

# Challenges and Opportunities of E-payment in Ethiopia Banking Industry: With the reference of private commercial banks

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**Abstract-** Electronic Banking has been widely used in developed countries and is rapidly expanding in developing countries. In fact in Ethiopia were started to use electronic payment system, however, cash is still the most dominant medium of exchange, and electronic payment systems are at an embryonic stage and face different challenges. The main objectives of the studies are identifying the challenges and prospects of e-banking payment in Ethiopia. Under these studies the researchers were used primary and secondary source of data. to collect the necessary data the researchers were used stratified sampling and simple random sampling techniques. The sample size was taken based on Bill Godden formula. The result shows that language barriers, poor network connection, lack awareness, Lack of skilled human power, frequent power interruption, Low of financial a network that links different banks (Banks are not yet automated), Resistance to changes in technology among customers and staff due to lack of Unavailability of payment laws and regulations particularly for e-payment, Cyber security issues is a key challenge for smoothly running e-banking in Ethiopia. On the contrary side, UNECA, World Bank and UNCTAD are helping developing countries to design national e-strategies, including e-commerce, via National Information and Communication Infrastructure plans (UNCTAD (2004) and commitment of the governments: The Ethiopian government considers ICT as an indispensable tool to alleviate poverty and facilitate a state-transformation aiming an effective and efficient service delivery. It has initiated commendable ICT policy frameworks and several E-Government projects and The commercial banks in Ethiopia should take advantage of already developed best and existing software applications are the opportunities of e-banking payment in Ethiopia.

**Index Terms-** low of financial network, language barriers, poor network connection, lack awareness, Lack of skilled human power, frequent power interruption

## I. INTRODUCTION

Nowadays, societies have well recognized information and knowledge as invaluable resources.

The astonishing growth and sophistication of information and communication technology (ICT) is changing societies' ways of life in various parts of the world. One of the leading areas where this is manifested is the way business is conducted. The growth of the Internet and World Wide Web (WWW) has made

electronic commerce (e-commerce) possible. E-Commerce in its simplest sense is *trading electronically*. It offers consumers and merchants convenience and speed. ( WondwossenTadesse and Tsegai G. Kidan, 2005)

Sub-Sahara Africa, developments in information and communication technology (ICT) are radically changing the way business is done. Electronic commerce is now thought to hold the promise of a new commercial revolution by offering an inexpensive and direct way to exchange information and sell or buy products or services. This revolution in the market place has set in motion a revolution in the banking sector for the provision of payment systems that are compatible with the demands of the electronic market place (Balachadher et al., 2000).

Technology has increased in importance in Ethiopian banks. Traditionally, banks have always sought media through which they would serve their clients more cost-effectively as well as increase the utility of their clientele. Their main concern has been to serve clients more conveniently, and in the process increase profits and competitiveness. Electronic and communication technologies have been used extensively in banking for many years to advance the agenda for banking (Abor, 2004). Years have gone by, technology has increased (and is still increasing) and banks in their pursuit to offer convenient and improved services to their clients have revolutionised into the use of electronic innovations such as Automated Teller Machine (ATM), telephone banking, personal computer banking, internet banking, branch networking, and electronic funds transfer at point of sale.

Payment is generally understood as a transfer of funds from the payer to the payee. Electronic payment is a payment carried out electronically. The European Central Bank defines e-payment as "a payment that is initiated, processed and received electronically. In e-payment funds are held, processed and received in the form of digital information and their transfer is initiated via electronic payment instrument. (Harunalssahaku, 2012)

Note that m-payment (payment via mobile devices such as mobile phone and PDA) is also a type of e-payment since mobile devices rely on electronic data processing and transmission.

Conventional payments are enabled through cash, check or credit card whereas electronic payments are carried out by means of software, payment cards and electronic cashes. The major components of e-payment system are money transfer applications, network infrastructures, and rules & procedures governing the use of the system. Customers and merchants are the major actors of e-payment systems. Most of the time, banks

and trusted third party (TTP) or intermediaries may also participate in e-payment systems.

E-payments greatly increase payment efficiency by reducing transaction costs and enabling trade in goods and services of very low value. They may also increase the convenience of making payments by enabling them to be made swiftly and remotely from various devices connected to global networks.

