ASSESSMENT OF UTILITY BILL PAYMENT COLLECTION SYSTEM ADOPTION OF MOBILE PAYMENT TECHNOLOGY: THE CASE OF COMMERCIAL BANK OF ETHIOPIA.

By: Mr.Yirga Mamo

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Advisor: Mesfin Workineh (PhD)

Addis Ababa University School of Commerce

Addis Ababa, Ethiopia

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DECLARATION

I YIirga Mamo, hereby declare that the thesis entitled **"Assessment of Utility Bill Payment Collection System Adoption Of Mobile Payment Technology: The Case of Commercial Bank of Ethiopia"** is my original work and submitted by me for the award of the Degree of Master of Marketing Management of Addis Ababa University at Addis Ababa and it hasn't been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution and that all sources of material used for the study have been appropriately acknowledged.

Yirga Mamo _____ June 2020

Student **Signature** **Date**

Email -littleyirga@gmail.com

Phone number +251918-17-26-67

Advisor's Approval

This Thesis has been submitted for examination with my approval as a University advisor.

Mesfin Workineh (PhD) _____ _____

Advisor's Name Signature Date

Addis Ababa University

School of Graduate Studies

This is to Certify that the thesis prepared by Yirga Mamo, entitled: Assessment Of Utility Bill Payment Collection System Adoption Of Mobile Payment Technology: The Case Of Commercial Bank Of Ethiopia submitted in partial fulfillment of the requirements for the degree of Degree of Master of Arts in Marketing Management complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by the Examining Committee:

Examiner: Temesgen Belayneh (PhD) Signature: _____ Date: _____

Examiner: Dr.Meskerem Signature: _____ Date: _____

Advisor: Mesfin Workineh_(PhD) Signature: _____ Date: _____

_____

Chair of Department or Graduate Program Coordinator

Abstract

The mobile payment technology is a recent banking service in Ethiopia, especially for the purpose of utility bill payment hence, the study was conducted to achieve its main objective that was to assess the mobile payment technology adoption of customers for utility bill payment in the case of Commercial Bank of Ethiopia. So as to achieve its objectives the study used primary data by employing close-ended questionnaire. It used convenience sampling for collecting data from 385 customers of CBE that used mobile payment for utility bill payment. The research was a quantitative method which used descriptive and explanatory research design. For data analysis, it utilized Pearson correlation analysis and multiple regression analysis. The research took four variables from technology acceptance model: perceived usefulness, perceived ease of use , security and privacy and customer attitude, the result of study showed, all the variables had strong positive relationship to actual usage of mobile payment with correlation coefficient of r=0.717,0.772,0.80 and 0.811 respectively, significant at 0.01. The findings of regression analysis ascertained that the four variables had effect on actual usage but security and privacy as well as customer attitude have great effect on adoption of mobile payment with β=0.388 and 0.352 respectively. Generally, the bank should work hard to improve the four variable since the study confirmed that they all together explain 76.9% (R^2 = .769) of variation in actual usage of mobile payment technology.

Keywords: Mobile payment, Perceived usefulness, Perceived Ease of Use, Security& Privacy, Customer Attitude and Actual Usage

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ACRONYMS

AAWSA	Addis Ababa Water and Sewerage Authority
AU	Actual Usage
CA	Customer Attitude
CBE	Commercial Bank of Ethiopia
KFT	Kifiya Financial Technology
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
SECP	Security and Privacy
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action

CHAPTER ONE

INTRODUCTION

This chapter or the proposal consist of; the background of the study, statement of the problem, the research questions, objective of the research, significance of the study, the scope of the study, limitation of the study, plan of the study, organization of the study & finally definition of terms.

1.1 Background of the Study

Recently different utility organizations namely Ethiopian electric utility organizations, Ethiopian telecom and Ethiopian water and sewerage authorities agreed with Commercial Bank of Ethiopia to collect utility service payments from their customers through banking service technologies. (Addis Fortune 9 March 2019) Utility bill collection service includes but not limited to power supply, heat supply, water supply, waste water collection and disposal.

According to the agreement CBE has launched different forms of digital banking to collect utility bill payments such as account transfer through standing order , agent banking ,CBE birr and finally through cash or front line employees . Despite the above mentioned alternatives many customers are paying in cash in which the bank charges two birr for each transaction or payment. Customers are wasting their time and money by repetitively visiting the branch bank.

Mobile payment is a type of payment transaction processing in which the payee uses mobile communication techniques in conjunction with mobile devices for initiation, authorization, or completion of payment (Goeke and Pousttchi 2010). In other words, customers are able to buy goods, enjoy services and pay bills through a mobile device (Dahlberg, Mallat, Ondrus,& Zmijewska 2008).Therefore, It is a convenient way for customers to pay for goods and services and pay bills through a mobile device. Therefore, a need rises to assess and evaluate the current level of customers in utilizing CBE birr (M-payment) which is a way of paying bills through mobile technology so as to reduce or eliminate risks of carrying cash for each and every transaction, to reduce or eliminate wasting time and exposed to unnecessary transport expense.

Commercial bank of Ethiopia (CBE), the leading bank in assets & introduction of new bank technology including electronic banking (e-banking) has a vision of becoming world class commercial bank by the year 2025. In this regard, CBE is implementing and upgrading different e-banking systems that enhance service excellence to achieve its long term goals and visions. Now in 2019 the bank started bill collection service in the country. By creating awareness and upgrading their use of E-banking, customers need to be economical by avoiding wastage of time, energy and money. Thus, there is a need to understand customer's acceptance of banking services to pay their water utility bill and a need to assess and evaluate utilization of customers by investigating determinants that affect their perception to adopt and utilize Mobile Payment. Since the payment collection of utility bill through banking service is new to Ethiopia and starts this year no one has conducted a research on this problem.

The adoption of a technology can be affected by different factors but this study is intended to assess the adoption of mobile payment system by investigating the following independent variables: the perceived usefulness of mobile payment, the perceived ease to use of mobile payment, the security and privacy of the system and the attitude of the customers to use mobile payment technology.

Davis (1993) also defined perceived usefulness as the individual's perception that using the new technology will enhance or improve her/his performance.

The second independent variable to be investigated is perceived ease is the term that represents the degree to which an innovation is perceived not to be difficult to understand, learn or operate. According to Rogers perceived ease of use is the degree to which consumers perceive a new product or service as better than its substitutes (Rogers, 1983). Similarly, Zeithaml et al. (2002) stated that the degree to which an innovation is easy to understand or use could be considered as perceived ease of use.

In addition to perceived usefulness and perceived ease of use lack of privacy and security were found to be significant obstacles to the adoption of online banking (Chen and Barnes 2007). Also, Roboff and Charles (1998) found that people have a weak understanding of online banking security risks although they are aware of the risks. Furthermore they noted that although consumers' confidence in their bank was strong, their confidence in technology was weak (Howcroft et al., 2002).

The other independent variable that determines the adoption of mobile payment system is attitude of customers. Polatoglu and Ekin (2001) suggested that customer attitude is composed of one's attribute beliefs about the object and perceived importance (weight) of that attribute in making the decision to

adopt. On this basis, the study expects that customer attitude affects the acceptance of utility bill payment technology of the bank (CBE birr).

1.2 Problem Statement

Some customers are using mobile payment (CBE birr) but still requesting the bank to provide them hard paper print out which is useless and go against the general principle of electronic banking aiming to create paper less organizations. This shows that customers are losing their time and money (transportation cost) and the bank is experiencing expense of generating print out besides the customers are creating suffocations to other customers came to be served in the branch of CBE such services are costly and demands additional time and effort of the employees.

According to Waldron, Caroline, Akanksha, and Alexender the water utility authorities in West Africa are not offering convenient and secure payment channel to pay for water utility customers. There are four factors that influence consumers' behavioral intention: perceived risk, perceived usefulness, subjective norm and attitude these all variables significantly influence customer intention to use mobile payment in Nanjing, China. However subjective norm has relatively high impact as compared to others.(Teng, Ling &Seng 2018)

An empirical findings of Waldron Daniel, Caroline Frank, Akankisha Sharma and Alexander Sotiricon (2019) showed that Digital payments reduced collection costs by 57–95 percent, with most of the savings stemming from reduced staff time and vendor commissions. According to the research of Kiyaga, Franceys, and Sansom the bill collection efficiency of some African urban water utilities are lower than 50% that needs improvement.

The increase in revenues, decrease in expenses, enhancement in effectiveness and efficiency of making utility payments or transactions all are the outcomes and benefits that customers will get from using a mobile money platform that is CBE birr. Therefore, this study is initiated to be conducted due to the fact that CBE birr is a new technology to Ethiopia and based on some observation it has been noticed that Customers are not using the service effectively plus the users of CBE-birr accounted only 2.5 percent of CBE bank customers which is very low since the service can be used for the unbanked.(CBE

annual report 2018/19). Therefore, the researcher is triggered to assess the adoption of CBE birr by customers and investigate the variables that are determinants of technology acceptance perceived usefulness, ease of use, security and privacy and attitude.

As far as Ethiopia is located in Africa and the finding of study in the continent indicated that the utility bill collection is not efficient and Ethiopia was not implementing digital way of collecting utility bill payment so far but recently there is a beginning of collecting water bill payments through banking service.

In addition to this CBE currently collects utility payment through account transfer, CBE birr and in cash but the data from CBE annual report stated that though the bank has more than 20 million customers only 500 thousand are users of CBE birr or mobile money this means only 2.5% of the customers are at least registered to use the mobile payment service. The bank has more than 1450 branches and 3200 agents that serve existing customers and recruit new users but registering does not necessarily means utilizing the service and comparing to the number of branches and agents' users of mobile payment are small in number. Numerical calculation of the ratio of branches and agents to users is 1: 100 therefore the researcher is triggered to assess the utility bill collection service level on adopting mobile money for utility payment so as to identify the determinants of the adoption of mobile payment and come up with results that will help to contribute to increase level of mobile payment usage which is currently very low.

According to the data of World Economic Forum, mobile payment systems like M-pesa in Kenya boasts 30 million users. The use of mobile money has grown exponentially making the region the global leader in mobile money innovation, adoption and usage. Mobile money accounts now surpass bank accounts in the region and greater financial inclusion has benefited large swathes of the population that remained unbanked including the poor, the young, and women (IMF, 2019). This research is aimed to assess the adoption of mobile payment because as to the information of the bank there are only 519071 users of CBE birr.2018 compared to the population of the country this is very small as it is new product to the bank there is a need to assess the adoption of mobile payment and the results may help the bank to boast the adoption and usage of the service like M-pesa and hence help the nation to transact without necessarily having bank account.

This study is initiated to conduct the investigation in perspective of new technology adoption point of view since the service mobile payment (CBE-Birr) is a recently introduced service to customers launched in December 11 2017 (www.combanketh.et).

