

**FACTORS INFLUENCING CONSUMERS' ADOPTION OF
MOBILE COMMERCE IN TANZANIA:**

A CASE OF ILALA DISTRICT IN DAR ES SALAAM REGION

**FACTORS INFLUENCING CONSUMERS' ADOPTION OF
MOBILE COMMERCE IN TANZANIA:**

A CASE OF ILALA DISTRICT IN DAR ES SALAAM REGION

By

Hima .E. Msonge

**A Dissertation submitted in Partial Fulfillment of the Requirements for Award
of the Degree of Master of Science in Economic Policy and Planning (EPP) of
the Mzumbe University**

2017

CERTIFICATION

We, the undersigned certify that we have read and hereby recommend for acceptance by the Mzumbe University, a research entitled “Factors influencing consumers’ adoption of Mobile commerce in Tanzania, a case of Ilala district in Dar es salaam region,” in partial fulfillment of the requirements for the Award of the Degree of Master of Science in Economic Policy and Planning of the Mzumbe University.

.....

Major Supervisor

Internal examiner

.....

External Examiner

.....

Accepted for the Board of.....

DEAN/DIRECTOR, FACULTY/ DIRECTORATE/SCHOOL/ BOARD

DECLARATION AND COPYRIGHT

I, Hima E. Msonge declare that this dissertation is my own original work, and that it has not been presented and it will not be presented to any other University for a similar or any other degree award.

Signature

Date/...../.....

©2017

This paper is a copyright material protected under the Berne Convention, the Copyright Act 1999 and other international enactments, in that behalf, on intellectual property. No part of this research paper may be produced or translated in full or in part, except for short extracts in fair dealings, for research or private study, critical scholarly review or discourse with an acknowledgement, without the written permission of the Mzumbe University, on behalf of the author.

ACKNOWLEDGEMENTS

First and for most, I am highly thankful to my heavenly father for strengthening me throughout this project, for I know it is by his grace that I managed to accomplish this study . Proverbs 3:5 “Trust the Lord with all your heart and lean not on your own understandings” (ESV)

I am highly obligated to my supervisor Mr. Nelson Ngilangwa, his constant support and supervision gave me directions and motivation towards achieving this goal. I am very grateful that he is my supervisor.

My sincere appreciation goes to my family Mr and Mrs Msonge, also my brothers and sisters, Hope Msonge, Haki Msonge, Ezekiel Msonge, Emmanuel Msonge and Angel Msonge as they stood with me in prayers and their encouragement made me thrive throughout this period.

I wish to give my sincere gratitude to Mzumbe University (MU) and the Department of Economics for structuring a curriculum that allows venturing into the real world and exposing the students to other intellectual writings especially science research.

Lastly, my cordial gratitude’s to everyone who took part in supporting me by either distributing my questionnaires or taking time to participate. For it is their support this project came to existence, also my gratitude and appreciation to all those who were directly or indirectly, contributed in the most minute manner, to the structuring of this research.

DEDICATION

I dedicate this work to my dad and mom, Mr. & Mrs. Eliezer Msonge, for laying a strong foundation upon which this work and my many other successes have been built.

My beloved sisters, Hope Msonge, Haki Msonge, and Angel Msonge for their unfailing lasting love, support and care and my beloved brothers, Ezekiel Msonge and Emmanuel Msonge for their ever love, kindness and care given to me in my whole life.

LIST OF ABBREVIATIONS

3G	Three Generation
4G	Four Generation
B2C	Business to Consumer
BI	Behavioural Intention
CLRM	Classical Linear Regression Model
DOI	Diffusion of Innovation Theory
IS	Information System
IT	Information Technology
ITA	Intention to Adopt
M-commerce	Mobile commerce
NBC	National Bank of Commerce
NSSF	National Social Security Fund
OLS	Ordinary Least Square Technique
PDA	Personal Digital Assistants
PEOU	Perceive Ease of Use
PU	Perceived Usefulness
PBC	Perceived Behaviour Control
PT	Perceived Trust
PC	Perceived Cost
SPSS	Statistical Package for Social Science
TAM	Technological Acceptance Model
TCRA	Tanzania Communications Regulatory Authority
TTCL	Tanzania Telecommunications Company Limited
UK	United Kingdom
WAP	Wireless Application Protocol

ABSTRACT

The purpose of this study was to analyze factors influencing consumers' adoption of mobile commerce in Tanzania, a case of Ilala district in Dar es Salaam region. The specific objectives were to determine the relationship between Demographic variables and consumers' adoption of mobile commerce in Tanzania. Determine the relationship between Perceive Ease of Use of m-commerce and consumers' adoption of m-commerce in Tanzania, determine the relationship between Perceive Behavioral Control of m-commerce and consumers' adoption of m-commerce in Tanzania; determine the relationship between Perceive Trust of m-commerce and consumers' adoption of m-commerce in Tanzania and determine the relationship between Perceive Usefulness of m-commerce and consumers' adoption of m-commerce in Tanzania

The study used a cross sectional research design with a sample of 132 respondents who were randomly and purposively selected from a population. A structured close ended questionnaire was used. The collected data were analyzed by logit regression as to determine the relationship between variables and also reliability test was tested to analyze the reliability of the variables

The study identified that, perceived behavioral control and Demographic variables such as age, gender, and marital status were statistically insignificant and negatively influence consumers' intention to adopt M-commerce. Perceived ease of use, perceived usefulness, perceived trust were statistically significant and positively influencing consumers' intention to adopt mobile commerce, while perceived cost was statistically significant with a negative influence towards consumers' intention to adopt M-commerce. The result of this study will guide companies and individuals that offer M-commerce related products in the selection of digital products and in achievement of future commercial opportunities

Mobile operators such as Tigo, Airtel, Vodacom, Zantel, Sasatel, Halotel and TTCL companies should create a high internet Speed so as to eliminate the problem of internet when using mobile commerce, also they must provide convenience and puts these operators at the speedy Wi-Fi and 4G connections

TABLE OF CONTENTS

CERTIFICATION	i
DECLARATION AND COPYRIGHT	ii
ACKNOWLEDGEMENTS	iii
DEDICATION	iv
LIST OF ABBREVIATIONS	v
ABSTRACT	vi
LIST OF TABLES	xi
LIST OF FIGURES	xii
 CHAPTER ONE	1
INTRODUCTON AND BACKGROUND	1
1.1 Introduction	1
1.2 Background of the Research Problem.....	1
1.3 Statement of the Problem	3
1.4 Objectives of the study	5
1.4.1 Main Objective.....	5
1.4.2 The specific objectives are;	5
1.5 Hypothesis formulation of the study	5
1.6 Scope of the Study	6
1.7 Significance of the Study	6
1.8 Organization of the study	7
 CHAPTER TWO	8
LITERATURE REVIEW	8
2.1Introduction	8
2.2. Mobile commerce Definitions	8
2.3Theoretical Review	9
2.3.1Technology Acceptance Model (TAM).....	9
2.3.2 Theory of Planned Behavior (TPB)	10
2.3.3 Diffusion of Innovation Theory (DOI)	11
3.3.3.1 Adoption Segment Categories.....	12

2.4 Empirical Review	14
2.4.1 Factors Influencing Consumers' Adoption of M-commerce	14
2.4.1.1 Demographic Variable	14
2.4.1.2 M- Commerce System Factors	15
2.4.1.2.1 Perceived Ease of Use (PEOU)	15
2.4.1.2.2 Perceived Usefulness (PU)	16
2.4.1.2.3 Perceived Behavioral Control (PBC)	17
2.4.1.2.4 Perceived Trust (PT)	18
2.4.1.2.5 Perceived Cost (PC)	19
2.5 The Conceptual Framework	20
2.6. Mathematical Model of the Conceptual Framework	21
2.7 Research Gap	21
CHAPTER THREE	23
RESEARCH METHODOLOGY	23
3.1 Introduction	23
3.2 Study Location	23
3.3 Research Design	23
3.4 Study Location	24
3.5 Study Population	24
3.6 Sampling Procedures and Techniques.	25
3.6.1 Stratified Sampling	25
3.6.2 Purposive Sampling	25
3.6.3 Sampling Size Determination	26
3.7 Types of data	27
3.8 Data Collection Method	28
3.9 Measurement of Variables	28
3.10 Data Processing and Analysis	28
3.11 Econometric Model and Estimation Technique	29
3.12 Scale Measurement	30

CHAPTER FOUR.....	31
PRESENTATION OF RESEARCH FINDINGS.....	31
4.1 Introduction.....	31
4.2 Socio-Demographic Characteristics of the Respondents	31
4.2.1 Mobile electronic devices usage of the respondents	33
4.2.2 Internet accessibility.....	34
4.2.3 Heard about M-commerce.....	34
4.2.4 Information about Mobile Commerce of the Respondents	35
4.2.5 Credit Card ownership of the respondents	35
4.2.6 Mobile commerce payment system of the respondents	36
4.3 Scale Measurement	37
4.3.2 Reliability Test on the Internal Consistency of the Collected Data	37
4.4 Logit Regression Analysis	38
4.5 Model Specification	39
4.5.1 Model Specification Error.....	39
CHAPTER FIVE.....	40
DISCUSSION OF THE FINDINGS.....	40
5.1. Introduction.....	40
5.2 Summary of Descriptive Analysis	40
5.2.1 Demographic Profile of the Respondents	40
5.3 Logit Regression Analysis	43
5.4 Discussions of Major Findings from the Regression model.	45
5.4.1 Relationship between Demographic variables and consumers’ Intention to adopt mobile commerce in Dar es salaam, Tanzania.	46
5.4.2 Relationship between Education Level and the consumers’ Intention to adopt Mobile commerce in Dar es salaam, Tanzania.....	46
5.4.3 Relationship between Perceived Ease of Use and an Intention of Mobile commerce consumers’ adoption in Dar es salaam, Tanzania.....	46
5.4.4 Relationship between Perceived Usefulness and the consumers’ intention to adopt M-commerce in Dar es salaam, Tanzania.....	48

5.4.5 Relationship between Perceived Behavioral Control and consumers' intention to adopt M-commerce in Dar es salaam, Tanzania.	49
5.4.6 Relationship between Perceived Trust and consumers' intention to adopt mobile commerce in Dar es salaam, Tanzania.	49
5.4.7 Relationship between Perceived Cost and Intention to adopt mobile commerce in Dar es salaam, Tanzania.	51
5.5 Model Specification	51
5.5.1 Model Specification Error	51
CHAPTER SIX	53
SUMMARY, CONCLUSION AND POLICY IMPLICATIONS	53
6.1 Introduction	53
6.2 Summary	53
6.3 Conclusion	54
6.4. Recommendations to policy makers and the government.....	55
6.5 Recommendation to mobile commerce retailers, mobile companies operators and banks.....	55
6.6 Areas for further research.....	56
6.7 Limitation of the study	57
REFERENCES	58
APPENDIX 1	68

LIST OF TABLES

Table 2.1: Operationalization of Terms from the conceptual frame work.....	22
Table 3.1 Frequency distribution of sample size	27
Table 4.1: Respondents' Socio-Demographic characteristics.....	33
Table 4.2 Mobile electronic devices usage of the respondents.....	34
Table 4.3 Internet accessibility	34
Table 4.4 Heard about M-commerce	35
Table 4.5 Information about Mobile Commerce of the Respondents.....	35
Table 4.6 Credit Card ownership of the respondents	36
Table 4.7 Mobile commerce payment system of the respondents	36
Table 4.8 KMO and Bartlett's Test	37
Table 4.10: Reliability Statistics	37
Table 4.11 Result of Reliability Test	37
Table 4.12 Logit Regression Analysis Output	39
Table 4.13 The Linktest for model specification error	39
Table 5.1 Discussions of Major Findings from the Regression model.....	45

LIST OF FIGURES

Figure 2.1: Technology Acceptance Model (TAM)	10
Figure 2.2: Theory of Planned Behavior (TPB).....	11
Figure 2.3: Categories of adopters	13
Figure 2.4: Conceptual Framework.....	20

CHAPTER ONE

INTRODUCTON AND BACKGROUND

1.1 Introduction

This chapter covers background information of the research problem, statement of the problem, research hypothesis, general objective, specific objectives, scope and significance of the study.

1.2 Background of the Research Problem

Due to the development of technology, the spread of internet worldwide over the decade has been so fast in a very short time. Even though the internet was discovered in the 1960's (Al-Maghrabi et al (2011), it was mainly used to build robust, fault-tolerant communication via computer networks. It was until the mid-1990's whereby, its usage and application in e-commerce started being sophisticated effective (Doherty & Ellis-Chadwick 2010). But originally the phase mobile commerce was invented by Kevin Duffeyin 1997 at the presentation of the global Mobile Commerce Scene, meaning the conveyance of electronic commerce skills straight into the consumer's hand, anyplace, through wireless equipment.

According to Al-Maghrabi et al (2011) in 1991 there were less than three million users of the internet worldwide and none of them was involved in M-commerce activities. Due to the speediness and effectiveness of the internet, technical corporations recognize the opportunities that it would bring if it was effectively used to serve customers. It is by then attempts to develop website to serve customers from home began (Rayport & Sviokla, 1994). In 1999 the number of internet users increased to about 250 million users and among those, 63 million involved in online transactions.(Ellis-Chadwick & Gbadamosi, 2016).

According to the Internet World statistics the world population in 2016 was estimated to be 7,340,159,492 and on June 2016 the number of internet users worldwide increased to 3,675,824,813 people compared to December 2000 where by 360,985,492 people were the internet users, and a penetration of 50.1% of the population and the growth of 918.3% from 2000 to 2016 Therefore, the world is

interconnected and also the growth of the internet is increasing yearly thus no former network in the whole universe, getting individuals so close to each other, individuals so close to business rather than the internet.

According to the Internet World statistics (2016) the African population was 1,185,529,578 (2016 estimates) which makes about 16.2% of the world population. The internet latest data as per June 2016 shows that 340,783,342 Africans are the internet users with a penetration rate of 28.7% of the African population and the growth of 7,448.8% (2000-2016). Therefore, African internet usage is not lacking behind with 9.3% compared to other continents in the world of the users of the internet, since the internet advancement is increasing yearly henceforth there is no other network in the sphere, that makes African people to be interconnected to the world rather than the internet.

According to independent web analytics company Statistics Counter (2016), it was recorded that Internet usage by mobile and tablet devices exceeded desktop worldwide for the first time in October 2016. Global statistics Counter through its research arm, reveals that mobile and tablet devices accounted for 51.3% of internet usage worldwide in October 2016 compared to 48.7% by desktop. Also in African context it was revealed that mobile and tablet devices accounted for 82.34% of internet usage compared to 17.66% by desktop from 2015 to 2016. The interesting part is, in developing economies like Tanzania, where the mobile phone and tablets devices is increasing its usage for connecting to the internet, it was recorded that mobile and tablets accounted for 64.34% of internet usage compared to 35.66% by desktop (2015-2016). Therefore the usage of internet through mobile devices is increasing while that of desktop is diminishing yearly, meaning that people are connected on the palm of their hands.

As anticipated many individuals and different industries and business zones are using the internet. Separately from connectivity, there is a great amount of other forecasts coming along with it. The internet is used to expand, or even supplant, product and services delivery processes (Mashagba, 2013). An online transaction is not any different from other business areas as mobile commerce itself transaction in general

is extremely information-intensive. Therefore information technology (IT) has an increasingly important role in m-commerce, especially when directly accessible by the m-commerce customers. (Khalifa & Shen, 2008)

Currently, Mobile commerce (M-commerce) has turned into the modern trend to conduct business instead of electronic commerce (e-commerce) in the previous time (Hsieh, 2017). M-commerce is assumed to have more opportunities, faster access, more powerful, more effective and absolutely accessible anytime, anywhere for its users. Different from e-commerce, m-commerce is conducted and connected wirelessly through the use of mobile devices (Khalifa & Shen, 2008). This is the greatest advantage of m-commerce. So, m-commerce can offer better ubiquity and accessibility to its users as compared to e-commerce. Definitely, m-commerce is argued to be truly able to provide higher levels of customization anytime and anywhere (Mashagba, 2013)

Ho and Lee, (2017). States that “M-commerce have grown and are predicted to continue rising into the future”, although many scholars have predicted an increase in the M-commerce, but yet it is not necessary that all technological advancement of M-commerce in Tanzania to have a successful capture of consumers’ adoption towards M-commerce. This research aims at providing solution to M-commerce developers by accessing the factors influencing consumers’ adoption of M-commerce in Tanzania. The technological Acceptance Model (TAM), Theory of Reasoned Action (TRA) and the Diffusion of Innovation (DOI) Theory was helpful in accessing the factors influencing consumers’ adoption of M-commerce in Tanzania and the problems limiting the adoption of M-commerce.

