7 or more. Lower values of Cronbach's alpha are an indication that the items used in a test are not interrelated and are therefore not measuring the same aspect and, as such, should be discarded.

*Table 4.2: Reliability Test*

<b>Construct</b>	<b>N of Items</b>	<b>Cronbach's alpha</b>
PEOU	7	0.77
PU of mobile money	6	0.72
PR	5	0.75
IU	2	0.85
CT	1	0.87
AU	1	0.86

**4.2 Descriptive statistics**

Table 4.3 shows the descriptive statistics connecting to the variables. The mean and standard deviation of all the 23 test items and the TAM constructs are presented. The mean values represent the average responses from the respondent whereas the standard deviation values show the amount of variation in the data.

**Table 2.3: Descriptive Statistics of Test Items under each TAM Construct**

<b>Test Items</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>PEOU</b>	<b>3.78</b>	<b>0.731</b>
It is easy to open a mobile money account	3.88	0.993
The language of mobile money instructions is easy	4.03	0.982
Carrying out a mobile money transaction is easy	3.99	0.995
It is easy to learn how to use mobile money	3.94	0.918
Mobile money apps are easy to use	3.64	0.984
There are readily available mobile money intermediaries	3.49	0.941
Mobile money does not require excessive identification	3.49	1.166
<b>PU</b>	<b>3.66</b>	<b>0.966</b>
Mobile money is available 24/7	4.02	1.141
Mobile networks support mobile money transactions	3.37	1.080
Mobile money assists clients to carry out transactions	4.11	0.828
Mobile money is easy to learn	3.97	0.821
Mobile money is easy to use	3.90	0.732
Mobile money charges are reasonable	3.73	1.230
<b>PR</b>	<b>3.06</b>	<b>0.574</b>
I fear losing money through mobile money transactions	3.41	1.337
If errors occur when using mobile money, I will be compensated	2.60	1.264
Mobile money transactions are not always accurate	2.82	1.077
Mobile money technology is easily hacked	3.15	1.061
My personal mobile money details are secure	3.34	1.034
<b>IU</b>	<b>4.00</b>	<b>0.819</b>
I am most likely to use mobile money for my transactions	3.95	0.974
I am most likely to adopt the use of mobile money for future transactions	4.04	0.938
<b>CT</b>	<b>3.57</b>	<b>0.878</b>
I trust mobile money	3.57	0.878
<b>AU</b>	<b>4.07</b>	<b>0.861</b>
I actually use mobile money for my transactions	4.07	0.861

### **4.3 Collinearity analysis**

Collinearity analysis was carried out using Variance Inflation Factor (VIF). It is important that collinearity analysis be carried out to rule out multicollinearity, a situation where independent variables are highly correlated and violate a major assumption of regression analysis. Collinearity analysis was carried out simultaneously with regression analysis. Table 4.4 shows tolerance levels of multicollinearity according to Daoud (2017).

**Table 4.4: VIF Interpretation**

VIF-value	Conclusion	Resolution
VIF=1	Not correlated	Acceptable
1<VIF≤5	Moderately correlated	Acceptable
VIF>5	Highly correlated	Unacceptable

As can be seen in both Tables 4.5 and 4.6, VIF values are less than 5; therefore, multicollinearity amongst independent variables has been ruled out.

#### **4.4 Regression analysis (hypothesis testing)**

In testing the hypotheses, the t-test was used. The t-test postulates that the coefficient of multiple determination among variables in the sample population,  $R^2$  is zero. Thus, the hypotheses to be tested were stated as follows:

$$H_0: \beta_1 = \beta_2 = \beta_3 = \dots = \beta_k = 0$$

The hypotheses were thus,

- $H_{01}$ : PEOU has a positive influence on IU and AU.
- $H_{02}$ : PU has a positive influence on IU and AU.
- $H_{03}$ : PR has a positive influence on IU and AU.
- $H_{04}$ : CT has a positive influence on AU.
- $H_{05}$ : IU has a positive influence on AU.

Tables 4.5 and 4.6 show results for hypotheses testing.