As the report of the bank stated the number of mobile payment service subscribers are very few which is five hundred thousand.

The commercial bank of Ethiopia is planning to reduce the service delivery time(waiting) to customers by providing alternative payment channels that is digital banking.(Mudaye Neway ,2018) but the number of customers registered to use mobile payment is very insignificant plus the actual users are very few this gap of mobile payment technology adoption need to be assessed so as to identify the determinants that affects customers not to actually use mobile payment service . Though alternative channels are available customers are still focusing on the branch services and the service delivery time is not improved due to heavy trafficking and suffocation of customers because of the additional agreement of the bank with different authorities like AAWSA and Addis Ababa road and traffic management to collect their bill payments.

The bank charges 2 birr per transactions for water bill payment so as to discourage customers that uses branch or window services while it is free for customers who pay through mobile payment besides the bank pay 2 birr to agents as commission per transaction so as to initiate them to recruit additional users. Despite the numerous efforts made by the bank there is low distribution and utilization of mobile payment.

Therefore, there is a need to investigate the acceptance and adoption of mobile payment service of customers by examining determinants that can affects their perception to adopt and utilize mobile payment.

1.3 Research Questions

Main Research Question: what was the level of utility bill payment collection system adoption of mobile payment in CBE?

Based on the main research question the study derived the following sub questions.

Sub Research Questions: to assess the utility bill payment collection service system adoption of mobile payment the following questions need to be addressed.

1). How did customers perceive usefulness of utility bill collection services through CBE birr?

2). How did customers perceive ease of use of CBE birr service for utility bill payment?

3) Did customers think that the CBE birr service has Security and privacy to pay their utility bill?

4) To what extent did customer's attitude affect the acceptance of CBE birr services for utility bill payment?

1.4 Objective of the Study

General objective: the general objective of the study was to assess utility bill collection service system adoption of mobile payment in the case of CBE

Specific objectives: based on the above mentioned main objective the research had the following specific objectives;

- To assess customers' perceived usefulness of using M-Payment service for payment of utility bill services ;
- To assess customers' perceived ease of use of M-Payment for utility bill collection payment services ;
- To investigate the security and privacy of using M-payment service for utility bill payment
- To explain the attitude of customers on using M-payment for utility bill collecting service

1.5 Significance of the study

Though the study was intended to assess utility bill collection service on customer satisfaction result of the study was significant to CBE,CBE birr agents, CBE birr merchants, other banks, financial Institutions ,Business Organizations other private and public organizations that are the beneficiary and customers of Utility services. Because utility bill collection through banking had the potential to transform the banking business as it significantly lower transaction and delivery costs and provide high quality of service to customers. The insights from this study contributed to the existing body of knowledge. The findings and recommendations of the study will provide information to the bank indicating the feedback of customers regarding the service.

Most research on utility bill collections are conducted in developed countries therefore this study would fill the gap by reflecting the assessment of bill collection service through mobile payment on low income countries.

1.6 Scope of the Study

Geographically, the study was delimited to be conducted at CBE Addis Ababa capital city of Ethiopia because the bank was currently making an agreement with Addis Ababa Water and Sewerage Authority (AWSA) and only AWSA bill payment is active till this study is proposed others are under construction .

The study was delimited to consumers who are registered to use mobile payment technology for the purpose of paying utility bills. The study will use the data that will be gathered from the respondents since the start of the service of utility bill payment collection through banking technology introduced in Ethiopia that is from late October 2019.

Different variables may determine the adoption of mobile payment as a utility bill payment collection services but this study delimited to assess the relation of customers' perceived usefulness, perceived ease of use, the security and privacy of using CBE birr service as well as the attitude of customers on mobile payment technology utility bill collecting service provided by CBE.

1.7 Limitation of the Study

The research used questionnaire but having different source of data provided valid and reliable information about the research problem. This limitation was overcome by preparing adequate and relevant questions that could answer the research questions.

1.8 Organization of the Study

This study was consisted of five chapters. Chapter one contained: background of the study, statement of the problem, research questions, the research objectives, significance of the study, scope of the study, limitation of the study, organization of the study and definition of terms. Chapter two contained literature review which related to the utility bill collection of the bank. Chapter three deals with research methodology which contains; research setting based on the organizational context. Research design, data sources and type of data, sampling techniques, data collection methods and techniques, ethical consideration in research, the planned data analysis. Chapter contained the presentation, analysis and interpreting of data, finally , Chapter five , contained conclusion and recommendations.

1.9 Definition of Terms

Terms	Definition
Perceived Usefulness……	The degree to which a person believes that machine translated subtitles would enhance his or her job performance.
Perceived Ease of Use ……	The degree to which a person believes that using machine translated subtitles will be free of effort.
Subjective Norm ……..	The degree to which a person perceives that most people who are important to him or her think he or she should or should not use utility bill payment service of the bank.

Task Relevance …… The degree to which a person believes that the bank technology of bill payment are applicable to his or her task.

Perceived Quality …….. The degree of how good a person perceives about the quality of machine translated subtitles.

Intention to Accept …… A person's behavioral intention to accept machine translated subtitle

CBE-birr…… … Is mobile payment service renamed by Commercial Bank of Ethiopia

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter discusses and review former studies of different intellectual scholars who have dealt with a related concept and theory of advanced utility bill collection services. The purpose of the review of literature is to develop; documented, logical or rational for a problem that is utilization of bill collection services through banks and satisfaction of customers on the payment service. There is some flow from what is already known about the problem and to test the hypothesis based on the well-developed model related to the problem & finally to indicate what is attempted to be studied. This review of literature also establishes a framework which can guide the study.

2.2. Theories and Models of Electronic Banking

Generally, while reviewing the literature related to the problem it will be best if there is a model that best reflect issues under discussion and serve as a reference to test the variables. Therefore, the study generates the following theories and model to test the independent variables of utility bill payment collection through banking service .Thus, from previous studies of some intellectual scholars there are a few theories and models identified to be likely associated with the research problem such as the technology acceptance model (TAM) created by Davis (Davis, 1989). The theory of planned behavior, developed by Ajzen1985, and the innovative diffusion theory which expect to distinguish the attitudinal, social and perceived behavior control factors that influence the utilization bill payment collection through modern banking technology service (Rogers, 1983).

2.2.1 Theory of Planned Behavior and Innovation Diffusion Theory

Two different speculations were created with a specific end goal to better comprehend the acknowledgement of new advancements by clients; the theory of planned behavior (Taylor &Todd 1973) and the innovative diffusion theory (Rogers, 1983). Theory of Planned Behavior TPB gives a

superior comprehension of use conduct and expectation, and may give more powerful direction to IT chiefs and specialists on the usage of the framework. It gives an exhaustive diagram of how an individual's attitude, subjective standards and how behavioral control can impact his or her aim to utilize managing an account administration through the Internet (Taylor & Todd 1973).

In the creative dissemination theory created by Rogers (Rogers, 1983), three principles attributes of developments were distinguished: relative preferred standpoint, similarity, and multifaceted nature. Adopters were constantly found to have distinctive recognitions about these attributes in correlation with non-adopters.

2.2.2 Technology Acceptance Model (TAM) and Utility Bill Payment

To understand user behavior towards the adoption of innovative technology, scholars developed various behavioral decision theories and intentional models over the last decades. Researchers have been disposed to employ variables from well known theories and models, including the theory of reasoned action (TRA), the theory of innovation diffusion (IDT), the technology acceptance model (TAM), the theory of planned behavior (TPB), and the unified theory of acceptance and use of technology .Within the Information Systems (IS) literature, models such as the technology acceptance model employed to explore the factors of technology acceptance.

The technology acceptance model that presented by Davis is a standout among the most generally utilized models to clarify client acknowledgment practices. The mechanical acknowledgment suggests that perceived ease of use (PEOU) and the perceive usefulness (PU) foresee the acknowledgment of data innovation (Tung et al.2008).

The TAM model is grounded in social brain research hypothesis all in all and the Theory of Reasoned Action (TRA) specifically (Lichtenstein &Williamson, 2006). TRA states that convictions impacts demean ours, which prompts expectations and in this way, create conduct.

Correspondingly, Davis presented the build TAM as take after: perceive usefulness (PU), perceived ease of use (PEOU), disposition and behavioral goal to utilize. From the builds, PU and PEOU frame amend-client's convictions on an innovation and along these lines anticipate his or her mentality towards the innovation, which thus predicts its acknowledgment (Cheng et al. 2006). Different creators, basically sets that people who are quick to embrace advancement would need to accept or made to trust

that they won't locate a specific innovation that is difficult to function. Organizational based investigate has analyzed an assortment of reception practices from correspondence utilize (Lee 2009) to B2B exchanges; and individual utilize has likewise been inspected on the online exchange position for both merchandise and of late administrations. The failure to represent the social impacts makes the model open for the consideration of different factors, henceforth its adaptability and wide utilization.

In fact researchers have investigated and replicated the technology acceptance model and agreed that it is valid in predicting the individual's acceptance, the TAM's fundamental constructs does not fully reflect the particular influences of technological and usage-context factors that may divert the users' acceptance (Moon and Kim 2001).Therefore, in the current study the researchers incorporated two new constructs (security and privacy and customer attitude) to enhance the understanding of an individual's acceptance behavior of electronic banking in this case the mobile payment.

2.2.2.1 Customers Perceived Usefulness and the Utility Bill Payment Service

The importance of perceived usefulness has been widely recognized in the field of electronic banking (Guriting and Ndubisi 2006; Laforet and Li 2005; Polatoglu and Ekin 2001; Liao and Cheung 2002). According to them usefulness is the subjective probability that using the technology would improve the way a user could complete a given task. Based on theories in social psychology, such as the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980; Fishbein and Ajzen 1975) and the theory of planned behavior (Ajzen, 1985), the technology acceptance model (TAM) has been validated as a powerful and parsimonious framework (Davis 1989;Davis et al., 1989). According to the TAM, perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance.

Davis defined perceived usefulness as the individual's perception that using the new technology will enhance or improve her/his performance (Davis, 1989). Similarly, perceived usefulness was also defined as the extent to which a person deems a particular system to boost his or her job performance (Mathwick, Rigdon and Malhotra, 2001). The TAM model was applied in Finland and the study found perceived usefulness as a determinant of actual behavior which encouraged the user of banking to use more innovative and user friendly self-service technologies that give greater autonomy in performing banking transactions, in obtaining information on financial advices, and in purchasing other financial

products(Pikkarainen, Pikkarainen ,Karjaluoto &Pahnila,2004). However, perceived usefulness depends on the banking services offered such as checking bank balances, applying for a loan, paying utility bills, transferring money abroad, and obtaining information on mutual funds,(Gerrard & Cunningham, 2003). As stated from the above studies, the greater the perceived usefulness of utility bill payment through banking services, the more likely that CBE birr will be adopted. Therefore, assessing the perception of customers on how useful is the utility bill payment collection of the bank is determinant to adopt the CBE birr technology.