However e-payments have many challenges. For instance, e-payments that are based on digital cash have a problem of double spending. E-payments can also generate information, which can be used for other purposes (e.g. for analysing customer behaviour, for investigations, etc.), which violates the rights of privacy.

The information and communication applications are paramount concern to the banks in today's business environment and Internet has become the major platform for all financial, banking and commercial transactions in the present scenario. Statistics show that Africa is lagging behind in the adoption of E-commerce. However, according to Jensen (2003), there is some e-commerce activity in Africa, with South Africa, Egypt, Morocco, and Tunisia taking the lead. Most rural areas in Africa, where the majority of small and medium businesses are concentrated, have no Internet facilities and thus are unable to engage in e-commerce activities. According to Jensen (2003), most countries in Africa, except South Africa, have Internet infrastructure only in their major cities."

The slow diffusion of e-commerce has been attributed to a number of issues some of which may be unique to the African continent. Recently, several African countries have already made progress in their e-commerce links to integrate themselves with the global connectivity roadmap (Magembe, B A S and Shemi A P (2002).

Existing trading relationships and service provision within the financial sector are undergoing rapid change with the development of new financial software applications. The rapidly growing information and communication technology is knocking the front door of every organization in the world, where Ethiopian banks would never be exceptional.

Electronic Banking has been widely used in developed countries and is rapidly expanding in developing countries. In fact in Ethiopia were started to use electronic payment system, however, cash is still the most dominant medium of exchange, and electronic payment systems are at an embryonic stage and face different challenges. In the face of rapid expansion of electronic payment systems throughout the developed and the developing world, Ethiopia's financial sector cannot remain an exception in expanding the use of the system and e-payment system face different challenges.

Based on the above facts the researcher is highly motivated to see the challenges and prospects of E-payment in Ethiopian banking industry.

To address the above issue the researchers are need to address the current status of E-payment in Ethiopia, challenges and opportunities of E-payment in Ethiopia

The main objectives of the study are to identify the challenges and opportunities electronic payment in Ethiopia.

## II. BRIF REVIEW LITERATURE

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Electronic payment is not a new phenomenon. The use of electronic networks for trade began in the early 1970s in the financial sector. Some of the first applications involved Electronic Funds Transfer (EFT) - the movement of money between financial institutions via telecommunications networks. Even Automated Teller Machines (ATMs), beginning in the 1980s, are a form of electronic payment; every time the customer uses the ATM, it involves a transaction made over a computer network.

E-payments greatly increase payment efficiency by reducing transaction costs and enabling trade in goods and services of very low value. They may also increase the convenience of making payments by enabling them to be made swiftly and remotely from various devices connected to global networks.

However e-payments have many challenges. For instance, e-payments that are based on digital cash have a problem of double spending. E-payments can also generate information, which can be used for other purposes (e.g. for analysing customer behaviour, for investigations, etc.), which violates the rights of privacy. A review of major e-payment system is presented below.

### A. Review of Major E-payment Systems

A review of the common e-payment systems is presented below.

#### i. Online Credit Card Payment System

Online credit card payment system is the most common type of payment system for e-commerce. A customer who wants to use a credit card for e-commerce transaction will be requested to provide his credit card information by the merchant. After the credit card information is received, the merchant's software will contact a clearinghouse. The clearinghouse authenticates the credit card and verifies the account balance by contacting the bank, which issued the credit card. If the credit card is approved to be valid for the transaction, the issuing bank credits the account of the merchant at the merchant's bank. The merchant then notifies the customer that the payment has been made. The actual transfer of money from the credit card issuing bank to the merchant happens in hours or days.

Using credit card for online payment has got a number of limitations. The most common limitations are security and transactional cost. Security issues are discussed in Section 2.6. Merchants are forced to pay from 2 to 5% of the purchase and from \$0.20 to \$0.30 per transaction. This high transactional cost makes online credit card payment inappropriate for micropayment. Merchants also face a risk since consumers can repudiate charges once goods have been delivered to them.