1.3 Statement of the Problem

It is evident that M-commerce is believed to be the upcoming huge phase in technology participation after the E-commerce epoch. Mobile commerce is valued to \$230 billion, in Asia it represented nearly half of the market, and was forecasted to reach US\$700 billion in 2017. According ABI intelligence in January 2013, 29% of mobile users made a purchase with their phones. Walmart estimated that 40% of all visits to their internet shopping site in December 2012 were through mobile devices

by European and U.S. shopper in 2015. Mobile retailers in UK alone were expected to increase revenues up to 31% in financial year 2013-2014. This is different in the case of Tanzania since the government of Tanzania have not involved in the prediction of the estimates on the users of mobile commerce, therefore this brings about the idea that M-commerce is not a big deal in Tanzania compares to other developed countries like UK, European and US countries.

In Tanzania, despite the fact that there are several mobile operators such as Tigo, Airtel, Vodacom, Zantel, Sasatel, Halotel and TTCL companies which are upgrading networks to the 3G and 4G standards, making efforts in satisfactory coverage in major metropolitan areas and providing consumers with content, still the adoption and usage of the mobile commerce technology has been disappointing, particularly M-commerce service (Di Castri, & Gidvani., 2014).

On the other hand, little is known in Tanzania concerning the m-commerce, while mobile commerce is experiencing rapid growth in terms of capabilities of mobile devices, services, applications, standards and network implementation (Sugianto et al., 2014). However, this rapid development of mobile technology and the emergence of M-commerce models are reflected comparatively low in M-commerce adoption rate in Tanzania. Since, most of the previous research on the use of the Internet does not focus on the factors influencing consumer's adoption of mobile commerce.

In developed countries such as Japan and South Korea M-commerce have been observed to have more potentials compared to developing countries like Tanzania. (Wong and Hiew, 2014). The adoption of technologies such as 3G and 4G are still relatively low in Tanzania when compared to these developed countries (Wei et al., 2015).

With the blast and expansion of the wireless networks and technology such as 3G (Third Generation) and 4G (Forth generation) M-commerce is becoming a new problem in Information System (IS) research agenda. Therefore the study investigated the factors influencing the adoption of M-commerce users, analyzes their attitudes towards M-commerce technology and their likeliness to use such technology.

1.4 Objectives of the study

1.4.1 Main Objective

The primary objective of this study is to assess the factors that influence consumers' adoption of mobile commerce in Tanzania.

1.4.2 The specific objectives are;

- a. To determine the relationship between demographic variables of the consumers like age, education, gender and marital status with consumers' adoption of M-commerce in Tanzania
- b. To determine the relationship between M-commerce system factors such as Perceived ease of use, Perceived Behavioral Control, Perceived Usefulness, Perceived Cost and Perceived Trust with consumers' adoption of M-commerce in Tanzania.

1.5 Hypothesis formulation of the study

Constructed from the theoretical model developed, this study proposed the following hypotheses with regard to the adoption of m-commerce in Tanzania.

Hypothesis 1

H₀; Demographic variables of the consumers has a negative relationship with the intention of consumers' adoption of M-commerce in Tanzania.

H₁; Demographic variables of the consumers has a positive relationship with the intention of consumers' adoption of M-commerce in Tanzania

Hypothesis 2

H₀; M-commerce system factors such as Perceived ease of use, Perceived Behavioral Control, Perceived Usefulness, Perceived Cost and Perceived Trust has a negative relationship with the intention of consumers' adoption of m-commerce

H₁;M-commerce system factors such as Perceived ease of use, Perceived Behavioral Control, Perceived Usefulness, Perceived Cost and Perceived Trust has a positive relationship with the intention of consumers' adoption of m-commerce

1.6 Scope of the Study

The study was conducted in Dar es Salaam region because Dar es Salaam is one among of the growing and mature business center in Eastern Zone of Tanzania. The city is highly accessible and this made the researcher also assume that it could assist in the easy collection of data for the study. Only one district was selected to undertake the study because Ilala District is at the center of Dar es salaam and most of online business organizations like kyme, Jumia market are found in Ilala District.

1.7 Significance of the Study

The findings from this study will help to identify the factors that influence consumers' adoption of m-commerce in Tanzania; which will improve the community's understanding of the adoption and the use of mobile commerce, which will increase entrepreneurs' and merchants performance as well as service quality. Therefore it will also add to the literature on adoption of mobile commerce in academic environment and will suggest possible ways through which the use of internet as mobile commerce will be improved.

This research will provide different opportunities to small and medium-sized enterprises in overcoming part of their technological, environmental, and organizational managerial inadequacies. Since mobile commerce is a cost saving tool for business through the lack of physical infrastructures and overheads, therefore this study will help building customer relationship that allows retailers to understand their customers hence delivering customer satisfaction as to build customer loyalty toward the business. Which will also act as a tool of boosting up sales and creating new markets to business since mobile commerce offers a global consumer base to any sizes of businesses. Furthermore, this study will also help business attains operational effectiveness through narrowing their distribution channels since everything will be done on the palm of consumers' hand

The study will help the decision makers to come up with good and amazing planned decision and solutions, which will provide usable information to the policy makers on either to improve the m-commerce system or to improve entrepreneurs and merchant services in general to customers

1.8 Organization of the study

The study consisted of six chapters, the first chapter included background of the problem, statement of the research problem, objectives of the study, hypothesis formulation, scope of the study and the significance of the study.

Chapter two included both theoretical and empirical literature review as well as conceptual framework of the study where the review of different literatures like journals, books, magazine and online related articles were done and come up with theories and different variables that were used in the study. The study make use of three theories which were Technological Acceptance Model (TAM), Theory of planned behavior (TPB) and the Diffusion of Innovation Theory (DOI). From these three theories the study adopted six variables which were used in the study which are Demographic variables (Age, gender, education level and marital status), Perceived ease of use (PEOU), Perceived Usefulness (PU), Perceived behavioral control (PBC), Perceived trust (PT) and Perceived cost (PC).

Chapter three includes methodology that was used in the study from the research design, model formulation and population and samples techniques. While chapter four presented the research findings by using tables.

Chapter five was discussed based on the findings that were presented from chapter four by the support of other findings from similar studies. Chapter six makes a summary of the whole journey of the study, conclusion and the recommendations that were drowned from the study

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature review refers to the interpretation of a selection of published and/or unpublished document available from various sources on a specific topic that optimally involved summarization, analysis, evaluation and synthesis of the documents, The literature review process is subject to threats to validity as would be any other study (cooper et al, 1998; Dellinger et al, 2007). This chapter deals with information from different readings done towards consumers' adoption of M-commerce and related topics including different journals publications, text books and online literatures. This chapter includes an introduction of M-commerce, different theories and models guiding the research, including the Technological Acceptance Model (TAM), Theory of Planned Behavior (TPB), Diffusion of Innovation Theory (DOI), Empirical review and conceptual framework

2.2. Mobile commerce Definitions

Mobile commerce this refers to business exchange done via an assortment of movable devices through a wireless telecommunication system in a wireless location (Barness & Stuart, 2002), these wireless devices includes wireless application protocol (WAP), equipped mobile phones, Personal Digital Assistants (PDA), enabled internet PC with wireless contactability

Mobile commerce (M-commerce) is refers to buying and selling of goods and services through wireless handhold devices such as mobile phones and Personal Digital Assistance (PDA) (AbuBakar and Osman, 2011).

M-commerce is derived from e-commerce, because it has an additional feature from e-commerce. In relations to e-commerce, mobile commerce refers to the business to consumer (B2C) model (Wong et al, 2008). In precise, Louis (2001) categorized mobile B2C by containing the features below

One of the most important element of M-commerce is a wireless data conveyance service. Common services are weather and sports reports, road traffic reports and conditions, monetary update, stock portfolio trailing, stock prices, and mobile manual support.

Mobile commerce dealing usually involves instant arrangements for an individual to conduct. Example of typical m-commerce business include purchasing of tickets, buying of products from vending machines through wireless gadgets, and trading of shares

Mobile commerce advertisement purposes tend to put an awareness to the shop users as well as special sells offers based on the consumers' localities

2.3Theoretical Review

Theories guiding the study

There are several theories associated with an adoption of new technology like mobile commerce. Therefore Technological Acceptance Model (TAM), Theory of Planned Behavior (TPB) and Diffusion of Innovation Theory (DOI) was used in guiding this study.

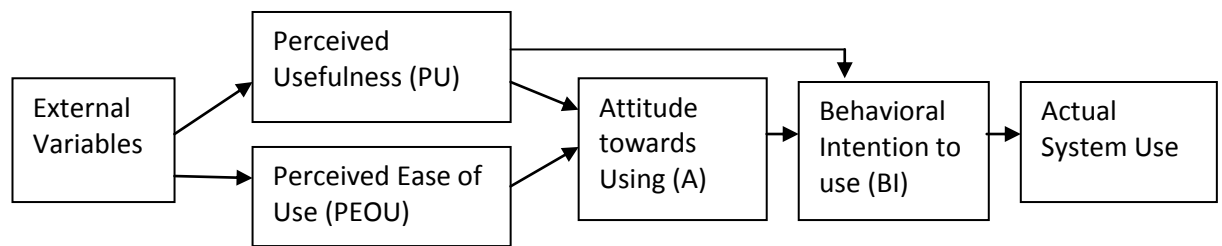
2.3.1Technology Acceptance Model (TAM)

TAM was originally advocated by Davis (1989). It embraces two views, the Perceived utilities and the Perceived ease of use, which decide attitudes to adopt new technologies. The attitude towards adoption will decide about the adaptors' positive or negative behavior in the future regarding new technology.

It is a standout amongst the most utilized theories in Information System literature. Two views which are Perceived Usefulness and Perceived Ease of Use foresee attitudes, which thusly influence intended use of a technology. This intention then consequently impacts behavior of tangible system practicability. Perceived Usefulness is how much a user thinks a technology would improve performance or efficiency in the work put. Perceived Ease of Use is a level of absence of efforts required by the user in adopting a given technology. Perceived Ease of Use also have an impact on Perceived Usefulness (Davis et al., 1989).

Technology Acceptance Model (TAM) was guiding this study because both Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) which are among of the independent variables of this study were borrowed from this theory.

Figure 2.1 Technology Acceptance Model (TAM)



Source: Technological Acceptance model (Devis, et al., 1989)

2.3.2 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) was originally anticipated by Ajzen (1991). This is an addition of the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1975). This theory is about the association between the opinions and human's behavior (Shih and Fang, 2004) for circumstances where individuals have inadequate volitional mechanism. This recommends that an essential feature in a behavior of a human is behavioral intention, which intend to be affected by the attitude toward behavior, Perceived Behavioral Control and Subjective Norm. Ajzen (1991).

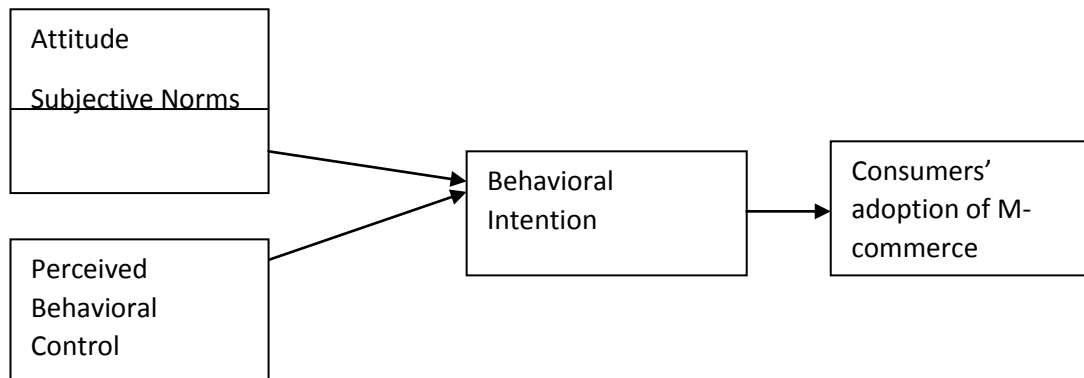
The Theory of Planned Behavior expresses that behavioral intention to execute an action is uttered by attitude, perceived behavioral control, and subjective norm (Ajzen, 1991; Fusilier and Durlabhji, (2005). TPB emphasizes more on social and individual factors which influence the adoption of a new technology (Khalifa and Shen, 2008).

Perceived Behavioral Control (PBC) reveals a person's view how ease or difficult in executing the behavior concerning the new technology. It deals with the beliefs concerning the existence of mediating factors that will result into a hindrance or enabling an individual towards performing a behavior. The applicability of TPB is

shown by various studies and scholars concerning different content fields (Ajzen, 2001). This theory echoes how a person perceive the external and internal constriction to their behavior. It also discusses the simplicity or difficulty a person believes it would be to perform certain behavior (Ajzen, 1985).

This theory is also guiding the study because it enlarges an understanding base of mobile commerce adoption by consumers, Hence Perceived Behavioral Control (PBC) which is one of the independent variable of the study was extracted from this theory

Figure 2.2 Theory of Planned Behavior (TPB)



Source: Theory of Planned Behavior (Ajzen and Fishbein, 1975)

The figure 2.2 elaborates that the behavior of an individual is resulted from the intention to execute a specific behavior first, after executing the behavior the new intention will be a result of three vital aspects portrayed by Ajzen (1991): 1-attitude headed for a behavior, 2.-subjective norms on the view of a person about normative opinions of other customs connected to a behavior, and 3- perceived behavioral controls, or the factors believed to be obliging or enabling a person's behavior.

2.3.3 Diffusion of Innovation Theory (DOI)

This is another theory which has acknowledged comparable devotion by most intellectuals in explaining the behavior of a consumer that is heading to a new technology. This theory is also known as the Rogers' Innovation Diffusion Theory (Rogers. 1995). Innovation refers to as “a knowledge, practice or a thing that is

perceived to be new by a person or on additional element of adoption, while diffusion is linked through certain channels over time among the participants of community system” (Rogers, 1995). From these definitions, Innovation diffusion is attained by a means in which a community receives and start practicing (adopting) a new notion or a new technology.

In addition Roger elaborated some features of any innovation which are: *Relative Advantage* ;is the degree to which an innovation is seeing of improved compared to the succeeded practice; *Compatibility*: The magnitude to which using (adopting) the innovation is well matched with what a person organize; *Complexity*: The level to which an innovation is observed as comparatively tough to know and use; *Trialability*: The magnitude of an experimental innovation with the altered narrow foundation before attempting an adoption (or denial) of a choice; and *observability*; the glassy to which the result of an innovation are noticeable to others (Roger, 1995)

3.3.3.1 Adoption Segment Categories

Technology (Invention) adoption timelines normally ranges from days, weeks decades or even longer for other individuals subjected to the characteristics and innovation of that market. Adopters are normally categorized into one among the five categories which are; Innovators, early adopters, the early majority, the late majority and the leggands (Rogers, and maddux 1983)

Innovators This group comprises of very few individuals that tend to pursue new technology violently. These kind of people normally use and purchase the new technology out of pure interest of that technology. .