Research question 1: Does perceived usefulness have positive effect on customer adaptation of mobile payment?

Hypothesis 1: Perceived usefulness has positive effect on customer adaptation of M-payment.

Therefore, the perception of customers regarding the usefulness of paying utility bills through banking services of mobile payment need to be assessed whether customers assumed that they are benefited in using the M-payment for bill payment or not has to be assessed.

2.2. 2.2 Customers Perceived ease of use and the Utility Bill Payment Service

Some studies asserted that perceived ease of use is the extent to which a person accepts as true that using an exacting method would be at no cost to that individual (Davis et al., 1989; Mathieson 1991; Gefen and Straub,2000; Gahtani, 2001). Initially, Rogers affirmed perceived ease of use is the term that represents the degree to which an innovation is perceived not to be difficult to understand, learn or operate (Rogers, 1962). Perceived ease of use is also stated as the degree to which consumers perceive a new product or service as better than its substitutes (Rogers, 1983). Similarly, perceived ease of use was stated as the degree to which an innovation is easy to understand or use could be considered as perceived ease of use (Zeithaml et al. 2002). Mathieson also defined perceived ease of use as the consumer's perception that banking on the internet will involve a minimum of effort (Mathieson, 1991). Consult also noted that perceived ease of use refers to the ability of consumers to experiment with a new innovation and evaluate its benefits easily. In additions, Consult mentioned that the drivers of growth in electronic banking are determined by the perceived ease of use which is a combination of convenience provided to those with easier internet access, the availability of secure, high standard

electronic banking functionality, and the necessity of banking services (Consult, 2002). Early in 1962, Rogers noted that understanding the technology leads to adaptation of innovative service/ product by customers is known as ease of use.

Generally, perceived ease to use is how the utility bill payment collection of the bank is easy to understand, to try, to use or is it better compared to other substitute services for example that of kifiya financial technology etc. Therefore, the assessment needs to investigate whether the bank technology mobile payment is easy to use for utility bill payer customers. Therefore, following research questions and hypotheses has been formulated:

How do customers perceive ease of use of CBE birr service for utility bill payment?

Hypothesis 2: Perceived Ease of use (PEOU) has a significant positive effect on usage of mobile payment for utility bill payment

The study will assess to investigate how easy is to use mobile payment technology for customers because the easiness of using have effect for adopting a new technology.

Hence, level of easiness to use mobile payment for utility bill payment collection service need to be tested or investigated.

2.2.3 Security and Privacy on the Utility Bill Payment Service

In addition to the perceived usefulness and perceived easy to use the security and privacy of the service is also determinant to the adoption of the service by the users or customers. The importance of security and privacy for the acceptance of online banking has been noted in many banking studies (Hernandez and Mazzon 2007; Chen and Barnes 2007; Hamlet and Strube 2000; Tan and Teo 2000; Polatoglu and Ekin 2001; Black, Lockett, Ennew, Winklhofer, and McKechnie 2002; Howcroft, Hamilton and Hewer 2002). A comprehensive study in 1998 found that people have a weak understanding of online banking security risks although they are aware of the risks (Roboff and Charles (1998). Furthermore they noted that although consumers' confidence in their bank was strong, their confidence in technology was weak As trust, security, and privacy are multidimensional constructs and need further explanation, this study concentrate only on the aspects consumers are most concerned about. Thereby the research proposes that:

Research question 3: Does security and privacy have positive effect on customer adaptation?

Hypothesis 3: Security and Privacy has positive effect on using mobile payment for utility bill payment.

The study need to assess the effect of security and privacy on the usage of mobile payment technology for utility bill payment collection service since they are determinants of technology acceptance or adoption.

2.2.4 Customer Attitude

Some studies related to diffusion of technological innovations have expanded the use of the TAM model to include attitudes as defined by the Theory of Reasoned Action (Davis et al.,1989; Jayawardhena and Foley 2000; Karjaluoto et al., 2002). A comprehensive study in 1979 mentioned attitude as an individual's positive or negative behavior towards innovation adaptation. The study further stated that attitude portrayed the perceptions of usefulness of electronic banking, adaptation features, bank electronic features, risk and privacy, and personal preferences (Triandis, 1979). In electronic banking, consumers' attitude is assorted in terms of perceptions regarding product information, form of payment, delivery terms, service offered, risk involved, privacy, security, personalization, visual appeal, navigation, entertainment, and enjoyment. Understanding the determinants of consumers' attitude, it is asserted that this attitude has a strong, direct, and positive effect on consumers' intentions to actually use the new technology or system (Hernandez and Mazzon 2007; Eriksson et al., 2005; Jaruwachirathanakul and Fink 2005; Bobbitt & Dabholkar 2001). On this basis, the study expects that customer attitude affects the acceptance of utility bill payment technology of the bank (CBE birr)

Research question 4: Does customer attitude have positive effect on customer adaptation of CBE birr?

Hypothesis 4: Customer attitude has significant positive effect on customer adaptation of Mobile Payment.

Finally, the study will assess the attitude of customers on using the mobile payment technology for utility bill payment collection service since it is other determinant of technology acceptance or independent variable for adoption mobile payment.

2.3 Customer Adaptation

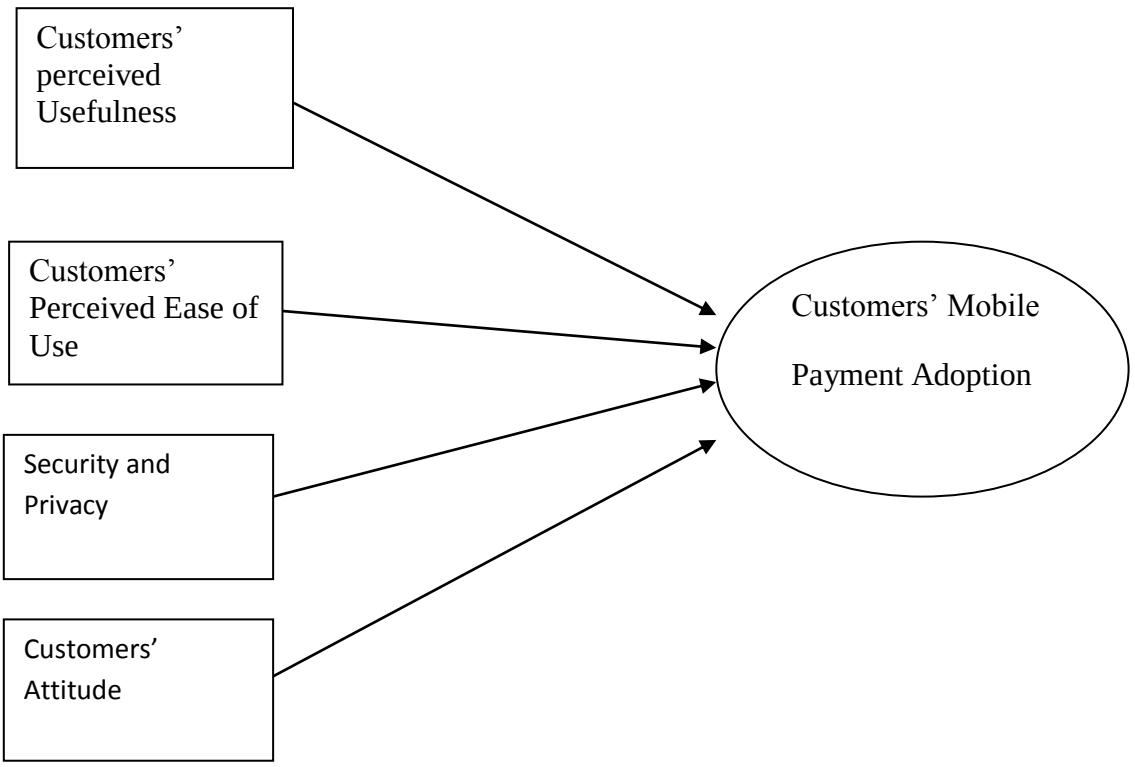
The technology acceptance model suggests that customer adaptation behavior is determined by the intention to use a particular system, which in turn is determined by the perception of considering the system as useful and ease to use (Davis, 1989; Davis et al., 1989). A study in 2002 utilized an alternative research approach which assumes that customer adaptation is determined by intention to perform the behavior(Liao and Cheung, 2002). Electronic banking usage is important not only in terms of reducing costs and improving competitiveness but also in terms of a bank's ability to retain the existing customer base and to attract new customers (Guriting and Ndubisi, 2006; Bradley and Stewart, 2003; Gerrard and Cunningham, 2003;nakitmnuai and Speece, 2003; Akinci et al., 2004). Recently, Hernandez and Mazzon (2007) found that technology acceptance is determined by perceived usefulness and perceived ease of use, which are related to attitude and thereby to actual use.

Generally, from the above theories & models this study used the Technology Acceptance Model because it explains the customer's decision making process which related to technology acceptance behavior and Theory of Reasoned action (TRA) is also used because it shows that behavior is proximally determined by the behavioral intention and has strong prediction of utility for a wide range of human behavior. In addition to this other researcher with similar research problem have used the two models. For instance, in Sweden (Hauff 2011), in Pakistan(Aslam , ham and Arif 2017), in Spain (Cabanilas , Ramos and Montoro), in Togo(Gbongli , Xu and Amedjonekou ,2019) have employed the two models to predict consumers' intention and acceptance of mobile payment service. Sine this study also includes mobile payment which is CBE birr as utility bill payment service and the customers are new to the technology of banking as bill payment collection it will be good to use the technology acceptance model so as to assess utility bill payment collection service of CBE.

2.4 Conceptual Framework

To explicitly understand the problem under investigation and to indicate an assembled & rational interrelationship between the independent and dependent variables study developed the following conceptual framework.

Figure 2.1 Conceptual Framework



Source: Modified from Nadim Jahangir and Noorjahan Begum, 2008

The conceptual framework is developed to show a diagrammatic relationship of the independent variables and the dependent variable.

Customers' perceived usefulness, perceived ease of use, as well as the security and privacy of the utility bill payment collection service of bank and generally customer's attitude about the technology determines the acceptance or adoption of that technology.

Customers perceived usefulness 'is the degree to which the user believes that using a system would enhance their activities (i.e. is it beneficial for me to use this tool for this work task?) . Therefore, the use or benefit of the mobile payment technology determines the acceptance or adoption of M-payment (Davis 1989).

Customers' perceived ease of use is one determinant of mobile payment technology adoption because it is the degree to which the user believes that using a system would be free of effort i.e. is it easy for me to use this tool? (Davis (1989) . One characteristics of new technology to be adopted is that it should not be complex. Therefore, customers' perceived ease of use on mobile payment needs to be assessed to find the level of adoption.