##### **4.4.1 Testing hypotheses 1, 2 and 3**

Table 4.5 shows the regression analysis that predicts IU for mobile money services based on PEOU, PU, and PR. There is a positive relationship between PEOU and IU for mobile money services. There is a positive relationship between PU and IU for mobile money services. There is a negative relationship between PR and IU for mobile money services. However, at 0.05 level of confidence, PU and PR of mobile money services are not statistically significant. The following model shows the regression analysis of the scenario:



$$\text{Intention} = 2.229 + 0.337\text{PEOU} + 0.094\text{PU} - 0.002\text{PR} \text{ (Model 1).}$$

**Table 4.5: Predicting Intention Using PEOU, PU, and PR (Model 1)**

Model	Unstandardised Coefficients		Standardised Coefficients	T	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	2.229	.388		5.751	.000		
	PEOU	.377	.085	.336	4.462	.000	.740	1.351
	PU	.094	.066	.111	1.427	.155	.692	1.445
	PR	-.002	.096	-.001	-.019	.985	.925	1.081

a. Dependent Variable: IU

Therefore,

- Hypothesis 1 is accepted: There is a positive relationship between ease of use of mobile money and IU for mobile money, on the basis that beta is positive (0.337) and statistically significant.
- Hypothesis 2 is rejected: There is a not a positive relationship between PU of mobile money and IU for mobile money, on the basis that while beta is positive (0.094), the relationship between the two variables is not statistically significant.
- Hypothesis 3 is rejected: There is a not a positive relationship between risk of mobile money and IU for mobile money, on the basis that beta is negative (-0.002), and the relationship between the two variables is not statistically significant.

#### **4.4.2 Testing hypotheses 4 and 5**

Table 4.6 shows the regression analysis that predicts AU of mobile money services based on IU and CT. Both IU mobile services and CT predict AU and are statistically significant at 0.05 level of confidence. The model below shows the regression analysis of the scenario.

$$\text{AU} = 1.562 + 0.282\text{IU} + 0.388\text{CT} \text{ (Model 2)}$$

**Table 4.6: Predicting AU Using IU and CT (Model 2)**

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.562	.272		5.748	.000		
IU	.282	.068	.268	4.135	.000	.805	1.242
CT	.388	.064	.395	6.086	.000	.805	1.242

a. Dependent Variable: AU

Therefore,

- Hypothesis 4 is accepted: There is a positive relationship between IU of mobile money and AU of mobile money, on the basis that beta is positive (0.282), and the relationship between the two variables is statistically significant.
- Hypothesis 5 is accepted: There is a positive relationship between CT of mobile money and AU mobile money, on the basis that beta is positive (0.388), and the relationship between the two variables is statistically significant.

#### 4.5 Summary

This chapter has analysed data and tested hypotheses. The study established a significant positive relation between PEOU and IU, CT and AU, and IU and AU. Three hypotheses were supported. However, the study found a positive non-significant relationship between PU and IU leading to the rejection of that hypothesis, and a positive non-significant relationship between PR and IU also leading to the rejection of that hypothesis. Table 4.7 shows the summary of hypotheses testing.

*Table 4.7: Summary of Hypotheses*

<b>Hypothesis</b>	<b>Path</b>	<b>Path Coefficient</b>	<b>t-Value</b>	<b>Results</b>
H1	PEOU → IU	.377	4.462	Supported P < 0.05
H2	PU → IU	.094	1.427	Not Supported P > .05
H3	PR → IU	-.002	-.019	Not Supported P > .05
H4	IU → AU	.282	3.439	Supported P < 0.05
H5	CT → AU	.388	6.941	Supported P < 0.05

The next chapter draws conclusions and makes recommendations for the study.

## **Chapter 5: Discussion, Conclusion and Recommendations**

### **5.1 Introduction**

In this chapter the researcher draws conclusions and makes recommendations based on the findings of the study. The aim of the study was to predict IU and AU of mobile money, using the TAM. The study drew a sample of respondents from the University of Botswana. The study was guided by a set of specific objectives as set out below.

- To determine if PEOU predicts IU and AU of mobile money.
- To determine if PU predicts IU and AU of mobile money.
- To determine if PR predicts IU and AU of mobile money.
- To determine if IU predicts AU of mobile money.
- To determine if CT predicts AU of mobile money.
- To explore the relative importance of the above factors in predicting IU and AU of mobile money.

### **5.2 Discussion**

The results of the study were analysed at two major levels, namely, correlation analysis and regression (hypothesis testing). Correlations were done based on the TAM using five variables. The first set of variables sought to determine the influence of PEOU, PU and PR on IU. The second set of variables sought to determine the influence of CT and IU on AU.

