

Addis Ababa
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School of Commerce



The Challenges and Opportunities of Implementing various Electronic-Payment Projects in Commercial Bank of Ethiopia: The case of Point of Sale (POS) Terminal.

A project Work submitted in partial fulfillment of the requirements for the Degree of Master of Arts in Project Management in the Addis Ababa University College of Business and Economics

By

Mesfin Betru

June 2017

Addis Ababa, Ethiopia

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Advisor:- Wubeshet Bekalu (PhD)

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma at AAU or other institution of higher learning.

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Date:- June 5, 2017

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By

Mesfin Betru

Approved by

Advisor

Signature

Examiner

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Abstract

The main objective of this study is to identify the Challenges and Opportunities of Implementing various Electronic-Payment Projects in the Commercial Bank of Ethiopia: taking Point of Sale (POS) Terminal as a case study. Mixed research design was employed and primary data was collected through questionnaires and semi-structured interviews from employees and customers of the bank and analyzed using quantitative (statistical) and qualitative methods. The finding of this study reveals that the most challenging factor to the implementation of POS terminal is network failure. Organizational factors such as lack of employees' knowledge to answer customers' questions related to POS terminal, low support and follow up, lack of coordination and cooperation between different units of the bank viz. branches, districts, and E-payment process are considered as challenges in implementing POS terminal system. Moreover, payment mode factors such as double debit of accounts for single transaction due to connectivity failures, deduction of customers account for failed transactions are amongst the challenges identified by the study. Despite the aforementioned and other challenges, the study showed that Growing acceptance of POS terminal, the Business growth of the bank, NBE's policy direction that enforce banks to adopt technological innovation, change in the society life style i.e. the ongoing digital and technology revolution are some of the major opportunities identified by the study. Efforts at improving the connectivity of the network and security of transactions is recommended in order to efficiently adopt POS terminal payment system. Moreover, the study recommended the bank to raise public awareness on the use of payment cards for transactions on POS terminals, should improve the internal communication coordination, should facilitate proper and sustainable trainings for its employees to implement POS terminal payment system proficiently.

Keywords: *Electronic payment, point of sale terminal, challenges, opportunities, CBE (Commercial Bank of Ethiopia), implementation*

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Acronyms and Abbreviations

ADSL	Asymmetric digital subscriber line
ATM	Automated Teller Machine
BSD	Banking Supervision Directorate
CBE	Commercial bank of Ethiopia
CDMA	Code Division Multiple Access
CPO	Customer Payment Order
CSM	Customer Service Manager
DFS	Digital Financial Service
E-MONEY	Electronic Money
E-PAYMENT	Electronic Payment
EPS	Electronic Payment System
EVDO	Evolution Data Only/Evolution Data Optimized
GPRS	General Packet Radio Service
ICT	Information Communication Technology
IT	Information Technology
MCIT	Ministry of Communication and Information Technology
M-PESA	M for mobile, Pesa is Swahili for money
NBE	National Bank of Ethiopia
POS	Point of Sale
SPSS	Statistical Package for Social Sciences
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TAM	Technology Acceptance Model
TIN	Taxpayer Identification Number
VSAT	Very Small Aperture Terminal
WAP	Wireless Application Protocol

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The commercial banking business has changed dramatically over the past twenty-five years, due in large part to technological change. Advances in telecommunications, information technology, and financial theory and practice have jointly transformed many of the relationship-focused intermediaries of yesteryear into data-intensive risk management operations of today. (Berger, Molyneux, and Wilson, 2010)

As per Berger and others, recent service innovations primarily relate to enhanced account access and new methods of payment - each of which better meets consumer demands for convenience and ease. Automated teller machines (ATM), which were introduced in the early 1970s and diffused rapidly through the 1980s, significantly enhanced retail bank account access and value by providing customers with around-the-clock access to funds. ATM cards were then largely replaced through the 1980s and 1990s by debit cards, which ATM access with the ability to make payment from a bank account at the point of sale (POS). (ibid)

Electronic payment systems have evolved from a simple system involving cash as a means of exchange to a more sophisticated system involving various institutions and related regulations providing payment instruments and infrastructures allowing for interconnections between various partners or business units in fulfilling their business or social obligations. It could thus be seen to include any payment to businesses, banks and public services from citizens, businesses or governments, which are executed through electronic networks (Sumanjeet, 2009).

With the advent of electronic payment system (EPS), e-payment services are no longer the exclusive right of financial institutions. Although non-financial institutions now offer e-payment services, banks are in a better position to play this important role in e-commerce. However, if banks are to compete effectively with non-financial institutions and establish themselves as the key player in providing e-payment services, they need to understand customer needs and expectations and be able to achieve customer satisfaction by meeting customer expectations. It is vital, therefore, that banks take up the challenge in order to retain and enhance their relationship

with customers and thus sustain their competitive position in the industry. (Hezlin, H., Balachander, K. G., and Mohan, V. A. (2011))

Modern trends indicate that electronic payment systems have become a significant element in all trade and commerce activities globally. The scope of electronic payments extends from under one dollar to Multi-Million dollar transactions. Despite the benefits that electronic payment systems has brought to other economies such as the western developed countries, economies in Africa, which are still in the early stages of applying electronic payment systems are yet to experience its maximum economic and operational impact. (Sumanjeet, 2009)

In spite of the practice of modern payments system in the world with their attendant advantages for both consumers and financial institutions, it has not become mainstream activities in Ethiopia. The monetary authorities also bear the high cost of printing bank notes due to the short life cycle of notes, and the cost of moving large amount of cash from banks to banks and across the country. Over-dependence on cash for transaction also implies that much cash is held outside the banking system, which naturally reduces the capacity of banks to lend to the productive sectors of the economy.

It is for some of these reasons that a forward-looking economy should seriously think of embracing the modern payments system, such as debit card, credit card, electronic money, electronic fund transfer, Automated Teller Machine (ATM) and POS terminals.

The commercial bank of Ethiopia (CBE) has been using e-payment system; however, its effectiveness has not been determined particularly in the POS terminal context. The CBE started using this (POS) system of payment in 2012, but unfortunately, to the best of the author's knowledge, there has been no single study conducted to examine the challenges and opportunities of implementing this new payment system. The factors that lead to the stakeholders' satisfaction concerning the POS terminal payment system have not been established.

1.2 Background of the Company

The history of the Commercial Bank of Ethiopia (CBE) dates back to the establishment of the State Bank of Ethiopia in 1942.^[1] CBE was legally established as a share company in 1963.^[2] In 1974, CBE merged with the privately owned Addis Ababa Bank. Since then, it has been playing significant roles in the development of the country. The bank is pioneer to introduce modern banking to Ethiopia and credited for playing a catalytic role in the economic progress and development of the country.

Facts and Figures

Facts about CBE

- The first bank in Ethiopia to introduce ATM service for local users.
- It has strong correspondent relationship with more than 50 renowned foreign banks like Commerz Bank A.G., Royal Bank of Canada, City Bank, HSBC Bank,...
- CBE has a SWIFT bilateral arrangement with more than 700 others banks across the world.
- Pioneer to introduce Western Union Money Transfer Services in Ethiopia early 1990s and currently working with other 20 money transfer agents like Money Gram, Atlantic International (Bole), Xpress Money,...
- CBE has opened four branches in South Sudan and has been in the business since June 2009.
- CBE has reliable and long-standing relationships with many internationally acclaimed banks throughout the world

Vision

To become a world-class commercial bank by the year 2025.

¹After the Ethiopian-English victory over Fascist Italy, the new government established the State Bank of Ethiopia a proclamation issued in August 1942. State Bank of Ethiopia commenced full operations on 15 April 1943 with two branches and 43 staff. It served both as the Ethiopia's central bank with the power to issue bank notes and coins as the agent of the Ministry of Finance, and as the principal commercial bank in the country.

²In 1963, the Ethiopian government split the State Bank of Ethiopia into two banks, the National Bank of Ethiopia (the central bank), and the Commercial Bank of Ethiopia. (CBE Informer, 2015)

Table 1 Key Figures

Description	Size	Remark
Number of Branches	1150	as of June 30 th 2016
Assets	384.6 billion Birr	as of June 30 th 2016
Account holders	>13.3 million	as of September 30 th 2016
Number of employees	>30,000	as of June 30 th 2016
ATM	889	as of June 30 th 2016
Total no. POS deployed	6269	as of June 30 th 2016
Mobile and Internet Banking users	>1,352,000	as of June 30 th 2016
ATM Card holders	>3,000,000	as of June 30 th 2016

(Source: Official website of the bank - www.combanketh.et and annual performance report)

1.3 Statement of the Problem

Unlike the developed world, electronic payment systems are rare in developing countries like Ethiopia where the economy is mostly cash based. Implementing such a system in a developing nation where majority of citizens are used cash based transactions requires a lot more effort.

Opening a workshop on Digital Financial Services (DFS), which was held at the Africa Union Hall, on December 09, 2014, Bank Supervision Director of the National bank of Ethiopia disclosed that, all citizens could be empowered to improve their lives if they have access to the financial sector through Digital Financing Services. Nowadays, technology has significantly changed the landscape for providing financial services. When we come to our financial sector, it is in its infancy in terms of providing technology-based products and services to its consumers. The Director underscored that the National Bank of Ethiopia believes that it is not only possible, but also necessary to take advantage of new developments and innovation in technology, infrastructure, and distribution networks to deliver financial services cost-effectively and easily accessible to the public. (Birritu no. 119, 2015)

Since the implementation of POS terminals as a payment instrument by the commercial bank of Ethiopia about five years ago, there has not been any due diligence work in this area. Speculation however exists on the possible challenges to the use of the payment system. The bank has been deploying POS terminals at different merchant sites such as hotels, supermarkets, drugstores etc., since 2012. According to the annual plan of the bank, in 2014/2015 fiscal year, the bank planned

to deploy 4000 POS machines at different merchants' outlets. However, according to the report of the first three quarters (nine months) of 2014/15, the bank managed to deploy only 1162 POS machines (38.7% of the target or 29.1% of the annual plan) (CBE Informer, May 2015). This indicated poor performance of the bank regarding POS terminal implementation as compared to the plan. Following this unsatisfactory performance, the top management of the Bank affirms to outsource POS related tasks to external agent. Accordingly, the bank outsourced some POS activities viz. merchant recruitment and signup, POS deployment, and activation mainly at Addis Ababa as a one year project, from April 01, 2015 to April 01, 2016.

On the contract signed between the bank and POS agent, it was stated that the agent would be in charge to deploy and activate 6000 POS as well as the activation of existing POS terminals deployed by the bank. Yet, during the project year and including the six months extension of the project, the agent managed to deploy only 3276 POS machines (54.6% of the project's plan). This unsatisfactory performance of POS terminals implementation pointed out that there are existed challenges in adopting POS terminals in the Commercial bank of Ethiopia.

Furthermore, while there are studies on e-payment system adoption such as ATM, there has been dearth of literature on POS terminals especially in the challenges and opportunities of its implementation in CBE.

This concern necessitate this study which is aimed at providing information on possible challenges and opportunities to the implementation of POS terminals and the characteristics of its consumers that could influence such challenges. Moreover, this project creates an opportunity to obtain feedback from the major stakeholders regarding the challenges they face.

1.4 Research Questions

In the course of doing this project, an attempt was made to answer the following questions;

1. What are the major challenges hindering efficient implementation of point of sale (POS) terminals.
2. What are the major existing opportunities in the implementation of point of sale (POS) terminal?

1.5 Objective of Research

The general objective of this study is to investigate and increase awareness of the current challenges and opportunities of implementing electronic payment systems in the commercial bank of Ethiopia, using point of sale (POS) terminal as a case study.

In line with this, the study also seeks

- Assess the current state of consumers' beliefs and attitudes towards using POS terminal, and develop and validate the relationships between the factors that drive the usage and acceptance of POS payment system.

This thesis is more or less a major due diligence exercise for all the major stakeholders in implementing POS terminal in Ethiopia.

1.6 Significance of the Study

The proposed research is significant mostly due to the fact that new electronic payment systems are being introduced at an increasing rate and it is anticipated that this trend will continue for foreseeable future. As the years go by and technology keeps increasing, CBE have developed new technological innovations to deliver financial services such as Automated Teller Machine (ATM), mobile banking, internet banking, branch networking, and Point of Sale (POS) terminals.

The introduction of POS in the bank in 2012 came with so much euphoria as great news meant to move the country towards a cashless economy. However, as far as the knowledge of the researcher is concerned, since its implementation there hasn't been any assessment yet in Ethiopia. An empirical study in this area is expected to inform the stakeholders the Challenges and opportunities of implementing Point of Sale (POS) Terminals.

Furthermore, this study is also expected to increase awareness of the challenges of electronic payments and therefore, the outcomes from the study can be helpful to other banks in the country that are in the planning stage of introducing POS terminal.

1.7 Scope of the Study

To investigate & reach on all challenges and opportunities of implementing various Electronic-Payment Projects, it would require extensive research, much more time, detail information, and energy. Therefore, this study is limited only to the following:

1. The study is limited to the Challenges and opportunities of implementing various Electronic-Payment Projects in Commercial Bank of Ethiopia, specifically that of Point of Sale (POS) Terminals.
2. The study has covered only the districts of the bank under Addis Ababa City.

1.8 Limitations of the Study

Like any other humanly works, this study suffers from certain shortcomings either in its scope, content, source of information, or personal analysis. The first limitation of this paper is the absence of sufficient practical and empirical analysis on the challenges and opportunities of implementing POS terminals in Ethiopia. The second limitation is time constraint that the researcher face to collect the relevant data and to conduct the necessary theoretical as well as empirical analysis. Third, the research only considers merchants who are currently providing POS terminals to public and employees of the bank; it does not take in to consideration what perspective do individual cardholders have on the use of POS terminal. Fourth, it does not include bank customers (merchants) who do not use POS terminal system, which would help to compare the attitude of POS terminal users and non-users towards the payment system. Last but not least the study only covers one city that is Addis Ababa.

1.9 Organization of the paper

This paper is composed of five chapters including the conclusion and recommendations parts. Chapter one is an introductory part of the paper and deals with background of the study, statement of the problem, objectives, significance, scope, and limitations of the research. Chapter two is overview of payment system with much focus on electronic payment system, theoretical and empirical literatures are reviewed. In chapter three research methodology will be stated. It explains research purpose, research design, study setting, data collection, population and sampling and data analysis techniques. The fourth chapter presents the analysis and result of the study. The last chapter will present conclusion and recommendation of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Theoretical Literature

The revolution of ICT is now given room for the 'e' in everything including e-banking, e-transaction, e-registration, e-shopping, e-payment, e-learning, e-library, etc. This study only focuses on e-payment.

2.1.1 Definitions of key Terms

A cashless society - is a gradual movement of the payment system of an economy from the use of physical cash to a systemic adoption of other non- physical cash mode of payment in settlements of all types of transaction both in the public and private sectors of an economy.

Acquirer - financial institution that contract with merchants to accept payment cards for the payment of goods and services

Authorization - the consent given by a participant (or a third party acting on behalf of that participant) in order to transfer funds or securities.

Interoperability - are set of arrangements/procedures that allow participants in different systems to conduct and settle payments or security transactions across system while continuing to operate in own respective system.

Issuer - financial institution and member of international payment system that hold contractual agreement(s) with, and issue cards, to card holder.

Merchant - an entity that contracts with an acquirer to originate transactions and accepts cards for payment.

Point of Sale Terminal (POS) - is electronic device used for authorizing and processing bank card transactions at point of sale.

Transaction - act between cardholder and merchant or cardholder and financial institutions which result in the sale of goods/services and cash withdrawal.

2.1.2 Evolution of the Payments System

The payments system has been evolving over centuries, and with it the form of money. Where the payments system is heading has an important bearing on how money will be defined in the

future. According to Frederic S. Mishkin, the payments system has evolved over time, as stated below:

2.1.2.1 Commodity Money

At one point, precious metals such as gold were used as the principal means of payment and were the main form of money. Later, paper assets such as checks and currency began to be used in the payments system and viewed as money. Money made up of precious metals or another valuable commodity is called commodity money, and from ancient times until several hundred years ago, commodity money functioned as the medium of exchange in all but the most primitive societies.