The next independent variable as stated on the conceptual model is the security and privacy, the technology to be adopted should be secured and confidential and not accessed by other party without the concern of the user.

The last independent variable to be assessed in this study as stated on the conceptual model is attitude, taking in to account the perceived usefulness, ease of access, security and privacy of mobile payment technology customers develop an attitude about M-payment this attitude will be either positive or negative behavior towards innovation adaptation (Triandis 1979). The attitude developed by customers will determine the acceptance or adoption of the technology (Mobile payment).

Therefore, the adoption of M-payment technology is determined the perceived usefulness, perceived ease of access, security and privacy as well as attitude of customers on the mobile payment technology as depicted on the conceptual model.

CHAPTER THREE
METHODOLOGY

3.1 Introductions

This chapter provides detailed overview of how the proposed research was conducted and how was the research objectives achieved, research questions and research problems was answered.
Generally, this chapter included: research design, data type and data source population of the study , sampling procedure ,data gathering instruments, data analysis technique, reliability and validity and Ethical consideration.

3.2. Research Setting

The research study was conducted in Commercial bank of Ethiopia, Addis Ababa. The respondents were the customers of Addis Ababa city Utility bill payers that used the bank or CBE. The key utility identified for this study was Addis Ababa Water & Sewage Authority (AAWSA) though there are other utilities for the time being Ethiopian Electric Power Company (EEPCO) and Ethio-Telecom (ET) still their payment collection through bank have not started yet therefore they were excluded.

3.3. Organizational Context

The commercial bank of Ethiopia was legally established as a share company in 1963.CBE plays a great role in the economic progress & development of the country. Currently in January 2018
CBE had more than 16.6 million customers.
The study was conducted in CBE because currently it was the only bank that makes an agreement with Addis Ababa Water and Sewerage to collect water utility bill payment. Addis Ababa Water and Sewerage Authority is an Autonomous public authority established in 1971. The bank delivered the service in three categories that was through cash, account transfer and through agent banking. The bank charged 2 birr per transaction for bill payment collected in cash.

The bank officially launched its mobile money service dubbed CBE-birr on December 11 2017. CBE-birr or CBE-money also called agent banking is banking services provided for every individual whether he/she operated an account or not. Therefore everyone who has a SIM card can Operate CBE birr. This

service includes sending money; cash out, buying airtime, buying goods, paying bills and mini statements. The service also has merchants and agents where customers can cash out without visiting branch bank in each and every time. The bank recruited some agents of CBE birr and pay them commissions and the agents act on behalf of the bank by subscribing customers to the service CBE birr which is banking services provide through mobile and help customers to pay their bill in addition to other services like sending and receiving money. The service was for free. Once a user transfers money to another person or made payment to utility authorities, the customer obtained prompt notification with a unique code through short message service (SMS) (CBE birr manual 2019).

3.4 Research Method

Generally research could be classified in to two research methods. These included qualitative research and quantitative research.

The qualitative research involved studies that did not attempt to quantify their results through statistical summary or analysis. It seeks to describe various aspects about behavior and other factors in the social sciences and humanities. In this kinds of research data are often in the form of descriptions, not numbers. It typically involved in-depth interviews, group discussions, and observations without formal measurement.

Quantitative research is the systematic and scientific investigation of quantitative properties and phenomena and relationships. The purpose of using quantitative research is for developing and usage of mathematical models, theories and hypotheses pertaining to natural phenomena. Qualitative research begins with a theory or a general statement proposing a general relationship between variables. Quantitative researchers favor methods such as surveys and experiments, and will attempt to test hypotheses or statements with a view to infer from the particular to the general.

Therefore the appropriate research method for the study was quantitative research because the main objective of the study was to assess mobile payment application in Commercial Bank of Ethiopia by collecting quantitative data from customers of the bank. In addition the effect of the independent variables (perceived usefulness, perceived ease of use, security and privacy as well as attitude) on the dependent variable customer adoption of mobile payment for utility bill collection payment service was quantitatively measured by this study.

And also other researchers in similar studies used quantitative research for instance Nadim and Noorjahan (2008), Alsamydai (2014) and Dismas and Darlene (2014).

To test the research hypothesis, to answer research problems and to achieve its objectives this research was designed to use quantitative research methods. The research was intended to use the quantitative research methods because the study or problem area was about the adoption of bank technology for utility bill payment hence the study developed hypothesis based on the variables of a well known model that was the Technology Acceptance Model and to examine the relationship between the dependent variable and the independent variables.

3.5 Research Design

The research could also be classified in to three as descriptive, explanatory and exploratory. Descriptive research sets out to describe & to interpret what is. It concerned with conditions or relationships that exist, practices that prevail, beliefs, points of view or attitudes that are held, processes or that are developing.

Whereas explanatory research is conducted when we encounter an issue that is already known and have a description of it, we might begin to wonder why things are the way they are. The desire to know "why", to explain, is the purpose of explanatory research. The researcher goes beyond merely describing the characteristics, to analyze and explain why and how something is happening. Thus explanatory research aims to understand phenomena by discovering and measuring casual relations among them.

Exploratory research is conducted when there are few or no earlier studies to which references can be made for information. Exploratory research gives insights into and comprehension of an issue or situation for more rigorous investigation later. Exploratory research is a type of research conducted because a problem has not been clearly defined. Here the objective is to gain background information and better understand and clarify a problem.

Most research projects designed in the fields of social sciences and business are based on descriptive research studies. In descriptive research you have no control over the variables but you can only report what has happened or what is happening.

This researcher collects data on four dimensions of TAM from customers of AWSA that used M-payment to describe the present condition of M-payment application on CBE across four dimensions.

So the researcher decided to use descriptive research. In addition the researcher was analyze the casual relations between the dependent variable (adoption of M-payment) and the independent variables (perceived usefulness, perceived ease of use, security and privacy as well as attitude) using correlation and regression which made the research explanatory. Thus, this study was both descriptive and explanatory.

3.6. Data Sources and Types of Data

The data source for this study was primary data that collected from customers of Addis Ababa Water and Sewerage Authority who are currently paying their utility bill through mobile payment service of commercial bank of Ethiopia. The type of data used was primary data which collected from customers of CBE through close ended questionnaire.

The study prepared questionnaire that contained adequate questions to answer the research questions as well as to assess the problem area.

3.7 Population of the Study

Since the study was conducted to assess utility bill payment collection therefore, the target population of study comprised of all individual and organizational customers of AAWSA who were at least subscribed to use CBE birr service by Commercial Bank of Ethiopia to pay their utility bill through mobile payment technology.

Sampling frame-The source list from where the research intended to determine the sample were based on the data obtained in capital Ethiopia magazine on June 2019 states that AAWSA has 550 thousand customers when it made an agreement with CBE. Therefore, all of these are considered to be included in study.

3.8 Sampling Procedure

Generally, there are two basic sampling techniques: probability and non-probability sampling. Probability sampling involves random selection, allows making statistical inferences about the whole group (population). While non – probability sampling involves non-random selection based on convenience or other criteria, it allows to easily collecting initial data. The selection of the sample for

this study was through non-probabilistic sampling technique of convenience sampling. Convenience sampling also called accidental or opportunity sampling is a technique in which a sample is drawn from that part of the population that is close to hand, readily available, or convenient. The researcher selects CBE because it was the only bank that currently delegated to collect utility bill payments on behalf of AAWSA. The questionnaires were distributed to respondents based on convenience or shopping mall intercept sampling since the required data were collected from fixed location that was selected branches of CBE. It was the best way of getting some basic information quickly and efficiently.

3.9 Sample Size Determination

As stated above the general population under investigation was 550,000.The sample size for this study was determined by using the formula developed by Cochran (1963:75).Sample size from the customers was calculated as follows:

$n_0 = z^2pq/e^2$

Where: n0 = the sample size

Z^2 = Is the abscissa of the normal curve that cuts off an area α at the tails (1 - α equals the desired confidence level, i.e. 95%)

e = the desired level of precision

The above sample size was the representative sample proportion at 95% confidence level and ±5% precision when the population is large and unknown.

When the population is small, the sample size can be reduced slightly for the fact that a given sample size provides proportionately more information for a small population than for a large population. As a result, the sample size (n0) could be adjusted (Cochran 1963:75).

The population for this study was finite; hence the sample size (n0) was adjusted as follows

$$\mathbf{n= \frac{n0}{1+\frac{n-1}{N}}}$$

$$n = \frac{385}{1+ \left(\frac{385-1}{550000}\right)} \qquad n= \frac{385}{1+0.0006981}$$

n = 384.731 ≈ **385**

N=population of the study

n=sample size

3.10 Data Gathering Instruments

The three main data collection methods in survey research are interviewing, administering questionnaires, and observing people and phenomena. Each has their own objective and advantage , interviewing has the advantage of flexibility in terms of adapting, adopting, and changing the questions as the researcher proceeds with the interviews, questionnaires have the advantage of obtaining a more efficient data by reducing researcher time, energy, and costs. The data gathering instruments for this study was a close-ended questionnaire.

The questionnaire contained statements that are specifically designed to accurately measure the mobile payment system adoption of CBE for utility bill payment collection service.

3.11 Data Analysis Technique

The research was planned to analyze the data to be collected and so as to assess relationships among the studied variables the research will follow factor analysis in addition the correlation analysis will be conducted on all variables to explore the relationship between the variables. Descriptive statistics: Statistics such as frequencies, the mean, and the standard deviation, which provide descriptive information about a set of data of the respondents. Then correlation and regression analysis was performed to determine the relationship and effect of the independent variables on the dependent variable.

3.12 Reliability and Validity

Reliability of a measure indicates the extent to which it is without bias (error free) and hence ensures consistent measurement across time and across the various items in the instrument. It indicated the stability and consistency with which the instrument measures the concept and helps to assess the "goodness" of a measure.

Internal consistency reliability is used to assess the consistency of results across items within a test and the method for assessing reliability of the current study. Typically this could be done either by using Cronbach`s alpha or by split-halves method - where total set of items is divided into halves and scores of the halves are correlated to obtain an estimate of reliability (Carmines and Zeller 1979, p 11). The advantage of the internal consistency measures is that there is no need for a second test, and thus they are also widely used in practice. On this regards Nunnally(1978) has given guidelines for the accepted alpha levels : Early stage of research α=0.5-0.6, Basic research α=0.7-0.8 and Applied settings α=0.8-0.9.

Therefore, the variables was tested for reliability by using Cronbach's Coefficient Alpha. Construct validity testifies to show how well the results obtained from the use of the measure fit the theories around which the test is designed. Validity Since the statements have been generated from an extensive review of academic and practioner's literatures, it is assumed that the construct would hold.
Therefore, this study used Cronbach's coefficient alpha for reliability test of the variables.