PEOU was found to have a positive and significant influence on IU. A study by Sivo, Ku and Acharya (2018) showed a positive significant relationship between PEOU and IU. The present study sought to find out university students' perceptions of the use of technological resources using that TAM. Another study by Zhang et al (2018) showed a significant positive relationship between PEOU and PU. This study sought to find out what makes people accept the use of technology in mobile payments in China and the USA. In addition to these, a study by Mutahar et al (2017) also established a significant positive relationship between PEOU and IU.

PU was found to be positively related to IU and significant. This is also supported by studies such as Hajiyev (2017) and Abardi, Kabiry & Forghani (2013). In the former, the study sought to find out the adoption of mobile banking in Azerbaijan and Turkey while the latter sought to find out

determinants of mobile banking adoption in Isfahanian using the TAM. PU also predicted IU in studies by Sivo, Ku & Acharya (2018), Zhang et al (2018), and Muhatar et al (2017). A study by Marandu, Makudza & Ngwenya (2019) found out that PU positively influences IU in a study that sought to determine predictors of student intention to adopt technology use in learning in Zimbabwe.

Nguyen & Nguyen (2017) observe a negative significant relationship between PR and IU in a study in which they sought to determine how PR predicts intention to use online banking in Vietnam. In another study by Mutahar et al (2017) a negative significant influence was established between PR and IU. The findings of both studies are contrary to the findings of the present study, in which PR was found to positively influence IU.

CT as a predictor of AU was found to have a significant positive influence in the present study. This is in agreement with a study by Jouda & Raju (2018) who sought to find out the role of CT on customer intention to adopt mobile banking in Palestine. Another study, by Chiu, Bool & Chiu (2017), also established a positive relationship between trust and IU for mobile banking services in Philippines. In another study, by Ramos et al (2016), trust as a predictor of IU for mobile banking showed a significant positive relationship.

Five hypotheses were tested in the present study as summarised in Table 4.7. It was hypothesised that there is a positive relationship between PEOU and IU. This hypothesis was supported by the findings of the study. This hypothesis is also consistent with the studies of Sivo, Ku & Acharya (2018) and Muhatar et al (2017). However, Marandu, Makudza & Ngwenya (2019) found the relationship between PEOU and IU to be statistically insignificant.

The second hypothesis of this study was not supported, the research having failed to show a significant relationship between PU and IU. This was inconsistent with a study by Marandu, Makudza & Ngwenya (2019) that validated a positive significant relationship between PU and IU. Zhang et al (2018) also found a significant positive relationship between PU and IU and thus validated their hypothesis.

The third hypothesis of this study was not validated either. Studies of Nguyen & Nguyen (2017) and Muhatar (2017) validated a hypothesis in which there was a negative significant relationship between PR and IU, which is contrary to the findings of this study.

The fourth hypothesis of the study was validated. There was a significant positive relationship between IU and AU. This is consistent with studies by Marandu, Makudza & Ngwenya (2019),

The fifth hypothesis of this study was validated. CT was found to have a positive and significant relationship with AU. It is consistent with findings of Lafraxo (2018) and Koloseni & Mandari (2017).

### **5.3 Conclusion**

The first objective of the study was to investigate whether PEOU predicts the IU and AU of mobile money. It was concluded that PEOU positively predicts IU mobile money hence PEOU does actually predict the AU of mobile money as the two variables showed a positive correlation. PEOU significantly influenced IU.

The second objective of the study was to investigate whether PU predicts IU of mobile money. The study concluded that while PU and IU showed a positive correlation, PU was not a significant predictor of IU and therefore did not predict AU of mobile money.

The third objective of the study was to investigate whether PR predicts IU of mobile money. It was concluded that though a negative relationship existed between PR and IU, the relationship was not significant. Hence, PR is not a predictor of IU and definitely did not predict AU of mobile money.

The fourth objective of the study investigated how IU predicts AU of mobile money services. It was concluded that there was a positive and significant relationship between IU and AU. Therefore, IU for mobile money is a predictor of AU of mobile money services.

The fifth objective of the study was to investigate whether CT predicts AU of mobile money services. It was concluded that there was a positive and significant relationship between CT and AU. CT is therefore a predictor of AU of mobile money.