Early adopters, this group of people tend to gain paybacks that are derived from a technology. These people have builds a behavior of adopting the technology when they are assured that the benefit gained from a technology matches their expectations, needs and wants. Both early adopters and innovators make decisions on whether to adopt or reject the technology based on the information that they get from the newscast channels

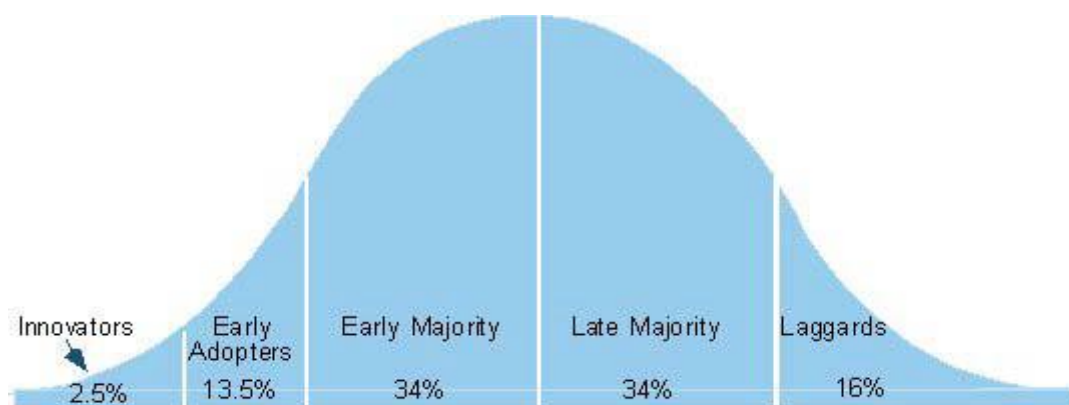
The **early majority** this classification of adopters usually have an interest on a technology but they will not use the technology until they are sure about the technology into meeting their expectations or desires. Meaning that they will not adopt just because the technology is been exposed to them, but they want a reference with a technology themselves (Work with, talk with, know about). They are different from the early adopters and innovators because the early majority requires different transformation efforts and different level of effort than attracting the innovators and early adopters.

Late majority: They kind of adopters they normally adopt new notion and ideas doubtful. Like an ordinary colleague of a system. Usually for them to use and adopt the technology they need extra external force from the peer or friends concerning the new technology, they will then adopt only if the technology will match their economic expectations or necessity.

The leggard: This group of adopters are usually the last people to adopt the technology, they usually pays a little or no attention on the people's opinion about the technology. By the time they tend to choose to adopt an innovation usually the innovators of the system might probably introduce another notion or technology

The five segments of the adopters can be seen from the belly shaped curve of frequency.

Figure 2.3: Categories of adopters



Source: Rogers and Maddux (1983) Diffusion of Innovation

This theory guides the study because it tends to explain the adoption categories that clearly supports with the demographic characteristics of the respondents towards adoption of new technology especially age of the respondents.

2.4 Empirical Review

This refers to a sequence of research methods where by empirical opinions or data are gathered to find solutions to specific research questions. They are mostly used in academic research, though they can also be convenient in replying to practical questions. (Moody, 2002)

2.4.1 Factors Influencing Consumers' Adoption of M-commerce

There are several determinants (factors) influencing consumers' adoption of mobile commerce, but this study will concentrate on Demographic variables, Perceived ease of use (PEOU), Perceived usefulness (PU), Perceived Behavior control (PBC), Perceived trust (PT) and Perceived cost

2.4.1.1 Demographic Variable

Different studies such as (Hernandez et al., 2011; Chinn and Fairlie, 2006, Alduaij and Al-Amari, 2016) revealed the demographic variable of the consumers as mediating factor towards the consumers' intention to adopt and use of new technologies M-commerce being one of them. Age of the consumers has been revealed to have a positive influence towards adoption of the new technology, the youth are likely to intent to adopt and use mobile commerce compared to the elderly group (Dai and Palvia, 2008; Alduaij and Al-Amari, 2016).

Gender is also demographic variable and it was included in different literatures concerning internet and mobile commerce. In various studies shows that male and female have different perspective concerning the adoption of new technology and it reveals that male are likely to adopt and use new technology compared to female because male usually use internet for purchasing and downloading while females usually use internet for communication and messaging (Yang 2005, Igbaria and Chakrabarti 1990, Teo 2001)

Educational level of the consumers has been revealed to have a positive significant relationship with the intention to adopt mobile commerce. Chinn and Fairlie (2006) and Kim (2004) come up with the result of people with high educational level were likely to use internet especially mobile commerce services than those with low educational level, because those with high educational level might have more knowledge and better understanding of computer and mobile devices which motivates them towards the usage of mobile commerce services.

Marital status of the consumers was also included in most of the m-commerce research agenda because it is one among of the demographic variable. Married and unmarried (single) people have different internet usage pattern, married people tend to use internet for purchasing while single people tend to use internet for messaging and communication (Yang 2005). Therefore most of the literatures come up with the conclusion that demographic variable of the user have a positive influence towards intention to adopt and use new technology.

2.4.1.2 M- Commerce System Factors

2.4.1.2.1 Perceived Ease of Use (PEOU)

The Perceived Ease of Use for a system refers to as the point in which a person believes on using a certain technology to be free from effort. (Davis, 1989). In M-commerce adoption, it includes easier to use M-commerce in a business transaction, easy to use internet in the wireless devices (mobile phones, PC, tablets), Knowledge of IT that affects M-commerce usage and minimum internet problem. Therefore Perceived Ease of Use is stayed to be incorporated as an essential factor mobile commerce adoption (Davis, 1989; Li et al., 2007; Wei et al., 2009; Bhatti, 2007).

In this PEOU is the point where a user assumes that the system is friendly to them. According to Davis, (1989); postulated that a person may consider a useful in an application, but at the same time a person might also discover the difficulty to use a system. PEOU is reflected as a significant factor towards past information technologies' adoption such as intranet (Chang, 2004), 3G (Liao *et al.*, 2007), online banking (Guriting and Ndubisi, 2006; Jahangir and Begum, 2008), wireless internet (Lu *et al.*, 2003), internet commerce (Cho *et al.*, 2007) and lately mobile commerce

(Lin and Wang, 2005; Wang and Barnes, 2007; Kurnia *et al.*, 2006; Mallat, 2006; Luarn and Lin, 2005). Various earlier observed readings shows that perceived ease of use has a positive influence towards adoption of mobile commerce (Khalifa and Shen, 2008, Kim & Garrison, 2009; Wi *et al.*, 2009). Many consumers consider PEOU as an important factor as most of the users are merely common citizens who are not essentially skillful in a technology.

Several previous empirical readings reconfirmed perceived ease of use to have a positive influence towards adoption of mobile commerce (Wei *et al.*, 2009; Khalifa & Shen, 2008; Kim & Garrison, 2009) Therefore, PEOU reflects previous studies which have verified ease of use as a highest factor of consumers' intention to adopt mobile commerce (Agarwal & Karahanna, 2000). Some reveals out that Perceived Ease of Use creates an exploiting facilitating effect. It is one of the major behavioral beliefs influencing user intention to technology acceptance in both original and the edited TAM models. Moreover, an individual who perceive M-commerce technology to be easy to use will have positive attitudes towards using M-commerce.

2.4.1.2.2 Perceived Usefulness (PU)

Perceived Usefulness is a projecting factor that is commonly used in clarifying consumer behavior headed for a new technology (Hong *et al.*, 2008). Davis, (1989) postulated that, Perceived Usefulness of a system is the degree to which a person assumes on the improvement of their work put by using a new technology. Hence perceived usefulness can influence the consumers' intention to accept and adopt mobile commerce either directly or indirectly. Garrison *et al.*, (2009) and Khalifa & Shen, (2008) claimed concerning the Information Systems and M-commerce which offers suggestion on the important influence of Perceived Usefulness towards adoption intention. Henceforth it is crucial to embrace perceived usefulness in the model of this study.

Various observed literatures (Wei *et al.*, 2009; Khalifa & Shen, 2008; Kim & Garrison, 2009) has provided supportive evidence on Perceived Usefulness as a main forecaster of the adoption of M-commerce. Wei *et al.*, (2015), has measure the most significant features of the adoption of M-commerce and moreover shows how mobile

commerce can support the consumers to accomplish their related intentions, effectively and efficiently.

According to Mao *et al*(2005), in their study "Overcoming barriers to the successful adoption of mobile commerce in Singapore" discovered the significant reasons that affect the usefulness, ease of use and users' intention towards the usage of innovative mobile phone services for payments. The results showed a positive relationship between Perceived Usefulness and the consumers' intention to use mobile services.

Gitau and Nzuki (2014), in their study portrays that PU plays an important character in affecting the consumers' intention of accepting a technology. This portrays an increase of consumers' accepting to use mobile commerce only if when mobile commerce meets their desired goals by finding it useful. This is due to the immediacy and ubiquity which are uniqueness features of a mobile commerce system, in which consumers can attain immediate information and transact anytime and anyplace. The additional useful of mobile commerce to the online consumers will likely to use and adopt the mobile commerce technology.

2.4.1.2.3 Perceived Behavioral Control (PBC)

From the Planned Behavior theory (TPB) PBC was viewed as an individual's ideas of how tough or easiness it is to perform a particular conduct. The vital factor of consumers' intention towards adoption of mobile commerce is perceived behavior control because it decreases the confidence, perception of control, and simplicity in performing a behavior. (Pavlouet.al, 2007).

A significant number of researches in mobile commerce have emphasized much on the significance of Perceived Behavioral Control by demonstrating its influence on key dependent variables (Pavlouet al., 2007; Pedersen, 2005; Khalifa & Shen, 2008).Pedersen (2005) further discussed that PBC comprises of individual constraints which include and are not limited to economy, experience and skill in service usage. Also, Perceived Behavioral control has been shown to have an effect on key dependent variables such as intention and behavior in a variety of domains (Ajzen 1991).

2.4.1.2.4 Perceived Trust (PT)

Rousseau *et al* (1998) defined trust as “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another”. Trust was also defined by Cho *et al.* (2007) as “buyer-seller relationships as the perception by a prospective buyer of credibility and benevolence in the target of trust”. Perceived trust is one among of the important notion that have an influence towards consumer’s behavior on what to choose concerning the m-commerce attainment (Wei *et al.*, 2009). Perceived Trust is also a crucial logical feature in clarifying the existing technology of m-commerce adoption literatures (Cho *et al.*, 2007; Wei *et al.*, 2009). In count of the importance of trust enables customers in overcoming the insights of risk and uncertainties, which in turn builds suitable satisfactory opportunities that are enactment towards the anticipated paybacks (Gefen, 2000, McKnight *et al.*, 2002).

Trust is the most important phenomena in mobile commerce environment but yet it seems to be complex compared to the traditional shopping (commerce), this is because of uncertainty raised from mobile commerce environment as well as information asymmetry (Lu &Wei., 2003; cho *et al.*, 2007). In mobile commerce environment normally sellers and buyers complete their transactions without physical contact with each other. Due to this phenomenon the consumer tends to get worried about their personal information as well as their finance (money) that the third party might acquire them without their concern. (Luarn and Lin, 2005).Consumers’ assurance concerning a system’s security and privacy may significantly influence the mobile commerce usage and adoption. Therefore In this study, trust is referred as the level to which a person has a confidence concerning the use of m-commerce to be secure without any privacy threats.

Perceived Trust thus is a significant concept that touches the behavior of a consumer which then decides the accomplishment of the adoption of M-commerce (Wei *et al.*, 2009). It is a vital forecaster which describes the adoption in various studies concerning with the adoption of an existing technology example. (Wei *et al.*, 2009; Cho *et al.*, 2007,Sadi&Noordin, 2011). From the study conducted by (Cho *et al.*,

2007) reveals the importance of trust in building appropriate satisfactory opportunities that will push consumers to attain their desired goal towards technology usage. From an exploratory study of the factors influencing adoption of M-commerce discloses that trust was an identified key predicting factor that influences mobile commerce adoption. A related study that was done by Mashagba (2013) exposed an effect of risk, security and trust towards the adoption of M-commerce. Therefore this study suggests a positive influence of perceived trust towards the usage and adoption of m-commerce. Hence, it is crucial to include perceived trust into the model of this study.

2.4.1.2.5 Perceived Cost (PC)

Perceived cost is a point that a person consider the use of a technology to be expensive. Cost is vital in both delivery and setting up of the services derived from M-commerce. Cost can cause a decrease in the growth of a new technology. Cost contains the initial's hand set buying price, subscription fee, ongoing usage cost, service fee, communication fee and upgrading or maintenance fee. Hong *et al.*, (2008) and Wei *et al.*, (2009) in their study concerning the adoption of m-commerce, acknowledged cost as one among of the factor and reason that affect the adoption rate of mobile commerce negatively.

Cost is a vital factor that helps in the prediction on mobile commerce usage (Li *et al.*, 2007). Anil *et al.*, (2003) extort cost to bean influencing factor towards the mobile commerce usage. Muthaiyah (2004) conveyed a turn in obtaining an effective mobile technology diffusion level which entails a minimum of a certain income level.

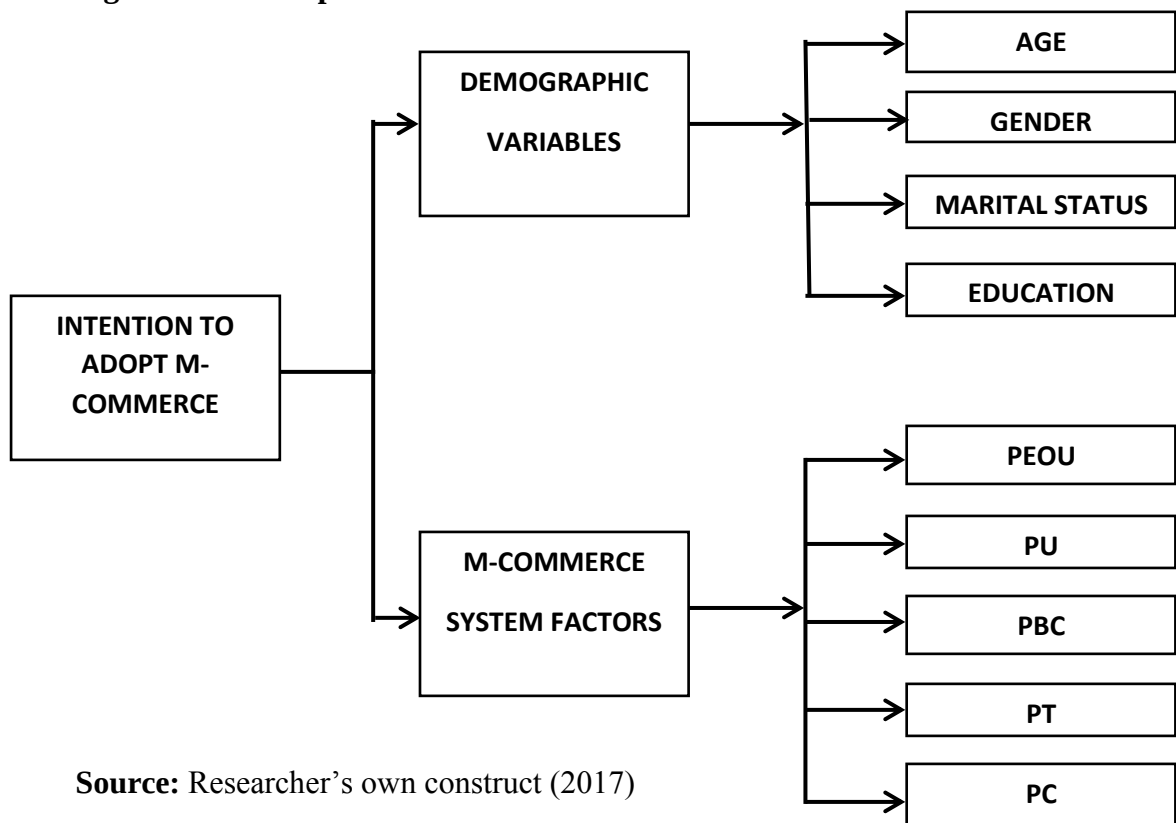
This study proposes a positive effect of perceived cost towards mobile commerce adoption. Therefore it is essential to include Perceived Cost into the model because Perceived Cost has been recognized as one of a significant element for consumers' decision of whether to adopt or reject M-commerce.