3.13 Ethical consideration

Respondents of this study were given the right to ask any question if they found it not clear. They can also leave the questionnaire whenever they feel it risk or withhold care from them. And respondents were noted that there was no need of writing their name and their responses were coded and individual responses were not reported rather in summery. And the researcher assured that all the response were confidential and in summary used for the research purpose only.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1Introduction

The analysis of the data collected from the respondents and interpretation of the results were presented. It began with a description of the demographic and general characteristics of the participating respondents. Cronbach's coefficient alphas for reliability were examined and the results were discussed.

Then, the results of correlation analysis and regression analysis for the research variables were discussed. A total of 385 questionnaires were distributed and collected from customers of CBE that used mobile payment for utility bill payment service.

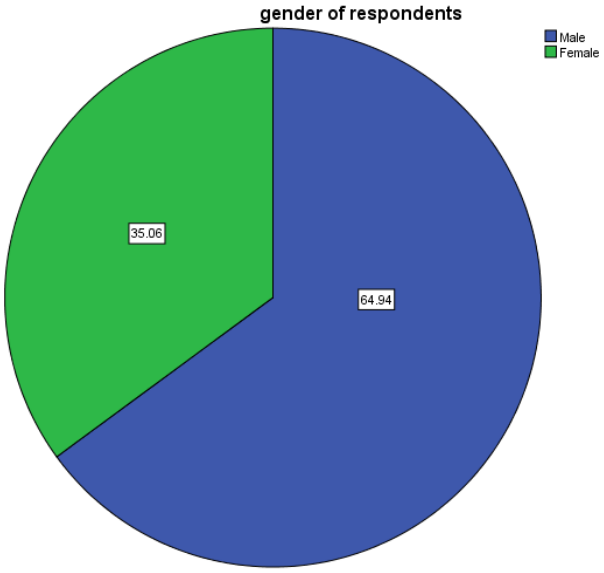
4.2 Demographic Characteristics of Respondents

The demographic profile of respondents is shown in figure 4.1 up to 4.6. The respondents were classified according to their: age group, gender group, marital status, educational level, and their income level.

4.2.1 Gender Profile of Respondents

The mobile payment users of CBE were asked to indicate their gender category and their responses were generally indicated in the following figure. As depicted in the next pie chart, majority (64.94%) of the respondent were male where as the remaining 35.04 % were women.

Figure 4.1 Gender Profile



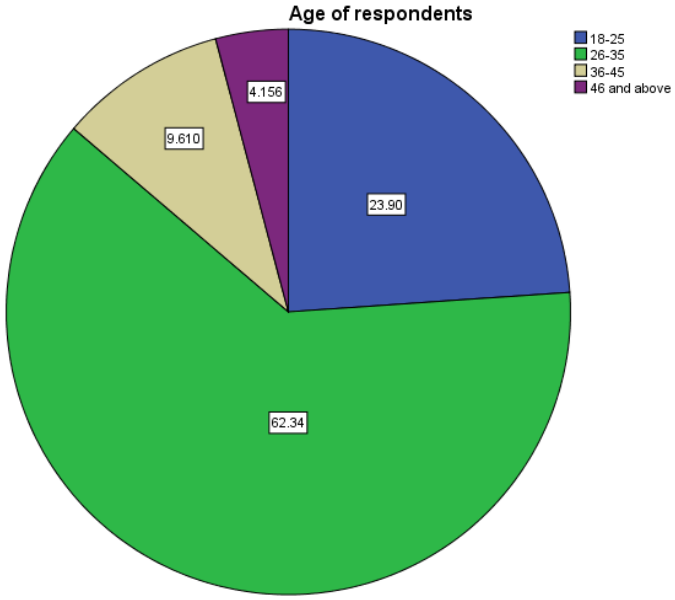
Source: Own Survey, 2020

4.2.2 Age of Respondents

Respondents were asked to indicate age level and their responses are indicated in the next figure.

As depicted in the figure 4.2, majority of the respondents aged 26 up to 35 years which is 62.34 % of the respondents, where as 23.90% aged 18 to 25 years and 9.61% aged 36 to 45 years while the remaining 4.16 % aged above 46 years.

Figure 4.2 Age of Respondents

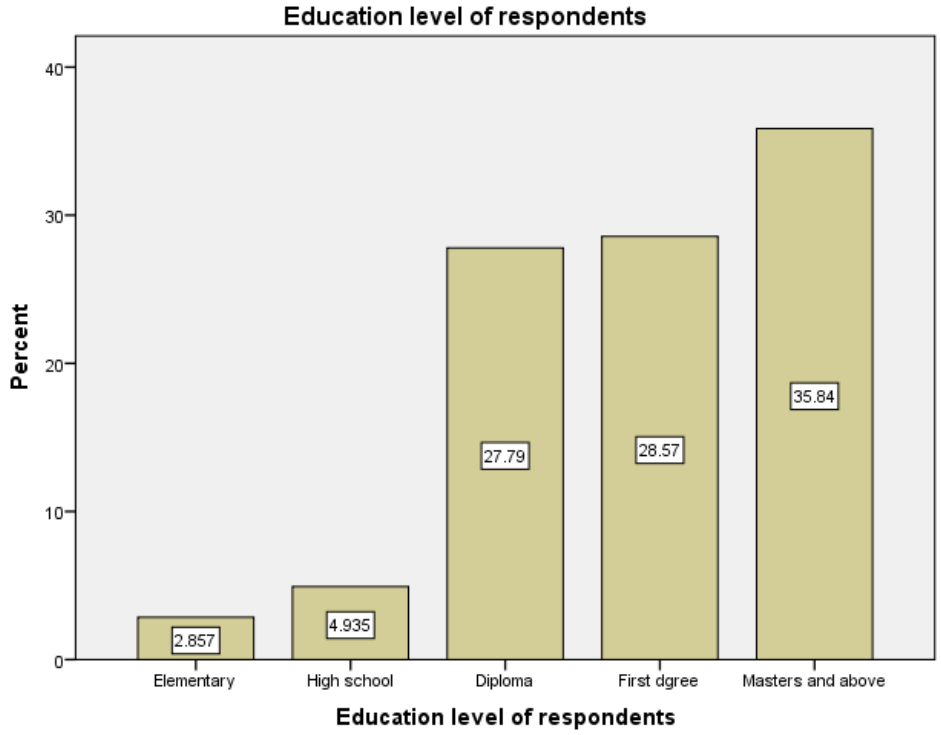


Source: own survey, 2020

4.2.3 Educational Level of Respondents

The educational level of respondents was asked and the result was summarized in the following figure. As showed in figure 4.3 , few of the respondents (2.9%) had elementary educational background, nearly 5 % of the respondents had high school certificate, 27.79 % had a diploma,28.57 % had first degree, where as majority of the respondents had a master degree and above. Generally, more than half of the mobile payment users at least had first degree.

Figure 4.3 Educational backgrounds of respondents.

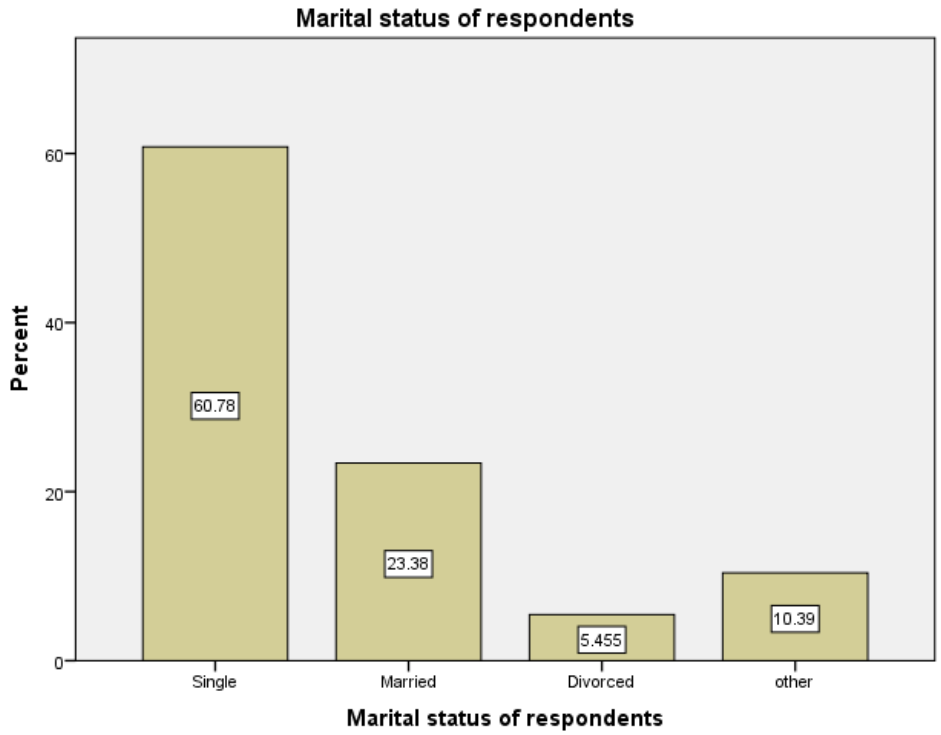


Source: own survey, 2020

4.2.4 Marital Status of Respondents

The research asked respondents to state their marital status and their responses summarized in the next figure. As displayed in figure 4.4 , majority of the respondents were single (60.78%) , 23.38 % were married , and around 5.5 % were divorced , while the remaining 10.39 % had marital status that is not specified(other).