The final objective of the study sought to explore the relative importance of the enumerated independent variables in predicting the IU and AU of mobile money. These variables are PEOU, PU, and PR in predicting IU; and IU and CT in predicting AU. Regarding the first set, it was concluded that only PEOU was of relative importance in predicting IU as PU and PR were not

significant predictors of IU, and regarding the second set, it was concluded that CT rated higher than IU in predicting AU as it showed a strong correlation.

#### **5.4 Recommendations**

The following theoretical and practical recommendations are made from the findings of the study:

1. Mobile services providers and Commercial banks in Botswana should make their mobile money services more user-friendly. This is informed by the fact that PEOU rated highest in factors determining the intention to adopt and the actual adoption of mobile money services. They can do this by adopting mobile apps with clear, simple graphic interfaces so a customer does not have to struggle to carry out transactions. Mobile money services can also be linked to an ATM so that the user can use either of the mechanisms to transact. The apps should also use simple, clear language and not technical jargon. If possible, the apps should be translated into local languages for users who do not know in English.
2. Commercial banks should enhance CT in mobile money services. This can be done through extensive advertising and user education. Customers will tend to fear using mobile money if they do not trust the service. Customer transactions should be clear, including the charges for the services. The customer should be issued with a monthly statement, or upon request, to verify transactions carried out.
3. Mobile services providers and Commercial banks have an obligation to improve the security of mobile money services so that customers' mobile money accounts are not hacked. Banks should empower users to cancel suspicious transactions which they have detected. This will reduce the PR with which many customers view the use mobile money.
4. Mobile services providers and Commercial banks should seek partnerships with other companies that offer customers platforms for quick and easy payments through the use of mobile money services. These companies include utility companies (electricity and water), insurance companies, supermarkets and so on, that are willing to receive mobile money payments as an alternative and secure form of payment.
5. From theoretical point of view, the TAM model provides a foundation for understanding the relationships of constructs determining the behavioral intention to use mobile money, Botswana. This study, therefore, contributes to the body of knowledge on technology

acceptance by validating factors as well as extending UTAUT framework, context of mobile money adoption in Cities of developing countries.



## REFERENCES

- Alexandre, C. & Eisenhart, L.C. (2013). Mobile money as an engine of financial inclusion and lynchpin of financial integrity. *Washington Journal of Law, Technology & Arts*, 8 (3), 285-302.
- Aliyu, A. A., Bello, M. U., Kasim, R. & Martin, D. (2014). Positivist and Non-Positivist Paradigm in Social Science Research: Conflicting Paradigms or Perfect Partners? *Journal of Management and Sustainability*, 4 (3).
- Anthony, D. & Mutalemwa, D. K. (2014). Factors influencing the use of mobile payments in Tanzania: Insights from Zantel's Z-pesa services. *The Journal of Language, Technology & Entrepreneurship in Africa*, 5 (2), 69-90.
- Bakar, R. A., Aziz, N. A., Muhammad, A. & Muda, M. (2017). Perceived ease of use, security and privacy of mobile banking. *International Journal of Business, Economics and Law*, 13 (2), 56-62.
- Battacherjee, A. (2012). *Social Science Research: Principles, Methods and Practice*. Tampa, FL: UFS Tampa Bay Open Access Textbooks.
- Boohene, R., Agyapong, G., & Gonu, E. (2013). Factors influencing the retention of customers of Ghana Commercial Bank within the Agona Swedru Municipality. *International Journal of Marketing Studies*, 5 (4), 82-95.
- Bryman, A. (2012). *Social research methods* (5th ed.). Oxford: Oxford University Press.
- Castellan, C. M. (2010). Quantitative and qualitative research: a view for clarity. *International Journal of Education*, 2 (2).
- Correia, O., Ngare, P., Sindiga, D. & Otwoma, D. (2017). Determinants of mobile money remittance in East Africa. *IOSR Journal of Economics and Finance*, 8 (3), 17-29.
- Creswel, J. W., & Clark, P. V. L. (2007). *Designing and Conducting mixed methods research*. CA: Sage.
- Daoud, J. I. (2017). Multicollinearity and regression analysis. *Journal of Physics*, 949, 1-6.
- Drost, E. A. (2011) Validity and Reliability in Social Science Research. *Education Research and Perspectives*, 38: 105- 123.
- Errol, E. J. & Bruce, E. W. (2005). A correlation of servant leadership, leader trust, and organizational trust. *Leadership & Organization Development Journal*, 26 (1), 6-22.
- Etim, A. S. (2014). Mobile banking and mobile money adoption for financial inclusion. *Research in Business and Economics Journal*, 9, 1-13.
- Etikan, Ilker. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*. 5. 1. 10.11648/j.ajtas.20160501.11.
- Faniran, A. O. & Odumeru, J. A. (2015). Acceptance of mobile banking in Nigeria: A modified TAM approach. *International Conference on eBusiness, eCommerce, eManagement, eLearning and eGovernance*, (2015), 39-49.