2.5 The Conceptual Framework

This study undertook an effort to understand different factors that influence consumers' adoption of mobile commerce in Tanzania so as to unveil the factors causing sluggish consumers' intention towards adoption of mobile commerce

The study shows that M-commerce is accessible via wireless devices like a computer with wireless access capacity, wireless tablets or a mobile phone. M-commerce allows consumers to make purchasing transactions such as paying for goods and services bought or sold. Technological acceptance Model (TAM), Theory of Planned Behavior (TPB) and Diffusion of Innovation Theory (DOI) were used for the framework of this study that prepared a comprehensive model so as to observe the influencing factors towards the consumers' adoption of M-commerce in Tanzania. The factors which are independent variables in this study are; Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Perceived Behavioral Control (PBC), Perceived Trust (PT) and Perceived Cost (PC). The dependent variable for this study is the consumer's Intention to adopt (ITA) M-commerce in Tanzania.

Figure 2.4: Conceptual Framework



Source: Researcher's own construct (2017)

From the above figure of the conceptual frame work, Individuals are probably to adopt a technology if the perception of adopting new technology is high (Rodgers, 1995). If individuals' perception towards ease of use, usefulness, cost, trust and behavioral control in using m-commerce has a positive attitude compared to negative attitude then there is a higher likely hood of being adopted. That is reason as to why the frame work portrays the relationship between one independent variable and the dependent variable.

2.6. Mathematical Model of the Conceptual Framework

$$ITA = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu_i$$

Where ITA is the Intention of consumers to adopt mobile commerce, X_1 X_2 , X_3 , X_4 , X_5 , X_6 , X_7 and X_8 . respectively means Age, Gender, Marital status, Education, Perceived Ease of Use, Perceived Usefulness, Perceived Behavioral Control, Perceived Trust and Perceived Cost. While β_0 , β_1 , β_2 , β_3 , β_4 , β_5 , β_6 , β_7 and β_8 are parameters (Intercept) of the independent Variables. In operational each independent variable is used in relation with the dependent variable *ceteris Paribas*, while μ is stochastic error term of this regression model

2.7 Research Gap

Anthony and Mutalemwa (2014) analyzed factors influencing the use of mobile payments in Tanzania, their study focused much on the payment system using mobile devices. Most studies stress much on the values preposition in m-commerce exploring service provider and uses perceptions in Sweden, in that study it provides empirical data on perceptions of value proposition in m-commerce from the suppliers as well as publishers that offer mobile services (Akesson, 2013). Most of the researches done on m-commerce in Africa put much emphasize on comparing mobile phone money transfers users by different countries like Ghana, Tanzania and South Africa (Quartey 2012) Therefore this study is different from other studies that have been done on mobile commerce since it concentrates on factors influencing consumers' adoption of mobile commerce in Tanzania while most studies stress much on internet as general.

Table 2.1: Operationalization of Terms from the conceptual frame work

Variables	Description of Variables	Indicators	Levels of measurement	Measurements of tools
Consumers' intention to adopt mobile commerce (ITA)	Usage of Mobile commerce in Tanzania	Willing and intent to use Mobile commerce	Interval Scale	a) Yes b) No
Perceived ease of use (PEOU)	Beliefs of customers that using mobile commerce would be free from effort	a) Frequently and fast internet access b) Career motivation usage of mobile commerce in any electronic mobile devices	Interval Scale	Five points Likert scale 1.Strongly disagree 2.Disagree 3.Nither agree nor disagree 4.Agree 5. Strongly agree.
Perceived behavioural Control	Social system of customers in the adoption of mobile commerce	a) Persistence change in technology b) Comfort ability in usage if mobile commerce c) Enjoyable in the usage mobile commerce	Interval Scale	Five points Likert scale 1.Strongly disagree 2.Disagree 3.Neither agree nor disagree 4.Agree 5. Strongly agree.
Perceive usefulness (PU)	Believes of customers that there is benefit in the usage of mobile commerce	a) Conducting trade with mobile commerce transactions. b) Mobile commerce organizers provides with accurate information about all of one's transactions	Interval Scale	Five points Likert scale 1.Strongly disagree 2.Disagree 3. Neither agree nor disagree 4.Agree 5. Strongly agree.
Perceived Trust	Trust associated with consumers usage of mobile commerce	a) Security to personal transactions or payments of goods and services. b) Confidentiality towards mobile commerce c) Supportive government laws towards internet hackers	Interval Scale	Five points Likert scale 1.Strongly disagree 2.Disagree 3.Neither agree nor disagree 4.Agree 5. Strongly agree.
Perceived Cost	Extent to which an individual believes that using a mobile commerce technology is costly	a) The prices of product on the internet b) The cost of the mobile devices and tablets c) The cost of the broadband services and wireless bundles	Interval Scale	Five Points Likert scale 1.Strongly disagree 2.Disagree 3.Neither agree nor disagree 4.Agree 5. Strongly agree.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on research methodology approach used in gathering data. According to (Kumar & Phrommathed, 2005), Research methodology is the path taken by a researcher in finding answers to research questions.

This chapter contains the methodology that was used in this study, which includes research design, study location, study population, sampling techniques and sampling size determination, data collection, data processing and analysis.

3.2 Study Location

This study covered Dar es Salaam Region particularly Ilala District. It covered the Mzumbe University Dar es Salaam campus (representing students), Kayme and Kikuu workers (representing private organization) and Kariakoo shops owners (representing business people and entrepreneurs). Dar es Salaam region is accompanied with major universities who have different kind of students, staffs and non-academic staffs where by some, are entrepreneurs and some purchase their goods for personal consumptions like cell phones, cars, computers and many others staffs whose purchase and transactions are likely to be done using mobile commerce, so this population was useful in accomplishing the objectives of this study.

3.3 Research Design

A research design is the organization of situations for data collection and analysis in a way that aims at associating importance purpose of research with low cost system (Selltiz et al, 1962). The conceptualized structure containing the conducted research is also referred to as Research design; it establishes the outline for data collection, data measurement and data analysis. This design contains a sketch of what to be done by the scholar from the hypothesis writing to its implications' operational for the final data analysis (Kothari, 2004)

This study made use of cross sectional research design because it examined more than one group of people of different ages at one point in a time over a short period. It is also inexpensive and quick to conduct a cross sectional design than any other research design therefore in this study cross sectional design was appropriate.

3.4 Study Location

The study covered Dar es salaam region, Mzumbe University of Dar es salaam campus (students), Kayme and kikuu customers and workers, entrepreneurs and Kariakoo business people (representing self-employed), NBC workers (representing workers) . Dar es salaam region especially Ilala district is accompanied with different kind of people who are students, staffs, workers and entrepreneurs where by some purchase their goods for personal consumptions like cell phones, cars, computers, wedding accessories, and many others staffs while others purchase their goods for business purpose whose purchase and transactions are done through wireless internet especially mobile commerce, there are some of entrepreneurs and workers who have a knowledge of mobile commerce and some even tend to use mobile commerce, so this population was helpful in accomplishing the objectives of this study.

3.5 Study Population

Population is a group of individuals or item that share one or more characteristics from which data can be gathered and analyzed.

The targeted population was the University students, entrepreneurs and workers of Ilala district in Dar es Salaam region who seems to be users of mobile commerce systems and the internet as well. For the sake of time and cost, samples of Mzumbe University students of Dar es Salaam campus, entrepreneurs (Kariakoo business people),NBC workers (Headquarter), both workers and customers of Kayme and kikuu in Dar es Salaam region was used to provide information needed to accomplish this study.

3.6 Sampling Procedures and Techniques.

Sample involves representative of the population selected to help in obtaining information needed for the researched topic. Stratified sampling and purposive sampling was more useful in obtaining samples from a targeted population. The stratified sampling was used to select the sample in different groups from a specified population and purposive sampling was used to identify the targeted groups to be used as a study case from a given population

A non-probability sampling method was used to select entrepreneurs, students and workers because not all members of this population had a chance of participating in the study. But rather the non-probability sampling was adopted in this study due to the accessibility of the respondents and the personal judgement of the researcher whereby for the sample to be selected the sample must have a knowledge of mobile commerce or in one way or another have heard about mobile commerce

3.6.1 Stratified Sampling

Crossman (2007) defined stratified sampling as a probability sample technique in which the researcher divides the entire target population into different subgroup or strata and then randomly selects the final subjects proportionally from the different strata. This type of sampling is used when a researcher wants highlight specific subgroups within the population and the strata should not overlap since it will give some individuals a higher chance of being selected as subjects in the sample. Therefore, in this study stratified sampling was used whereby the targeted population was divided into different strata or groups of individuals for easy data collection and also to get data from each group and know how each group from the population perceive mobile commerce.

3.6.2 Purposive Sampling

Crossman (2007) also defined purposive as the one that is selected based on the knowledge of a population and the purpose of the study. It is also called judgmental sampling. By studying the deviant cases, researchers are often interested in studying extreme or deviant cases for this case they can often gain a better understanding of the more regular patterns of behavior.

In this study purposive sampling was used in a way that purposively from many universities and many workers and entrepreneurs in Dar es Salaam only one university and few workers and entrepreneurs was used from which numbers of respondents was selected purposively due to easy communication and residential location. This study used purpose sampling because the researcher had a specific purpose in mind of collecting information from the respondents of mobile commerce whereby the researcher had more specific predefined groups who seemed to have an awareness or knowledge concerning mobile commerce. Also during the field the researcher stood by the door of the Kyme and Jumia offices at Kariakoo and run into various people who were coming in and out of these offices in order to collect data from these respondents.

3.6.3 Sampling Size Determination

In research, there is a great need of identifying the sample size because a researcher cannot be able to obtain information from the targeted population and thus is why there should be determined of a sample size to represent the targeted population. In this study the targeted population of students were 50 university students, 50 workers and 100 entrepreneurs and business owners from Ilala district in Dar es salaam region which makes a total of 200 targeted population in general, therefore to get exactly sample to be used in the study the Krejcie and Morgan's (1970) formula was put forward as it provided the best way of obtaining the sample size and the population

$$S = \frac{X^2 NP (1-P)}{d^2 (N-1) + X^2 P (1-P)}$$

Where;

S= required sample size.

N= the population size.

P= the population proportion (assumed to be 0.50 since this would provide the Maximum sample size).

d= the degree of accuracy expressed as a proportion (0.05).

X^2 =the table value of chi-square for 1 degree of freedom at the desired confidence level 3.8416 (this means $1.96 \times 1.96=3.8416$)

$$\begin{aligned}
 S &= \frac{3.8416 \times 200 \times 0.5 (1-0.5)}{(0.05)^2 (200-1)^2 + 3.8416 \times 0.5 (1-0.5)} \\
 &= \frac{192.08}{0.4975 + 0.9604} \\
 &= \frac{192.08}{1.4579} \\
 &= 132
 \end{aligned}$$

Therefore the required sample size of this study was 132 respondents.

Table 3.1 Frequency distribution of sample size

Group	Number of Sample	Sample size in Percentage
Entrepreneurs (Kariakoo business owners)	46	35%
Kayme and kikuu workers	26	20%
Mzumbe students (Dar es salaam campus)	20	15%
NBC staff members (Headquarter)	13	10%
Kikuu and Kayme customers	20	15%
Others	7	5%
TOTAL	132	100%

Source: Researcher's own construct (2017)

3.7 Types of data

Both primary and secondary data were used in collecting information needed to accomplish the objective of the study.

The primary data are those which are collected afresh and for the first time, and thus happen to be original in character (Kothari, 2004). Direct observation is needed so as to make information or data reliable, the data can be collected through interviews, questionnaires prepared by researchers and observation.

The secondary data, on the other hand, are those which have already been collected by someone else and which have already been passed through the statistical process (Kothari, 2004). This includes information or data obtained from organizational

websites and reports, academic books, reviewed journals, newspaper and other readings.

3.8 Data Collection Method

In this study, a questionnaire was used as the source of data collection. The questionnaire can be defined as a written set of questions that are given to people in order to collect facts and opinions about anything (Merriam-Webster Online Dictionary). Questionnaire as a method of data collection helps in reducing some cost and being very advantageous to the respondents since they were free to give information without being condemned by anybody. Other sources of data collection are documentaries from different literatures and journal concerning similar study.

3.9 Measurement of Variables

The questionnaires prepared are in the form that all variables related to factors influencing consumers' adoption of Mobile commerce in Dar es salaam, Tanzania are clearly shown with specified questions. The independent variables are Demographic variables, Perceived Ease of Use (PEOU), Perceived Usefulness, Perceived Behavioral Control (PBC), Perceived Trust (PT), Perceived Cost (PC) and the dependent variable is the Intention to adopt (ITA) Mobile Commerce in Dar es salaam, Tanzania.

3.10 Data Processing and Analysis

Logit regression model was used in the data estimation technique. Therefore after data collection, the questionnaire was reviewed and the well filled one were identified. The data from questionnaires was entered into statistical software (SPSS) and STATA in which logit regression analysis was used so as to assess the relationship between independent variables and dependent variable. The data are expressed in tables, graphs and charts.

3.11 Econometric Model and Estimation Technique

The dependent variable of this study is a binary response values ranging from 0 to 1. Indicating 1 if a consumer intent to adopt M-commerce, and 0 if a consumer does not intent to adopt M-commerce. Therefore the Logit regression model can be presented by the general equation as;

$$p_t = E(y = 1/x_t) = \beta_1 + \beta_2 x_t \dots\dots\dots (i)$$

Where

Pt= is the Probability of intention to adopt M-commerce

β's= Coefficients of the independent variables

Xt= Independent variable

$$p_t = E(y = 1/x_t) = \frac{1}{1 + e^{(\beta_1 + \beta_2 x_t + \dots \beta_n x_n)}} \dots\dots\dots (ii)$$

e=the base of natural logarithm

Due to the exposition case the equation (ii) is written as;

$$p_t = \frac{1}{1 + e^z} = \frac{e^z}{1 + e^{-z}} \dots\dots\dots (iii)$$

Where $Z_t = \beta_1 + \beta_2 x_t + \dots\dots\dots \beta_n x_n$

Pt ranges between 0 and 1. In the equation (ii) Pt is nonlinear in both x and β's. Therefore from this equation the familiar OLS procedures cannot be used to estimate the parameters. To solve the problem of nonlinear there is an important of linearize the parameters to fit the study's variables. If Pt is the probability of intention to adopt M-commerce then(1-Pt) is the probability of not intent to adopt mobile commerce. Therefore From equation (iii) the following equation is been formulated

$$1 - P_t = \frac{1}{1 + e^{z_t}} \dots\dots\dots (iv)$$

Equation (iv) can be written as;

$$1 - P_t = \frac{1}{1 + e^{Z_t}} \dots\dots\dots \text{.. (iv)}$$

Now, $\frac{P_t}{1 - P_t}$ is the ratio in favour of intending to adopt M-commerce. Meaning that this is the ratio of the probability that a consumer will intent to adopt M-commerce to the probability that the consumer will not intent to adopt M-commerce. Then a natural logarithm is been introduced from the equation (v) and this is been shown as below;

$$L_i = L_n \left(\frac{P_t}{1 - P_t} \right) = Z_t \dots\dots\dots \text{(vi)}$$

Where by $Z_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots\dots\dots \beta_n X_n$

$$L_i = L_n \left(\frac{P_t}{1 - P_t} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots\dots\dots \beta_n X_n + \mu \dots\dots\dots \text{(vii)}$$

Therefore from the above perspective this study develop the model that is used throughout the analysis as shown below

$$\text{ITA} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu_i \dots\dots \text{(viii)}$$

3.12 Scale Measurement

Reliability

Reliability can be explained as “the instrument used to measures the repetition of the research findings”, the study used Cronbach’s alpha to measure the reliability because the Cronbach’s alpha is a test for survey’s internal consistency. Also, it is called a scale reliability test. Furthermore, it is a measure of how well each individual items in a scale correlates with the remaining items.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents detailed research results and discussions based on the research objectives of the study. The study specifically aimed at assessing the relationship between Perceive Ease of Use of m-commerce and consumers' adoption of m-commerce in Tanzania; assessing the relationship between Perceive Behavioral Control of m-commerce and consumers' adoption of m-commerce in Tanzania; assess the relationship between Perceive Trust of m-commerce and consumers' adoption of m-commerce in Tanzania, and assessing the relationship between Perceive Usefulness of m-commerce and consumers' adoption of m-commerce in Tanzania.