2.1.2.2 Fiat Money

The next development in the payments system was fiat money, paper currency decreed by governments as legal tender (meaning that legally it must be accepted as payment for debts) but not convertible into coins or precious metal.

2.1.1.3 Checks

Another step in the evolution of the payments system occurred with the development of modern banking: the invention of checks. The introduction of checks was a major innovation that improved the efficiency of the payments system. A check is an instruction from you to your bank to transfer money from your account to someone else's account when s/he deposits the check.

We are currently moving toward an electronic payments system in which paper is eliminated and all transactions are handled by computers. Despite the potential efficiency of such a system, obstacles are slowing the movement to the checkless society and the development of new forms of electronic money (or e-money).

2.1.2.4 E-Money

Electronic money (or e-money) is money that exists only in electronic form. (Mishkin, 2004) Electronic money (or "e-money") is a monetary value represented as a claim on the issuer which is stored on an electronic device and accepted as a means of payment by undertakings other than the issuer. E-money can be either hardware-based (i.e. stored on a device, typically a card) or software-based (i.e. stored on a computer server). (European Central Bank, 2010)

According to R. Glenn & A. Patric (2014), money facilitates transactions in the economy. The mechanism for conducting such transactions is known as a payment system. The payments system has evolved over time from relying on payments made in gold and silver coins, to payments made with paper currency and checks written on deposits in banks, to payments made by electronic funds transfers.

The payment system is the web of arrangements that allow for the exchange of goods and services, as well as assets, among different people. Because the efficient operation of our economy depends on the payment system, a critical public policy concern is that it function well. There are three broad categories of payments, all of which use money at some stages. These are cash, checks and electronic payments. (Cecchetti & Schoenholt, 2015)

2.1.3 Electronic Payments

2.1.3.1 Overview of Electronic Payments

The development of inexpensive computers and the spread of the Internet now make it cheap to pay bills electronically. In the past, you had to pay your bills by mailing a check, but now banks provide a web site in which you just log on, make a few clicks, and thereby transmit your payment electronically. Not only do you save the cost of the stamp, but paying bills becomes (almost) a pleasure, requiring little effort. Electronic payment systems provided by banks now even spare you the step of logging on to pay the bill. Instead, recurring bills can be automatically deducted from your bank account. Electronic payments technology can not only substitute for checks, but can substitute for cash, as well, in the form of electronic money (or e-money), money that exists only in electronic form. The first form of e-money was the debit card. Debit cards, which look like credit cards, enable consumers to purchase goods and services by electronically transferring funds directly from their bank accounts to a merchant's account. Debit cards are used in many of the same places that accept credit cards and are now often becoming faster to use than cash. At most supermarkets, for example, you can swipe your debit card through the card reader at the checkout station, press a button, and the amount of your purchases is deducted from your bank account. Most banks and companies such as Visa and MasterCard issue debit cards, and your ATM card typically can function as a debit card. (Mishkin, 2004)

As we look into the future and try to discern what will happen to money, we should remember that 150 years ago there was virtually no paper currency in circulation. The first credit card was

issued in the early 1950s; the first ATM was installed around 1970. Not until the mid- 1990s could we shop via the internet. Forecasting most of these developments, as well as any other trend in technology, is nearly impossible. After all, who could have predicted even 20 years ago that today we would be able to check our bank balances, buy and sell stocks, and pay our utility bills 24 hours a day, seven days a week from the comfort of our homes? (Cecchetti & Schoenholt, 2015)

The developments in e-money are exciting and lead some commentators to predict a "cashless society." In reality, though, an entirely cashless (or checkless) society is unlikely for two key reasons. First, the infrastructure for an e-payments system is expensive to build. Second, many households, and firms worry about protecting their privacy in an electronic system that is subject to computer hackers. While the flow of paper in the payments system is likely to continue to shrink, it is unlikely to disappear. (R. Glenn & A. Patric, 2014)

According to Tan, (cited by Tella & Abdulmumin, 2015) E-payment is a payment system in which monetary value is transferred electronically or digitally between two entities as compensation or consideration for the receipt of goods or services. An entity in this regard refers to a bank, business, government or even an individual customer (Tan, 2004, 3). According to this author, any payment not affected by paper-based instruments is considered an e-payment transaction. It should be noted that advances in technology in some parts of the world make it possible for cheques to be treated as e-payment instruments.

2.1.3.2 Electronic Payment Forms

According to Bill Maurer, electronic payments systems in the developing world can be divided most broadly between those that rely on a bank and those that rely on a non-bank entity.

- i. Those that rely on banks include:

E-money and plastic, including debit and credit cards: stored-value or pre-paid devices, generally card based, relying on traditional magnetic stripe or chip technologies linked to a remote account.

These are cards that have all the customers' information which are used for transaction any time they are needed. It could be credit card or debit card. Credit cards are plastic cards encoded with electromagnetic identification; it is incorporated with circuit on which value is loaded. It can be used by customers to perform transactions on ATMs by the issuing banks at strategic locations as

well as point of sale terminals with designated signs of the producer of such card. It is preloaded with money. It is like a credit giving to customers by his bank. Debit card on the other hand is an electronic card with very advanced feature including the use of microchip, whereby transaction is validated against the chip rather than a magnetic stripe. It enables the holder to make withdrawals and purchases charged directly to funds in his/her account and your money is immediately deducted from your account when used.

Internet-based payments: relying on an existing bank account and providing access and funds-transfer capabilities remotely via email or web application.

Moreover, according to Alabar & Timothy, cited by M. Assefa, internet banking allows customers of a financial institution to conduct financial transactions on a secure website operated by the institution, which can be a retail or virtual bank, credit union or society. It may include of any transactions related to online usage. Banks increasingly operate websites through which customers are able not only to inquire about account balances, interest, and exchange rates but also to conduct a range of transactions. (Alabar, T. Timothy, 2012).

Mobile payments: mobile phone based applications using chip, SMS, or WAP or other software driven mobile interface providing access to an existing bank account or credit card account.

As per Tiwari, cited by M. Assefa, mobile banking (also known as M-Banking) is a term used for performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or Personal Digital Assistant (PDA). (Tiwari R., 2007, M. Assefa 2013).

Correspondent banking or branchless banking: third-party systems in which a non-bank retail outlet serves as the agent for an existing bank using POS terminals already present in the retail outlet.

A Point of Sale terminal (POS) is an electronic device used to process card payments at retail locations. It reads card information and it process payment on that card for the transaction effected immediately. This is an important infrastructure for an effective e-payment system and will enhance efficient cashless policy.

- ii. Those that do not require any bank involvement include:

E-purses: Stored value and pre-paid cards not linked to an existing bank account. Can be recharged by retail agents of the non-bank entity or by third parties.

Mobile wallets: Stored value and pre-paid mobile phone applications, based on an embedded SIM chip or other technology (e.g., M-PESA in Kenya), or based on an interface permitting access to a remote account with a non-bank entity.

Bill Maurer, Retail Electronic Payments Systems for Value Transfers in the Developing World retrieved from

http://www.socsci.uci.edu/~wmmaurer/bio/Maurer-Electronic_payment_systems.pdf

2.1.3.3 Benefits of Electronic Payment

The study by Bogota, 2013 titled " Electronic payment methods, e-commerce and economic activity: Theory and new evidence for developing and emerging countries" shows that electronic payments are not only an alternative for reducing costs with respect to other payment methods, such as cash and checks, but can also generate significant benefits for increasing economic development. The evidence shows that making payments by cash or check not only comprises 'costs' which include not only costs to produce it, but also costs for handling, printing, transporting, and securing it. In this sense, electronic payments have become a more efficient process and contribute to the improvement in the economic growth and market development in both developed and emerging countries. <http://newsroom.mastercard.com/documents/study-the-benefits-of-electronic-payments/>

According to the article retrieved from

<https://thatcreditunionblog.wordpress.com/2010/09/23/benefits-risks-of-electronic-payment-systems/>

E-payments have several benefits, which were never available through the traditional modes of payment. Some of the most important are: Privacy, Integrity, Compatibility, Good transaction, efficiency, Acceptability, Convenience, Mobility, Low financial risk, Anonymity, and so on.

Perhaps the greatest advantage of e-payments is the convenience. Individuals can pay their bills and make purchases at unconventional locations 24 hours a day, 7 days a week, and 365 days a year. There is no waiting for a merchant or business to open. The cost of e-payments is yet another benefit. For the majority of merchants, vendors, and businesses, there is no fee or charge to pay online. For others, the fee is nominal. Compared to the cost of postage, check writing fees and trips to the post office, individuals paying their bills online can save hundreds of dollars per

year. In this day and age, reducing expenses is quite important for many individuals. Moreover, despite the belief of many to the contrary, e-payments are secure.

According to Cobb, 2005, electronic payments have a significant number of economic benefits apart from their convenience and safety. These benefits when maximized can go a long way in contributing immensely to economic development of a nation.

Automated electronic payments help deepen bank deposits thereby increasing funds available for commercial loans – a driver of all of overall economic activity. Efficient, safe and convenient electronic payments carry with them a significant range of macro-economic benefits. “The impact of introducing electronic payments is akin to using the gears on a bicycle. Add an efficient electronic payments system to an economy, and you kick it into a higher gear. Add better-controlled consumer and business credit, and you notch up economic velocity even further.” (ibid)

2.1.3.4 Point of Sale (POS)

POS is an electronic payment device, which enables individuals to make purchases with electronic cards. POS accepts ATM cards for payment of goods and services. This card stores account information on microchips. The microchip contains a purse in which monetary value is held electronically. The card can be used to make purchase of goods and services online, in Hotels, supermarkets, shopping malls, and other market places. POS allows cardholders to have a real-time online access to funds and information in their bank account through debit or cash cards.

A Point of Sale terminal (PoS) is an electronic device used to process card payments at retail locations. It reads card information and it process payment on that card for the transaction effected immediately. This is an important infrastructure for an effective e-payment system and will enhance efficient cashless policy. (Ibrahim & Maiwada, 2014)

POS networks link point-of-sale terminals and allow the use of payment cards for the purchase of goods and services in various locations. Debit cards are linked to a bank account and allow cardholders to charge purchases on POS or ATM withdrawals directly and individually to this account. Consequently, when a cardholder uses a debit card, the amount is typically debited from the account either immediately or within a few days and there is no postponement of payment. (European Central Bank, 2010)

2.1.3.5 POS System Stakeholders

According to Gomzin, (cited by SANS Institute) the primary stakeholders for today's POS systems are as follows: consumers, merchants, acquirer, issuer, card brand companies, payment processors, payment gateways, software vendors, and hardware vendors.

Consumers are those people that use payment cards for the purchase of goods.

Merchants are businesses who accept payment cards as a form payment for goods and services. Merchants are also the implementers of the POS systems.

An acquirer, also referred to as an acquiring bank, handles authorization requests from payment processors and settles the transaction with the card issuer.

Issuers provide the cards to consumers and maintain the payment card accounts.

Card Brands, also referred to as card networks (e.g. VisaNet), manage the overall process of authorization and settlement.

Payment gateways, though they are not always used, provide the ability to switch between payment processors without having to make significant changes to a store's payment application.

Software vendors provide the payment application and other software used in the payment process.

A **payment processor** receives transactions from merchants and then contacts the proper acquirer (i.e. a middle man).

Hardware manufacturers develop the pin pads and magnetic stripe readers (MSR) that most of us have used at store to swipe our payment card when paying for a good or service (Gomzin, 2014, More Players).

2.1.3.6 POS Payment Process

As per Gomzin, 2014 (Cited in SANS Institute, 2014), with a firm understanding of the overall POS system's technologies and stakeholders, the final area to look at before digging into the cyber security details is the actual payment process. In general, there are two payment process stages: authorization and settlement. Authorization is a term used to represent the state of the payment process to the point where the purchase is finalized (Figure 1). This stage is where most attacks occur as the payment card data is sent through the entire system.

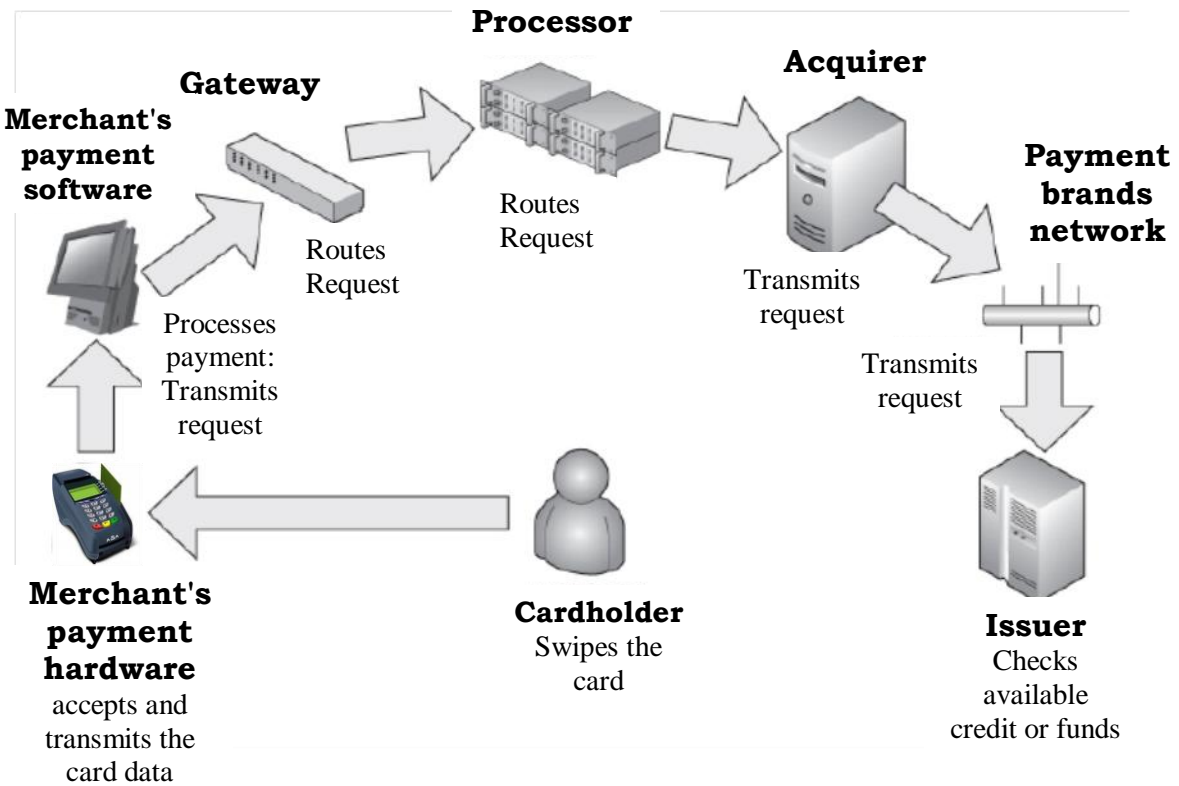


Figure 1: POS Authorization Process (Gomzin, 2014, Payment Stages)

Settlement is a term used to represent what happens after the sale to settle the account balances between all parties (i.e. merchant, acquirer, and issuer) (Figure 2). Though, this stage is not normally thought of as a vulnerable stage, there is some weakness in the fact that most store transactions are stored at the store for a set period of time in a large group known as a batch. (ibid)