- Gliem, J. A. & Gliem, R. R. (2003). Calculating, interpreting and reporting Chronbach's Alpha reliability coefficient for Likert type scales. *Midwest Research to Practice Conference in Adult, Continuing, and Community Education*.
- Gwahula, R. (2016). Risks and barriers associated with mobile money transactions in Tanzania. *Business Management and Strategy*, 7 (2), 121-139.
- Koloseni, D. & Mandari, H. (2017). Why mobile money users keep increasing? Investigating the continuance usage of mobile money services in Tanzania. *Journal of International Technology and Information Management*, 26 (2), 117-143.
- Komlan, G., Yi, P. & Owusu, A. (2016). Selection and ranking of perceived risk associated with mobile banking in West Africa: An AHP Approach from customers' perspective. *International Journal of Scientific & Engineering Research*, 7 (1), 80-85.
- Lafraxo, Y., Hadri, F., Amhal, H. & Rossafi, A. (2018). The Effect of Trust, Perceived Risk and Security on the Adoption of Mobile Banking in Morocco. *In Proceedings of the 20th International Conference on Enterprise Information Systems*, 2, 497-502.
- Makgosa, R. & Kootsholetse, N. (2012). Exploring the determinants of cell phone banking adoption in Botswana. *Botswana Journal of Business*, 5 (1), 34-42.
- Malhotra, N. K., and Peterson, M. (2006). *Basic Research Marketing: A Decision-Making Approach (2nd Ed.)*. New Jersey: Pearson Education, Inc.
- Marandu, Edward & Makudza, Forbes & Ngwenya, Sothini. (2019). Predicting Students' Intention and Actual Use of E-Learning Using the Technology Acceptance Model: A Case from Zimbabwe. *International Journal of Learning, Teaching and Educational Research*. 18. 110-127. 10.26803/ijlter.18.6.7.
- Masocha, R. & Dzomonda, O. (2018). Adoption on of mobile money services and the performance of small and medium enterprises in Zimbabwe. *Academy of Accounting and Financial Studies Journal*, 22 (3), 1-11.
- Mburu, P. T. & Selapisa, O. (2012). Consumer's propensity to switch: a case on mobile phone industry in Botswana. *International Journal of Engineering and Management Sciences*, 3 (4), 520-527.
- Moorthy, K., Ling, C. S., Fatt, Y. W., Mun, Y. C., Chong, K. Y. E., Sin, Y. K. & Kok, W. L. (2017). Barriers of mobile commerce adoption intention: Perceptions of Generation X in Malaysia. *Journal of Theoretical and Applied Electronic Commerce Research*, 12 (2), 37-53.
- Munongo, S. & Bizah, D. S. (2017). Mobile money users' challenges. evidence from developing countries. *International Journal of Education and Research*, 5 (11), 77-88.
- Patsi, F. (2018). State of the industry report on mobile money. *GSM Association*, 1-40.
- Rahi, S. (2017). Research Design and Methods: A Systematic Review of Research Paradigms, Sampling Issues and Instruments Development. *International Journal of Economics and Management Sciences*, 6 (2), 1-5.
- Safaricom Limited. (2014). Celebrating 7 years of changing lives. Retrieved July 25, 2019, from [http://www.safaricom.co.ke/mpesa\\_timeline/timeline.html](http://www.safaricom.co.ke/mpesa_timeline/timeline.html)

*Saunders, M., Lewis, P. & Thornhill, A. (2009) Research Methods for Business Students. New York, Pearson.*

## Appendices 1: QUESTIONNAIRE

My name is **Calvin Motswaborwa**, a Master of Business Administration student at the University of Botswana. I am currently conducting a research study towards my dissertation entitled “**Predicting customers intention and actual use of mobile money using the Technology Acceptance Model (TAM): Case of Botswana**” in which I intend to find out what motivates the intentions and actual use of mobile money in Botswana. Your participation is highly esteemed in informing my research project.