4.2 Socio-Demographic Characteristics of the Respondents

The study involved the sample of 132 respondents from Ilala district in Dar es salaam region. Among the 132 respondents there were entrepreneurs from kariakoo shop owners, students, Kayme and Kikuu workers, government staffs and non-governmental workers

The frequency of the male respondents was 69 and that of female respondents was 63. As shown in figure 4.1 below, the males represented (52.3%) of the sample and the females represented the remaining (47.7%) of the sample. Proportionate representation ensures that both genders have an equivalent opportunity to voice their stance with respect all aspects of the constructs of mobile commerce and indeed with regards to this comprehensive research.

Based on the data collected, most of the respondents ranked from 25-34 years of age with a frequency 38 respondents and very few ranks above 45 with a frequency of 30 respondents and 35-45 of age with a frequency of 30 respondents while the age group of 18-24 had a frequency of 34 respondents.

The study findings reveals that, most of the respondents ranked were single with a 35.6% with a frequency of 47 respondents and very few were divorced with 18.9%, and a frequency of 25 respondents, while for married ranked 24.2% with a frequency of 32 respondents and that of widow/er ranked at 21.2%. With the frequency of 28

Most of the respondents had a bachelor degree which was 25.8% with a frequency of 34 respondents, followed by diploma with 23.5% with the frequency of 27 respondents. The least was primary education with 13.6% and a frequency of 18 respondents, followed by masters to a PhD degree with a 19.7% and a frequency of 26 respondents. The remaining was a secondary education with 17.4% and a frequency of 23 respondents.

The findings shows that, most of the respondents were self-employed and employed which account for 28% with a frequency of 38 respondents, followed by students, which accounted for 24.2% with a frequency of 32, the least was unemployed people, which accounted for 18.2% with a frequency of 24 respondents.

Table 4.1: Respondents' Socio-Demographic characteristics

Characteristics	Frequency	Percentage
Gender		
Male	69	52.3
Female	63	47.7
Total	132	100
Age		
18-24	34	25.8
25-34	38	28.8
35-45	30	22.7
Above 45	30	22.7
Total	132	100
Marital status		
Single	47	35.6
Married	32	24.2
Divorced	25	18.9
Widow/er	28	21.2
Total	132	100
Education level		
Primary	18	13.6
Secondary	23	17.4
Certificate/Diploma	31	23.5
Bachelor	34	25.8
Masters/PhD	26	19.7
Total	132	100
Employment status		
Student	32	24.2
Employed	38	28.8
Unemployed	24	18.2
Self employed	38	28.8
Total	132	100

Source: Researchers' survey (2017)

4.2.1 Mobile electronic devices usage of the respondents

Table 4.2 shows the ability of the respondent to use mobile electronic devices. Based on the data collected, most of the respondents had an ability to use mobile electronic devices which account for 81.8% with a frequency of 108 while those who had no ability of mobile electronic device usage accounted for 18.2% with a frequency of 24. Therefore, this indicates that most of the respondents had a knowledge on the usage of mobile electronic devices.

Table 4.2 Mobile electronic devices usage of the respondents

Mobile electronic usage	Frequency	Percentage (%)
Yes	108	81.8
No	24	18.2
Total	132	100

Source: Researchers' survey (2017)

4.2.2 Internet accessibility

Table 4.3 shows that most of the respondents based on the data collected, were from the environment that supported internet thus account for 76.5% with a frequency of 101 respondents and those who had no internet access accounted for 23.5% with a frequency of 31 respondents. This is because the sample was conducted in a city and a busy town in Dar es Salaam region.

Table 4.3 Internet accessibility

Internet accessibility	Frequency	Percent
Yes	101	76.5
No	31	23.5
Total	132	100.0

Source: Researchers' survey (2017)

4.2.3 Heard about M-commerce

Table 4.4 shows that most of the respondents based on the data collected, heard about mobile commerce more than thrice, which account for 47.7% with a frequency of 63 respondents, followed by those who heard about mobile commerce at least thrice accounted for 31.1% with a frequency of 41 respondents, the remaining were those who heard about online shopping at least once which accounted for 21.2% with a frequency of 28 respondents. Therefore most of the respondents were aware of mobile commerce as most of the respondents had heard about mobile commerce several times.

Table 4.4 Heard about M-commerce

Heard about M-commerce	Frequency	Percent
Once	28	21.2
Twice	41	31.1
more than twice	63	47.7
Total	132	100.0

Source: Researchers' survey (2017)

4.2.4 Information about Mobile Commerce of the Respondents

Table 4.5 shows that most of the respondents based on the data collected, acquired most of the information about mobile commerce from friends and peer which accounted for more 30.3% with a frequency of 40 respondents, followed by social media which accounted for 27.34% with a frequency of 36 respondents. Few respondents acquired most of the information from public media which accounted for 20.5% with a frequency of 27 responds, while some respondents acquired most of the information about mobile commerce from school or college and office with a 22% and a frequency of 29 respondents

Table 4.5 Information about Mobile Commerce of the Respondents

	Frequency	Percent
public media	27	20.5
social media	36	27.3
friends and/peer	40	30.3
school/college or office	29	22.0
Total	132	100.0

Source: Researchers' survey (2017)

4.2.5 Credit Card ownership of the respondents

Table 4.6 shows that most of the respondents based on the data collected, those who owned a credit card accounted for 43.9% with a frequency of 51 respondents, while the remaining do not own credit card accounted for 56.1% with a frequency of 74 respondents. Therefore most of the respondents do not own a credit card.

Table 4.6 Credit Card ownership of the respondents

Credit card ownership	Frequency	Percent
Yes	58	43.9
No	74	56.1
Total	132	100.0

Source: Researchers' survey (2017)

4.2.6 Mobile commerce payment system of the respondents

Table 4.7 shows that most of the respondents based on the data collected, had never bought using mobile commerce which accounted for 29.5% with a frequency of 39 respondents, followed by those who use credit card payment system during their mobile commerce activities which accounted for 23.5% with a frequency of 31 respondents, The findings also reveals that few mobile commerce consumers used debit card payment system with a 13.6% and a frequency of 18 respondents. Followed by those who use cheques and cash payment during their mobile commerce transactions with a 16.7% and a frequency of 22 respondents respectively, followed by those who use debit card which accounted for 9.09% with a frequency of 12 respondents .The remaining who used cash accounted for 18.18% with a frequency of 24 respondents.

Table 4.7 Mobile commerce payment system of the respondents

	Frequency	Percent
Credit card	31	23.5
Debit card	18	13.6
Cash	22	16.7
Cheques	22	16.7
never bought using M-Commerce	39	29.5
Total	132	100.0

Source: Researchers' survey (2017)

4.3 Scale Measurement

Table 4.8 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.870
Approx. Chi-Square		3217.991
Bartlett's Test of Sphericity	Df	435
	Sig.	.000

Source: Researchers' survey (2017)

According to table 4.8 above, the Bartlett's Test of Sphericity showed that the data variables obtained after the data reduction process were significant (0.000) to measure the dependent variable. Therefore these data were significantly capable of explaining the independent variable in relation to the dependent variables in supporting the model in this study.

4.3.2 Reliability Test on the Internal Consistency of the Collected Data

Table 4.10: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.735	.719	6

Source: Researchers' survey (2017)

Table 4.11 Result of Reliability Test

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PEOU	95.1667	229.835	.640	.709	.641
PU	95.4091	246.427	.657	.608	.643
PBC	95.8939	233.409	.719	.749	.620
PR	94.1439	339.361	.024	.379	.810
PC	92.3106	330.109	.127	.358	.777
Demographic Variables	93.9318	226.415	.736	.659	.611

Source: Researchers' survey (2017)

The rule of thumb for the reliability test is that 0.7 or higher suggests good reliability and may be acceptable if between 0.6 and 0.7. Based on the results in Table 4.9 and table 4.10, perceive ease of use, perceive usefulness, perceived trust, perceived behavioral control and Demographic variables recorded excellent reliability with Cronbach's Alpha of 0.641, 0.643, 0.620, 0.810, and 0.611 respectively.

4.4 Logit Regression Analysis

Logit Regression analysis was performed purposely to observe the relationship between one independent variable with a dependent variable, also to observe an exactly level of significant each estimated value would meet the collected data. The logit regression results reveals that education level of the respondents, Perceived Ease of Use (PEOU), Perceived Usefulness (PU), and Perceived Trust (PT) were statistically significant with a positive relationship with Intention to adopt (ITA) Mobile commerce. Perceived Behavior Control (PBC) is statistically insignificant with a positive coefficient relationship towards Intention to adopt mobile commerce, while Perceived cost is statistically significant with a negative coefficient influence towards intention to adopt mobile commerce in Tanzania.

In this study the binary choice logit model was applied in the estimation of the parameters for the factors influencing consumers' adoption of mobile commerce in Ilala district Dar es salaam region in Tanzania. The Pseudo R-square value showed that 53% of the variation of the factors influencing consumers' adoption of mobile commerce in Ilala district Dar es salaam region Tanzania was explained by all of the independent variables that were included in the model while 46.96% are the rest of the variables that were not included in this model. As portrayed in the table below

Table 4.12 Logit Regression Analysis Output

Independent variables	Estimated Results of Logit Model		
	Coefficient	Std. error	Marginal Effects
Gender (Female)	0.6182295	0.7852906	0.0161201
Age	-0.0356325	0.0326624	-0.000929
Marital status	-0.2907947	1.06863	-0.0073087***
Education	-4.38969	1.68059	-0.0470774**
Perceived ease of use (PEOU)	2.9298271	1.160147	0.0599208***
Perceived usefulness (PU)	-2.601325	0.602898	-0.067822
Perceived Behavior Control (PBC)	2.027588	1.698797	0.0528635
Perceived Trust (PT)	-0.9456695	0.3191603	0.0246556***
Perceived Cost (PC)	-1.021925	0.4477718	-0.0266437*
Constant	1.635422	3.444662	
Number of observations			132
LR chi2(9)			66.39
Prob>chi2			0.0000
Log Pseudo likelihood			-29.392059
Pseudo R ²			0.5304

Note: Dependent variable (ITA) = 1 (Intention to Adopt), 0 (otherwise), *p<0.1 **p<0.05 ***p<0.001

Source: Logit Regression Estimation from Survey Data (2017)

4.5 Model Specification

4.5.1 Model Specification Error

After logit regression was conducted a link test was tested, as illustrated in table 4.18 below the probability ($P > |t|$) of $_hatsq$ is 0.790 which is equivalent to 79.% thus there is no problem of model specification bias which shows that the model is well specified since the probability of $_hatsq$ is more than 10%

Table 4.13 The Linktest for model specification error

ITA*	Coef.	Std. Err	Z	P> z	[95% Conf.	Interval]
$_hat$	0.9587457	0.2614415	3.67	0.000	0.4463297	1.471162
$_hatsq$	-0.0220911	0.0828045	-0.27	0.790	-0.1843848	0.1402027
$_cons$	0.031977	0.3659315	0.09	0.930	-0.6852355	0.7491895

ITA* denotes Intention to adopt

Source: Study results (2017)

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1. Introduction

In this chapter the key findings were introduced as they were analyzed in chapter four on the factors influencing consumers' adoption of M-commerce, where by nine independent variables were tested against the dependent variable of intention of the people of Dar es salaam towards adoption of M-commerce. Therefore, this chapter will analyze the main findings with respect to the theories and empirical findings undertaken by the previous researchers in comparison of this study in detail

5.2 Summary of Descriptive Analysis

5.2.1 Demographic Profile of the Respondents

From the descriptive analysis of the demographic profile of the respondents, the respondents who answered the questionnaire of this study, they were both male and female whereas male respondents counted for 52.3% and that of females was 47.7%, in which the study acknowledge on gender equality to get the reliable results for both male and female towards intention to adopt M-commerce. Therefore the gender contributes equally in the intention to adoption mobile commerce in Dar es Salaam Tanzania

The result displays that most of the respondents were from age group of 25-34 years with the frequency of 38 respondents and that of age group of 18-24 with 25.8%, and very few were from the age group of above 45 years and that of 35-45 years. Thus, from these statistical findings describes that the youth have knowledge of mobile electronic devices than the older group, since most of the respondents had a knowledge skills of mobile commerce usage, which indicated that 81.8% had a knowledge of mobile electronic devices usage whereas the remaining 18.2 had no knowledge skills of mobile electronic devices usage.

High participation on using mobile electronic devices which later leads to behavioral intention to adopt M-commerce by the age group of 18-24 and 25-34 who can be termed as early adopters as explained from the Diffusion of Innovation theory (DOI), who escalates the prospective paybacks of a technology as they see that its paybacks equals to their own wants and expectations (Rogers 1995) the pressure and interests in technology from the young generation. Also, the age group of above 45 and that of 35-44 years old are slower in adopting and using mobile electronic devices like smartphones or tablets. This might be the fact that the mobile electronic devices together with its utilities and functions might be challenging for the customers to use, which intend leads to low responses from this age set, from the diffusion of innovation theory term these kind of people as “leggands” who traditional are the last individuals to adopt the technology because of little attention that they pay from people about the technology, and when they made up their mind to go about the technology usually the innovators of the system might have probably introduce another new technology or notion (Rogers, 1995). Moreover, the most important element most of the research is demographic variable particularly the younger adults (McCloskey and Leppel, 2010), because these people are easily embraced by the use of mobile devices as well as new technologies for their activities daily.

The results showed that single and married people are more likely to be influenced in the usage of M-commerce than devoiced or widow/er since the single respondents accounted for 35.6%, followed by married 24.2%, then widow/er 21.2% and the remaining divorced 18.9%. This is likely more of a social factor than any other factor

Also most of the respondents leaves in the location with internet accessibility than those living in the locations that are out of internet accessibility, therefore those who were from the location with internet accessibility accounted for 101 respondents and those who were from the location without internet accessibility accounted for 31 respondents thus these respondents who are from the location with internet accessibility they are likely to be influenced in the adoption of M-commerce than those living in the location without internet accessibility. This is due to the fact that the study was conducted in Ilala district Dar-es-Salaam region, Dar es salaam is a

most rapidly growing city in Tanzania with rapidly infrastructure and communication development than any other regions in Tanzania.

Most of the respondents had a bachelor degree, diploma holders and masters to PhD level of education while few had primary, and secondary level of education, therefore this indicates that educated people are likely to use M-commerce than those with low education level. The survey showed that most of the respondents were self-employed and employed who account for 28.8%, followed by students, 24.2% and the remaining were unemployed 18.2%, this indicates that most of the self-employed (entrepreneurs and business people) and those employed were likely to use M-commerce than students and those who were unemployed.

Also, most of the respondents do not own a credit card who accounted for 56.1%, while those with credit card accounted for 43.9%, Therefore this shows that in Tanzania the issue of credit card is not much common compared to other developed countries. thus most who are the users of mobile commerce used more on other payment system like cheques, cash, debit card than credit card payment system, since those who used cash and cheque payment system accounted for 16.7% and those whose payment system was through credit cards accounted for 23.5% and those whose payment was through debit card were 13.6%

The results also reveals that some of the respondents never bought online using mobile commerce who accounted for 29.5%, therefore this confirms that most of the respondents are aware about mobile commerce since most of the respondents heard about mobile commerce several times or more than thrice were 47.7% while few respondents heard about mobile commerce a least twice were 31.4% and even fewer heard atleast once who accounted for 21.2%, the reasons as to why they never tried to bought online were tested from four variables of perceive ease of use, perceive usefulness, perceived behavioral control and perceived trust against the consumers' intention towards mobile commerce adoption.