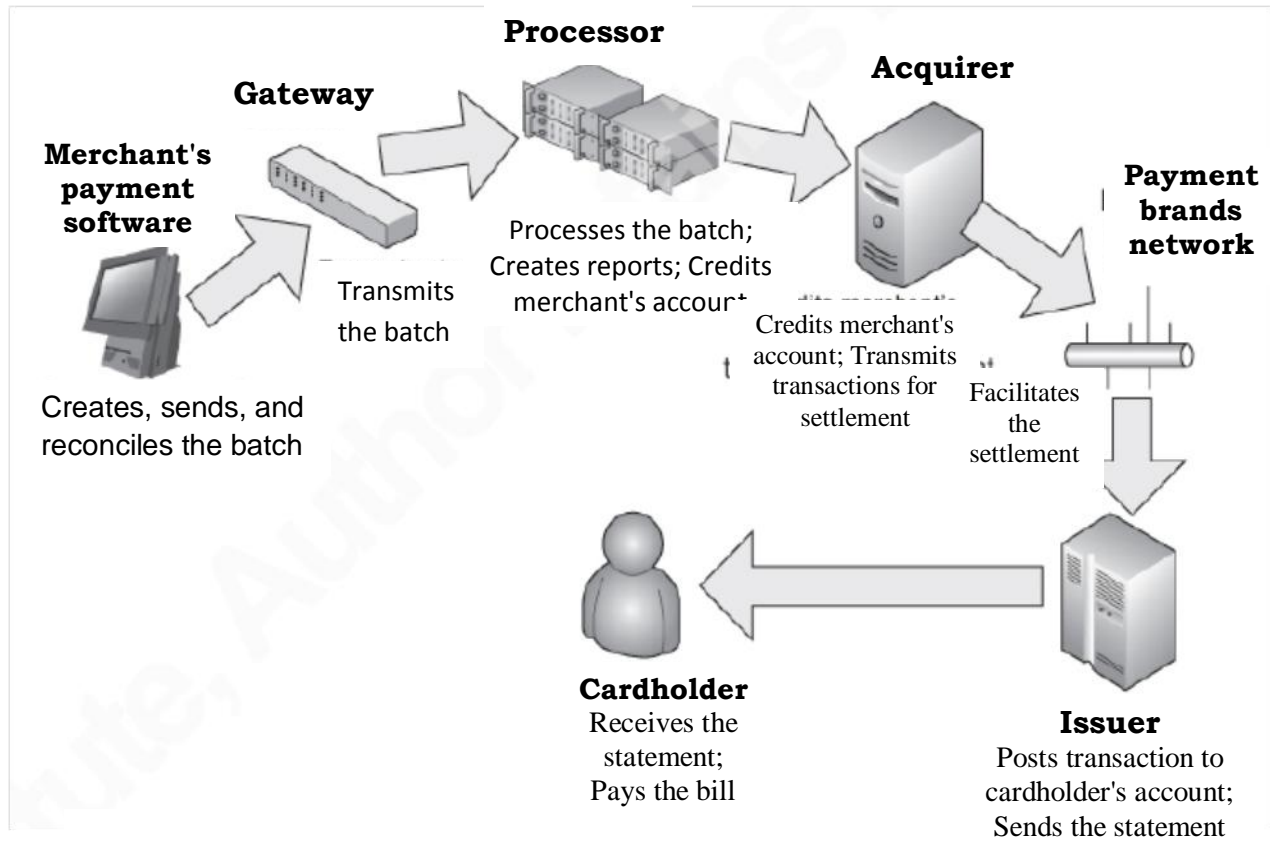


Figure 2: POS Settlement Process (Gomzin, 2014, Payment Stages)

2.1.3.7 Ensuring the Security of Communication Networks

The most critical issue for payment systems' communication networks is the security of the information transferred within them. In order to achieve a high level of security, a payment system must ensure the following for all data exchanged via its communication network.

Authenticity of the data: Authentication allows a payment system to ensure that the senders and recipients of messages are really who they claim to be.

Integrity of the data: Integrity in communication networks means that the recipients of messages can be sure that the information transmitted has not been manipulated in an unlawful manner.

Confidentiality of the data: Confidentiality is achieved by allowing only network participants to view the information exchanged via the network.

Non-repudiation of the data: Non-repudiation is a mechanism providing evidence of both the identity of the sender of a message and the integrity of that message, such that the sender is unable to deny the submission of the message or the integrity of its content.

2.1.4 Development of E-payment in CBE

Electronic payment is mostly referred to automated payment or banking channels that allows delivery of banking services in an effective, efficient and convenient way via electronic channels such as ATM, POS terminals, mobile phones, internet, and personal computers. The CBE is a pioneer to introduce electronic payments in the country when it launched proprietary ATM system in 2002. However, the bank found it important to set up a new solution for electronic payment services which is capable of supporting its business growth requirements. Accordingly, the bank has implemented card payment services, mobile payment, and internet banking. (E-payment procedure, CBE, 2012)

According to the newly revised E-payment procedure of the bank, electronic payment is spreading rapidly as it leads to much lower costs and greater competition in the financial services. The adoption and growth of e-payment facilities is becoming imperative towards creating a cashless society. The most recognized drivers for growth of e-banking include convenience, reliability, wider availability, affordability and usefulness of the services are increasingly sought for ease of livelihood of the populace at large. Electronic payment assists in attracting unbanked individuals into the banking system allowing improvement in personal money management along with enhanced financial empowerment. (E-payment procedure, CBE, 2016)

2.1.4.1 The forms of e-payment in CBE include:

- ◆ Automated teller machines (ATM) (introduced in 2002)
- ◆ Point of Sale (POS) (introduced in 2012)
- ◆ Payment Cards (Debit, Prepaid) (introduced in 2012)
- ◆ Internet banking (introduced in 2012)
- ◆ Mobile banking; (introduced in 2012)

Table 2 Level of e-payment instruments at CBE

Payment Instruments	Year			
	2012/2013	2013/2014	2014/2015	2015/2016
ATM	258	433	644	889
POS	206	244	1,886	6,269
ATM Card Holders	300,470	973,762	1,604,363	+3,000,000 ³
Mobile Banking users	9,236	119,912	458,909	716,454
Internet Banking users	215	1,771	7,838	15,481

(Source: Gathered from annual reports of the bank)

2.1.4.2 POS Terminal at CBE

According to different booklets and the E-payment procedure of the bank, POS Terminal is a modern electronic instrument that enables customers to make payments for their shopping using different kinds of cards.

2.1.4.2.1 Types of POS Terminal at CBE

Taking the business process of businesses and service organizations in to consideration, the Commercial Bank of Ethiopia has introduced two types of Point of Sale terminals.

a. Fixed Type POS terminal /DIALUP or ADSL

This machine performs all the functions of POS Terminal but requires direct telephone line connection for its operation. So, the machine is designed and advisable for business organizations that have permanent or fixed payment center.

b. Movable Type of POS Terminal /GPRS

This machine performs all the functions of a POS Terminal without requiring connection to a direct telephone line. It functions well in areas where there is mobile telephone connection and it demands adequate mobile network coverage. It is recommended for business and service organizations that do not have fixed payment centers and in areas where the direct telephone line is incapable of carrying information.

³ Active 1,580,536 (June 30, 2016 Position)

2.1.4.2.2 POS Terminal Acquiring Businesses and Requirements

According to the E - payment procedure of the bank, POS Terminals are utilized in businesses ranging from retail shops to large businesses where massive transactions made with exchanges of high financial value.

Requirements for Acquiring POS Terminal

Potential merchants shall fulfill the following requirements in order to apply for POS services.

- Opening / maintaining account at CBE branch
- Holding renewed Trade License and TIN certificate (for all businesses)
- Filling merchants application form and
- Signing merchant contract agreement with the Bank.

CBE's POS Terminal Services

Some of the services business organizations get for using CBE Point of sale (POS) terminals are listed below:

- Purchase: settling different purchases and payments through cards.
- Purchase Reversal/Void Payments: to reverse unwanted transactions before the conclusion of the day's sales.
- Reprint/Report: reprinting receipts and producing various reports of the daily sale.
- Batch; to produce end of day reports.
- Preauthorization: making advance payments to hotels, hospitals and other organizations. It starts the purchase process by confirming that the Pre-authorization amount is available on the card and then placing a hold on that amount. This is useful if the final amount of the transaction is not known.

2.1.5 Challenges and Opportunities of Implementing POS Terminal

2.1.5.1 Challenges of Implementing POS Terminal

According to Technology Acceptance Model (TAM) that was developed by Davis (1986) (Figure 1) to explain why users adopt or rejects an innovative information system, an individual's behavioral intention to adopt a system is determined by two beliefs, perceived usefulness and perceived ease of use.

2.1.5.1.1 Perceived Usefulness

Perceived usefulness is a person's subjective perception of the usefulness of a system. It is defined as 'the degree to which a person believes that using a particular technology would enhance his or her job performance. Perceived usefulness can be approached from the perspective that using the technology would improve the way a user could complete a given task. This implies that people tend to adopt or use a technology to the extent they believe it will help them perform their job better.

2.1.5.1.2 Perceived Ease of Use

Perceived ease of use defined as the degree to which an individual believes that using a particular system would be free from physical and mental efforts. It follows that such system should be easy to use without stress. It describes individual's perception of how easy the innovation is to learn and to use. These two factors have been empirically justified as important factors determining the adoption and use of new information technology. A key purpose of TAM, therefore, is to provide a basis for tracing the impact of external factors on internal beliefs, attitudes, and intentions. 4

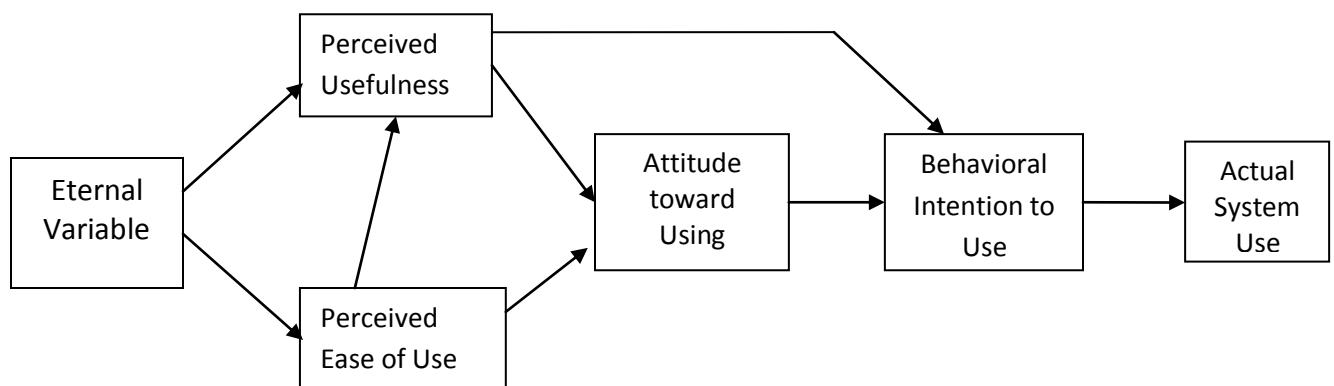


Figure 3: Technology Acceptance Model (TAM)

2.1.5.1.3 Infrastructure

Banking Supervision Directorate (BSD) of the National Bank of Ethiopia (NBE) stated the challenges for the application of technology in Ethiopian banks as follows: "despite all its

⁴ Cited by Davis, Bagozzi & Warshaw, 1989

advantages, technology is not free from risks. That means, we cannot be free from cyber security threat. Disruptions related to frequent power and network failures could also be perceived. These together with high initial investment cost, lack of expertise, lack of adequate legal/regulatory framework for e-commerce and e-payment, low level of internet penetration, and less developed telecom infrastructure in remote areas are the main challenges." (Birritu No.123, 2017)

In addition, the annual performance reports of CBE indicated that, Network & Power interruption, low level of public awareness in using E-payment products and services, employees' lack of awareness on E-payment products are some of the challenges for adopting E-payment products and services. (Annual Performance report, 2013/14)

2.1.5.2 Opportunities of Implementing POS Terminal in the CBE

2.1.5.2.1 ICT Infrastructure Development

The government has given a considerable attention to ICT as expressed in its ICT Policy. Moreover, the State owned Ethio Telecom has invested huge fund to implement state-of-the-art telecommunication infrastructure that provides national information link. This has an essential role in laying the foundation for e-payment.

According to the Ministry of Communication and Information Technology (MCIT), “the Ethiopian Government has made the development of information and communications technology (ICT) one of its strategic priorities. One of the guiding principles of the Ethiopian government ICT policy is the government shall actively collaborate with the private sector, civil society organizations and communities to promote and encourage the use of ICT towards transforming Ethiopia to a knowledge and information age. The policy also promotes the necessary coordination to establish cooperative practices and spirit amongst various stakeholders for a cost-effective development of ICT.

The national operator, Ethio Telecom provides fixed, mobile, Internet and value added services. In addition, it provides dialup Internet, CDMA 2000 wireless Internet, ADSL and wireless Internet using AIRONET, VSAT, and EVDO.” (MCIT official website, <http://www.mcit.gov.et/>)

2.1.5.2.2 Business growth of the bank

The continuous increased accessibility of the bank could possibly be perceived as a good opportunity for POS terminal deployment. The number of branches increased to 1150 at the end of June 2016 from 547 in June 2012, which indicated about 101% increase. The customer base of

the bank also grew from 3.9 million at the end of June 2012 to 13.3 million in June 2016, which is about 241% increase. Moreover, the number of ATM cardholders went up from 300,470 in 2013 to +3,000,000 in 2016.

2.1.5.2.3 Policy Direction of the NBE

According to Banking Supervision Directorate (BSD) of the National Bank of Ethiopia (NBE) Policy direction has been set as to what is expected of each bank in terms of using technology facilities. The Directorate said, "Technology is a key ingredient for ensuring financial service access, efficiency, and effectiveness to the public. From this perspective, we expect investment on IT to grow, capacity of financial service providers to be enhanced, financial literacy and capability including how to use technology driven financial products and services to take shape, regulatory capacity and framework in area of technology to be strengthened, technology risk management to be further strengthened, and above all more synergy to be created through collaboration with all stakeholders. (Birritu No.123, 2017)

Moreover, the recent news (NBE's Newsletter, May 2017) by the NBE, stated that 'National Financial Inclusion strategy' has been approved by the Council of Ministers. The news underscored that, the National Financial Inclusion strategy includes the expansion of electronic payment systems such as POS terminals in addition to banks' branches expansion.

2.1.5.2.4 Increased acceptance of POS payment system by consumers

As indicated on the annual reports of the bank, the number of deployed POS terminals has been increasing from year to year (Figure 4). Moreover, the number of transaction and the amount or volume of transaction made by POS terminals are also increasing from time to time.

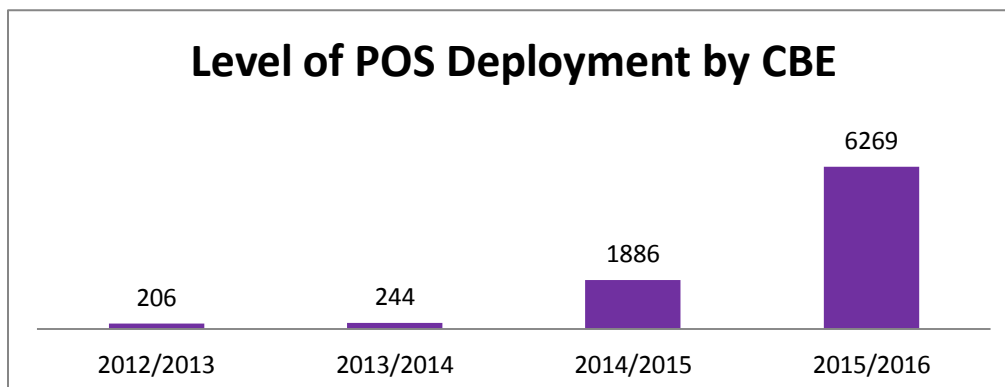


Figure 4: Level of POS Deployment (Source: annual performance reports of the bank)

2.2 Empirical Literature

Challenges and Opportunities of Implementing POS terminals

Adeoti, O. O. 2013 analyzed the challenges to the efficient use of point of sale (POS) terminals in Nigeria. The study used cross sectional data collected from 650 randomly sampled respondents from 20 local government areas of Lagos State, Nigeria. The collected data analyzed using Friedman and Kendall ranking order test. The finding of the study showed that that the most challenging factor to the efficient use of POS is network failure, frequent power outage; limited numbers of POS per merchant store where they are available, security of communication over the network and unavailability of the POS at all merchant stores.