### **ii. Electronic Payment based on Trusted Third Party**

Since there is no face-to-face interaction in most e-commerce transactions, the payment system must be strongly secured. Trust is also another important factor that has to be considered. Towards this end, most electronic payment systems used for e-commerce are based on the idea of Trusted Third Party (TTP). TTP provides trust, security, identification and authentication, which are highly desirable in these kinds of payment schemes. The specific role of the TTP varies from one payment system to another. In some payment systems such as Cyber Cash the role of TTP is limited to serving as a channel of communication between the open Internet and closed financial networks. In other systems, such as PayPal and First Virtual, both buyers and sellers have to open account in the TTP and transfer money into their TTP account.

### **iii. Digital Cash**

One of the earliest efforts to electronic payment is the concept of digital money or digital cash. Electronic cash or digital cash is an equivalent form of physical cash backed by real money. It enables storage and exchange of values digitally. In digital cash, funds or value is stored in electronic device in a consumer possession. Electronic cash has got some similarities with real money such as privacy, transferability and convenience. Like real money, digital cash is totally anonymous. However, there is also a type of digital cash called an identified e-money, which reveals the identity of the person who first withdrew the money from the bank. But unlike real cash, digital cash cannot be instantly converted to other form of value without the involvement of a third party like bank. Privacy in digital cash is achieved using blind signature without the involvement of TTP. This is in contrast with other e-payment systems. Digital cash also differs from other e-payment systems in that what is transferred over the network in the case of digital cash is monetary value. In the other e-payment systems what is transmitted over the network is sensitive payment information such as credit card numbers, bank account information or payment authorization. Digital cash can be either online or offline. In the case of online there is a need to interact with the bank, whereas in the offline case transaction can be conducted without having to contact a bank directly.

Choi, Stahl & Whnston in pointed out five desirable properties that digital cash should satisfy. These are independence, security, transferability, divisibility and ease of use. Double spending, counterfeiting, and storage are the critical security issue in digital cash. Double spending involves using particular digital money for two or more separate transactions. It can be easily prevented in online digital cash by requiring merchants to contact the bank's computer with every sale. But, it is relatively difficult to prevent double spending in offline digital money.

Anyone who wishes to use digital cash has to first establish an account and download the digital wallet software. Then the person may request transfer of digital cash to his digital wallet. After the digital cash is in his digital wallet he can spend it at any merchant where digital cash is accepted. The software will deduct the requested amount and transfer it to the merchant. The merchant then returns the e-money and funds his account.

### **iv. Mobile Payment**

Mobile payment (m-payment) is an electronic payment done using mobile devices. One of the main uses of m-payment is in mobile commerce (m-commerce). M-commerce is the buying and selling of goods and services through mobile devices. These mobile devices include mobile phones, Personal Digital Assistants (PDAs), smart phones, and laptops. M-commerce is actually a subset of e-commerce carried out over wireless networks. SMS (Short Message Service), WAP (Wireless Application Protocol) and Bluetooth application are the technology that enabled m-commerce.

Mobile payment is started in Japan and today forms a considerable component of Japan's economy. M-payment is also common in South Korea. It is widespread in Europe compared to North America.

M-payment is used for online payments and for POS (Point of Sale) transactions. Online payment is used for the purchase of digital goods such as mobile phone entertainment (ringtones wallpaper and so on). In Japan books, music, DVDs, fashion cloth are bought and paid via mobile phones. Mobile devices are also used at POS terminals, vending machines, ticketing machines, etc. The purchase of tickets (such as rail tickets, air tickets, etc) is expected to be a major application area for m-payment. Banks and other financial institutions are also exploring the use of mobile phones to broaden their business by allowing their customers not only to access account information, e.g. bank balances from anywhere, but also to make transactions via mobile phones. This service is often referred to as mobile banking or m-banking.

Generally, there are three types of m-payments. The first is based on the billing system of the network operator. This method lets the user bill their purchase to their monthly carrier bill or deduct it from their pre-paid deposit. M-Pay Bill service from Vodafone and Mobile pay by Sonera are instance for this type of payment.

The second type of m-payment to uses the credit card over a wireless network. The payment mechanism in this type of payment is all about secure transmission of credit card data to the credit card company. Credit card data is stored securely on the mobile phone. This is done either using a dual slot mobile phone or by employing a dual chip mobile phone. EMPS –Electronic Mobile Payment System by MeritaNordbanken, Nokia and Visa is an instance of dual chip alternative. In dual chip mobile phone credit card is stored securely on the mobile phone.