**INSTRUCTIONS FOR QUESTIONNAIRE COMPLETION:** Kindly tick (√) or place an X (x) in the box with the response that you find most appropriate.

### SECTION A: DEMOGRAPHICS

**AGE:** 1-30 [ ]                      31-40 [ ]                      41-50 [ ]                      50+ [ ]

**EDUCATION:** Primary [ ]                      Secondary [ ]                      Tertiary [ ]

**YEARS OF PHONE USE:** Less than 5 [ ]                      5-10 [ ]                      More than 10 [ ]

<b>MOBILE MONEY TECHNOLOGY</b>	<b>AWARE OF</b>	<b>USED BEFORE</b>
Orange's (Orange money)	[ ]	[ ]
Mascom's (MyZaka)	[ ]	[ ]
BTC's (Smega)	[ ]	[ ]
FNB's (ewallet)	[ ]	[ ]
Barclays' (Cash send)	[ ]	[ ]
Stanbic's (Instant money)	[ ]	[ ]
StanChart's (Bank2Wallet)	[ ]	[ ]

## **SECTION B: PERCEIVED EASE OF USE**

Kindly rate (tick '√' or place an 'x') the following statements on a scale of 1-5 based on your experience of mobile money: SD=Strongly Disagree (1); D=Disagree (2); N=Neutral (3); A=Agree (4); SA=Strongly Agree (5).

<b>Statement</b>	<b>Response</b>				
It is easy to open a mobile money account	SD	D	N	A	SA
The language of mobile money instructions is easy	SD	D	N	A	SA
Carrying out a mobile money transaction is easy	SD	D	N	A	SA
It is easy to learn how to use mobile money	SD	D	N	A	SA
Mobile money apps are easy to use	SD	D	N	A	SA
There are readily available mobile money intermediaries	SD	D	N	A	SA
Mobile money does not require excessive identification	SD	D	N	A	SA

## **SECTION C: PERCEIVED USEFULNESS**

Kindly rate (tick '√' or place an 'x') the following statements on a scale of 1-5 based on your experience of mobile money: SD=Strongly Disagree (1); D=Disagree (2); N=Neutral (3); A=Agree (4); SA=Strongly Agree (5).

<b>Statement</b>	<b>Response</b>				
Mobile money services are available 24/7	SD	D	N	A	SA
Mobile networks are always up to support mobile money	SD	D	N	A	SA
Mobile money assists me to readily carry out transactions	SD	D	N	A	SA
It is easy to learn how to use mobile money	SD	D	N	A	SA
Mobile money apps are easy to use	SD	D	N	A	SA
Mobile money transaction charges are reasonable	SD	D	N	A	SA

## **SECTION D: PERCEIVED RISK**

Kindly rate (tick '√' or place an 'x') the following statements on a scale of 1-5 based on your experience of mobile money: SD=Strongly Disagree (1); D=Disagree (2); N=Neutral (3); A=Agree (4); SA=Strongly Agree (5).

<b>Statement</b>	<b>Response</b>				
I fear losing money through mobile money transactions	SD	D	N	A	SA
If errors occur when using mobile money I will be compensated	SD	D	N	A	SA
Mobile money transactions are not always accurate	SD	D	N	A	SA
Mobile money technology is easily hacked	SD	D	N	A	SA
My personal mobile money details are secure	SD	D	N	A	SA

## **SECTION E: INTENTION TO USE**

Kindly rate (tick '√' or place an 'x') the following statements on a scale of 1-5 based on your experience of mobile money: SD=Strongly Disagree (1); D=Disagree (2); N=Neutral (3); A=Agree (4); SA=Strongly Agree (5).

<b>Statement</b>	<b>Response</b>				
I am most likely to use mobile money for my transactions	SD	D	N	A	SA
I am most likely to adopt the use of mobile money for future transactions	SD	D	N	A	SA

## **SECTION F: CUSTOMER TRUST**

Kindly rate (tick '√' or place an 'x') the following statements on a scale of 1-5 based on your experience of mobile money: SD=Strongly Disagree (1); D=Disagree (2); N=Neutral (3); A=Agree (4); SA=Strongly Agree (5).