5.3 Logit Regression Analysis

Using binary logit Regression Model, the coefficients of the variables were estimated, from the estimated output of logit regression the pseudo R^2 was 0.5304 which implies that 53.04% of the variation in the intention to adoption mobile commerce in Dar es Salaam was explained by nine independent variables from this study. Education level of the respondents, PEOU, PU (Perceived Usefulness), Perceived Trust (PT) and perceived cost (PC) established a significant relationship with consumers' intention to adopt mobile commerce, while Gender of the consumer, Age of the consumer, marital status of the consumer and PBC (Perceived Behavioral Control), have insignificant negative relationship towards consumers' intention to adopt mobile commerce in Dar es salaam.

The estimated Logit Regression Model was as follows

$$ITA = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu_i$$

$$ITA = 10.82 + 0.02X_1 - 0.01X_2 - 0.01X_3 + 0.05X_4 + 0.06X_5 + 0.07X_6 + 0.05X_7 + 0.02X_8 - 0.02X_9 + \mu_i$$

Whereby, ITA is the consumers' Intention to adopt M-commerce in Dar es salaam which is a dependent variable of this regression model. $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8$ and X_9 , respectively means gender, age, marital status, education level, Perceived Ease of Use, Perceived Usefulness, Perceived Behavioral Control, Perceived Trust and Perceived Cost. $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$, and β_5 are parameters (Intercept) of the independent Variables and μ is a stochastic error term of this regression model

Analysis from the estimated logit regression model shows that gender has an insignificant negative influence and impact towards consumers' intention to adopt mobile commerce in Dar es salaam. This suggests that females are unlikely to intent to adopt mobile commerce than males by 0.02 *ceterious peribus*.

Analysis from the estimated results shows that age has an insignificant negative influence and impact towards intention to adopt mobile commerce in Dar es salaam. This implies that a unit increase on consumer's age is likely in a decrease in an intention to adopt mobile commerce by 0.1 units other factors holding constant

The estimated results show that marital status has an insignificant negative influence and impact intention to adopt mobile commerce in Dar es salaam. It can be explained that, married people are unlikely to intent to adopt mobile commerce by 0.1 than single ceterious peribus.

Education of the consumer was found to be significant at 1% level of significant; this implies that shows that by every one unit increase in education level of the consumer would lead to 0.05 units increase in consumer's intention to adopt mobile commerce holding other factors constant.

Analysis from the estimated logit regression model, shows that Perceived ease of use has a significant positive influence and impact towards consumers' intention to adopt mobile commerce in Dar es salaam. It implies that, by every one unit increase in perceived ease of use would lead to 0.06 units increase in consumers' intention to adopt mobile commerce other things held constant.

The regression equation shows that perceived usefulness has a significant positive influence and impact on intention to adopt mobile commerce in Dar es salaam. Therefore every one unit increase in perceived usefulness would lead to 0.07 units increase in intention of consumers to adopt mobile commerce ceterious peribus.

Perceived behavioral control was found to exert an insignificant and negative influence on consumers' intention to adopt mobile commerce in Dar es salaam, this implies that every one unit increase in perceived behavioral control will lead to a decrease in consumers' intention to adopt mobile commerce by 0.05 units other things held constant.

Perceived trust was found to exert a significant influence and positive influence on intention of the consumers to adopt mobile commerce in Dar es salaam., every one unit increase in perceived trust of mobile commerce will lead to an increase of

consumers intention to adopt mobile commerce by 0.02 units when other variables are held constant.

Perceived cost was found to exert a significant and a negative influence on behavioral intention to adopt mobile commerce in Dar es salaam. When other variables are held constant, every one unit increase in perceived cost of mobile commerce will lead to a decrease of 0.03 units of consumers' intention to adopt mobile commerce.

5.4 Discussions of Major Findings from the Regression model.

This section analyses the major findings from the estimates of the regression model obtained as analyzed from chapter four, which focused more into the summary description of the entire descriptive and inferential analyses, in order to validate the research objectives and hypotheses.

Table 5.1 Discussions of Major Findings from the Regression model.

Hypothesis	Significant	Conclusion
Hypothesis 1; Gender of the consumer has a positive influence on consumers' intention to adopt mobile commerce in Dar es salaam Tanzania	0.275	Not supported
Hypothesis 2; Age of the consumer has a positive influence on consumers' intention to adopt mobile commerce in Dar es salaam Tanzania	0.431	Not Supported
Hypothesis 3; Marital status of the consumer has a positive influence on consumers' intention to adopt mobile commerce in Dar es salaam Tanzania	0.786	Not Supported
Hypothesis 4; Education level of the consumer has a positive influence on consumers' intention to adopt mobile commerce in Dar es salaam Tanzania	0.009	Supported
Hypothesis 5; Perceived ease of use has a positive influence on consumers' intention to adopt M-commerce in Dar es salaam, Tanzania	0.051	Supported
Hypothesis 6; perceived Usefulness has a positive influence on consumers' intention to adopt M-commerce in Dar es salaam, Tanzania	0.000	Supported
Hypothesis 7; Perceived behavioral control has a positive influence on consumers' intention to adopt M-commerce in Dar es salaam, Tanzania	0.233	Not Supported
Hypothesis 8; Perceived Trust has a positive influence on consumers' intention to adopt M-commerce in Dar es salaam, Tanzania	0.003	Supported
Hypothesis 9; Perceived Cost has a negative influence on consumers' intention to adopt of M-commerce	0.022	Supported

Source: Data Survey 2017

5.4.1 Relationship between Demographic variables and consumers' Intention to adopt mobile commerce in Dar es salaam, Tanzania.

Hypothesis 1, hypothesis 2 and hypothesis 3 were not supported in this study, this implies that age, gender and marital status of the consumer were statistically insignificant and negatively influence an intention to adopt mobile commerce in Dar es salaam Tanzania.

5.4.2 Relationship between Education Level and the consumers' Intention to adopt Mobile commerce in Dar es salaam, Tanzania

Hypothesis 4 indicates that, Education level of the consumers has a positive influence towards intention of the consumers to adopt M-commerce. The result shows P-value is 0.009 and $\beta = 0.05$. Therefore this indicates that educated people are likely to use M-commerce than those with low education level. This is because Major parts of the data stored in cyberspace as well as content on the web are in the forms of written English (Kamel and Hussein 2002). A research conducted in Egypt revealed, the use of the English language in the web acted as a barrier for Egyptians to understand the content the web's content, as the most of the Egyptians could only write and read Arab (Kamel and Hussein 2002). This is also the same as in Tanzania where by the majority of Tanzanian could only read and write swahili (Kenny et al., 2015). Hence the higher the level of education of people the higher the degree of understanding capacity of new technologies which likely leads to higher intention towards adoption of mobile commerce and the lower the level of education the lower the understanding capacity in the technology and the low the intention towards adoption of mobile commerce.

5.4.3 Relationship between Perceived Ease of Use and an Intention of Mobile commerce consumers' adoption in Dar es salaam, Tanzania

Hypothesis 5 indicates that perceived ease of use has positive influence on intention to adopt M-commerce. The result shows P-value is 0.051 and β -value is $\beta = 0.599$, this reveals out that PEOU is insignificant towards adoption of mobile commerce but positively influence towards consumers' intention to adopt mobile commerce. Thus

the easier to use the internet on the mobile electronic devices and easy to use internet while transacting to the business partners influence negatively and statistically insignificant towards behavioral intention of people to adopt mobile commerce, this means that the people of Dar es salaam consider PEOU as a minor factor in building intention towards the use of mobile commerce because they will not need anyone's hand while dealing with mobile commerce due to the fact that they might not encounter any hardship while using mobile commerce.

This finding is well-matched with the findings of (Nassuora, 2013) which identified ease of use of M-commerce as one of the factor with positively influence towards intention to adopt mobile commerce in Jordan with 0.121 P-value and 0.092 β -value. This is due to the fact that M-commerce is at its infancy stage in Tanzania as it was in Jordan therefore intention of people to use mobile commerce depends on how people perceive mobile commerce to be easy to use meaning that is free from effort.

Also easier to use mobile commerce in the business, Knowledge of Information technology (IT) and advertising the benefits of mobile commerce or giving instructions on how to use mobile commerce in different media like radios and televisions contributes positively towards people's intention to adopt mobile commerce in Dar es salaam, Tanzania. Since the easier to use online mobile commerce without any complications brings about the positive attitudes towards intention to adopt mobile commerce, because for people to adopt mobile commerce one must feel at ease in the usage of the system

Though this finding is also consistent with the previous findings of the (Chitungo and Munongo, 2013) and Cooper (1997) identifies "ease of use" as one among of the three significant features from the customers' adoption view point concerning the service derived from innovative. Daniel (1999) and Dover (1998) in their studies conducted in USA and UK separately initiate an ease of use to be one of the factors for electronic banking acceptance by the customer. Thus, perceived ease of use is positively related to the intention to adoption mobile commerce,

5.4.4 Relationship between Perceived Usefulness and the consumers' intention to adopt M-commerce in Dar es salaam, Tanzania.

Hypothesis 6 indicates that, perceived usefulness has a positive influence towards intention to adopt M-commerce. The result shows P-value is 0.000 and $\beta = 0.07$. Thus the more people feel that M-commerce is useful in conducting trade finance transactions, the more the intention to adopt M-commerce, when a person finds out that dealing with M-commerce is more useful than traditional shopping in conducting trade finance transactions without crossing the borders from one country to another or without making a step to purchase what they want, they will likely build the intention in using m-commerce. The more useful the consumer finds in using a mobile commerce technology or services the more the adoption of this technology by the consumers and this is due to immediacy and ubiquity of its unique feature of mobile commerce. Because consumers can acquire information on time and make transaction anyplace at any time. Hence the more consumers' perspective concerning usefulness of mobile commerce services the higher the probability of using it.

Similarly, the finding of this study is consistent that of Karahanna et al, (2002); O'Cass& Carlson, (2012); and Yang, (2005) who acquired similar outcome in the online context like the result obtained from this study, the positive effect of perceived usefulness on intentions to use the online retailer is also sustained by different scholars (Gefen and Straub, 1997; Lin and Lu, 2000; Koufaris, 2002). Chen et al (2002) revealed perceived usefulness as the primary forecaster of the intention to use online retailer and website. This studies the vital effect of perceived usefulness in considerate consumers' responses to information technology. Therefore, it is greatly expected that people use mobile commerce services because they find it useful. Thus, perceived usefulness is positively related to the intention to adopt mobile commerce, hence Hypothesis 6 is fully supported.

5.4.5 Relationship between Perceived Behavioral Control and consumers' intention to adopt M-commerce in Dar es salaam, Tanzania.

Hypothesis 7 indicates that, perceived behavioral control has insignificant influence towards consumers' intention of m-commerce adoption. The result shows P-value is 0.233 and $\beta = -0.067$. The results show that often usage of mobile commerce, enjoyment while dealing with mobile commerce and comfortability while using mobile commerce has no impacts towards intention to adopt mobile commerce in Dar es salaam, the findings are inconsistent from (Javadi., et al 2012) and (Sinha, 2010) which revealed, out that PBC is insignificant towards adoption of mobile commerce but positively influence towards behavioral intention. This inconsistent arise due to the fact that Javadi..et al (2012) concentrated with the sample of five big online stores of Iran who had a great knowledge about online shopping and online shopping is also their major priority while dealing with their business activities. While this study's sample involved respondents from different categories like students, self-employed (entrepreneurs and business people) and employed whose online purchase using mobile commerce is not a big deal and it is not their major priority, Therefore, this brings about a negative relationship between perceived behavioral control and intention of people to adopt mobile commerce. Hence hypothesis 7 is not supported.

This study is inconsistency with various researches in mobile commerce since it has emphasized PBC as a significant key factor towards influence of a dependent variable (Pedersen, 2005; Pavlou et al., 2007; Khalifa & Shen, 2008). Furthermore PBC was Pedersen (2005) further claimed to be a person's limitations towards economy, services' usage skills.

5.4.6 Relationship between Perceived Trust and consumers' intention to adopt mobile commerce in Dar es salaam, Tanzania.

Hypothesis 8 indicates that perceived trust has positive influence on behavioral intention of m-commerce adoption. The result shows P-value is 0.003 and β -value is 0.024. This indicates that people are most conscious to trust when using m-

commerce. Thus an increase in trust for mobile commerce leads to an increase of consumers' intention to adopt m-commerce

The results from this study is consistency with the study of (Wei *et al.*, 2009) which reveals the importance construct of Perceived Trust that affects consumer behavior and determines the success of M-commerce adoption. (Wei *et al.*, 2009; Cho *et al.*, 2007) also describes Perceived trust as an important predictor which explains the adoption in a number of existing technology adoption studies. Sadi and Noordin (2011), in an exploratory analysis of the factors influencing adoption of M-commerce in Malaysia found out that trust as identified key factor influencing the adoption of M-commerce. A similar study carried out by Mashagba, (2013) revealed that trust, risk and security had an effect on M-commerce adoption. The study of Gitau and Nzuki (2014) adopts Perceived Trust as a key factor influencing the adoption of M-commerce by online consumers and was included in the model.

Participants indicated that, they are cautioned that the products bought online using mobile commerce will not match their expectations. These results confirm findings by Forsythe and Shi (2003): whose study, identified trust as the most cited concern in relation to the development of mobile commerce due to the inability of touch and assessing quality of products before purchasing.

Thus, trust of not losing money and financial details has a positive effect on attitude toward intention on mobile commerce. Also the trust of delivery of orders has positive influence on behavioral intention towards mobile commerce. That is, the higher the trust of not losing money and probability of not disclosing credit card information, the higher the behavioral intention toward mobile commerce. This finding is compatible with the findings of the Forsythe and Shi (2003) and Biswas and Biswas (2004). In these studies, financial trust is an important factor for either shopping or not shopping online through mobile commerce. Also the higher the probability of delivery of order, the higher the consumers' intention toward mobile commerce. It indicates that the delivery trust is a significant factor for affecting consumers' intention towards mobile commerce. People do not tend to use mobile commerce because they are not sure whether the ordered merchandise will be

delivered or not and lack of seriousness and efforts towards building trust by the retailers makes it a significant reason.

5.4.7 Relationship between Perceived Cost and Intention to adopt mobile commerce in Dar es salaam, Tanzania.

Hypothesis 4 indicates that perceived Cost has negative influence on consumers' intention to adopt m-commerce. The result shows P-value is 0.022 and β -value is -0.027. This indicates that people are most conscious to cost when using m-commerce. Thus a decrease in cost for mobile commerce leads to an increase of consumers' intention to adopt m-commerce. Therefore high price of product over the internet, high delivery cost, high prices of mobile devices and tablets has a negative and significant impact towards intention to adopt mobile commerce,

Unlike others hypothesis, the perceived cost is also an important consideration for consumers to decide whether to use M-commerce or not (Hong et al., 2008). Wei et al., 2009 stated that cost factor is one of the reasons that could slow down the development of M-commerce. He also mentioned that cost factor may consist of initial purchase price such as hand set fee, ongoing usage cost such as subscription fee, service fee and communication fee, and maintenance cost or upgrade cost. In this study, Perceived cost construct has been incorporated and defined as the extent to which an individual believes that using m-commerce is costly. Cost was not considered or proved by some researchers in explaining the adoption of M-commerce (Liu and Wei 2003, Turel et.al, 2007). Li et al (2007) found that cost is believed to be an important predictor of M-commerce adoption.