In the third type of m-payment account is held at the bank. Transactions such as transferring money between accounts and paying bills can be performed using this type of payment system. Examples are Paybox and MobiPay. The existing banking infrastructure and technology are used for this type of payment. As compared to other e-payment systems, m-payment has got some advantages such as ubiquity, accessibility and convenience.

## V. Smart Card based E-Payment System

Smart cards are credit card sized plastic cards that have embedded chip with microprocessor and memory capabilities. One application area for smart card is payment. In e-payment smart cards are used either as storage of money or to enhance e-payment security. To use smart card it is necessary to have a smart card reader, a hardware device that communicates with the chip on the smart card. The reader can be attached with PCs, electronic cash register, etc.

Smart cards used for storage of money are actually variations of debit cards that substitute the previous magnetic strip based debit card. These are actually stored-value cards in which prepayment or currency values are electronically stored on the card chips. First the card has to be loaded with specific amount of money. This can be done by downloading cash from the bank account. Once the card is loaded with digital cash then it can be used to pay to the merchant. The card can be recharged with more digital cash when the previous money is used up. The MONDEX electronic cash system is an instance of smart card based e-payment system. The card contains a microchip with CPU and RAM. This microchip called MONDEX e-purse contains MONDEX values. MONDEX can be used over a standard phone line, via the Internet or any other digital communication means.

## VI. Electronic Billing Presentment and Payment

Bills, particularly monthly bills, are norms of modern life. Electric bills, telephone bills, etc. are some instances. Bill processing is costly. From the time the bills are issued to the time they are paid, a substantial amount of cost is incurred.

Electronic payment systems reduce considerably the cost associated with paying bills. Electronic Billing Presentment and Payment (EBPP) are online payment systems for monthly bills. EBPP enables consumers to pay their bills by electronic means after they view their bills electronically.

Actors for EBPP include customers, commercial banks and third party processors. Third party processors facilitate bill presentment and payment. Some third party processors present the bill in web sites and allow their customers to view and pay their bills. Others even go further and allow collecting bill from several sources and presenting all in the web sites for viewing and payment.

## Empirical studies in Ethiopia

Literatures regarding to challenges and prospects of e-payment in Ethiopia is scanty. Most of the studies focus on challenges to adopt the e-payment system in Ethiopia.

Wondwossen and Tsegai (2005) also studied on the challenges and opportunities of E-payments in Ethiopia; their objective was studying of E-payment practices in developing countries, Africa and Ethiopia. The authors employ interview and on site observation to investigate challenges to E-payment in Ethiopia and found that, the main obstacles to the development of E-payments are, lack of customers trust in the initiatives, Unavailability of payment laws and regulations particularly for E-payment, Lack of skilled manpower and Frequent power disruption. According to Wondwossen and Tsegai (2005), an adequate legal structure and security framework could foster the

use of E-payments, which is contradicting with the finding of the previous study.

Gardachew (2010) conducted research on the opportunities and challenges of E-banking in Ethiopia. The aim of his study was focused on analysing the status of electronic banking in Ethiopia and investigates the main challenges and opportunities of implementing E-banking system. The author conducted a survey on the existing operating style of banks and identifies some challenges of using E-banking system, such as, lack of suitable legal and regulatory frame works for E-commerce and E-payments, political instability in neighbouring countries, high rates of illiteracy and absence of financial networks that links different banks. According to Gardachew (2010), Opportunities offered by ICT through e-learning programs and Commitment of the governments on development of ICT infrastructures is considered as drivers of using E-commerce and E-payment systems.

Ghazi and Khalid (2012), found that, the most important barriers for E-business growth are technological issues, such as, security risk, quality of internet and cost of implementation to be the most prominent.