Figure 4.4 Marital status of Respondents

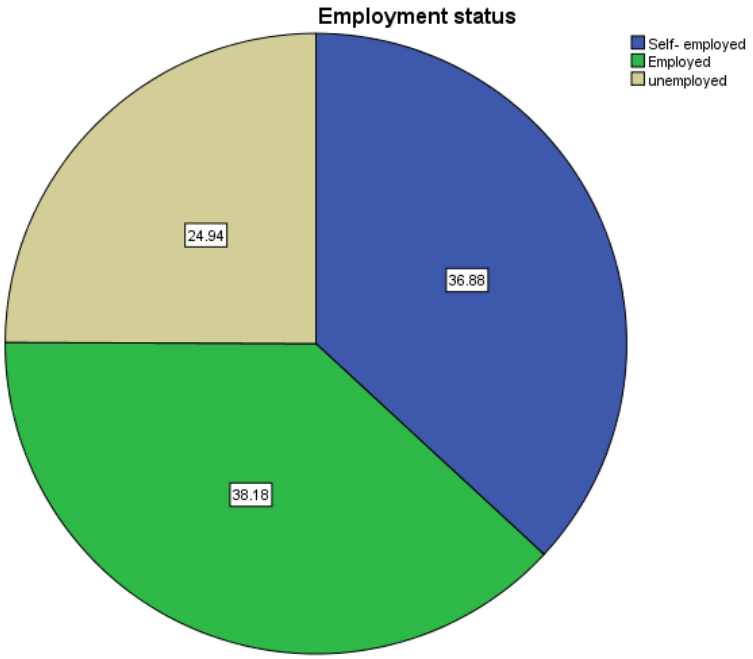


Source: own survey, 2020

4.2.5 Employment Status of Respondents

The employment status of mobile payment adopters is summarized in figure 4.5 which were categorized under three categories: unemployed employed and self employed. As displayed in the next pie chart, 24.94 of the respondents are unemployed,36.88 % are self-employed and 38.18 are employed. Therefore, around 75 % of the respondents are either employed or self employed (own private organization)

Figure 4.5 Employment Statuses of Respondents

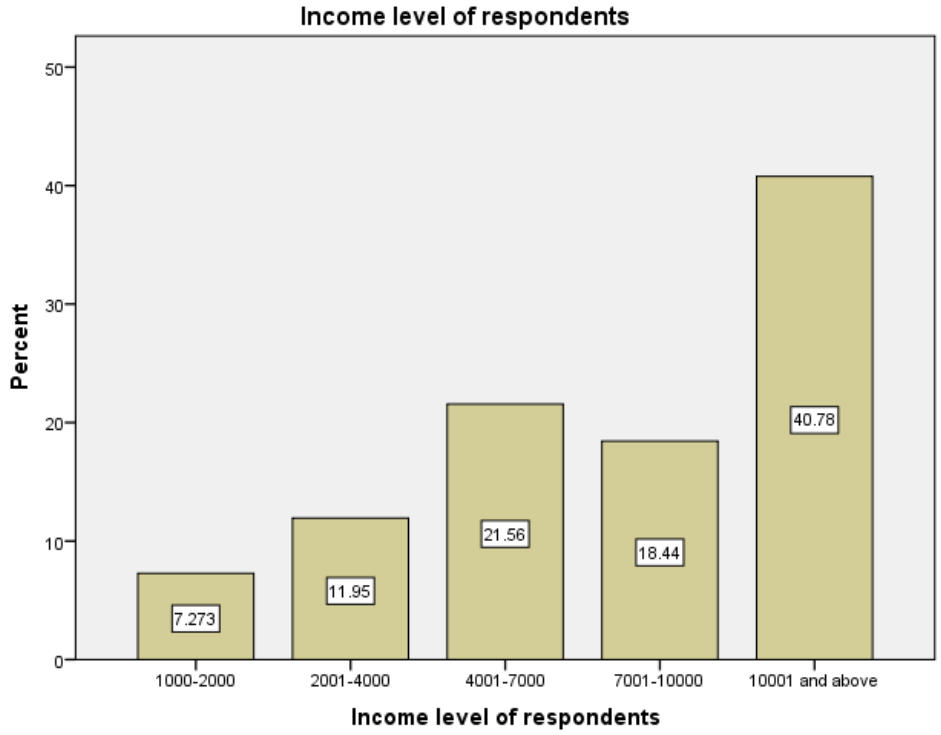


Source: own survey,2020

4.2.6 Income of Respondents

Respondents were asked to state their level of income and their responses were summarized in the following bar graph. As displayed on the next bar graph, out of 385 respondents 7.27 % of the customers earned 1000 up to 2000 birr per month, 11.95 % earned 2001 up to 4000, 21.56% earned monthly income of birr 4001 up to 7000, 18.44 % earned 7001 up to 10000 birr per month, where as the remaining 40.78 % earned more than ten thousand birr per month. Therefore, in terms of monthly income of respondents the majority earned more than 10,000.

Figure 4.6 Incomes of Respondents



Source: own survey,2020

4.3 Reliability Test

Reliability measure indicates the stability and consistency with which the instrument measures the concept and helps to assess the "goodness" of a measure. The advantage of the internal consistency measures is that there is no need for a second test, and thus they are also widely used in practice. On this regards Nunnally(1978) has given guidelines for the accepted alpha levels : Early stage of research α=0.5-0.6, Basic research α=0.7-0.8 and Applied settings α=0.8-0.9.

Reliability analysis was computed to test whether the scale that used in the study is internally

Consistent and measures the criterion variable using the reliability procedure.

One of the most commonly used measurements to test reliability is Cronbach's Alpha. Cronbach's alpha reliability analysis was conducted on the independent variables in order to determine the reliability of the instrument used. Lack of reliability is a serious drawback of an outcome measure as it indicates errors in measurements. The Cronbach's Alpha for this study was conducted by using scale

measurement of reliability analysis through SPSS version 20 and results of each variable is summarized in the following table.

Table 4.1 Reliability Test

Code	Descriptions of Variables	Cronbach's Alpha	Number of Items
PU	Perceived Usefulness	0.811	3
PEOU	Perceived Ease of Use	0.84	3
SECP	Security and Privacy	0.866	4
CA	Customers Attitude	0.765	3

Source: Own survey,2020

As stated on table 4.1 from the reliability test of independent variables of technology adoption model (TAM) that applied on this study for assessing mobile payment technology adoption using SPSS version 20 perceived ease of use scaled the highest cronbach's alpha (0.84) and relatively attitude of customers scaled the least cronbach's alpha that is 0.765. Generally, the reliability test of all independent variables is acceptable according to Nunnally(1978) research with cronbach's alpha of 0.5 up to 0.9 is acceptable, therefore, the results of this research showed that reliability test of independent variables was greater than 0.7 cronbach's alpha.

Therefore, all the dimensions or independent variables that included in this variable had a Cronbach's alpha that exceeds 0.7 which means the result will be the same if the study is repeated.

4.4 Descriptive Analysis of Variables

The study used descriptive statistic or central tendency, to determine the mean scores of each variable. The study prepared total of 18 close-ended questions for four independent variables and one dependent variable and the mean response for each variable is stated in the next table .The main reason of using this measurement was to demonstrate the average responses of respondents for each predictor variable and the dependent variable.

Thus, the interpretation is made through using the grand mean of each independent dimension for the purpose of achieving partial research objectives of the study. As to the value of measurement scale intervals or range the interpretation was made. If Mean scores 4.51-5.00 excellent or very good,

3.51-4.50 good, 2.51-3.50 average or moderate, 1.51-2.50 fair and 1.00-1.50 is poor (Poonlar:1987) as mentioned and cited by used by Elsa -2014.

Table 4.2 Descriptive Statistics of variables

Variable	N	Minimum	Maximum	Mean	Standard deviation
Perceived Usefulness	385	1	5	3.91	1.010
Perceived Ease of use	385	1	5	3.89	1.075
Security and Privacy	385	1	5	3.72	0.988
Customer Attitude	385	1	5	3.94	1.015
Actual Usage	385	1	5	3.55	1.040

Source own Survey: 2020

As stated on table 4.2

- The mean rating and standard deviation evaluation of respondent's for perceived usefulness was 3.91 and 1.01 respectively. This result indicates that customers' perception towards the usefulness of accepting mobile payment technology for utility bill payment is good as to the interpretation of Poonlar (1987).
- The mean rating and standard deviation of respondents' rating was 3.89 and 1.075 respectively for perceived ease of use. This displayed that the level of perceived ease of use in determining the acceptance of mobile payment technology is good.
- Regarding the security and privacy of mobile payment the mean and standard deviation rating of respondents were 3.72 and 0.988 which also indicates that respondents rated security and privacy as a good variables to determine the actual usage of mobile payment technology
- In connection to attitude of customers the respondents rated their attitude to adopt mobile payment as good with mean values of 3.94 and a Standard deviation of 1.015. This data implied

that customers of CBE have a positive attitude towards accepting mobile payment for utility bill payment.

- Finally, the respondents were asked to level their actual usage of mobile payment technology and there results showed that 3.55 mean value and 1.040. As to the interpretation of Poonlar (3.51-4.50 good) the result revealed that their response to acceptance of mobile payment technology is good.

4.5 Correlation Analysis

A correlation coefficient is a quantitative assessment of that measure both the direction and strength of the relationship between variables. There are different types of correlation but this study used Pearson correlation coefficient. It is also called Pearson product moment correlation coefficient or simply the Pearson r) determines the strength of the linear relationship between two variables. The correlation coefficient will be between two variables. It will be between -1.0 and +1.0. The correlation coefficients close to 0.0 represent a weak relationship. The value of the coefficient (*r*) ranges from -1 up to +1 .The value of coefficient of correlation(*r*) indicates both the strength and direction of the relationship. If the correlation coefficients = -1 there is perfectly negative correlation between the variables. If $r = 0$ there is no relationship between the variable and if $r = +1$ there is perfectly positive relationship between the variables. For values of *r* between +1 and 0 or between 0 and -1, different scholars have proposed different interpretations with slight difference. The research used phrasing rule or the interpretation of r that used by Bartz (1999) . He interpreted the level of relationship based on the value of r as stated in the next table.

Table 4.3: Interpretation of r

Value of *r*	Description
0.80 or higher	Very high
0.6 to 0.8	Strong
0.4 to 0.60	Moderate
0.2 to 0.4	Low
0.2 or lower	Very low

Source: Bartz (1999)

4.5.1 Correlation Analysis of Perceived Usefulness

The study involved 3 specific questions that related to perceived usefulness of mobile payment that coded as PU1,PU2 and PU3 and distributed to 385 respondents. The result of the respondents for Pearson correlation of perceived usefulness is summarized in the following table.

As indicated on the next table, the Pearson correlation for perceived usefulness resulted with value of coefficient of correlation(*r*) 0.717. This showed that there is a positive relationship between perceived usefulness and actual usage of mobile payment technology. The result also showed that the relationship is strong since r is greater than 0.6 as to the description of Bartz if the coefficient of the correlation is 6 to 8 then the relation between the variables is strong Bartz (1999). Therefore there is a positive strong relationship between perceived usefulness and actual usage of mobile technology at significance level of 0.01.

This correlation result is consistent with the results of Alsmydai et al .,(2014) which found a correlation coefficient of r=0.158 and also consistent with that of Nadim and Noorjahan 2008 ($r = 0.29$, $p < .01$) and it is also consistent with published research of Bhatti (2007). This proved that a positive relationship exists between perceived usefulness and technology adoption.

Table 4.4 Correlation analysis of Perceived Usefulness

Correlations

		Perceived Usefulness	Actual Usage
Perceived Usefulness	Pearson Correlation	1	.717**
	Sig. (2-tailed)		.000
	N	385	385
Actual Usage	Pearson Correlation	.717**	1
	Sig. (2-tailed)	.000	
	N	385	385

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS version 20 result of own survey, 2020

4.5.2 Correlation of Perceived Ease of Use

The study involved 3 specific questions that related to perceived ease of use of mobile payment that coded as PEOU1,PEOU2 and PEOU3 and distributed to 385 respondents. The result of the respondents for Pearson correlation of perceived ease of use is summarized in the following table.