<b>Statement</b>	<b>Response</b>				
I trust mobile money	SD	D	N	A	SA

## **SECTION G: ACTUAL USE**

Kindly rate (tick '√' or place an 'x') the following statements on a scale of 1-5 based on your experience of mobile money: SD=Strongly Disagree (1); D=Disagree (2); N=Neutral (3); A=Agree (4); SA=Strongly Agree (5).

<b>Statement</b>	<b>Response</b>				
I actually use mobile money for my transactions	SD	D	N	A	SA

**-THE END-**

**THANK YOU**

## Appendices 2: Research permit



Office of the Deputy Vice Chancellor (Academic  
Affairs)

Office of Research and Development

Corner of Notwane Pvt Bag 00708 Tell [267] 355 2900 and Mobuto Road, Gaborone Fax: [267] 395  
7573

UNIVERSITY

Gaborone, Botswana

BotswanaE-mail: [research@mopipi.ub.bw](mailto:research@mopipi.ub.bw) BOTSWANA

29<sup>th</sup> January 2020

UBWRES/1RB/SOC/GRAD/252

Faculty of Business

University of Botswana

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RE: PERMISSION TO CONDUCT RESEARCH

Project Title: Predicting Intention and Actual Use of Mobile Money Using Technology  
Acceptance

Model. Case of University of Botswana

Researcher(s): Calvin Motswaborwa (200904091)

Since it is a requirement that everyone undertaking research in Botswana should obtain a Research  
Permit from the relevant arm of Government, The Office of Research and Development at the  
University of Botswana has been tasked with the responsibility of overseeing research at UB  
including facilitating the issuance of

Research permits for all UB Researchers inclusive of students and staff.

i am glad to advise that approval has been granted for the above study to be conducted at the University of Botswana. Since the study is to be conducted within the confines of UB, the study has accordingly been exempted from Government Research Permit requirements. In reaching the above decisions, it was noted the above study involves minimal risk. Before proceeding with the study, the researcher is required to ensure the following:

- The study will only be conducted within the confines of UB following the approved proposal version. ● No investigations will be conducted outside UB as part of the study before permission is sought from UB authorities as necessary.
- APPROVAL DATE • 29<sup>th</sup> January, 2020
- EXPIRATION DATE .. 28<sup>th</sup> January, 2021

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report should be submitted to ORD one month before the expiration date.

- MODIFICATIONS: Prior approval is required before implementing any significant changes to the protocol.
- TERMINATION OF STUDY: On termination of this study, a has to be submitted to ORD.
- Other:
- The researchers may accordingly proceed with the above study after fulfilling the above requirements.

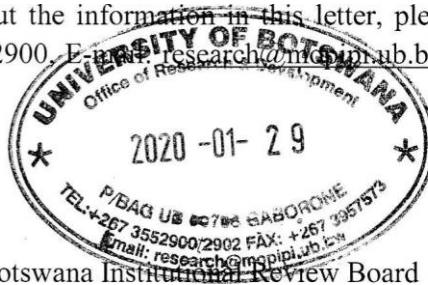
If you have any questions about the information in this letter, please contact the Office of Research and Development at Tel: +267 3552900. E-mail: [research@ord.ub.bw](mailto:research@ord.ub.bw) or on our website: [www.ub.bw](http://www.ub.bw)

letter, please contact the Office of Research and Development at [www.ub.bw](http://www.ub.bw). Contact information is also available

Sincerely,



The Secretariat, University of Botswana Institutional Review Board



The Secretariat, University of Botswana

Office of Research and Development



**Appendices 3; Editors Affidavit**



23 July 2020

To Whom It May Concern:

This letter certifies that a master's dissertation entitled  
"Predicting Intention and Actual Use of Mobile Money Using the Technology Acceptance  
Model: The Case of University of Botswana Students" by  
Calvin Motswaborwa

has been copyedited by Dr Leloba S. Molema, partner and co-owner along with Dr Mary S. Lederer, of Mafoko Manuscript Services.

Please do not hesitate to contact us if you require further information.

Yours faithfully,

Dr Mary S. Lederer

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