On the study of Yang (1997) on the, security of electronic banking" aimed to identify the challenges that oppose electronic banking which are the concerns of security and privacy of information. The study suggests that solutions to the security issues require the use of software-based systems or hardware-based systems or a hybrid of the two. These software-based solutions involve the use of encryption algorithms, private and public keys, and digital signatures to form software packets known as Secure Electronic Transaction used by MasterCard and Pretty Good Privacy. Hardware-based solutions such as the Smartcard and the Me Chip provide better protection for the confidentiality of personal information. Software-based solutions have the advantage over hardware-based solutions in that they are easy to distribute and are generally less expensive.

Balachandheret al. (2010) have completed a study on the barriers to internet usage on a corporate customer perspective and found that lack of trust on security issue is the main barrier. The study shows that corporate customers only use Internet Banking to a certain extent and feel banks should invest more on security infrastructure and banks should be willing to take full responsibility.

## III. RESEARCH METHODOLOGY

### Types and Source of Data

Primary data are used in this study. The data were collected through interviews, and questionnaires. This gives specific responses to the research questions. Primary data are recognizing as data is gathered for a specific research in response to a particular problem through interviews and questionnaires. Additional data are obtained by examining various documents, including, banks annual reports, local and international newspaper related with issues of E-banking system, Research reports, books and journal articles.

### Method of Data collection

In order to collect sufficient data, the researcher are used the open and close ended questionnaires for the customers and use interviews the e-payment manger of the bank.

**Sampling Techniques**

Initially the researcher are used the sample only for the customer of the bank that are used E-banking system. In order to collect the appropriate data from the customers the researcher are used two probability sampling techniques such as, stratified sampling and simple random sampling techniques.

**Sample Size Determination**

Currently in Ethiopia 19 banks are operated. Among the banks only 12 are used completed e-banking system. From each banks the researcher will take 50 customers to fide the data.

Under this research proposal sample size only necessary for customer of the bank. The researchers will take 600 as a sample from this amount of total population. Due to the infinite size of population the researchers will take a sample based on t Bill Godden formula. The sample will take based on as follows:

**Sample Size - Infinite Population** (where the population is greater than 50,000)

$$SS = \frac{Z^2 \times P \times (1-P)}{C}$$

Z = Z-value A (e.g., 1.96 for a 95 percent confidence level)

P = Percentage of population picking a choice, expressed as decimal

C = Confidence interval, expressed as decimal (e.g., .04 = +/- 4 percentage points)

Z-values (Cumulative Normal Probability Table) represent the probability that a sample will fall within a certain distribution.

The Z-values for confidence levels are:

1.96 = 95 percent confidence level

$$SS = \frac{3.8416 \times 0.5 \times 0.5}{0.0016} = 600$$

**Data Analysis Techniques**

The data collected through the aforementioned research tools were organized in a way suitable for analysis using computer software. A descriptive method of data analysis was employed using Statistical Package for Social Scientists (SPSS) Version 16 for Windows Software.

**IV. EMPERICAL RESULT**

**Overview of the Chapter**

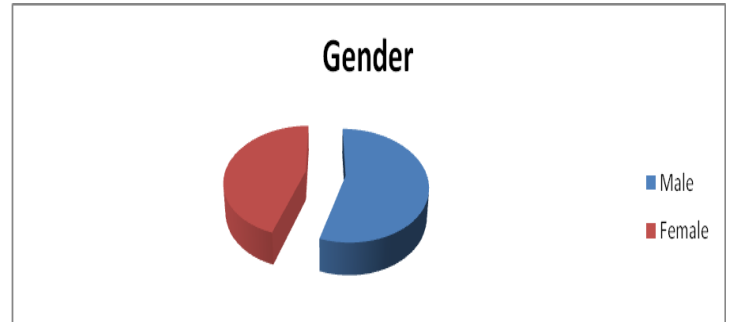
As it is discussed in the methodology part of this study, data collected by using different techniques were analysed in this chapter by using triangulation approach. A total of 600 questionnaires were distributed however it was collected only 495. In addition to questionnaire, the researcher conducted an interview with only E-payment/IT managers for the reason that it was not well-situated to interview all bank managers; and reviews some bank documents regarding E-banking system. In order to analyse the research results, Statistical Package for the Social Sciences (SPSS) software is used. SPSS is a computer program used for statistical analysis. SPSS fit with quantitative approach and survey strategy which were adopted in this research; SPSS has many features and properties which can provide appropriate results, these results lead to achieve research

purposes. SPSS can provide several statistics for each element in the research questionnaire (DeCoster 2004).