5.5 Model Specification

5.5.1 Model Specification Error

The regression model used in any analysis must be “correctly” specified: If the model is not “correctly” specified, the problem of model specification error or model specification bias is encountered (Gujarati, 2009). The data were tested for the model specification error by using the linktest, the probability ($P > |z|$) of _hatsq was

0.790 which is equivalent to 79% and the probability ($P > |z|$) of $_hat$ was significant at 1% which was 0.000 thus indicating that there was no model specification bias which shows that the model is well specified since the probability of $_hatsq$ is more than 10%

CHAPTER SIX

SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

6.1 Introduction

The chapter draws conclusion of the whole study and also provides a remarkable recommendation to the government and policy makers, online retailers and to the further researchers. This chapter also summarizes the overview of this study's journey and commerce suggestion to the future researches

6.2 Summary

This study focused much on the factors influencing consumers' adoption of M-commerce in Dar es salaam, Tanzania, The extent to which the six factors of Demographic variables, Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Perceived Behavioral Control (PBC), Perceived Trust (PT) and Perceived Cost (PC) are being implemented in the mobile commerce industry in Dar es salaam, Tanzania, The main objective of this study was to investigate factors influencing consumer's adoption of mobile commerce in Tanzania a case of Ilala District in Dar es Salaam region. The method of analysis was multiple linear regression analysis whereby multiple linear regression model was used to assess factors influencing consumers' adoption of mobile commerce in Tanzania. Primary data were collected from Ilala district sampled of students, workers and entrepreneurs

From the regression results, Perceived Usefulness (PU), Perceived Behavioral Control and Perceived Trust (PT) influence positively towards intention to adopt M-commerce. Therefore perceived Usefulness and Perceived behavioral control were significant at 1% whereas Perceived Trust was significant at 10%. These are factors on which, the online retailer should give emphasis, in order to increase the adoption rate of mobile commerce. Perceived cost has shown a negative coefficient but explained an insignificant relationship towards building consumers' intention to adopt mobile commerce. But perceived ease of use (PEOU) shows a positive coefficient with an insignificant relationship towards consumers' intention to adopt

mobile commerce. One of the reasons is that these respondents in the study area do not attach much importance to easiness of M-Commerce

The R² value for the regression is 0.6594 and this means that 65.94% of independent variables were explain of the variation in the dependent variable. However, the remaining 48.4% can be explained by other factors that were not included in the model (study). Also from the F-statistic is concluded that the overall regression is at 1% significance level

However based on these findings, it is concluded that Perceived Usefulness, Perceived Behavioral Control and Perceived Trust are important factors that influence adoption of mobile commerce in Dar es salaam.

6.3 Conclusion

The internet usage is increasing rapidly in Tanzania due to the current technology trend and advancement of innovation of electronic system (Buys et al, 2014). The m-commerce has become a common need for most people nowadays due to the ability of e-commerce functions and the advantages compared local transactions and local purchasing. The increasing demand of mobile commerce should have some interesting factors that affect consumers to adopt this technology.

This study aimed at identifying the factors influencing consumer's adoption of m-commerce in Tanzania. Using the existing findings, the study has shown that perceived usefulness, perceived behavioral control and perceived trust positively influence the adoption of m-commerce. According to Wang and Barnes (2007), trust is much more significant than the other constructs; this implies that trust building between the customers and vendors should be a major concern for the mobile commerce service providers while improving the usefulness of the system which in turn will impact positively on the adoption of m-commerce. Perceived cost is also an important factor; therefore, this study suggests that the creative advertisement and pricing strategies, including cost reduction should be implemented to attract more price-conscious customers. The Perceived Behavioral Control is also a significant factor towards adoption of m-commerce. For instance, the service providers should attract customers via various social networks and channels, such as word of mouth

and informal seminars (Lu et al., 2008), this will awaken an individual's perceptions of how easy or difficult it is to perform a specific behavior concerning m-commerce

In a nut shell, the outcome of the study will guide companies and individuals that offer M-commerce related products in the selection of digital products and in pursuance of future commercial opportunities. The policy makers should stress on those factors to attract more customers and keep developing the mobile commerce industry. Future researchers might fully use the knowledge in this study to make amendments or for reference purposes. Thus, this research gives a clearer picture of exploring the factors that influence the behavioral intention of consumers in the adoption of mobile commerce in Tanzania.

6.4. Recommendations to policy makers and the government

As knowledge is cited as the barrier with high influence on consumers' adoption of mobile commerce, the government should take measures on educating citizens on the sector as to increase the levels of awareness. Likewise, it should recruit and train enough experts to assist consumers in the early adoption process.

Similarly, the government needs to enforce serious laws and regulations as govern safety issues on the internet to motivate more participants and investors in the adoption of this sector.

6.5 Recommendation to mobile commerce retailers, mobile companies operators and banks.

As findings demonstrated that the respondents were more cautious about perceived trust it is recommended that online retailers endeavor to increase trust by providing consumers with detailed and accurate descriptions of the products on their website.

Mobile retailers should create a separate mobile website which will create a room for mobile optimization and works for Google's requirements. When a new mobile commerce user will arrive, this configuration will try to detect the users' device, then redirects to the appropriate website using simple redirects which will make consumers easy to use mobile commerce during the whole process of shopping.

Mobile operators such as Tigo, Airtel, Vodacom, Zantel, Sasatel, Halotel and TTCL companies should create a high internet Speed so as to eliminate the problem of internet when using mobile commerce, also they must provide convenience and puts these operators at the mercy of spotty Wi-Fi and 4G speedy connections

Banks need to increase the provision of credit cards that could be used in mobile commerce, as the results showed that, most respondents do not own credit cards, but most use mobile commerce through cash, therefore the banks should provide seminars in the whole process of using a credit card during mobile commerce and assure them that the transactions made should be kept secure and private.

6.6 Areas for further research

As this research focused on perceived ease of use, perceived usefulness, perceived behavioral control, Perceived trust and perceived cost, as the factors influencing consumers' adoption of mobile commerce in Dar es salaam; Tanzania. It is suggested that, future researchers should further the research into other factors such as subjective norms, Technology readiness, price, consumers bargaining power and culture as are discussed to have greater impacts in the adoption of mobile commerce in other developing nations as India and Bangladesh

Since perceived cost has been found to be among of the factor that negatively influence the adoption of m commerce, it would be interesting to do a comparison of the prices offered by these different mobile service providers and see if the providers with lower m-commerce service fees will actually have a higher adoption of the technology than those with higher m-commerce services fees.

The future research should stress much in knowing or prediction on the “future of mobile commerce in Tanzania” since the conceptual model (Infrastructure, perceived risk, knowledge barriers and legislations) that was formulated by Mmanga (2015) predicts mobile commerce at a low rate of, 26.2%, this is contrary to prior researches by Oreku, et al (2007): Kamel and Hussein (2002). Thus, it is recommended that future researches should focus on explaining why these factors predict mobile commerce in Tanzania at such rate.

The research findings cannot be generalized to the whole country given that only a sample of 132 respondents were surveyed in Ilala district, Dar es salaam region. Therefore, further study can be done in the remaining districts in Dar es salaam like Kinondoni and Temeke district and other growing cities in Tanzania, then findings should be compared with these obtained in this study in order to come up with good generalization result

6.7 Limitation of the study

The study involved cross sectional research design in which the information was collected only once to the respondents from different groups of people, in order to provide results which can be generalized due to this it might have caused information asymmetry than when the study would involve longitudinal research design. The study only investigate the adoption rate of m-commerce without making a comparison of both e-commerce and m-commerce in order to know exactly which among the two has a high rate of adoption and what to be done to the one with low rate of adoption

REFERENCES

- ABI research, (2015). Shopping by Mobile will grow to Billion \$119 in 2015, ABI research. *Technology Market Intelligence*. Accessed online on October 15, 2013 from [http://www.abiresearch.com/press/1605Shopping+by+Mobile+Will+Grow+to +%24119+Billion+in+2015](http://www.abiresearch.com/press/1605Shopping+by+Mobile+Will+Grow+to+%24119+Billion+in+2015)
- Abu Bakar A. A. & Osman, N. H. (2011). Consumers' attitude towards e-commerce adoption: research on higher educational institutions in Sokoto State, Nigeria. *Skyline Business Journal*, 7(1), 1-11.
- Agarwal, .R. & Karahanna, .E. (2000). Time flies when you are having fun: Cognitive absorption and beliefs about mobile commerce information technology usage. *MIS quarterly*, 665-694.
- Alduaij M., & Al-Amari H. (2016), "Factors moderating Students Adoption Decisions of Mobile Commerce" , *Review Pub Administration Management* 4;180.
- Al-Maghrabi .T., Dennis, C. & Vaux Halliday .S. (2011). Antecedents of continuance intentions towards e-shopping: the case of Saudi Arabia. *Journal of Enterprise Information Management*, 24(1), 85-111.
- Ajzen, I. (1991). The theory of planned behavior. *The Organizational Behavior and Human Decision, Processes*, Vol. 50.
- Ajzen, Icek & Fishbein Martin (1975). *Belief, Attitude, Intention and Behavior, an Introduction to Theory and Research*, Philippines Addison-Wesley Publishing Company, Inc
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. *In Action control* (pp. 11-39). Springer Berlin Heidelberg.
- Ajzen .I. (2001). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of applied social psychology*, 32(4), 665-683.

- Ajzen, I. (2001). Nature and operation of attitudes. *Annual review of psychology*, 52(1), 27-58.
- Anil, K., Hatcher, J. A., & Bringle, R. G., (2003). Mobile commerce adoption. *Environmental and Information System*. New Age International.
- Akesson M. (2013), "Value Proposition in m-commerce exploring services provider and user perception in Sweeden
- Anthony, B. and Mutalemwa, D. (2014), *Factors Influencing the use of mobile payments in Tanzania: Insight from Zantel's Z-pesa services*. The journal of language technology & entrepreneurship in Africa, Vol 5 no. 2204
- Barnes F, and Stuart J. (2002), "The Mobile Commerce Value Chain: Analysis and Future Developments, *International Journal of Information Management*, Vol22.
- Biswas, D., & Biswas, A. (2004). The diagnostic role of signals in the context of perceived risks in online shopping: do signals matter more on the web? *Journal of Interactive Marketing*, 18(3), 30-45.
- Bhatti T., (2007), *Exploring Factors Influencing the Adoption of Mobile Commerce*,
- Buys, P., Dasgupta, S., Thomas, T. S., and Wheeler, D. (2014). Determinants of a digital divide in Sub-Saharan Africa: A spatial econometric analysis of cell phone coverage. *World Development*, 37(9), 1494-1505.
- Chang, C. S. (2004). Beyond concern: a privacy-trust-behavioral intention model of electronic commerce. *Information & Management*, 42(1), 127-142.
- Chen, H., Karbowski, M., Chan, D. C., Smith, C. L., and Youle, R. J. (2002). Mobile commerce adoption system. *Journal of Electronic commerce* 164(4), 493-499.
- Chitungo, S. K., & Munongo, S. (2013). Extending the technology acceptance model to mobile banking adoption in rural Zimbabwe. *Journal of Business Administration and Education*, 3(1).

- Cho, D.Y., Kwon, H.J. & Lee, H. Y (2007). Analysis of Trust in internet and mobile commerce adoption. *Proceedings of the 40th Hawaii International Conference on System Science*, Waikoloa, HI., USA., pp; 50
- Cooper, R.G. (1997), "Examining some myths about new product winners", in Katz, R. (Ed.), *The Human Side of Managing Technological Innovation*, Oxford, pp. 550-60.
- Copper, R. L., Goldenberg R. L., Iams J. D., Mercer B. M., Meis, P. J., Moawad A. H. & Miodovnik .M. (1998). The preterm prediction study: the value of new vs standard risk factors in predicting early adoption of mobile commerce. *Network. American Journal of social science*, 88(2), 233-238
- Crossman, A. F. (2007). *The human behavior relationship and mobile commerce use: A test of the long-term mediating effects of mobile commerce using data from the National Longitudinal Study of mobile commerce usage* (Doctoral dissertation, Arizona State University)
- Dai, H. & Palvia, P. (2008), "Factors affecting mobile commerce adoption; a cross-cultural study in China and the United States", *The Data base for Advances in Information Systems*, Vol 40 No. 4
- Daniel, E. (1999), "Provision of electronic banking in the UK and the Republic of Ireland", *International Journal of Bank Marketing*, Vol. 17 No. 2, pp. 72-82.
- Davis, F.D (1989), "Perceived Usefulness, Perceived ease of use and user acceptance of Information technology," *MIS Quarterly*, Vol. 13 No. 3, pp.319-39
- Davis, Fred D., Ricard Bagozzi, and Paul Warshaw (1989). "User Acceptance of Computer Technology: A Comparison of Two," *Management Science*, 35
- Dellinger, L. J., Mohlke, K. L., Duren, W. L., & Prokunina-Olsson, L. (2007). A - wide association study of mobile commerce and e commerce towards consumers' behavior. *Journal of social science*, 316(5829), 1341-1345

- Di Castri, S., and Gidvani, L. (2014). Enabling Mobile Money Policies in Tanzania: A Test and Learn Approach to Enabling Market-Led Digital Financial Services.
- Doherty, N. F., & Ellis-Chadwick, F. (2010). Internet retailing: the past, the present and the future. *International Journal of Retail & Distribution Management*, 38(11/12), 943-965.
- Dover, D.J. (1998), "New technology adoption on Mobile commerce. *Journal of Information Systems*, 25(1), 15-21.
- Ellis-Chadwick and Gbadamosi, A. (2016). Consumer Behaviour in Developing Nations: A Conceptual Overview. In *Handbook of Research on Consumerism and Buying Behavior in Developing Nations* (pp. 1-29). IGI Global.
- Forsythe, S. M., and Shi, B. (2003). Consumer patronage and risk perceptions in Internet shopping. *Journal of Business Research*, 56(11), 867-875.
- Fusilier, M., & Durlabhji, S. (2005). An exploration of student internet use in India: the technology acceptance model and the theory of planned behaviour. *Campus-Wide Information Systems*, 22(4), 233-246.
- Garrison, D. R., Akyol, Z., & Ozden, M. Y. (2009). Online and blended communities of inquiry: Exploring the developmental and perceptual differences. *The International Review of Research in Open and Distributed Learning*, 10(6), 65-83.
- Gefen, D., and Straub, D. W. (1997). Gender differences in the perception and use of e-commerce: An extension to the technology acceptance model. *MIS quarterly*, 389-400.
- Gefen, David (2000), E-Commerce: The Role of Familiarity and Trust, Omega: *The International Journal of Management Science*, 28 (6).