Kumaga (2010) the study investigated the challenges of implementing and using electronic payments in Ghana. The study used primary data collected through deep interviews with Ghana Interbank Payment and Settlement Systems and senior officials of some of the major banks in Ghana. Questionnaires were also distributed to shops and individuals that use e-zwich and debit cards. According to the study, despite the numerous benefits that electronic payments bring to the nation, banks and individuals, it also has its own challenges. The challenges as discussed in the study can be categorized into four main groups viz. Security, Infrastructure, Legal & Regulatory issues, as well as Socio-Cultural issues.

Zulu (2006) identified the challenges of e-Payment in Africa as inadequate telecommunication infrastructure, which include: connectivity failure in telephone lines; low Internet bandwidth; high Internet cost, unavailability of dedicated data service networks; and close financial networks as well as frequent power interruption. Similarly, he identified lack of proper legal and regulatory framework and low level of credit access as the other challenges.

According to outcomes of the **Global Payment Systems Survey 2010** by the World Bank, in most high-income economies POS terminals are growing at a faster rate than ATMs, while the opposite is true for low income economies. This appears to be correlated with the significantly higher per capita cashless transactions for high-income countries. Furthermore, obstacles for a faster development of payment card systems, especially in lower income countries include the very limited accessibility of bank accounts for individuals, limited competition and innovation in the banking industry, and lack of knowledge and trust by the average customer in payment cards and related systems. (The World Bank, 2011)

Wondwossen and Tsegai (2005). In their study on 'E-Payment: Challenges and Opportunities in Ethiopia' described the major challenges of e-payment in Ethiopia as poor telecommunication infrastructure, frequent power disruption, are resistance of people to new payment mechanisms, lack of skilled manpower, unavailability of payment laws, and regulations particularly for e-payment.

Gardachew W.(2010) in his study electronic banking in Ethiopia-Practices, opportunities and challenges listed that the main opportunities were opportunities offered by ICT through e-learning programs, late adaptor opportunities, the help given by UNECA, World Bank and UNCTAD and commitments of the government in considering ICT as an indispensable tool to alleviate poverty and the state GTP.

Un-served market, stable and secure political environment, rapidly growing mobile infrastructure, availability of delivery channels (outlets), safe and sound financial sector are the most important opportunities in Ethiopia.

2.3 Conceptual Framework

From the theoretical and empirical literature reviews, the following conceptual framework of the study is developed by the author. The research framework consists of constructs adapted from TAM2, which is the extension of TAM model proposed by Venkatesh and Davis (2000)

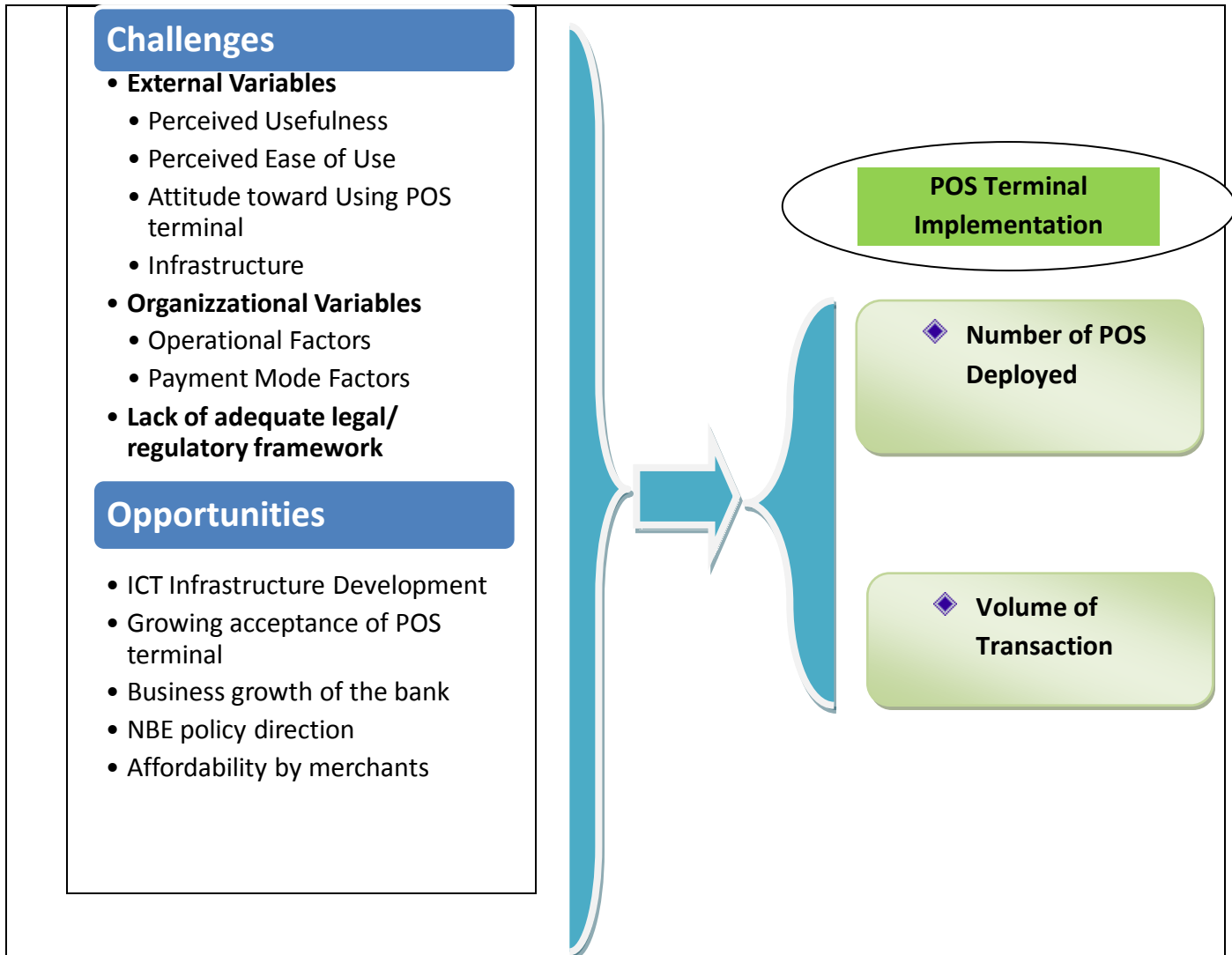


Figure5. Conceptual Framework (Modified TAM2)

(Source: TAM2 Modified by author)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the research methodology to be used in the study is described. The geographical area where the study was conducted (i.e. study setting), the study design and the population and sample are described. The instrument used to collect the data, including methods implemented to maintain validity and reliability of the instrument are described.

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it, we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them. (Kothari, 2004)

3.2. Research Design

The preparation of the research design, appropriate for a particular research problem, involves usually the consideration of: the means of obtaining the information; the availability and skills of the researcher and his staff (if any); explanation of the way in which selected means of obtaining information will be organized and the reasoning leading to the selection; the time available for research; and the cost factor relating to research, i.e., the finance available for the purpose. (Kothari, 2004)

Qualitative research methods focus on discovering and understanding the experiences, perspectives, and thoughts of participants—that is, qualitative research explores meaning, purpose, or reality. Quantitative research methods attempt to maximize objectivity, replicability, and generalizability of findings, and are typically interested in prediction.

For the purpose of this study, after examining the objectives and research questions of the study mixed methods, which combine qualitative and quantitative methods in ways that apparently bridge their differences in the service of addressing a research question had been chosen. Johnson and Turner (2003) have argued that the fundamental principle of mixed methods research is that multiple kinds of data should be collected with different strategies and methods in ways that reflect complementary strengths and non-overlapping weaknesses, allowing a mixed

methods study to provide insights not possible when only qualitative or quantitative data are collected.

3.3 Study Setting

The study was conducted at Addis Ababa city where four district offices of the bank are located and more than 80% of POS terminals deployed by the bank is found. Moreover, the E-payment process of the bank is also found in the city.

3.4. Data Collection

3.4.1 Data Source

The study used both primary and secondary data. Primary sources of data include interview and questionnaire, whereas secondary sources of data are generated through a review of relevant documents and official web pages.

3.4.2 Data Collection Technique

As stated earlier, the study applies a mix of qualitative and quantitative research methods. Quantitative is predominantly used as a synonym for any data collection technique (such as a questionnaire) that generates or uses numerical data. In contrast, qualitative is used predominantly as a synonym for any data collection technique (such as an interview) that generates or use non-numerical data. Hence, the study would adopt both quantitative and qualitative data gathering techniques. This method is called Triangulation.

As per Saunders et al. (2009), triangulation refers to the use of different data collection techniques within one study in order to ensure that the data are telling you what you think they are telling you. For example, qualitative data collected using semi-structured group interviews may be a valuable way of triangulating quantitative data collected by other means such as a questionnaire.

Two questionnaires were used to collect the data. One for the customers (merchants) of the bank and the other one for clerical staff at different units of the bank. The questionnaires consist mostly of closed-ended questions. The questionnaires for merchants are in both English and Amharic to enable those who do not understand English to complete them in Amharic. Moreover, qualitative data would be obtained through semi-structured interviews.

3.5 Population and Sampling

3.5.1 Target population

The population for this study, for both the qualitative and quantitative data collection methods, comprised of all marketing officers at the four district offices, all clerical staff at different units of E-payment process, namely; E-payment operation team, E-payment Business solution team and E-payment technical team and users of POS payment system. The POS system users identified include hotels and other merchant premises using point of sale (POS) terminals to accept payments for goods and services.

The population for this study was stratified before sampling first by category of sampling unit. According to Kothari (2004), a decision has to be taken concerning a sampling unit before selecting sample. Sampling unit may be a geographical one such as state, district, village, etc., or a construction unit such as house, flat, etc., or it may be a social unit such as family, club, school, etc., or it may be an individual.

Accordingly, the researcher decided to select the following four sampling units for the study.

- E-payment process
- The four district offices
- Branches and Merchant premises (Hotels, Supermarkets etc.)

3.5.2 Sampling techniques

To answer the research questions and to meet the objectives of the study, this thesis adopted a non-probability sampling called purposive sampling technique.

Purposive or judgmental sampling enables us to use our judgment to select cases that will best enable us to answer our research question(s) and to meet our objectives. Purposive sampling is considered desirable when the universe happens to be small and a known characteristic of it is to be studied intensively. Also, there are conditions under which sample designs other than random sampling may be considered better for reasons like convenience and low costs. (Kothari, 2004, Saunders et al, 2009)

3.5.3 Sample Size

According to Saunders et al, (2009), for all non-probability sampling techniques, other than for quota samples the issue of sample size is ambiguous and, unlike probability sampling, there are no rules. Rather the logical relationship between your sample selection technique and the

purpose and focus of your research is important), generalizations being made to theory rather than about a population. Consequently, your sample size is dependent on your research question(s) and objectives.

Therefore, since the objective of this study is to identify the challenge and opportunities of implementing POS terminal in CBE, the researcher decided to take 35 respondents from districts and e-payment units of the bank and 25 respondents from branches. Moreover, 30 respondents were selected from merchant premises. The process used for drawing the sample from the sample units is based on their familiarity with E-payment system, particularly POS terminal. Moreover, subject included in the sample were selected to meet specific criteria. The merchants had to meet the following criteria to be included in the sample. Merchant with one year or more services in providing POS terminal to public. Thus, this project paper used purposive sampling method to draw the sample from the population.

3.6 Data Analysis Techniques

After collecting the data, it was organized and analyzed. In order to meet the objectives of the study, the collected data were analyzed based on the nature of the data. Accordingly, the data collected via questionnaires was analyzed with descriptive statistics using Statistical Package for Social Sciences (SPSS) V.20. Moreover, the data that were collected from the interview and reviews of documents were interpreted qualitatively.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

Data collected using different techniques were analyzed in this section by using triangulation approach. A total of 90 questionnaires were distributed to clerical staff of CBE at e-payment process, districts and branches found in Addis Ababa and merchants with different business types such as hotels, supermarkets and so on. 60 questionnaires were sent to the CBE's staff and 30 questionnaires to the merchants. Out of the total 90 questionnaires, 84 (i.e.57 (95%) from employees of the bank and 27 (90%) from merchants) useable valid questionnaires with no missing were obtained with 93.3% response rate. In addition to the survey questionnaire, the researcher conducted an interview with key informant managers and team leaders at the mentioned work units and, reviews some available bank documents regarding POS terminal services.

4.2 Demographic Information of the Respondents

Demographic profiles of the respondents who participated in the study were analyzed using descriptive analysis with the help of SPSS. The result of the survey is shown in Table 4.1 as follows:-

Table 4.1 Frequency Analysis of Respondents' Demographic profile

Variable	Category	Frequency	Percent
Gender (Employees)	Male	28	49.1
	Female	29	50.9
	Total	57	100
Gender (from merchant)	Male	15	55.6
	Female	12	44.4
	Total	27	100.0
Age (Employees)	18 - 30	31	54.4
	31 - 40	23	40.4
	41 - 50	3	5.3
	Total	57	100.0
Age (From Merchants)	18 - 30	15	55.6

	31 - 40	10	37.0
	41 - 50	2	7.4
	Total	27	100.0
Educational level (Employees)	First-degree holder	41	71.9
	Masters or above	16	28.1
	Total	57	100.0
Educational level (From merchant)	Diploma	8	29.6
	First-degree holder	15	55.6
	Masters or above	4	14.8
	Total	27	100.0
Job position (Employees)	Marketing officer	22	38.6
	Team leader	7	12.3
	CSM	10	17.5
	Manager (Branch, E-payment units)	7	12.3
	Associate IT Officer	5	8.8
	Other	6	10.5
	Total	57	100.0
Service Year (Employees)	1 - 3 years	18	31.6
	3 - 5 years	12	21.1
	5 - 7 years	5	8.8
	More than 7 years	22	38.6
	Total	57	100.0
Years of experience with POS related activities	0 - 1 year	8	14.0
	1 - 2 years	14	24.6
	2 - 3 years	24	42.1
	3 - 5 years	11	19.3
	Total	57	100.0
Years of experience with POS related activities	0 - 1 year	2	7.4
	1 - 2 years	8	29.6
	2 - 3 years	13	48.1
	3 - 5 years	4	14.8
	Total	27	100.0
How did you start using CBE's POS terminal in your business?	I requested the bank to acquire POS services.	2	7.4
	The bank lodged the request to them.	24	92.6
	Total	27	100.0
Business Type (for merchants)	Hotel	10	37.1
	Supermarket	7	25.9

	Tour & Travel agency	4	14.8
	Retail shop	6	22.2
	Total	27	100.0
Which payment system would you like to prefer for your business (merchants)	Cash	17	63.0
	Cards	10	37.0
	Total	27	100.0

(Source: Survey result, 2017)

The demographic information of respondents who took part in the study, shown in Table 4.1 reveals that 43 (51.2%) were male while 41 (48.8%) were female. Moreover, the demographic information on the respondents' age reveals that 46 respondents representing (54.8%) have their age fall within 18-30 years of age; 33 (39.3%) respondents have their age fall within the age group of 31-40 years. A total of 5 (5.9%) respondents have their age fall within the age group of 41-50 years.

Regarding the respondents' educational qualification, the results as shown in the above table, indicates that 41 (71.9%) of the employees of the bank and 15 (55.6%) of the merchants hold first degree. 8 (29.6%) respondents from merchants are holders of diploma. Respondents who hold Masters' degree and above amounted to 20 (23.8%), 16 from employees of the bank and 4 from merchants. On the respondents years of experience, the results indicate that majority (i.e. 22 (38.6%)) of the employees of the bank have more than 7 years of working experience. This is followed by 18 (31.6%) respondents who have their years of working experience between 1 - 3 years; 12 respondents representing (21.1%) have 3-5 years of working experience and 5 respondents (8.8%) have between 5 and 7 years of working experience. The demographic profile of the respondents shows that the combination of personnel that the bank has are young, first-degree holders, and experienced.