**Demographic information of the respondents**

The study participants on survey questionnaire have different personal information. The demographic profile of respondents, participated in this study was shown in table 4.2 as follows:

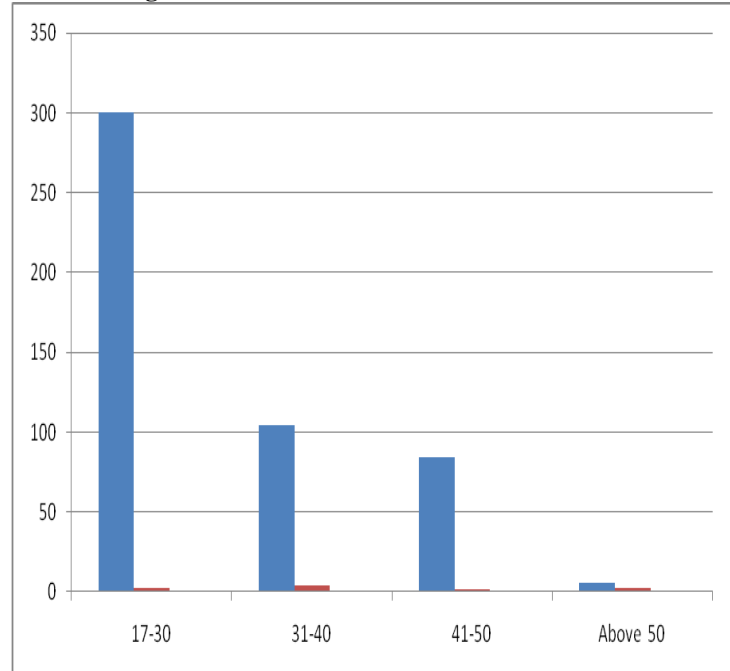
**Pie 4.1**



**Source: primary survey, questionnaires**

As it is shown on the above table, the gender distributions of the respondents among the respondents 55% were male and the remaining 45% of the respondents were female. The highest percentage of participants in this study was males who form 55% of respondents.

**Chart 4.1 Ages**



**Source: primary survey, questionnaires**

The above chart show that the age distributions of the respondents. Among 495 respondents (301) 61% were the age between 17-30, (104) 21% were the age between 31-40, (84) 17% were the age between 41-50 and the remaining (6) 2%

were the age above 50. Based on the above result can show that the highest e-payment users are the age between 17-30.

**Table 4.1 Educational level**

	Frequency	Percentage
Elementary completed	55	11
High school complete	175	35
Diploma holder	105	22
Degree holder	105	21
Master and above	55	11
Total	495	100

**Source: primary survey, questionnaires**

The above table shows that the educational level of e-payment user. Among the respondents 11% were elementary school complete, 35% were high school complete, 22% were diploma holder, 21% were degree holder and the remaining 11% were master and above holder.

**The current Status of E-payment System in Ethiopia**

Certainly the banking industry in Ethiopia is underdeveloped and therefore there is an all immediate need to embark on capacity building arrangements and modernize the banking system by employing the state of the art technology being used anywhere in the world. With a growing number of import-export businesses, and increased international trades and international relations, the current banking system is short of providing efficient and dependable services and therefore all banks operating in Ethiopia should recognize the need for introducing electronic banking system to satisfy their customers and meet the requirements of rapidly expanding domestic and international trades, and increasing international banking services.

Undeniably the largest state-owned bank, Commercial Bank of Ethiopia, introduced ATM service for local users in 2001 with its fleet of eight ATMs located in Addis Ababa. Moreover, CBE has had Visa membership since November 14, 2005. However, due to lack of appropriate infrastructure it failed to reap the fruit of its membership. Despite, being the pioneer in introducing ATM based payment system and acquired Visa membership, CBE lagged behind Dashen Bank, which worked aggressively to maintain its lead in electronic payment systems. Dashen bank, a forerunner in introducing e-banking in Ethiopia, has installed ATMs at convenient locations for its own cardholders. The Dashen Bank ATM is available 24 hours a day, seven days a week and 365 days a year providing service to Dashen Debit Cardholders and International Visa Cardholders coming to the country. At the end of June 2009, Dashen bank has installed more than 40 ATMs in its area branches, university compounds, shopping malls, restaurants and hotels. Available services on Dashen Bank ATMs are: Cash withdrawal, Balance Inquiry, Ministatement, Fund transfer between accounts attached to a single card and PIN (Personal Identification Number) change.