- Gitau , L. and D. Nzuki (2014). Analysis of Determinants of M-Commerce Adoption by Online Consumers. *International Journal of Business, Humanities and Technology* Vol. 4, No. 3, 88-94
- Gujarati, D. N. (2009). *Basic econometrics*, 5th Tata McGraw-Hill Education.
- Guriting, P., & OlyNdubisi, N. (2006). Borneo online banking: evaluating customer perceptions and behavioural intention. *Management research news*, 29(1/2), 6-15.
- Ho, K., and Lee, R. S. (2017). Mobile commerce competition in online markets. *Econometrical analysis*, 85(2), 379-417.
- Hong S.J., Thong J. Y.L., Moon J.Y., and Tam K.Y., (2008), Understanding the behaviour of mobile data services consumers, *Information Systems Front*, Springer Science, Vol. 10, pp. 431-445.
- Independent web analytics company StatCounter <http://gs.statcounter.com/#desktop+mobile+tablet-comparison-CF-monthly-201511-201610-bar-graphs>
- Internet World Statistics news, (2016)
[.http://gs. internetworldstats.com/#internet+usage+-comparison-yearly-201511-201610](http://gs.internetworldstats.com/#internet+usage+-comparison-yearly-201511-201610) Retrieved March 15, 2017.
- Jahangir, S. A., & Begum, J. D. (2008). Mobile systems challenges in next generation networks. *International Journal of Future Generation Communication and Networking*, 1(1), 15-22.
- Javadi, M. M., Cheng, P., and Walsh, V. (2012). Stimulating factors towards M-commerce adoption. *International Journal of Future Generation* ,5(4), 468-474.
- Kamel, S. and Hussein, M. (2002) 'The emergence of e-commerce in a developing nation Case of Egypt' *Benchmarking: An International Journal*, Vol. 9 No. 2,

- Karahanna, N. Li, X., and Johnson, J. D. (2002). Evaluate IT investment opportunities using real options theory. *Information Resources Management Journal (IRMJ)*, 15(3), 32-47.
- Kenny, D. A., Kaniskan, B. & McCoach, D. B. (2015). The performance of RMSEA in models with small degrees of freedom. *Sociological Methods & Research*, 44(3), 486-507.
- Kim, S., & Garrison, G. (2009). Investigating mobile wireless technology adoption: An extension of the technology acceptance model. *Information Systems Frontiers*, 11(3), 323-333.
- Khalifa, M. & K.N. Shen, (2008). Explaining the adoption of transactional B2C mobile commerce. *J. Enterprise Inf. Manage.*, 21.
- Koufaris, M. (2002). Applying the technology acceptance model and flow theory to online consumer behavior. *Information systems research*, 13(2), 205-223.
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610.
- Kumar, S., & Phrommathed, P. (2005). *Research methodology* (pp. 43-50). Springer US.
- Kurnia, S., Smith, S. P., & Lee, H. (2006). Consumers' perception of mobile internet in Australia. *e-Business Review*, 5(1), 19-32.
- Li, M., Cha, D. J., Lai, Y., Villaruz, A. E., Sturdevant, D. E., & Otto, M. (2007). The mobile commerce system aspects of shopping. *Information System Technology*, 66(5), 1136-1147.
- Liu, X., and Wei, K. K. (2003). An empirical study of product differences in consumers' E-commerce adoption behavior. *Electronic Commerce Research and Applications*, 2(3), 229-239

- Liao, S., Grötter, T., Martin, G., & Swan, S. (2007). *Mobile commerceSystem Design with System CTM*. Springer Science & Business Media.
- Lin, J. C. C., and Lu, H. (2000). Towards an understanding of the behavioural intention to use a web site. *International journal of information management*, 20(3), 197-208.
- Louis, B. (2001). Evolution of mobile location-based services. *Communications of the ACM*, 46(12), 61-65.
- Lu, J., Yu, C., Liu, C. and Yao, J. (2003) Technology acceptance model for wireless internet, *Internet Research: Electronic Networking Applications and Policy*, Vol. 13 No. 3.
- Lu, S., Foster, I., Zhao, Y., and Raicu, I. (2008). Mobile commerce adoption compared to e-commerce. *Internet Research*.
- Luarn, P. and Lin, H.H. (2005), toward an understanding of the behavioral intention to use mobile banking. *Computer in Human Behavior*, Vol. 21 No. 6,
- Mallat, N. (2006). Exploring consumer adoption of mobile payments—A qualitative study. *The Journal of Strategic Information Systems*, 16(4), 413-432.
- Mashagba (2013). Exploring Technological Factors Affecting the Adoption of M-Commerce in Jordan. *Australian Journal of Basic and Applied Sciences*, 7(6).
- Mao, N. Jiang, X. X., Zhang, Y., Liu, B., Zhang, S. X., Wu, Y., & Yu, X. D. (2005). Human behavior towards adoption of new technology, *Journal of InformationSystem* 105(10), 4120-4126
- McCloskey and Leppel (2010) “The impact of age on electronic Commerce Participation: an exploratory Model”, *Journal of Electronic Commerce in Organizations*, vol. 8, no.1, pp. 41-60
- McKnight, D.H., Choudbury, V., Kacmar, C. (2002). Developing and validating trust measures for e-commerce; an interactive typology. *Information Systems Research*. 13 (3).

- Moody D, (2002), Visiting Associate Professor, NTNU & Senior Research Fellow, Monash University, Melbourne, Australia
- Muthaiyah, S. (2004). Key success factors of 3rd generation mobile network services for m-commerce in Malaysia. *American Journal of Applied Sciences*, 1(4), 261-265.
- NassuoraBassam .A. (2013), Understanding Factors affecting the adoption of mobile commerce by consumers. *Journal of Applied science* 13; 913-918
- O'Cass, A., and Carlson, J. (2012). An e-retailing assessment of perceived website-service innovativeness: Implications for website quality evaluations, trust, loyalty and word of mouth. *Australasian Marketing Journal (AMJ)*, 20(1), 28-36
- Oreku, G. S., Li, J., and Mtenzi, F. J. i (2007). In *Proceedings of the International Conference on Information Society (i-Society 2007)* (p. 268).
- Pavlou, A.P., Tan, Y., Gefen, D. (2003). The transitional role of institutional trust in online inter organizational relationships. *Proceedings of the Hawaii International Conference on System Sciences*.
- Pavlou, .P. A., Liang, H., and Xue, .Y. (2007). Understanding and mitigating uncertainty in online exchange relationships: A principal-agent perspective. *MIS quarterly*, 105-136.
- Pedersen, P. E. (2005). Adoption of Mobile Internet Services: An Exploratory Study of Mobile Commerce Early Adopters. *Journal of Organizational Computing and Electronic Commerce* 15(3): 203
- Quartey, L., (2012). Boost in m-commerce in Ghana, Tanzania and South Africa; but who is on top? *International Review of Management and Marketing*, 2(3), 156
- Rayport, J. F. &Sviokla, J. J. (1994).Managing in the marketspace.*Harvard Business Review*, 72(6), 141-150.

- Rogers, E. M. (1995). Lessons for guidelines from the diffusion of innovations. *The Joint Commission journal on quality improvement*, 21(7), 324-328.
- Rogers, R. W. & Maddux, J. E. (1983). Protection motivation and self-efficacy: A revised theory of fear appeals and attitude change. *Journal of experimental social psychology*, 19(5), 469-479.
- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: a cross-discipline view of trust. *Academy of Management Review*, 23 393–404.
- Sadi, A. H. M., and Noordin, M. F. (2011). Factors influencing the adoption of Mobile commerce: An exploratory Analysis.
- Shih, Y. Y. & Fang .K. (2004). The use of a decomposed theory of planned behavior to study Internet banking in Taiwan. *Internet research*, 14(3), 213-223.
- Sinha, D., (2010). Tackling the widespread and critical impact of mobile commerce adoption. *Internet research*, 11(10).
- Selltiz, C., Jahoda, M., Deutsch, M. and Cook, S. W. (1962). *Research Methods in Social Relations*, London: Methuen and Co.
- Sugianto, M., Anuar, J., Musa, M., and Khalid, K. (2014). Smartphone's application adoption benefits using mobile hotel reservation system (MHRS) among city hotels in Tanzania. *Procedia-Social and Behavioral Sciences*, 130, 552-557.
- Turel, O., Serenko, A., and Bontis, N. (2007). User acceptance of wireless short messaging services: Deconstructing perceived value. *Information & Management*, 44(1), 63-73.
- Wang, S. and Barnes, S. (2007), “Exploring the acceptance of mobile auctions in China”, *Proceedings of the Sixth International Conference on the Management of Mobile Business*, Toronto, Canada.

- Wei, T.W., Marthandan, G., Chong, A.Y.L., Ooi, K.B. & Arumugam, S. (2009). What drives Malaysian m-commerce adoption? An empirical analysis. *Industrial Management & Data Systems*, Vol. 109 No. 3.
- Wei, X. Lee, C. Kysar, J. W., and Hone, J. (2015). Measurement of the elastic properties of Mobile commerce adoption. *Journal of Science*, 321(5887), 385-388.
- Wong, C.C. and Hiew, P.L. (2014), "Diffusion of mobile entertainment in Sub-Sahara Africa: drivers and barriers", *Informatics*, Vol. 5, pp. 263-6.
- Wong, Y. K., Rubasinghe, S., & Hsu, C. J. (2008). A confidence-based framework for business to consumer (B2C) mobile commerce adoption. *Personal and Ubiquitous Computing*, 12(1), 77-84
- Yang, K. C. (2005). Exploring factors affecting the adoption of mobile commerce in Singapore. *Telematics and informatics*, 22(3), 257-277.

APPENDIX 1

QUESTIONNAIRE

I am a student of Mzumbe University (MU) pursuing Master of Science in Economic Policy and Planning (Msc EPP). May you kindly fill my questionnaire which is entitled as FACTORS INFLUENCING CONSUMERS' ADOPTION OF MOBILE COMMERCE IN TANZANIA, a case of Ilala District in Dar es Salaam region, You are kindly requested to respond to the questions to the best of your knowledge and please be assured that the information you provide will be used solely for academic purposes, you need not to write your name. In case of any questions, or you need any more clarification, feel free to contact 0717593743 or 0683191897

Section A: BACKGROUND INFORMATION

Please fill in the box provided with the correct answer

1. What is your gender? a) Male b) Female
2. What is your age? a) 18 – 24 b) 25 – 34 c) 35-45 d) above 45
3. What is your marital status? a) Single b) Married (c) divorce (d) widow/er
4. What is your education level? a) Primary b) Secondary c) Diploma d) Bachelor e) Masters or PHD
5. What is your employment status? a) Student b) employed c) Unemployed d) Self employed
6. Do you know how to use mobile electronic devices? a) Yes b) No
7. There is internet access in your location a) Yes b) No
8. How often have you heard about mobile commerce? a) At least once b) At least thrice c) More than thrice
9. Where have you acquired most of the information about Mobile commerce? a) Public media b) Social media c) Friends and/ or peers d) School/Collage or office

10. Do you own a credit card? a) Yes b) No

11. How do you pay for your mobile commerce? a) Credit card b) Debit card c) cash
d) checks e) Never bought using mobile commerce

12. Are you generally intent to use mobile commerce? a. Yes b. No

SECTION B: FACTORS INFLUENCING ADOPTION OF MOBILE COMMERCE

The following table has statements about factors influencing customer's adoption mobile commerce in Tanzania. Rate your agreement with each of the statement by using the scale provided in the table below. Round the number you chose:

Rank: 1= SD: Strongly disagree, 2=D: Disagree, 3=NAD; neither agree nor disagree,

4=A: Agree, 5-SA: Strongly agree

S/No	Perceived Ease of Use (PEOU)	SD	D	NAD	A	SA
PEOU 1	It is very easy to use internet on my mobile electronic devices	1	2	3	4	5
PEOU 2	It is easiest to use mobile commerce in the business/activities that am into	1	2	3	4	5
PEOU 3	It is easier to use internet while transacting to my business partners using mobile devices	1	2	3	4	5
PEOU 4	My career motivates my usage of m-commerce	1	2	3	4	5
PEOU 5	M-commerce is a very fast way of doing my business activities than any other way	1	2	3	4	5
	Perceived Usefulness (PU)					
PU 1	Using mobile commerce service saves time	1	2	3	4	5
PU 2	M-commerce is useful in conducting trade finance transactions.	1	2	3	4	5
PU 3	There is a need of using mobile commerce	1	2	3	4	5
PU 4	Mobile commerce services are useful to a consumer	1	2	3	4	5
PU 5	Mobile commerce provides accurate information about all the customer's transactions	1	2	3	4	5
	Perceived Behavior Control (PBC)					
PBC 1	I often use mobile commerce	1	2	3	4	5
PBC 2	I have the necessary means and resources to use mobile commerce services	1	2	3	4	5
PBC 3	Persistence change in technology influences the usage of mobile commerce	1	2	3	4	5
PBC 4	I am comfortable using mobile commerce	1	2	3	4	5
PBC 5	I am surrounded with the people who often use mobile commerce	1	2	3	4	5
	Perceived Trust (PT)					
PT 1	The Tanzania legislation does not provide adequate safeguards to create an environment of trust for mobile commerce	1	2	3	4	5
PT 2	I would stop using mobile commerce without fear if there were strict cyber-laws in place to punish fraud and hackers	1	2	3	4	5
PT 3	I don't have confidence on the delivery of goods after paying the product that I have ordered	1	2	3	4	5
PR 4	It is hard to judge the quality of product over the internets	1	2	3	4	5
PR 5	I might get different product from that I have ordered by using M-commerce	1	2	3	4	5
	Perceived Cost (PC)					
PC 1	The prices of product on the internet is quite high compared to those in traditional market	1	2	3	4	5
PC 2	The mobile devices and tablets are very expensive	1	2	3	4	5
PC 3	The broadband services and wireless bundles are much expensive	1	2	3	4	5
PC 4	The upgrading of mobile devices is much expensive	1	2	3	4	5
PC 5	The delivery cost and communication fee charged during the whole process of transacting using M-commerce is expensive	1	2	3	4	5

Thank you for your time and be blessed

APPENDIX 2

Iteration 0: log likelihood = -62.586389
 Iteration 1: log likelihood = -38.571797
 Iteration 2: log likelihood = -32.82833
 Iteration 3: log likelihood = -32.423137
 Iteration 4: log likelihood = -32.420246
 Iteration 5: log likelihood = -32.420245

Logistic regression	Number of obs	=	132
	LR chi2 (9)	=	66.39
	Prob > chi2	=	0.0000
Log likelihood = -29.392059	Pseudo R2	=	0.5304

ITA	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Age	-.0356325	.0326624	-1.09	0.275	-.0996496	.0283845
Gender	.6182295	.0326624	0.79	0.431	-.9209118	2.157371
Maristatus	-.2907947	.06863	-0.27	0.786	-2.317161	1.803682
Education	-4.38969	.68058	-2.61	0.009	-7.683586	-1.095795
PEOU	2.298271	1.16047	1.95	0.051	-7.683586	-1.095795
PU	-2.601325	.602828	-4.31	0.000	-3.782984	-1.419667
PBC	2.027588	1.698787	1.19	0.233	-1.301992	5.3571212
PT	-.9456695	.3191603	2.96	0.003	.3201267	1.571212
PC	-1.021925	.4477718	-2.28	0.022	-1.899541	-.1443079
_cons	10.81726	3.444662	3.14	0.002	4.065848	17.56868

Linktest

Iteration 0: log likelihood = -62.586389
Iteration 1: log likelihood = -34.258358
Iteration 2: log likelihood = -30.367872
Iteration 3: log likelihood = -29.578746
Iteration 4: log likelihood = -29.370441
Iteration 5: log likelihood = -29.355665
Iteration 6: log likelihood = -29.355632
Iteration 7: log likelihood = -29.355632

Logistic regression	Number of obs	=	132
	LR chi2 (2)	=	66.46
	Prob > chi2	=	0.0000
Log likelihood = -29.355632	Pseudo R2	=	0.5308

	ITA	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
	_hat	.9587457	.2614415	3.67	0.000	.4463297 1.471162
	_hatsq	-.0220911	.0828045	-0.27	0.790	-.1843848 .1402027
	_cons	.031977	.3659315	0.09	0.930	-.6852355 .7491895

Marginal effects after logit

y = Pr (I) (predict)

= .0267898

Variable	dy/dx	Std. Err.	z	P> z	[	95% C.I.	]	X
Age	.000929	.0095	-0.98	0.328	-.00279	.000932		36.0303
Gender*	.0161201	.02217	0.73	0.467	-.027334	.059574		.522727
maris*	-.0073087	.02577	-0.28	0.777	-.057817	.0432		.356061
Educa*	-.0470774	.03137	-1.50	0.133	-.108565	.01441		.136364
PEOU	.0599208	.04124	1.45	0.146	-.020901	.140743		.081818
PU	-.067822	.03796	-1.79	0.074	-.142222	.006578		3.59242
PBC	.0528635	.05094	1.04	0.299	-.046982	.152709		.090909
PT	.0246556	.01401	1.76	0.078	-.002803	.052115		.560606
PC	-.0266437	.01595	-.67	0.095	-.05791	.004623		4.21212

(*) dy/dx is for discrete change of dummy variable from 0 ssto 1s