As the result of the survey showed on table 4.5, the Pearson correlation for perceived ease of use resulted with value of coefficient of correlation(*r*) 0.772. This showed that there is a positive relationship between perceived ease of use and actual usage of mobile payment technology.

The result also showed that the relationship is strong since r is greater than 0.6 as to the description of Bartz if the coefficient of the correlation is 6 to 8 then the relation between the variables is strong Bartz (1999).

Therefore there is a positive strong relationship between perceived ease of use and actual usage of mobile technology at significance level of 0.01.

The result was found to be consistent with the results of Alsemaydi, (2014), where the value of r= 0.279 , Nadim and Noorjahan (2008 **)** where the coefficient of the correlation , r =0.41, p< .01, and it is also consistent with other published researches (Nukoo et al., 2013; Aladwani, 2002; Mon & Kim, 2000).

Table 4.5 Correlation of Perceived Ease of Use

Correlations

		Perceived Ease of Use	Actual Usage
Perceived Ease of Use	Pearson Correlation	1	.772**
	Sig. (2-tailed)		.000
	N	385	385
Actual Usage	Pearson Correlation	.772**	1
	Sig. (2-tailed)	.000	
	N	385	385

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS version 20 result of own survey, 2020

4.5 .3 Correlation of Security and Privacy

Four specific questions that related to security and privacy of mobile payment were involved and coded as SECP1,SECP2, SECP3 and SECP4 and distributed to 385 respondents. The result of the respondents for Pearson correlation of security and privacy is summarized in the following table.

The result in table 4.6 showed that the independent variable security and privacy had coefficient of correlation 0.800 this means the relationship between security and privacy to actual usage of mobile payment is very high and the direction of the relation is positive. In general, the correlation of security and privacy to actual usage is positive and very high at significance level of 0.01.

The result of this correlation is consistent with the results of Nadim and Noorjahan (2008) that found a correlation coefficient of r=0.76, p< .01. Which indicated that there is a strong positive relationship between security and privacy with actual usage or adoption of technology.

Table 4.6 Correlation of Security and Privacy

Correlations

		Security and Privacy	Actual Usage
Security and Privacy	Pearson Correlation	1	.800**
	Sig. (2-tailed)		.000
	N	385	385
Actual Usage	Pearson Correlation	.800**	1
	Sig. (2-tailed)	.000	
	N	385	385

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS version 20 result of own survey, 2020

4.5.4 Correlation of Customer Attitude

User of mobile payment technology were asked three standardized questions so as to measure their attitude regarding actual use of mobile payment and their response is summarized and correlation test is presented in the next table.

As per the next correlation table, the Pearson correlation value was 0.811 which indicated that the relationship between customer attitude and actual usage of mobile payment is very high and positive.

Therefore, in general the correlation of independent variable i.e perceived usefulness, perceived ease of use, security and privacy and customer attitude showed that all variables had a positive and strong relationship to the dependent variable that is actual usage of mobile payment.

When comparing the result of Pearson coefficient of correlation of the independent variables, the strongest positive relationship existed between customer attitude and actual usage where as relatively there is low positive relationship between perceived usefulness and actual usage of mobile payment technology.

This result of the study is consistent with the findings of Alsmydai et al .,(2014) that founded a correlation value of (0.377 **) and also consistent with results of Nadim and Noorjahan (2008) which

found r = 0.40, p< .01 which indicated a positive relationship existed between attitude of customers and actual usage of a technology.

Table 4.7 Correlation of Customer Attitude

Correlations

		Customer Attitude	Actual Usage
Customer Attitude	Pearson Correlation	1	.811**
	Sig. (2-tailed)		.000
	N	385	385
Actual Usage	Pearson Correlation	.811**	1
	Sig. (2-tailed)	.000	
	N	385	385

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS version 20 result of own survey, 2020

4.6. MULTIPLE LINEAR REGRESSION ANALYSIS

Multiple regressions is a statistical technique through which one can analyze the relationship between a dependent or criterion variable and a set of independent or predictor variable.

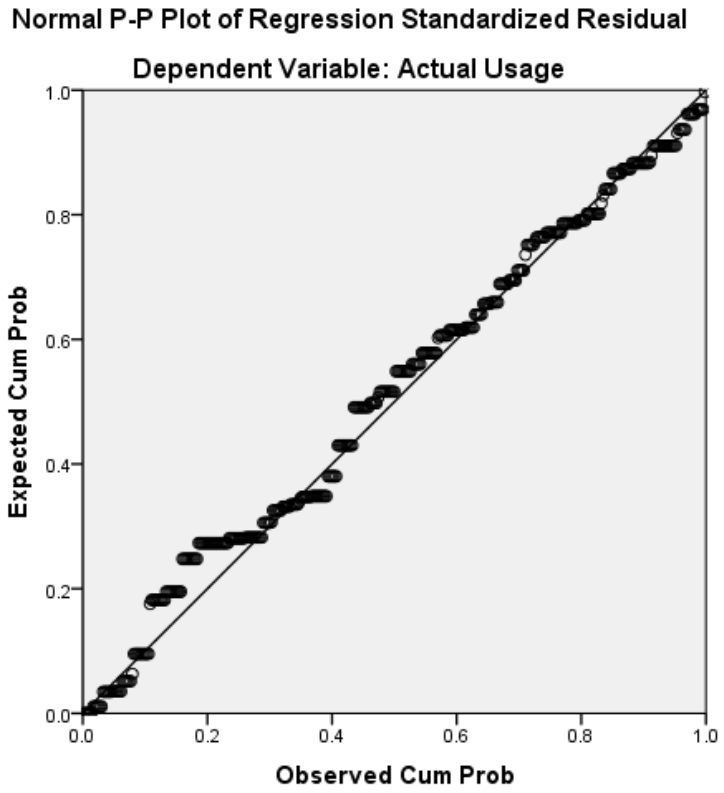
The multiple liner regression analysis allows the prediction of one variable from several other variables. Multiple linear regressions assume that all variables are interval or ratio scaled. In addition, the dependent variable should be normally distributed around the predication line. This of course, assumes the variables are related to each other linearly. All variables should be normally distributed (Pallet, 2005).

One of the SPSS output of the regression analysis is the model summery that includes the R square and the standard of the error term for the model. R Square (called the coefficient of determination) tells you the proportion of the variance in the dependent variable (Actual usage in this case) that can be explained by variation in the independent variables (Perceived usefulness, Perceived ease of use, Security &Privacy and Customer Attitude). The standard Error of the Estimate gives a margin of error for the prediction equation**.**

4.6.1 Test of Normal Distribution of Data

Before conducting the regression analysis first it is better to check whether the data is normally distributed or it is abnormal. There are different ways of checking normal distribution of data but this study used the normal probability plot and the result is depicted in the following figure.

Figure 4.7 Normal P-P plot of regression standardized residual



Based on the above figure the normal probability plot test for this study showed that the residual value is normally distributed because the existing point in the above figure always follow and approach the diagonal line so the regression analysis can be fulfilled or conducted.

4.6.2 Multi Collinearity Test

After the normality of the data in the regression model are met, the next step to determine whether there is similarity between independent variable in a model the study tests the collinearity of the independent variables . The study uses VIF value for the multicollinearity test.

Therefore, as showed on table 4.8 the VIF value of Perceived usefulness, Perceived ease of use, security and privacy as well as customer attitude is 4.071, 5.058, 2.359, 3.235 respectively. The VIF values of the independent variables indicated that there are no multicollinearity symptoms. According to Myers (1990) the VIP result should be less than ten accordingly the value of VIF for the four independent variables are below 10.

This study used SPSS version 20 to assess the cause and effect relationship of independent variables to dependent variable i.e actual usage and the result is depicted on the following table

4.6.3 Determining how well the Model fit

The study determined whether the model fitted the data or not based on the first output table of the regression analysis.

As stated on the model summary, the value of R , the multiple correlation coefficient is 0.877 this indicated a good level of prediction.

The R^2 value, the coefficient of determination is the proportion of variance in the dependent variable that can be explained by the independent variables, therefore as depicted on the model summary the independent variables explained 76.9% of the variability of the dependent variable i.e actual usage of mobile payment technology.

Table 4.8 Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877[a]	.769	.766	.503

a. Predictors: (Constant), Customer Attitude, Security and Privacy, Perceived Usefulness, Perceived Ease of Use

Source: own survey, 2020

4.6.4 Analysis of Regression Coefficients table

The regression analysis for the independent variable against the dependent variable was conducted and the result is summarized in the next table.

As shown in the next table all of the four elements appeared as significant independent variables in the regression model.

The model was written as follows: $Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \ldots\ldots + \beta nXn + \varepsilon$

Where,

Y- Dependent Variable

$\beta 0$- Constant (Coefficient of Intercept)

X1 … Xn - Latent Independent Variables

$\beta 1 \ldots \beta n$- Regression Coefficient of Latent Independent Variables

E - Random Error

Thus to find the impact of predictor on dependent variable the specified regression equation in this study takes the following form: $AU = \beta 0 + \beta 1(PU) + \beta 2(PEOU) + \beta 3(SECP) + \beta 4(CA)$

Where

AU= Actual usage

PU= Perceived Use

PEOU= Perceived Ease of Use

SECP= Security and Privacy

CA=Customer Attitude

As the result of the regression analysis showed on table 4.8 , the standardized coefficient , β value for perceived usefulness was 0.029,it means if other things assumed constant ,for every one unit increase in PU there is an increase of 0.029 in the actual usage. Next, the standardized coefficient or β of perceived ease of use resulted as 0.198 this showed that if other things assumed constant, for each one unit change in PEOU resulted in 0.198 changes in actual usage of mobile payment technology.

The β result for the third independent variable security and privacy was 0.388 which means if other things assumed constant, a change in every one unit in SECP there is an increase of 0.388 units in actual usage of mobile payment technology.

The fourth variable of the technology acceptance model (TAM) that investigated in this study was customer attitude and the result of standardized β for CA was 0.352 which showed that if other things assumed constant, for every one unit increase or change in CA there is an increase or change of 0.352 units in actual usage of mobile payment technology.

Table 4.9 Analysis of Regression Coefficients table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.245	.113		-2.172	.030		
	Perceived Usefulness	.030	.051	.029	.581	.000	.246	4.071
	Perceived Ease of Use	.191	.054	.198	3.560	.000	.198	5.058
	Security and Privacy	.408	.040	.388	10.225	.000	.424	2.359
	Customer Attitude	.360	.045	.352	7.921	.000	.309	3.235

a. Dependent Variable: Actual Usage

Source: own survey, 2020

4.7 Hypothesis Testing

In assessing customers' technology adoption of mobile payment technology the study projected four hypothesizes therefore based on the findings of the study the acceptance or rejection of the hypothesis is determined as follow.