Currently, the bank gives debit service only for Visa cards. Dashen bank clients can withdraw up to up to 10,000 birr per day. Expanding its leadership, Dashen Bank has begun accepting

Master Card in addition to Visa credit cards it began serving over two years ago. Dashen won the membership license from MasterCard in 2008.

Harnessing its leadership with advanced banking technology, Dashen Bank signed an agreement with iVery, a South African electronic payment technology company, for the introduction of mobile commerce in April 21, 2009. According to the agreement, iVeriy Payment Technologies has licensed its Gateway and Master Card e-payment processing solution to Dashen Bank. This would make Dashen Bank the first bank in Ethiopia to acquire e-commerce and mobile merchant transactions. Although Dashen's new technology is one step ahead in that it allows transfer of funds from one's account to others, the younger United Bank was the first to introduce telephone and Internet banking systems - including text messages (SMS) - by the end of 2008.

Wegagen Bank has signed an agreement with Technology Associates (TA), a Kenyan based IT firm, for the development of the solutions for the payment system and installation of a network of ATMs on December 30, 2008.

The memorandum of understanding signed by three private commercial banks to launch an Automated Teller Machine (ATM) and Point of Sale terminal (POS) network, in February 2009 is welcoming strategy to improve electronic card payment system in Ethiopia. Three private commercial banks - Awash International Bank S.C., Nib International Bank S.C and United Bank S.C. – have agreed in principle to establish a ATM network called Fattan ATM network. If everything goes as planned, Fattan ATM will install over 140 ATM machines and over 340 POSs across Ethiopia. There will be one ATM at every branch of the consortium banks, all domestic airports serviced by commercial service, shopping complexes and merchants. The agreement is the first significant cooperation between competing banks in Ethiopia, which others should be encouraged to follow as there is no single bank in Ethiopia that can afford to provide extensive geographical coverage and access (BinyamTamene, 2009).

The first ever electronic banking gateway was signed between Ethiopian Commodity Exchange (ECX) and Dashen Bank and CBE. The electronic banking system being developed with both banks is designed to give a secure electronic data sharing gateway between clients, banks and ECX, facilitating a smooth transaction (AbiyDemilew, 2008) As the CBE continues to move at a snail's pace in its turnkey solution for Card Based Payment System, Dashen Bank remains so far the sole player in the field of electronic banking since 2006. The agreements signed by other private banks to introduce E-banking are welcoming.

Currently (up to April, 2016) in Ethiopia 19 banks are operated. Among the banks only 12 are used completed e-banking system.

**The Challenges and Prospects of E-payment Challenges of E-payment in Ethiopian banking industry**

Under this part the researchers were asked the respondents to raised different challenges that you faced when they are started to use the e-payment service in a banks. Majority of the user were mentioned the following major problem.

### A. language Barriers

Language is one of the most important powerful instruments to communicate with the business partner and conduct a business. All humankind as much as possible it needs to do anything by their own native language because that is much better than to understand things in easy way. Otherwise there is certain impact on the economic activity. On the other side when it come to the e-payment system instruments such as ATM machine, point of sale (POS) are provide a service only in a limited language. This creates a difficulty to use E-payment System.

### B. Network Challenges

E-payment system needs a network to provide service to the user. According to the user said that most of most of the machines fails to provide a service because of poor network connection.

### C. Frequent Power Interruption

According to the user said frequent power interruption: Lack of reliable power supply is a key challenge for smoothly running e-banking in Ethiopia. Because E-payment system are power dependent so, if the power is off the network also off so, they would not provide a service

### D. Lack of Awareness

In order to get E-payment service, first it needs to know how to operate the system. Even the user also mentioned to that there is a lack of awareness how to use the systems. Even the banks doesn't confirmed to that at the time of taking the card.