On the other hand, when we see the job positions of the employees of the bank who participated on the survey, 22 (38.6%) are marketing officers; 10 (17.5%) are customer service managers from different branches. Team leaders and managers at different unit of the bank represent 7(12.3%) each. 5 (8.8%) respondents are associate IT officers.

On the response to the question about years of experience with POS related activities, the result shows that 52 (61.9%) of the total respondents have been doing POS related activities for more than 2 years.

In the answer to the question, "How did you start using CBE's POS terminal in your business?" only 2 (7.4%) of the respondents (merchants) replied that they requested the bank to acquire POS services. The remaining 24 (92.6%) respondents answered, "it was the bank that lodged the request to them." When we look into the payment mode preference of merchants, the highest percentage of the participants, 17 (63.0%) replied to prefer cash, and the remaining 10 (37%) prefer to accept payment cards. The merchants' preference of cash over payment cards implies that there are challenges related to accepting payment cards on POS terminals.

Table 4.2 Technology tools and E-payment instrument Usage

Technology tools and E-payment instrument		Daily		Weekly		Rarely		Not at all	
		Frq*	%	frq	%	frq	%	frq	%
Technology tools	Mobile	27	100	-	-	-	-	-	-
	Computer	20	74.1	-	-	2	7.4	5	18.5
	Cash register	25	92.6	-	-	-	-	2	7.4
	E-mail	16	59.3	2	7.4	4	14.8	5	18.5
	Fax	4	14.8	-	-	10	37.0	13	48.1
	Internet	16	59.3	2	7.4	4	14.8	5	18.5
E-payment instrument	ATM	7	25.9	14	51.9	4	14.8	2	7.4
	Mobile Banking	2	7.4	6	22.2	3	11.1	16	59.3
	Internet Banking	4	14.8	-	-	3	11.1	20	74.1
	POS	10	37.0	9	33.3	6	22.2	2	7.4

(Source: Survey result, 2017) *frq = frequency

Table 4.2 shows respondents' (from merchants) status on the usage of Technology tools and E-payment instruments. As clearly illustrated in the table, among the mentioned list of technology tools, almost all participants are using mobile and cash register in daily basis. Moreover, 20 (74.1%) respondents use computer and 16 (59.3%) use e-mail and internet in daily basis. On the other hand, when we see the usage of electronic payment instruments, 7 (25.9%) and 10 (37.0%) of the respondents use ATM and POS terminals, respectively, on the daily basis. While 14

(51.9%) and 9 (33.3%) respondents use the same payment systems (ATM and POS, respectively) on weekly basis. However, most respondents do not use mobile banking and internet banking at all. From these responses, we can say that most of the respondents of merchants are familiar with some technologies and therefore would not face difficulty in using POS terminal for payments. Yet, most of the respondents do not use the electronic payment instruments particularly, mobile banking and internet banking at all. Therefore, here awareness creation on the use and benefits of electronic payments has to be done to enhance the number of e-payment products users, particularly mobile and internet banking users, which have direct implication on the adoption of POS terminal.

4.3. Challenges of Implementing Point of Sale (POS) Terminal

4.3.1 External Variables

Result obtained from survey respondents of merchants and employees of CBE regarding their perception towards the usefulness of the POS terminal payment system using descriptive statistics are depicted below:-

Table 4.3 Perceived Usefulness

	Question: Using POS payment system	Strongly Agree f (%)	Agree f (%)	Neutral f (%)	Disagree f (%)	Strongly Disagree f (%)	Total f (%)
Merchants	Reduces costs and time related to cash management	21 (77.8)	6 (22.2)	-	-	-	27 (100)
	Would Improves the quality of business transactions	18 (66.7)	9 (33.3)	-	-	-	27 (100)
	Would increase the number and volume of transactions.	21 (77.8)	6 (22.2)	-	-	-	27 (100)
	Prevents accepting forgery and illegal cash	25 (92.6)	-	-	-	-	25 (92.6)
	Reduces frauds relating to cash and other payment instruments such as check	21 (77.8)	2 (7.4)	2 (7.4)	-	-	25 (92.6)
	Provides greater convenience and security.	12 (44.4)	11 (40.7)	2 (7.4)	-	-	25 (92.6)
E	Merchants perceive that using POS terminal would enhance	10 (17.5)	27 (47.4)	8	12		57

their business performance			(14.0)	(21.1)	-	(100)
Merchants prefer cash over POS terminals	12 (21.1)	37 (64.9)	-	8 (14.0)	-	57 (100)
Implementing POS terminal payment system improve customer services and creates better relationship between the bank and its clients.	14 (24.6)	30 (52.6)	6 (10.5)	7 (12.3)	-	57 (100)

(Source: Survey result, 2017)

Result obtained from the survey of respondents of merchants and CBE's staff regarding merchants' perception towards the usefulness of the existing POS terminal payment system using descriptive statistics are depicted in table 4.3 above:-

The 9 questions (6 for merchants and 3 for employees of the bank) shown in table 4.3 above were forwarded to respondents to observe merchants' perception towards the usefulness of the POS terminal payment system.

The result shows that merchants perceived that using POS terminal payment system would enhance their job performance. This is because as can be seen from the table all merchants agreed that using POS terminal payment system, reduces costs and time related to cash management, would improve the quality of business transactions, would increase the number and volume of transactions, prevents accepting forgery and illegal cash and so on. Furthermore, about 65% of the respondents from employees of the bank agreed with the statement "Merchants perceive that using POS terminal would enhance their business performance." Yet 86% of the respondents from the bank's employees believe that merchant prefer cash over POS terminals. In addition, about 77% of the respondents agreed that implementing POS terminal payment system improve customer services and creates better relationship between the bank and its clients.

Hence, these perceptions measurement of merchants and employees of the bank regarding perceived usefulness can be taken as an opportunity, rather than challenge, to enhance the adoption of POS terminal payment system in CBE.

Perceived Ease of Use

Result obtained from survey respondents of merchants and employees of CBE regarding their perception towards the ease of use of the POS terminal payment system using descriptive statistics are showed below:-

Table 4.4 Perceived Ease of Use

Question: Using POS payment system		Strongly Agree f (%)	Agree f (%)	Neutral f (%)	Disagree f (%)	Strongly Disagree f (%)	Total f (%)
Merchants	Is more sophisticated than cash.	6 (22.2)	6 (22.2)	5 (18.5)	6 (22.2)	4 (14.8)	27 (100)
	Efficient and effective	17 (63.0)	4 (14.8)	4 (14.8)	2 (7.4)	-	27 (100)
	Is friendly and convenient	16 (59.3)	2 (7.4)	4 (14.8)	2 (7.4)	3 (11.1)	27 (100)
	Provides easy tackling of payment	18 (66.7)	2 (7.4)	7 (25.9)	-		27 (100)
Employees	The CBE's POS terminal is easy to use by consumers	22 (38.6)	28 (49.1)	2 (7.4)	5 (18.5)		57 (100)
	Merchants think that using POS terminals is more sophisticated than cash.	10 (17.5)	29 (50.9)	8 (14.0)	10 (17.5)		57 (100)

(Source: Survey result, 2017)

The research finding indicated in table 4.4 above; on the ease of use, about 87.7% of the respondents (CBE staffs) agree the ease of POS terminal in conducting transaction in business premises. This implies that it has no sophisticating and complication to work on POS terminal payment system. However, about 68% of the respondents agree with the statement "Merchants think that using POS terminals is more sophisticated than cash."

Moreover, pertaining to merchants' perception of ease of use of POS terminal payment system, this finding indicate that about 77.8% of the respondents agree that using POS payment system is efficient and effective; but about 5(18.5%) of the respondents disagree about the POS terminal payment system simplicity to use. The interview session also indicates that the available technology is accepted as easy; but people attitude make the thing difficult to apply; and if they started once, they perceive it is easy to use hence persist applying the POS terminal payment system.

In general, the results of the study showed that the perception of the majority of sampled merchants and staff towards perceived usefulness and perceived ease of use variables become positive that can be taken as an opportunity (not a challenge, as speculated prior to the study) for adoption of the POS terminal.

The result of this finding is consistent with the study by (Omotayo and Dahunsi Organisations, 2015) which stated that organizations would be motivated to adopt a technology such as POS due to its ease of use. The use of POS is simple, easy to use, clear, and understandable and does not require a lot of mental effort. This could be the motivation for the organizations to have adopted the technology.

Attitude toward Using POS terminal

The descriptive analysis of consumers' attitude toward Using POS terminal is indicated in the table 4.5 below

Table 4.5 Attitude toward Using POS terminal

Question:		Strongly Agree f (%)	Agree f (%)	Neutral f (%)	Disagree f (%)	Strongly Disagree f (%)	Total f (%)
Merchants	POS transactions are efficient and reliable	10 (37.0)	8 (29.6)	2 (7.4)	4 (14.8)	3 (11.1)	27 (100)
	I would prefer cash over card payment because of "tips"	11 (40.7)	6 (22.2)	6 (22.2)	2 (7.4)	2 (7.4)	27 (100)
	I prefer using POS payment system over cash because it's easier and convenient to use.	10 (37.0)	6 (22.2)	6 (22.2)	2 (7.4)	3 (11.1)	27 (100)
	I have a confidence and trust in the cash payments system than POS terminal	6 (22.2)	7 (25.9)	4 (14.8)	6 (22.2)	4 (14.8)	27 (100)
Employees	The attitude of Tellers is a challenge when transacting business with POS terminal	9 (15.8)	32 (56.1)	6 (10.5)	10 (17.5)		57 (100)
	Consumers have confidence and trust in the cash payments system than POS	14 (24.6)	28 (49.1)	5 (8.8)	10 (17.5)		57 (100)

terminal						
People are resistant to new payment mechanisms.	17 (29.8)	28 (49.1)	10 (17.5)	2 (3.5)		57 (100)
Tendency to be content with the existing payment system	9 (15.8)	33 (57.9)	10 (17.5)	5 (8.8)		57 (100)
Lack of Trust	7 (12.3)	41 (71.9)	5 (8.8)	4 (7.0)		57 (100)
Lack of tip	14 (24.6)	30 (52.6)	10 (17.5)	3 (5.3)		57 (100)
Fear of risk	14 (24.6)	32 (56.1)	4 (7.0)	7 (12.3)		57 (100)

(Source: Survey result, 2017)

Table 4.5 shows the descriptive statistics regarding attitude toward using POS terminal as a payment system. The result indicates that POS users at merchants' outlet (particularly tellers and waiters) prefer cash over POS terminal for different reasons. For instance, 11 (40.7%) of the respondents (of merchants) strongly agree and, 6 (22.2%) agree that they would prefer cash over card payment because of lack of tips with POS terminal payment system. 44 (77.2%) of the respondents (of employees of the bank) have the same opinion with the merchants' respondents in this regard. Nevertheless, the interview sessions with key informants portray that the bank has applied an incentive package that stays for limited period of time, perhaps to compensate such issues. For instance, business organizations would not pay commission for transaction made by foreign cards, though the bank incurs costs to settle such transactions. In addition, for transaction made through CBE cards a 0.5% commission was facilitated to business organizations.

On the other hand, 18 (66.6%) of the respondents from merchants confirmed that POS transactions are efficient and reliable. Moreover, about 16 (59%) of the merchants' respondents agree that they prefer using POS payment system over cash because it is easier and convenient to use.

The employees of the bank show high agreement with the merchants preference of cash over POS payment system by supporting most factors indicated in the above table. That means, the attitude of tellers (supported by 41 (71.9%)), confidence and trust in the cash payments system (supported by 42 (73.7%)), resistance to new payment mechanisms (agreed by 45 (78.9%)), tendency to be content with the existing payment system, lack of trust, fear of risks (supported by

42 (73.7%), 48 (84.2%), 46(80.7%) of the respondents, respectively). Moreover, the interview session also support the result of the survey indicating that all factors in this category have impact on adoption of the POS payment system.

Infrastructures

The descriptive analysis of the respondents about infrastructures such as network, power supply needed for POS terminal adoption is indicated in the table 4.6 below

Table 4.6 Analysis of Infrastructures

Question: Infrastructures		Strongly Agree f (%)	Agree f (%)	Neutral f (%)	Disagree f (%)	Strongly Disagree f (%)	Total f (%)
Merchants	Network failure is one of the challenges we face in using POS terminal	21 (77.8)	4 (14.8)	-	-	2 (7.4)	27 (100)
	Power outage does affect POS transaction	6 (22.2)	11 (40.7)	2 (7.4)	8 (29.6)	-	27 (100)
	We have sufficient POS terminal devices in our business premise(s)	9 (33.3)	12 (44.4)	2 (7.4)	2 (7.4)	2 (7.4)	27 (100)
	Lack of 'Interoperability of POS terminals' is a challenge in using POS terminals.	8 (29.6)	12 (44.4)	2 (7.4)	5 (18.5)		27 (100)
Employees	Network failure is one of the challenges in using POS terminals	45 (78.9)	10 (17.5)		2 (3.5)		57 (100)
	Power outage does affect POS transaction	17 (29.8)	19 (33.3)	11 (19.3)	10 (17.5)		57 (100)
	POS terminals are abundantly available in business premises.	11 (19.3)	12 (21.1)	7 (12.3)	27 (47.4)		57 (100)
	Lack of 'Interoperability of POS terminals' is a challenge in using POS terminals.	7 (12.3)	20 (35.1)	18 (31.6)	10 (17.5)	2 (3.5)	57 (100)

(Source: Survey result, 2017)

Regarding the infrastructure needed for the implementation POS terminal payment system, the above table shows that a total of 25 (92.6%) of the merchants' respondents (of which 21 (77.8%) strongly agree and 4 (14.8%) agree) confirm that network failure is one of the challenges they face in using POS terminal. This reaction is consistent with the bank's employees response, which shows 45 (78.9%) strongly agree and 10 (17.5%) agree, indicating 96.5% agreement. This

clearly shows that network connectivity plays a significant role in delivering POS terminal payment system. Regarding electricity supply 17 (62.9%) of the merchants and 36 (63.1%) of the employees agree that power outage does affect POS transaction. 8(29.6%) of merchants' respondents disagree while 2 (3.5%) respondents undecided (neutral), and 10(17.5%), 11(19.3%) respondents of the bank's employees agree and undecided respectively, that power outage does affect POS transaction. Concerning the accessibility of POS machines, 21(77.7%) of the merchants agree that they placed adequate POS terminals in their outlets. Yet, 27(47.4%) of the employees disagree, 7(12.3%) are impartial with the statement "POS terminals are abundantly available in business premises."

Interoperability of POS terminal is another factor taken to consideration in this study. In the context of this study, **“interoperability of POS terminals”** means that all payment cards issued by banks in the country can be used seamlessly in any POS terminal in the country. Accordingly, 20(74%) of the merchants confirmed that lack of 'Interoperability of POS terminals' is a challenge in using POS terminals. 27(47.4%) of the bank's staff have the same opinion, while 18(31.6%) are undecided, 10(17.5%) disagree, and 2(3.5%) strongly disagree on the issue. In addition, the interview session depicted that network failure and power outage are among the basic challenges in implementing POS terminal payment system. Furthermore, as indicated in the literature review part of this paper, the annual performance reports of the CBE indicated that, Network & Power interruption, low level of public awareness in using E-payment products and services are some of the challenges the bank face. However, concerning the 'Interoperability of POS terminals, the interviewees stated that they don't believe this factor being a challenge at the present time. This is because most banks in the country are at an infant stage regarding payment cards distribution.