Hypothesis 1: Perceived usefulness has positive effect on customer adaptation of M-payment.

The study finds out that there was a strong positive relationship between perceived usefulness and customer usage of m-payment that is significant at 0.01

Based on the result of the regression analysis, which is statistical technique of modeling the relationship between variables that generally used to test the cause and effect of variables. The standardized

coefficient, β value for perceived usefulness was 0.029 which is positive it means for every one unit increase in PU there is an increase or effect of 0.029 in the actual usage.
Therefore, H_1 is accepted.

Hypothesis 2: Perceived Ease of use (PEOU) has a significant positive effect on usage of mobile payment for utility bill payment

Based on the finding of the research there was strong positive relationship between perceived ease of use and customer usage of m-payment which is significant at 0.01
In addition, the regression analysis showed that standardized coefficient or β of perceived ease of use resulted as 0.198 this showed that if other things assumed constant, for each one unit change in PEOU resulted or positively resulted in 0.198 changes (increase) in actual usage of mobile payment technology.
Therefore, H_2 is accepted

Hypothesis 3: Security and Privacy has positive effect on using mobile payment for utility bill payment.

Results of the correlation analysis depicted that there is a strong positive relationship between perceived usefulness and customer usage of m-payment that is significant at 0.01
And the regression analysis showed that β result security and privacy was 0.388 which means if other things assumed constant, a change in every one unit in SECP there is a positive increase of 0.388 units in actual usage of mobile payment technology.
Hence, H_3 is accepted

Hypothesis 4: Customer attitude has significant positive effect on customer adaptation of Mobile Payment.

The study used correlation analysis and proved that there is a significant positive relationship between customer attitude and actual usage (adoption) of mobile payment significant at confidence level 0.01

And the regression analysis proved that the result of standardized β for CA was 0.35 which showed that if other things assumed constant, for every one unit increase or change in customer attitude there is a positive effect which is an increase of 0.35 units in actual usage of mobile payment technology.

As a result H_4 is accepted

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

Based on the findings of the analyzed data in chapter four, this chapter made a conclusion and recommendation for future research.

5.2 Summary

The major findings of the study are summarized as follow:

- The findings of descriptive statistics revealed that the perception of respondents regarding perceived usefulness, perceived ease of use, security and privacy as well as their attitude on mobile payment technology was good with mean score value equal or greater than 3.55.In addition the descriptive statistics also showed that the level of respondents in accepting mobile payment technology was good. And the standard deviation for all variables showed small dispersion which was less than 1.076
- The reliability test for the variables were more than 0.7 Cronbach's Alpha and the findings of the study showed that all the independent variables; perceived usefulness, perceived ease of use, security and privacy as well as customer attitude has a positive strong relationship with actual usage of mobile payment service.
- The Pearson correlation coefficient showed that there is a strong positive relationship between the four independent variables and the dependent variable.
- The regression analysis showed that perceived usefulness had positive effect on actual usage of mobile payment technology.
- Perceived ease of use had positive effect on actual usage of mobile payment technology
- The security and privacy of the service had positive effect on actual usage of mobile payment technology
- The findings of the research also indicated that customers' attitude had positive effect on the actual usage of mobile payment.

- The result of regression analysis on the independent variables (perceived usefulness, perceived ease of use, privacy and security and customer attitude) with the dependent variable (actual usage) indicates existence of positive and statistically significant relationship between them.
- The study confirmed that the independent variables all together explain 76.9% (R^2 = .769) of variation in the actual usage of mobile payment technology

5.3 Conclusions

The general objective of the study was to assess utility bill collection service system adoption of mobile payment in the case of CBE, hence the study used the technology acceptance model developed by Davis in 1989 and in addition used the variable security and privacy.

In order to address the general objective and to answer the main research questions the study developed four questions hence based on the statistical analysis and findings the following conclusions are drown:

Firstly, regarding how do customers perceive usefulness of utility bill collection through CBE birr (Mobile payment)? .The study concluded that customers have a good perception towards CBE birr mode of payment and bill payment services.

Secondly, concerning how customers perceive ease of use of CBE birr service for utility bill payment? The study found that customers perceived mobile payment as easy to use with more freedom and convenience.

Thirdly, the research asked whether customers think that CBE birr service has Security and privacy to pay their utility bill. Concerning this the study found that mobile payment service has technical capacity to protect and secure financial and private information's of customers.

Finally, with regard to attitude of customers the research showed that customers have positive attitude on using CBE birr services for utility bill payment.

Generally, the acceptance of mobile payment technology for utility bill payment is good and it is determined by; perceived usefulness, perceived ease of use, security and privacy, and attitude of customer that has a strong positive relationship with actual usage of mobile payment for utility bill collection. Since change in one or more of the independent variables affected the adoption of mobile payment technology, the adoption and usage of mobile payment service can be enhanced by focusing and working on the improvement of perceived usefulness, perceived ease of use, security and privacy as well as the attitude of customers on mobile payment technology.

In general, the study successfully ascertained that there is a strong positive relationship between the variables of technology acceptance model and the adoption of mobile payment technology. The most dominant variable that affects actual usage of mobile payment is attitude of customers. The next dominant variable that affects actual usage of mobile payment is security and privacy.

5.4 Recommendations

Based on the findings of the research, so as to improve the actual usage or adoption of mobile payment technology for utility payment the study forwarded the following recommendations.

The bank (CBE) should work more and give focus on the four attributes of mobile payment:

CBE should improve the usefulness of mobile payment so as to create positive perception of customers regarding the service and use it for different banking service. The regression analysis showed that the more the bank improve on the perceived usefulness dimensions , the usefulness of mobile payment for financial transaction and utility bill payment, the more will be the customers adoption and usage of mobile payment technology.

And also, the bank need also to focus on perceived easiness of the M-payment since it has a positive impact on the technology adoption, based on the findings , the more the bank improve on perceived ease of use, providing more freedom and convenience to the service will results in a more improved usage of mobile payment.

Moreover, CBE should also improve the security and privacy of mobile payment since customers are sensitive to their private information. Therefore, improving the privacy or having a more secured service will positively enhanced the actual usage of mobile payment technology

Finally, the bank will also need to improve the attitude of customer regarding the mobile payment technology because it helped to enhance the acceptance of the technology since the findings of this study reveals that the attitude of customer has the most dominant effect next to security and privacy on the adoption of mobile payment .

Generally, the bank should work hard to improve the four variable since the study confirmed that they all together explain 76.9% (R^2 = .769) of variation in the actual usage of mobile payment technology

Implications for future research, in order to generalize the findings, other researches should be conducted since this study was geographically limited to be conducted in the case of Commercial Bank of Ethiopia and used the technology acceptance model future studies should be undertaken in other Banks and financial institutions by applying different theories and models of technology adoptions so as to indicate the determinant factors of technology acceptance in Ethiopia.

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Annex A: Survey Questionnaire

Appendix I

Addis Ababa University School of Commerce

Department Of Marketing Post Graduate Program

A Questionnaire to be filled by Customers (Mobile Payment Users)

Dear respondents,

First, the researcher would like to say thank you, for your kind cooperation to give your honest and accurate response. The study is conducted to fulfill my master's degree in marketing management in Addis Ababa university school of commerce. This questionnaire is prepared for

the purpose of achieving the research objectives .The aim of the research is to assess the utility bill payment collection service through adoption of Mobile Payment Technology.

Filling this questioner is totally on a voluntary basis. Your genuine responses will be used only for academic purpose and all the information you provide will be kept confidential. In addition, all personal data will be treated collectively rather than on personal levels. Your keen participation in supplying the required data is highly essential for successful completion of the study.

The questionnaire may not take more than ten minutes. If you find any problem regarding the questions don't hesitate to contact me on +251918172667 or email me at littleyirga@gmail.com. Please also know that you are free to skip questions or even stop at anywhere if you feel that it is necessary to do so. Please do not write your name.

Thank you in advance for your time and kind cooperation!

Part I: General Information

Please choose one answer that describes your current situation and mark it as (√).

1) What is your gender? 1. Male [ ] 2.Female [ ]

2) Which age category are you?

1. 18-25 [ ] 2. 26-35 [ ] 3.36-45 [ ] 4.46 and above [ ]

3) Which category describes your educational level?

1. Elementary completed [ ] 2. High School Graduate [ ] 3.Diploma [ ] 4.First Degree 5[ ] Masters and above [ ]

4) Which category describes your marital status?

1. Single [ ] 2. Married 3.[ ] Divorce [ ] 4.Other 5. [ ]

5) What is your employment status?

1. Self-employed [ ] 2.Employed 3.[ ] Unemployed [ ]

6) Which category describes your net monthly income?

1.Birr 1,000- 2,000 [ ] 2.Birr 2,001- 4,000 [ ] 3.Birr 4,001- 7,000 [ ]

4.Birr 7,001- 10,000 [ ] 5.Birr 10,001 and above [ ]

Part II: Detail information about the service you choose.

Please indicate your level of agreement or disagreement with each statement by putting "√" mark on one that best fits with your position.

Note: In the following statements, Service ="X" represents the Utility bill payment service through mobile money you choose.

No	Code	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	**PU1**	Mobile payment services are a useful mode of payment.					

2.	**PU2**	I would find it useful to use a Mobile payment for my financial transaction					
3.	**PU3**	Perceived usefulness affect your acceptance of mobile money(CBE-birr)for utility bill payment					
4.	**PEOU1**	Mobile payment gives you more freedom of mobility.					
5.	**PEOU2**	Mobile payment is more convenient to use.					
6.	**PEOU3**	Perceived ease of use affect your acceptance to use mobile money(CBE-birr)for utility bill payment					
7.	**SECP1**	Using mobile money(CBE-birr) services for utility bill payment is secure					
8.	**SECP2**	I feel that my bill information on mobile money(CBE-birr)are private					
9.	**SECP3**	I think that the M-payment system would have sufficient technical capacity to protect my private information					
10.	**SECP4**	I would have a trust in the security measures used by M-payment system to protect my personal and financial information					
11.	**CA1**	I believe I can save time by using mobile payment services					
12.	**CA2**	I would take advantage of mobile money for my transaction activities					
13.	**CA3**	Your attitude affect your acceptance to use mobile money (CBE-birr) services					

		for utility bill payment					
14.	**AU1**	Your acceptance to use Mobile payment is the result of your perceived usefulness					
15.	**AU2**	Your acceptance to use Mobile payment is the result of your perceived ease of access					
16.	**AU3**	Your acceptance to use Mobile payment is the result of its security and privacy					
17.	**AU4**	Your acceptance to use Mobile payment is the result of your attitude					
18.	**AU5**	Factors; Perceived ease of use, perceived usefulness, attitude, security and privacy affect your acceptance to use mobile money (CBE-birr) services for utility bill payment					

Thank you for your valuable time.