4.3.1.2 Organizational Factors

Operational factors

The descriptive analyses of respondents' towards Operational factors such as employees knowledge to answer customer questions related to POS terminal, support and follow up etc is depicted in table 4.7 shown below

Table 4.7 Operational factors

Question: Operational factors -		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
		f (%)	f (%)	f (%)	f (%)	f (%)	f (%)
Merchants	Employees of the bank have the knowledge to answer customer questions related to POS terminal.	5 (18.5)	9 (33.3)	5 (18.5)	8 (29.6)	-	27 (100)
	Technical support is available 24 hours, 7 days a week	-	4 (14.8)	9 (33.3)	10 (37.0)	4 (14.8)	27 (100)
	Low support and follow up by the bank	9 (33.3)	6 (22.2)	7 (25.9)	5 (18.5)	-	27 (100)
	A specific legislation on consumer protection related to the usage of POS services is in place	2 (7.4)	2 (7.4)	12 (44.4)	9 (33.3)	2 (7.4)	27 (100)
Employees	Employees of the bank have the knowledge to answer customer questions related to POS terminal.		23 (40.4)	8 (14.0)	24 (42.1)	2 (3.5)	57 (100)
	Unclear strategy towards electronic payment system.	4 (7.0)	15 (26.3)	17 (29.8)	19 (33.3)	-	55 (96.5)
	Low support and follow up	8 (14.0)	26 (45.6)	3 (5.3)	13 (22.8)	7 (12.3)	57 (100)
	Lack of Coordination and cooperation between branches, districts and E-payment process	14 (24.6)	30 (52.6)	2 (3.5)	5 (8.8)	6 (10.5)	57 (100)
	Limited top management support	10 (17.5)	16 (28.1)	11 (19.3)	18 (31.6)	2 (3.5)	57 (100)
	Increases cost of the Bank.		16 (28.1)	5 (8.8)	27 (47.4)	9 (15.8)	57 (100)
	POS deployment is involuntary (as they are deployed by the bank without being solicited for the merchants)	2 (3.5)	16 (28.1)	11 (19.3)	22 (38.6)	6 (10.5)	57 (100)
	A specific legislation on consumer protection related to the usage of POS services is in place	2 (3.5)	25 (43.9)	15 (26.3)	13 (22.8)	2 (3.5)	57 (100)
	Lack of immediate responses by the bank in solving problems	2 (3.5)	37 (64.9)	6 (10.5)	8 (14.0)	4 (7.0)	57 (100)

Ambiguous roles and responsibilities on POS related activities (Procedural and guidance gap)	8 (14.0)	27 (47.4)	3 (5.3)	13 (22.8)	6 (10.5)	57 (100)
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(Source: Survey result, 2017)

As it is given in the above table, regarding operational factors related to POS terminal, 14(51.8%) of the merchants agree that employees of the bank have the knowledge to answer customer questions related to POS terminal. Moreover, in the response to the same question by employees of the bank, 8(14.0%) are impartial, 24(42.1%) disagree, and 2(3.5%) strongly disagree that employees of the bank have the knowledge to answer customer questions. Concerning support and follow up, 15(55.5%) of the merchants' respondents agreed that there is low support and follow up of POS terminals by the bank (i.e. 9(33.3%) strongly agree, 6(22.2%) agree); only 5(18.5%) of the respondents disagree, the remaining 7(25.9%) are impartial. Similarly, 34(59.6%) of the employees confirm that there is a low support and follow up of POS terminals by the bank. Yet, 20(35.1%) of the employees go against this thought.

Regarding a question on whether there is a specific legislation on consumer protection related to the usage of POS services in the bank, 12(44.4%) of the respondents from merchants are neutral, 9(33.3%) disagree, 2(7.4%) strongly disagree that there is a specific legislation. Likewise, 15(26.3%) of the employees are neutral and 15(26.3%) disagree with the existence of a specific legislation on consumer protection.

Furthermore, 19(33.3%) of the employees think that there is unclear strategy towards electronic payment system, though the same amount 19(33.3%) disagree with it, the remaining 17(29.8%) are impartial. 26(45.6%) agree that top management support is limited, whilst 20(35.1%) disagree with the issue, and 11(19.3%) are neutral.

On the other hand, regarding coordination and cooperation among different units of the bank in doing POS related activities, 14(24.6%) of the employees strongly agree, 30(52.6%) agree (i.e. a total of 44(77.2%) agree) that lack of coordination and cooperation between branches, districts and E-payment process is one of the factors that affect the implementation of POS terminal.

Lack of immediate responses by the bank in solving problems and ambiguous roles and responsibilities on POS related activities are also other factors that affect the adoption of POS terminals, which are supported by 39(68.4%) and 35(61.4%) of employees, respectively.

The interview sessions also indicated that there is a low support and follow up by the bank to the extent that merchants forget how to operate POS devices, in addition to employees' lack of knowledge in giving immediate and proper responses to consumers' request. Moreover, the result from the interview showed that, there has been no clear strategy towards e-payment system implementation. However, according to the interviewees, recently the bank has finalized e-payment strategy of the bank and waiting for the approval by the process council. An ambiguous ownership, which creates lack of coordination and cooperation between branches, districts, and E-payment process, is also another challenge that was identified by the interviewees.

In general, along with the analysis of in-depth interviews conducted with key informants, data from questionnaire surveys indicate that among other things, employees' lack of knowledge related to POS terminal, inadequate support and follow up, lack of harmonization and collaboration among different units of the bank regarding POS terminals activities, lack of immediate responses by the bank in solving problems, unclear strategies towards e-payments are considered as some of the factors that hinders efficient implementation of POS terminals. However, some of these challenges could be solved by making the 'call center' of the bank well established, as stated by the interviewees.

Payment Mode Factors

The descriptive analyses of respondents' towards payment mode factors is depicted in table 4.8 shown below

Table 4.8 Payment Mode Factors

Question: -Payment Mode Factors the following characteristics of payment systems are among the factors that make customers of the bank to prefer cash to POS terminal.		Strongly Agree f (%)	Agree f (%)	Neutral f (%)	Disagree f (%)	Strongly Disagree f (%)	Total f (%)
Merchants	POS deployment is involuntary (as they are deployed by the bank without being solicited for the merchants)	7 (25.9)	10 (37.0)	10 (37.0)	-	-	27 (100)
	Impatience of customers	13 (48.1)	10 (37.0)	2 (7.4)	2 (7.4)	-	27 (100)

	low awareness about the possibilities, advantages/disadvantages involved with POS terminal	9 (33.3)	4 (14.8)	6 (22.2)	6 (22.2)	2 (7.4)	27 (100)
	Fear of risk	10 (37.0)	8 (29.6)		6 (22.2)	3 (11.1)	27 (100)
	People are resistant to new payment mechanisms.	6 (22.2)	10 (37.0)	2 (7.4)	6 (22.2)	3 (11.1)	27 (100)
	Tendency to be content with the existing payment system	2 (7.4)	6 (22.2)	15 (55.6)	2 (7.4)	2 (7.4)	27 (100)
	Security of communication over the network	6 (22.2)	11 (40.7)	4 (14.8)	5 (18.5)		26 (96.3)
	Due to delays associated with access to funds after sales from the POS	6 (22.2)	8 (29.6)	7 (25.9)	6 (22.2)		27 (100)
	Lack of trained personnel in our organization	8 (29.6)	4 (14.8)	9 (33.3)	4 (14.8)	2 (7.4)	27 (100)
	Double Payments for single transaction	13 (48.1)	10 (37.0)			2 (7.4)	25 (92.6)
	I do have many failed transactions on POS terminals. (yet debiting or locking the accounts of cardholders)	10 (37.0)	12 (44.4)	2 (7.4)	3 (11.1)		27 (100)
Employees	Security of communication over the network	8 (14.0)	22 (38.6)	8 (14.0)	17 (29.8)	2 (3.5)	57 (100)
	Due to delays associated with access to funds after sales from the POS terminal	10 (17.5)	28 (49.1)	2 (3.5)	15 (26.3)	2 (3.5)	57 (100)
	Double debit of accounts for single transaction	11 (19.3)	27 (47.4)	2 (3.5)	17 (29.8)		57 (100)
	Deduction of customers account for failed transactions	19 (33.3)	25 (43.9)	2 (3.5)	11 (19.3)		57 (100)

(Source: Survey result, 2017)

As can be seen from the survey result in table 4.7 the following characteristics of payment systems are among the factors that make customers of the bank to prefer cash to POS terminal. Impatience of customers, which is supported by 23(85.1%) of merchants (i.e. 13(48.1%) strongly agree, 10(37.0%) agree). Moreover, 7(25.9%) strongly agree, 10(37.0%) agree, and the

remaining 10(37.0%) are undecided that POS deployment is involuntary (as they are deployed by the bank without being solicited for the merchants), this thought is confirmed by 18(31.6%) of employees of the bank, (with 2(3.5%) strongly agree and 16(%) agree).

Fear of risk and Security of communication over the network are other factors that make customers of the bank to prefer cash over POS terminal. These two thoughts are granted by 18(66.7%) and 17(63%) of merchants' respondents, respectively. Similarly, 8(14.0%) of the employees strongly agree, 22(38.6%) agree, while 19(33.3%) disagree and 8(14%) are impartial regarding the security of communication over the network.

On the other hand, errors due to network and system failures are also among other factors that enforce consumers to favor cash to card payment. As shown in the above table, 6(22.2%) of merchants strongly agree, 8(29.6%) agree that delays associated with access to funds after sales from the POS is one of the factors. Correspondingly, 10(17.5%) of the employees strongly agree, and 28(49.1%) agree with the delay being one of the factors. In addition, double debit of customers' accounts for single transaction because of connectivity problem is another factor affirmed by merchants and employees of the bank. As indicated in the table, 13(48.1%) of merchants strongly agree, 10(37.0%) agree, and 11(19.3%) of employees strongly agree, 27(47.4%) agree with the stated case. Moreover, deduction of customers' account for failed transactions is another case in which 19(33.3%) of the employees strongly agree and 25(43.9%) agree; along with 22(81.4%) affirmative merchants' response. This means majority of the merchants do have failed transactions on POS terminals, which is because of inefficient network connectivity.

Interviews conducted with some managers also revealed that: Most merchants are not ready for the electronic card payments. Sometimes points of sales are faulty thus denying customers the opportunity of using cards to purchase items. The interviewees underscored that though the aforementioned challenges are there, most of them can be managed by making internal system of the bank more efficient.

4.3.2 Opportunities of Implementing POS terminal

In spite of the aforementioned challenges in implementing POS terminals in the CBE, this project has made attempt to review existing opportunities in the bank and/or the country to adopt

POS terminal payment system. Accordingly, the following table summarizes the survey result of questions related to some existing opportunities to adopt POS terminals.

Table 4.9 Respondents' view towards Opportunities of Implementing POS terminal

Question: Opportunities - the following are the existing opportunities in the bank and the country that initiates the adoption of POS terminals		Strongly Agree f (%)	Agree f (%)	Neutral f (%)	Disagree f (%)	Strongly Disagree f (%)	Total f (%)
Merchants	Growing acceptance of POS terminal by individual cardholders	9 (33.3)	12 (44.4)		4 (14.8)	2 (7.4)	
	The ability to service various kinds of cards (VISA, Master cards), in addition to CBE cards	4 (14.8)	9 (33.3)	6 (22.2)	6 (22.2)	2 (7.4)	
	Affordability	6 (22.2)	15 (55.6)		4 (14.8)	2 (7.4)	
	Customers' (CBE cardholders' and/or international cardholders') demand	7 (25.9)	8 (29.6)	4 (14.8)	6 (22.2)	2 (7.4)	
	The currently provided 0.5% merchant incentive by the bank		5 (18.5)	7 (25.9)	10 (37.0)	5 (18.5)	
Employees	Growing acceptance of POS terminal	15 (26.3)	42 (73.7)	-	-	-	57 (100)
	ICT Infrastructure Development	13 (22.8)	33 (57.9)	11 (19.3)	-	-	57 (100)
	Hotel Development and foreigners inflow	25 (43.9)	32 (56.1)	-	-	-	57 (100)
	Business growth of the bank	21 (36.8)	33 (57.9)	3 (5.3)	-	-	57 (100)
	NBE policy direction that enforce banks to adopt technological innovation	20 (35.1)	23 (40.4)	11 (19.3)	3 (5.3)		57 (100)
	Change in the society life style (The ongoing digital and technology revolution)	23 (40.3)	31 (54.4)	3 (5.3)			57 (100)
	Affordability by merchants	11 (19.3)	35 (61.4)	3 (5.3)	8 (14.0)		57 (100)

(Source: Survey result, 2017)

Growing acceptance of POS terminal

As can be observed from the above table, the response of survey respondents of merchants indicate that growing acceptance of POS terminal is one of the existing opportunities for implementing POS terminals. This is because 21(77.7%) of merchants' respondents responded affirmatively (with 9(33.3%) strongly agree, 12(44.4%) agree). Moreover, 57(100%) of survey respondents of employees of the bank reacted positively that growing acceptance of POS terminal being one of the existing opportunities for adopting POS terminals.

In addition to the result obtained from the questionnaire, the data from E-payment technical team shown in the following figures indicate that there is an enhanced acceptance of POS terminals by consumers.

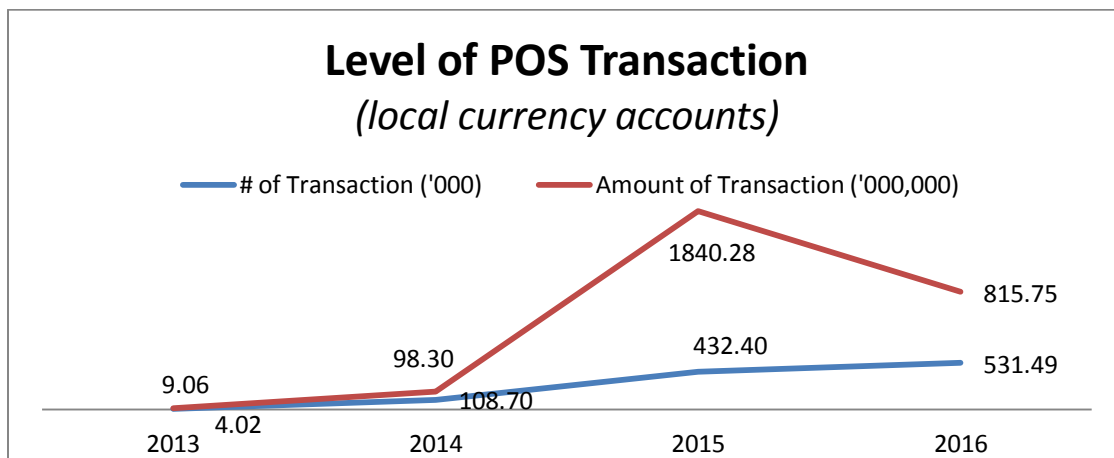


Figure 6: Level of POS transaction (ETB accounts)

(Source: Own computation (source of data - E-payment technical team))

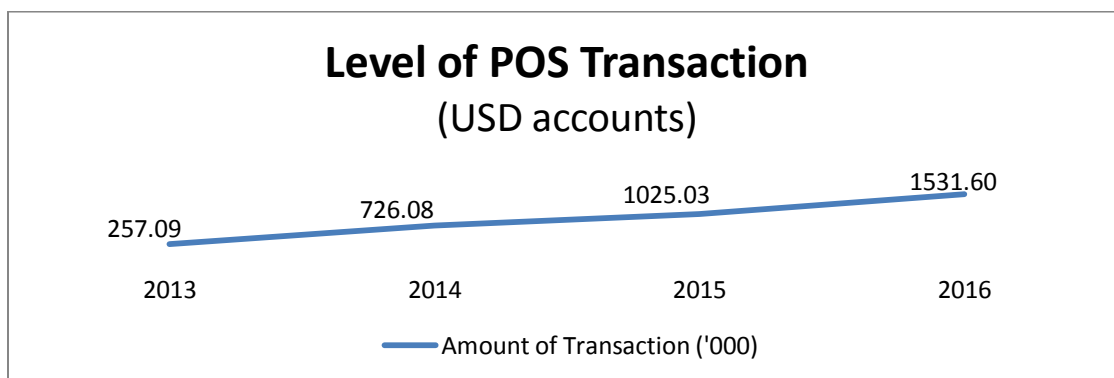


Figure 7: Level of POS transaction (USD accounts)

(Source: Own computation (source of data - E-payment technical team))

As clearly depicted in the above figures, the total number of transactions during the year 2015 at CBE POSs has reached more than 432,000 having a total value of birr Birr1.8 billion from 4000 number of transactions with value birr 9.06 million in 2013. In addition to the volume of transaction done by POS terminals with local currency accounts, the amount of transaction done by POS terminals in USD account reached \$1.5 million in 2016 from \$257, 000 in 2013. On the other hand, according to the source of information, the amount of transaction went down in 2016 because of the downtime of POS machines due to network disconnection for a couple of months, following the state of emergency declared by the government during October 2016. In addition, the interview session showed that 2% cash back facilitated by the bank to cardholders when they use on POS terminals was quitted by the bank because of misuse of the incentive by some merchants, by making "artificial" transactions, which was also another reason why the transaction volume reduced in 2016.

Nonetheless, the data reflects growing acceptance of POS and electronic card payments. This is because between 2013 and 2015, it was found that the volume of transactions conducted via POS increased extremely, though artificial transactions were included in the 2015 transactions, suggesting significant adoption, and usage of POS.

ICT Infrastructure Development

Another factor considered to be one of the opportunities for POS terminal implementation is a considerable attention give to ICT infrastructure development by the government

In this regard 13(22.8%) of the employees strongly agree, 33(57.9%) agree, and the remaining 11(19.3%) are impartial that ICT infrastructure development is among the opportunities for POS terminal adoption.

Affordability

According to the respondents of merchants and employees of the bank, affordability by merchants in getting POS terminal can also be considered as another opportunity for deploying POS terminals. Result presented in Table 4.8 show that majority 21(77.8%) and 46(80.7%) of the merchants and employees of the bank respectively, replied positively that affordability by merchants is one of the existing opportunities for implementing POS terminals. Additionally, the interview session demonstrated that, though the bank incurs different costs in implementing POS

terminals, so far merchants have been getting POS services for free since POS terminal implementation in 2012.

On the other hand, the merchants were asked if the 0.5% incentive that has been given to merchants by the bank was a driving force for merchants to provide POS terminal to users, and only 5(18.5%) of the respondents agree.

Other opportunities

Likewise, NBE's policy direction that enforce banks to adopt technological innovation, which is confirmed by 43(75.5%) of the employees, change in the society life style (The ongoing digital and technology revolution), responded affirmatively by 54(94.7%) of the employees, Hotel development and foreigners inflow and business growth of the bank are also other opportunities supported by 57(100%) and 54(94.7%) of the employees respondents.

The interview sessions also confirmed the existence of all the above-mentioned opportunities for the adoption of POS terminals. Moreover, the potentiality of the bank and top management's commitment to support e-payment projects, the energetic, skilled manpower of the bank are also another opportunities acknowledged by the interviewees.

In general, the findings of this study help understand major opportunities at hand that should be maximized and existing challenges in the adoption of the payment system. It also helps to mitigate the root causes of factors that hinder POS terminal implementation.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The overriding purpose of this study was to assess Challenges and Opportunities of Implementing various Electronic-Payment Projects in the Commercial Bank of Ethiopia: taking Point of Sale (POS) Terminal as a case study. The study also assessed the level of performance of CBE regarding POS terminal deployment. Accordingly, the aim of this chapter is to present the conclusions drawn from the results of the analysis of the data collected through different techniques and then make recommendations and areas for further study.

5.2 Summary of the major findings

Pursuing the aims of the study, a mixed research approach was employed and the research design had the following major features: Self-administered questionnaires distributed to 30 merchants and 60 employees of the bank, semi structured interviewees with key informants who were exposed to a number of POS related activities.

Although CBE has been deploying POS terminals since the year 2012, the rate at which the technology is being diffused seems to be sluggish.

In spite of the various benefits that electronic payment systems bring to the nation, banks and individuals, it also has its own challenges. The challenges as discussed in the study can be categorized into two main groups i.e. External factors (such as security, infrastructure, legal & regulatory issues as well as attitude of consumers) and Organizational factors (such as operational factors and payment mode factors.)

The results of the study showed that the perception of the majority of sampled merchants and employees towards perceived ease of use and perceived usefulness variables become positive that can be taken as an opportunity for adoption of the service.

The study identified network failure as one of the major challenges in the adoption of POS terminal payment system in addition to other factors such as power outage.

On the other hand, because of different factors such as lack of trust, fear of risk, attitude of tellers due to lack of tips, and consumers' confidence and trust in the cash payment system than POS

terminal and people's resistance to new payment mechanisms are among the factors that make merchants to prefer cash over card payment/ POS terminals.

Moreover, organizational factors such as lack of employees' knowledge to answer customers' questions related to POS terminal, low support and follow up, lack of coordination and cooperation between different units of the bank viz. branches, districts, and E-payment process are considered as challenges in implementing POS terminal system. Besides, lack of specific legislation on consumer protection related to the usage of POS services and lack of immediate responses by the bank in solving problems are also among the pointed out challenges by the respondents.

In view of the extent of payment mode factors, the study showed that delays associated with access to funds after sales from the POS terminal, double debit of accounts for single transaction due to connectivity failures, deduction of customers account for failed transactions are amongst the challenges confirmed by the majority of the respondents.

Finally, in spite of the aforementioned challenges in implementing POS terminals in the CBE, the study illustrated some existing opportunities for the adoption of POS terminals. Growing acceptance of POS terminal by individual cardholders, hotel development and foreigners inflow, business growth of the bank and change in the society life style i.e. the ongoing digital and technology revolution are some of the major opportunities identified by the study. Furthermore, ICT infrastructure development, NBE policy direction that enforces banks to adopt technological innovation and affordability by merchants are also amongst the existing opportunities recognized by the paper.

5.3 Conclusions

Therefore, based on the above summary of the major findings it can be concluded that growing acceptance of POS terminal by merchants and individual cardholders, merchants' positive perception towards usefulness and ease of use of POS payment system, ICT infrastructure development and NBE policy direction are among the existed opportunities in the adoption of POS terminal in the CBE. On the other hand , network failure, other factors such as lack of trust, fear of risk, consumers' confidence and trust in the cash payment system, low support and follow up, lack of coordination and cooperation between different units of the bank are major challenges in the adoption of POS terminal payment system in CBE.

5.4 Recommendations

As per the findings from the analysis of the collected data, the following recommendations are forwarded in order to promote and develop POS terminal payment system in the commercial bank of Ethiopia.

- ❖ To solve the connectivity failure, CBE should identify the causes of the problem; whether it is related to the incompatibility of the software and hardware, or the network provided by the network operator (ethio telecom), and then take proper action to avoid the problem.
- ❖ The bank should improve the internal communication coordination, evaluate and upgrade its services according to customers' expectations, and develop service recovery programmes.
- ❖ The ownership of POS terminals among branches, districts and e-payment process should be identified clearly so that there would be unambiguous roles and responsibilities amongst these units of the bank.
- ❖ The call center of the bank, which offers tremendous potential to solve customers' problems, should be organized and established with skilled manpower to give support 24hrs a day and 7 days a week.
- ❖ It is critical for the bank to look for a way to solve payment problems that customers face every day, instead of just offering a solution looking for a problem.
- ❖ Branches should step-up their customer relations in order to motivate and encourage their customers to continue to patronize the POS terminal payment service.
- ❖ Raise public awareness on the use of payment cards for transactions on POS terminals. For instance, by preparing brochures on how to use their cards for payments on POS not only for withdrawal of cash from ATMs, and deliver to customers when they collect their Visa cards. Moreover, aggressive media advertisements on different medias including FMs and regional TV programs should also be there.
- ❖ The bank should take steps such as giving immediate response to consumers' request, to manage and minimize perceived security and risks. Because the successful implementations of POS terminal payment system, which would improve the market confidence in the system, depends on how the security and efficiency dimensions perceived by consumers as well as merchants are readily managed.

- ❖ The bank should facilitate proper and sustainable trainings for its employees on issues such as marketing approach for POS terminals and technical knowhow to have adequate understanding of the E-payment system, particularly POS terminal to achieve the desired objectives.
- ❖ The implementation of a system tools or devises that monitor service failure and status of POS terminals remotely to ensure the smooth functionality and to take appropriate measures on time is also another recommendation to be considered.
- ❖ Develop a comprehensive regulatory and legal framework to protect POS terminal consumers and the bank, example from loss related to system failures (for consumers), any misuse, frauds, POS device damage (for the bank) and so on.

5.4 Directions for Future Research

Even though this study has achieved its objective, it has its own limitations and potential future research directions. The study is limited in both scope and context. Scope is an issue, because of the sample size. Participants were selected via a non-probability, criterion-based, purposeful sampling process. Therefore, regardless of the sample size, that such sampling represents the entire population cannot be known, therefore it is not sensible to generalize the results beyond the specific sample used.

Moreover, this study excludes the views of non-adopters or non-users' of POS terminal payment systems and individual customers. Therefore, future researchers in the area of POS terminal payment system should consider the views of non-users' as well as individual customers/ cardholders because inclusion of these groups of bank customers will broaden the study and helps to capture their views and also it enables to do comparison between adopters and non-adopters intention towards POS terminal adoption or usage behavior. Finally, this study was based on cross-sectional data; therefore, one possible direction for future studies is to conduct a longitudinal study to see whether the variables and their relationships are consistent with time.

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Annex I

Addis Ababa University

College of Business and Economics

This questionnaire is prepared to gather information from employees of the CBE for accomplishment of Master of Art in Project Management at Addis Ababa University College of Business and Economics. The purpose of the study is to identify the **Challenges and Opportunities of Implementing various Electronic-Payment Projects in Commercial Bank of Ethiopia: taking Point of Sale (POS) Terminal as a case study.**

Your genuine and well thought response to the questions will enhances the purpose of the study. The information you provide will be used only for academic purpose & it will be kept confidential. You are not supposed to write your name.

I thank you in advance for your cooperation. You may use the following mobile number for any inquiry. +251 912067468 Mesfin Betru

Section I: Demographic profile

Please indicate the following by ticking "√" on the spaces in front of the response options:

1. Gender: Male Female
2. Age: 18 - 30 31 - 40 41 - 50 above 50
3. Educational level: High School Diploma holder First-degree holder
Masters or above
4. Job position
Marketing officer Team leader CSM
Manager (District, E-payment unit, Branch) Associate IT Officer
Other (if any) _____
5. Service Year
1 - 3 years 3 - 5 years 5 - 7 years More than 7 years
6. For how long have you been doing POS terminals related activities?
Less than 1 year 1 - 2 years 2 - 3 years years

Section II: Challenges and Opportunities of Implementing Point of Sale (POS) Terminal

The following are believed to be some challenges faced, in using POS terminals, please indicate the level of your agreement.

NB. 1-SA = Strongly Agree

4-D = Disagree

2-A = Agree

5-SD = Strongly Disagree

3-N = Neutral

A. External Factors

No	Description	1-SA	2-A	3-N	4-D	5-SD
7. Perceived Usefulness - the degree to which a person believes that using a particular technology would enhance his or her job performance.						
7.1	Merchants perceive that using POS terminal would enhance their business performance					
7.2	Merchants prefer cash over POS terminals					
7.3	Implementing POS terminal payment system improve customer services and creates better relationship between the bank and its clients.					
8. Perceived Ease of Use - the degree to which an individual believes that using a particular system would be free from physical and mental efforts.						
8.1	The CBE's POS terminal is easy to use by consumers					
8.2	Merchants think that using POS terminals is more sophisticated than cash.					
8.3	The ease of use for POS terminal depends on prior experience with other technologies such as mobile and computer.					
9. Attitude toward Using POS terminal						
9.1	The attitude of Tellers is a challenge when transacting business with POS terminal					
9.2	Consumers have confidence and trust in the cash payments system than POS terminal					
9.3	People are resistant to new payment mechanisms.					
9.4	Tendency to be content with the existing payment system					

9.5	Lack of Trust					
9.6	Lack of tip					
9.7	Fear of risk					
10. Infrastructures - electronic payment infrastructures towards an efficient implementation of POS terminals						
10.1	Network failure is one of the challenges in using POS terminals					
10.2	Power outage does affect POS transaction					
10.3	POS terminals are abundantly available in business premises.					
10.4	Lack of 'Interoperability of POS terminals' is a challenge in using POS terminals.					
N.B:- In the context of this study, “ interoperability of POS terminals ” means that all payment cards issued by banks in the country can be used seamlessly in any POS terminal in the country.						

B. Organizational Factors

No	Description	1-SA	2-A	3-N	4-D	5-SD
11. Operational factors - Please indicate the level of your agreement how the following factors affect the adoption of POS terminal						
11.1	Employees of the bank have the knowledge to answer customer questions related to POS terminal.					
11.2	Unclear strategy towards electronic payment system.					
11.3	Low support and follow up					
11.4	Lack of Coordination and cooperation between branches, districts and E-payment process					
11.5	Limited top management support					
11.6	Increases cost of the Bank.					
11.7	POS deployment is involuntary (as they are deployed by the bank without being solicited for the merchants)					

11.8	A specific legislation on consumer protection related to the usage of POS services is in place					
11.9	Lack of immediate responses by the bank in solving problems					
11.10	Ambiguous roles and responsibilities on POS related activities (Procedural and guidance gap)					
12. Payment Mode Factors - the following characteristics of payment systems are among the factors that make customers of the bank not to use POS terminals						
12.1	Security of communication over the network					
12.2	Due to delays associated with access to funds after sales from the POS terminal					
12.3	Double debit of accounts for single transaction					
12.4	Deduction of customers account for failed transactions					

C. Opportunities

13. Opportunities - the following are the existing opportunities in the bank/ country that initiates the adoption of POS terminals						
13.1	Growing acceptance of POS terminal					
13.2	ICT Infrastructure Development					
13.3	Hotel Development and foreigners inflow					
13.4	Business growth of the bank					
13.5	NBE policy direction that enforce banks to adopt technological innovation					
13.6	Change in the society life style (The ongoing digital and technology revolution)					
13.7	Affordability by merchants					

Please provide any additional comments and/or clarifications on specific systems' features that may not be properly captured in this questionnaire. _____

_____ *Thank You! You're so helpful!*

Annex II

Interview Questions

1. What are the major challenges of implementing POS terminals at the CBE?
External? Organizational?
2. What are the key factors that push your bank to adopt POS terminal payment system?
3. What factors are there to accept POS terminals for consumers?
4. Is/are there any mechanism to encourage or motivate merchants to prefer card payments over cash in their business transactions?
5. What can be said about general attitudes of the public in institutionalizing POS terminal?
6. What are the existing opportunities in the bank/country that initiates the adoption and development of POS terminal?
7. Is there any policy direction or legal frameworks at central bank to enforce banking industries to implement electronic payments such as POS terminals?

Annex III

Addis Ababa University

College of Business and Economics

This questionnaire is prepared to gather information from merchants who provide CBE's POS terminals to the public as a payment system, for the accomplishment of Master of Art in Project Management at Addis Ababa University College of Business and Economics. The purpose of the study is to identify the **Challenges and Opportunities of Implementing various Electronic-Payment Projects in the Commercial Bank of Ethiopia: taking Point of Sale (POS) Terminal as a case study.**

Your genuine and well thought response to the questions will enhances the purpose of the study. The information you provide will be used only for academic purpose & it will be kept confidential. You are not supposed to write your name.

I thank you in advance for your cooperation. You may use the following mobile number for any inquiry. **+251 912067468 Mesfin Betru**

Section I: Demographic profile

Please indicate the following by ticking " ✓ " on the spaces in front of the response options:

14. Gender: Male Female
15. Age: 18 - 30 31 - 40 41 - 50 above 50
16. Educational level: High School Diploma holder First-degree holder
Masters or above
17. How long have you been since you started providing POS terminal for payments?
Less than 1 year 1 - 2 years 2 - 3 years 3 - 5 years
18. How did you start using CBE's POS terminal in your business?
- A. I requested the bank to acquire POS services.
- B. The bank lodged the request to me.
19. What is your business type?
- Hotel Supermarket Tour & Travel agency Retail shop

Other (please specify) _____

20. Which payment system would you like to prefer most for your business?

Cash B. Check C. CPO D. Payment Cards

Other (if any) _____

Prior experience of technologies

21. Please indicate the level of your consumption for the below listed technology products.

Technology tools	Daily	Weekly	Monthly	Rarely	Not at all
Mobile					
Computer					
Cash register					
E-mail					
Fax					
Internet					

Other (if any) _____

Experience in using E-payment Instruments

22. Which of the following electronic payment instruments do you use, and how often?

E-payment instrument	Daily	Weekly	Monthly	Quarterly	Not at all
ATM					
Mobile Banking					
Internet Banking					
POS					

Other (if any) _____

Section II: Challenges and Opportunities of Implementing Point of Sale (POS) Terminal

The following are believed to be some challenges faced, in using POS terminals, please indicate the level of your agreement.

NB. 1-SA = Strongly Agree

4-D = Disagree

2-A = Agree

3-N = Neutral

5-SD = Strongly Disagree

A. External Variables

No	Description	1-SA	2-A	3-Id	4-D	5-SD
<p>23. Perceived Usefulness - the degree to which a person believes that using a particular technology would enhance his or her job performance.</p> <p>Using POS payment system. . . (please indicate the level of your agreement below)</p>						
10.1	Reduces costs and time related to cash management					
10.2	Would Improves the quality of business transactions					
10.3	Would increase the number and volume of transactions.					
10.4	Prevents accepting forgery and illegal cash					
10.5	Reduces frauds relating to cash and other payment instruments such as check					
10.6	Provides greater convenience and security.					
<p>24. Perceived Ease of Use - the degree to which an individual believes that using a particular system would be free from physical and mental efforts.</p> <p>Using POS payment system. . . (please indicate the level of your agreement below)</p>						
11.1	Is more sophisticated than cash.					
11.2	Efficient and effective					
11.3	Is friendly and convenient					
11.4	Provides easy tackling of payment					
<p>25. Attitude toward Using POS terminal</p>						
12.1	POS transactions are efficient and reliable					
12.2	I would prefer cash over card payment because of "tips"					
12.3	I prefer using POS payment system over cash because it's easier and convenient to use.					
12.4	I have a confidence and trust in the cash payments system than POS terminal					

26. Infrastructure - Electronic payment infrastructures towards an efficient implementation of POS						
13.1	Network failure is one of the challenges we face in using POS terminal					
13.2	Power outage does affect POS transaction					
13.3	We have sufficient POS terminal devices in our business premise(s)					
13.4	Lack of 'Interoperability of POS terminals' is a challenge in using POS terminals.					
N.B:- In the context of this study, “ interoperability of POS terminals ” means that all payment cards issued by banks in the country can be used seamlessly in any POS terminal in the country.						

A. Organizational Factors

No	Description	1-SA	2-A	3-Id	4-D	5-SD
27. Operational factors - Please indicate the level of your agreement how the following factors affect the adoption of POS terminal						
14.1	Employees of the bank have the knowledge to answer customer questions related to POS terminal.					
14.2	Inaccessibility of the POS device					
14.3	Technical support is available 24 hours, 7 days a week					
14.4	Low support and follow up by the bank					
14.5	A specific legislation on consumer protection related to the usage of POS services is in place					
28. Payment Mode Factors - the following characteristics of payment systems are among the factors that make customers of the bank to prefer cash to POS terminal.						
15.1	POS deployment is involuntary (as they are deployed by the bank without being solicited for the merchants)					
15.2	Impatience of customers					

15.3	low awareness about the possibilities, advantages/ disadvantages involved with POS terminal					
15.4	Fear of risk					
15.5	People are resistant to new payment mechanisms.					
15.6	Tendency to be content with the existing payment system					
15.7	Security of communication over the network					
15.8	Due to delays associated with access to funds after sales from the POS					
15.9	Lack of trained personnel in our organization					
15.10	Double Payments for single transaction					
15.11	I do have many failed transactions on POS terminals. (yet debiting or locking the accounts of cardholders)					

B. Opportunities

29. Opportunities - the following are the existing opportunities in the bank that initiates the adoption of CBE's POS terminals						
16.1	Growing acceptance of POS terminal by individual cardholders					
16.2	The ability to service various kinds of cards (VISA, Master cards), in addition to CBE cards					
16.3	Affordability					
16.4	Customers (CBE cardholders' and/or international cardholders') demand					
16.5	The currently provided 0.5% merchant incentive by the bank					

Please provide any additional comments and/or clarifications on specific systems' features that may not be properly captured in this questionnaire _____

Thank You! You're so helpful!

7. በንግድ ሥራዎች ላይ ለሚቀበሉት ክፍያዎች የትኛውን የክፍያ ሥርዓት ይመርጣሉ?

ሀ. ጥሬ ገንዘብ ለ. ቼክ ሐ. ሲ.ፒ.ኦ መ. የክፍያ ካርዶች
 ሌላ (ይጠቀስ) _____

8. የትኞቹን የቴክኖሎጂ ውጤቶች ይጠቀማሉ በምን ያህል ጊዜ?

ቴክኖሎጂ	በየቀኑ	በየሳምንቱ	በየወሩ	አልፎ አልፎ	አልጠቀምም
ሞባይል ስልክ					
ኮምፒዩተር					
የሸያጭ መመዝገቢያ (ካሽ ፊደላት)					
ኢ-ሜይል					
ፋክስ					
ኢንተርኔት					

ሌላ (ይጠቀስ) _____

9. የትኞቹን የኤሌክትሮኒክ ክፍያ ዘዴዎችን ይጠቀማሉ በምን ያህል ጊዜ?

የኤሌክትሮኒክ ክፍያ	በየቀኑ	በየሳምንቱ	በየወ ሩ	አልፎ አልፎ	አልጠቀምም
ኤ.ቲ.ኤም					
ሞባይል ባንኪንግ					
ኢንተርኔት ባንኪንግ					
የክፍያ መፈጸሚያ ማሽን (ፖስ)					

ክፍል ሁለት: የክፍያ መፈጸሚያ ማሽን (POS terminal) ለመተግበር የሚገጥሙ

ችግሮች/ተግዳሮቶች (challenges) እና ያሉት ምቹ ሁኔታዎች (Opportunities)

መመሪያ:- ቀጥሎ ለተዘረዘሩት ጥያቄዎች የሚከተሉትን ደረጃዎች መሠረት በማድረግ ይመልሱ::

1-በ.እ = በጣም እስማማለሁ 2-እ = እስማማለሁ 3-ገ = ገለልተኛ ነኝ

4-አል = አልስማማም 5-በ.አል = በጣም አልስማማም

ሀ. ውጫዊ ምክንያቶች

ተ.ቁ	መግለጫ	1-በ.እ	2-እ	3-ገ	4-አል	5-በ.አል
10.	የጠቃሚነት ግንዛቤ (Perceived Usefulness) - ይህ ማለት አንድ ሰው ቴክኖሎጂን መጠቀም የሥራ አፈጻጸም ውጤትን ከፍ ሊያደርግ ይችላል የሚል የእምነት ደረጃ ነው:: የክፍያ መፈጸሚያ ማሽን (ፖስን) መጠቀም. . . (እበከዎ ከላይ የተቀመጡትን ደረጃዎች መሠረት በማድረግ ይመልሱ)					
10.1	ጊዜንና ወጭን ይቆጥባል					
10.2	የግብይቱን ውጤታማነት ሊጨምረው					

	ይችላል					
10.3	የአገልግሎቱን/ግብይቱን መጠን ሊጨምርልኝ ይችላል					
10.4	ሐሰተኛ/ሀገወጥ ገንዘቦችን ከመቀበል ያድነኛል					
10.5	ከጥሬ ገንዘብ ወይም ሌሎች እንደ ቼክ ያሉ የክፍያ መንገዶች ጋር ከተያያዙ ማቆባበሮች ያድነኛል					
10.6	ትልቅ ምችትና ደገነት ይሰጣል					
<p>11. የአጠቃቀም አመቺነት/ቀላልነት ግንዛቤ (Perceived Ease of Use) - ይህ ማለት አንድ ሰው ቴክኖሎጂን መጠቀም ከአካለዊም ሆነ አዕምሮአዊ ድካም/ጥረት ነጻ ሊያደርግ ይችላል (ቀላል ሊሆን ይችላል) የሚል የእምነት ደረጃ ነው።</p> <p>የክፍያ መፈጸሚያ ማሽን (ፖስ) መጠቀም. . . (እባክዎ ከላይ የተቀመጡትን ደረጃዎች መሠረት በማድረግ ይመልሱ)</p>						
11.1	ጥሬ ገንዘብን ከመቀበል አንጻር ውስብስብ ነው					
11.2	ቀልጣፋና ውጤታማ ነው					
11.3	ምቹና ቀላል ነው					
11.4	ክፍያዎችን በቀላሉ ለመቆጣጠር ይረዳል					
<p>12. ፖስን የመጠቀም አመለካከት/Attitude toward Using POS terminal . . . (እባክዎ ከላይ የተቀመጡትን ደረጃዎች መሠረት በማድረግ ይመልሱ)</p>						
12.1	የፖስ ግብይት ቀልጣፋና አስተማማኝ ነው					
12.2	የፖስ ክፍያ ጉርሻ(ቲፕ) ስለሌለው ጥሬ ገንዘብ መቀበልን እመርጣለሁ					
12.3	የክፍያ መፈጸሚያ ማሽን (ፖስ) ምቹና ቀላል ስለሆነ ከጥሬ ገንዘብ ይልቅ ፖስ መጠቀምን እመርጣለሁ					
12.4	ከክፍያ መፈጸሚያ ማሽን (ፖስ) ይልቅ በጥሬ ገንዘብ የክፍያ ሥርዓት አምናለሁ እተማመናለሁ					
<p>13. መሠረተ ልማት/ Infrastructure - የኤሌክትሮኒክ ክፍያዎች መሠረተ ልማት ለክፍያ መፈጸሚያ ማሽን (ፖስ) መተግበር ውጤታማነት..... (እባክዎ ከላይ የተቀመጡትን ደረጃዎች መሠረት በማድረግ ይመልሱ)</p>						
13.1	የክፍያ መፈጸሚያ ማሽን (ፖስ) እንዳገጠቀም ካደረጉን /ከሚያደርጉን ነገሮች ውስጥ አንዱ የኔትዎርክ መቆራረጥ ነው					
13.2	የኃይል/መብራት መቆራረጥ የክፍያ					

	መፈጸሚያ ማሸን (ፖስ) በአግባቡ እንዳንጠቀም ያደርጋል/አድርጎናል					
13.3	በቂ የክፍያ መፈጸሚያ ማሸን (ፖስ) በድርጅታችን ውስጥ አስቀምጠናል					
13.4	የሁሉንም ባንኮች ካርድ በክፍያ መፈጸሚያ ማሸን (ፖስ) መጠቀም አለመቻላችን አንዱ ተግዳሮት ነው					

ለ. ድርጅታዊ/ ውስጣዊ ምክንያቶች

ተ.ቁ	መግለጫ	1- በ .እ	2-እ	3-ገ	4-አል	5- በ .አል
14. የባንኩ አሰራር - እበክዎ የስምምነትዎን ደረጃ ከላይ የተቀመጡትን ደረጃዎች መሠረት በማድረግ ይመልሱ						
14.1	የባንኩ ሠራተኞች ከክፍያ መፈጸሚያ ማሸን (ፖስ) ጋር የተያያዘ ማንኛውንም ጥያቄ ለደንበኞች የመመለስ ዕውቀት/አቅም አላቸው					
14.2	ቴክኒካዊ ድጋፍ በሳምንት 7 ቀናት 24 ሰዓት ማግኘት ይቻላል					
14.3	ባንኩ ፖስን በተመለከተ በቂ ድጋፍና ክትትል አያደርግም					
14.4	ባንኩ የክፍያ መፈጸሚያ ማሸን (ፖስ) ተጠቃሚዎችን የሚጠብቅ ልዩ ሕግ አለው					
15. የክፍያ ስርዓት/ አሰራር/ Payment Mode Factors - ከዚህ በታች የተዘረዘሩትና ከክፍያ ስርዓቱ ጋር የተያያዙ ምክንያቶች ከክፍያ መፈጸሚያ ማሸን (ፖስ) ይልቅ ጥሬ ገንዘብን እንድንመርጥ አድርጎናል						
15.1	የክፍያ መፈጸሚያ ማሸን (ፖስ) ተከለው እና/ወይም ተነሳሽነቱ በባንኩ ጥያቄና ፍላጎት ላይ የተመሰረተ መሆኑ					
15.2	የካርድ ተጠቃሚዎች ትዕግስት ማጣት					
15.3	ከክፍያ መፈጸሚያ ማሸን (ፖስ) መጠቀም ጋር ተያይዞ ያሉትን ዕድሎች፣ ጥቅሞች እንዲሁም ጉዳዮችን በአግባቡ አለመረዳት					
15.4	የክፍያ ስርዓቱ ሊያመጠ የሚችለውን ጉዳት/አደጋ በመፍራት / Fear of risk					
15.5	ሰዎች አዳዲስ የክፍያ ሥርዓቶችን ለመቀበል ይከብዳቸዋል					
15.6	በነባሩ የክፍያ ስርዓት የመርካት					

	አዝማሚያ/ዝንባሌ					
15.7	የክፍያ ስርዓቱ ደኅነነት ያሳስበኛል					
15.8	በክፍያ መፈጸሚያ ማሸን (ፖስ) የሚፈጸሙ ክፍያዎች ወደ ሒሳባችን ቶሎ ያለመግባት/መዘግየት					
15.9	ማሸኑን በአግባቡ መጠቀም የሚችል ሰው አለመኖሩ					
15.10	ለአንድ ጊዜ ክፍያ በኔትዎርክ ምክንያት ሁለት ጊዜ ከተጠቃሚ ሒሳብ መቀነሱ					
15.11	ብዙ ያልተሳኩ (ነገር ግን ከተጠቃሚው ሒሳብ የሚቆረጡ ወይም ሒሳቡን የሚያስሩ (blocking)) ክፍያዎች ስለሚያጋጥሙን					

ሐ. ምቹ አጋጣሚዎች/ Opportunities

16. ከላይ የተገለጹት ተግዳሮቶች ቢኖሩም ቀጥሎ የተረዘሩት ምቹ ሁኔታዎች የባንኩን የክፍያ መፈጸሚያ ማሸን (ፖስ) እንድንጠቀም ያደርጉናል/ ሊያደርጉን ይችላሉ						
16.1	በካርድ ተጠቃሚዎች ዘንድ የክፍያ መፈጸሚያ ማሸን (ፖስ) ተቀባይነት እያደገ መምጣቱ					
16.2	የክፍያ መፈጸሚያ ማሸኑ (ፖስ) ከባንኩ ካርዶች በተጨማሪ የተለያዩ የውጭ ካርዶችን (ለምሳሌ ቪ.ሳ፣ ማስተር ካርድ) መቀበል መቻሉ					
16.3	ማሸኑን ለመጠቀም አሁን ባለው ሁኔታ ምንም ክፍያ አለመኖሩ					
16.4	የባንኩ የካርድ ተጠቃሚዎች እና/ወይም የውጭ ካርድ ተጠቃሚዎች ጥያቄ/ ፍላጎት መኖሩ					
16.5	ባንኩ በክፍያ መፈጸሚያ ማሸን (ፖስ) ለሚያስጠቅሙ ነጋዴዎች/ድርጅቶች እየሰጠ ያለው የ0.5% ማበረታቻ (በካርድ ከሚፈጸሙ ግብይቶች ላይ)					

በዚህ መጠይቅ ያልተካተቱ ተጨማሪ አስተያየቶች/ሒሳቦች ካልዎት ያስፍሩ _____

ለዚህ ጥናታዊ ፅሁፍ መሳካት የእርስዎ እገዛ ትልቅ ዋጋ አለው!

አመሰግናለሁ!