Apart from the above the E-payment IT Managers also mentions the key challenges of e-payment system in Ethiopia are presented below:

- ✓ Lack of skilled human power
- ✓ Frequent power interruption: Lack of reliable power supply is a key challenge for smoothly running e-banking in Ethiopia.
- ✓ Lack of Unavailability of payment laws and regulations particularly for e-payment : Ethiopian current laws do not accommodate electronic contracts and signatures. Ethiopia has not yet enacted legislation that deals with e-commerce concerns including enforceability of the validity of electronic contracts, digital signatures and intellectual copyright and restrict the use of encryption technologies.
- ✓ Low level of internet penetration and poorly developed telecommunication infrastructure: Lack of infrastructure for telecommunications, Internet and online payments impede smooth development and improvements in e-commerce in Ethiopia. Most rural areas of the country, where the majority of small and medium businesses are concentrated, have no Internet facilities and thus are unable to engage in e-commerce activities.
- ✓ High rates of illiteracy: Low literacy rate is a serious impediment for the adoption of E-Banking in Ethiopia as it hinders the accessibility of banking services. For citizens to fully enjoy the benefits of E-Banking, they should not only know how to read and write but also possess basic ICT literacy.
- ✓ High cost of Internet: The cost of Internet access relative to per capita income isa critical factor.

Compared to the developed countries, there are higher costs of entry into the e-commerce market in Ethiopia. These include high start-up investment costs, high costs of computers and telecommunication and licensing requirements

- ✓ Low of financial a network that links different banks (Banks are not yet automated): Most of the banking-transactions currently taking place use credit and debit cards supplied by Visa and MasterCard. For conducting e-banking, the use of credit or debit cards is mandatory thus requiring the need for specialized systems which are not currently available.
- ✓ Resistance to changes in technology among customers and staff due to: Lack of awareness on the benefits of new technologies,
  - Fear of risk,
  - Lack of trained personnel in key organizations,
  - Tendency to be content with the existing structures,
  - People may be resistant to new payment mechanism
- ✓ Cyber security issues: Cyber security is a global challenge that requires global and multi-dimensional response with respect to policy, socio-economic, legal and technological aspects. E-banking applications represent a security challenge as they highly depend on critical ICT systems that create vulnerabilities in financial institutions, businesses and potentially harm banking customers. It is imperative for banks to understand and address security concerns in order to leverage the potentials of ICTs in delivering E-banking applications. In the deployment of E-banking application, attention should be drawn to the prevention of cyber-crime (i.e. the use of ICTs by individuals to commit fraud and other crimes against banking transactions) (ITU4D, 2006).

### Prospects for E-Banking Development

- ✓ UNECA, World Bank and UNCTAD are helping developing countries to design national e-strategies, including e-commerce, via National Information and Communication Infrastructure plans (UNCTAD (2004).
- ✓ Commitment of the governments: The Ethiopian government considers ICT as an indispensable tool to alleviate poverty and facilitate a state-transformation aiming an effective and efficient service delivery. It has initiated commendable ICT policy frameworks and several E-Government projects, including the Woreda NET Project (ITU4D, 2006).
- ✓ Opportunities offered by ICT through e-learning programs. The School Net program introduced in Ethiopia to connect more than 500 Schools creates opportunities to citizens to be familiar with ICT applications and increases the awareness of the public (YayehyiradKitaw, 2006).
- ✓ Late adopter opportunities- The commercial banks in Ethiopia should take advantage of already developed best and existing software applications.

## V. CONCLUSION

Certainly the banking industry in Ethiopia is underdeveloped and therefore there is an all immediate need to embark on capacity building arrangements and modernize the banking system by employing the state of the art technology being used anywhere in the world.

Undeniably the largest state-owned bank, Commercial Bank of Ethiopia, introduced ATM service for local users in 2001 with its fleet of eight ATMs located in Addis Ababa. Moreover, CBE has had Visa membership since November 14, 2005. However, due to lack of appropriate infrastructure it failed to reap the fruit of its membership. Despite, being the pioneer in introducing ATM based payment system and acquired Visa membership, CBE lagged behind Dashen Bank, which worked aggressively to maintain its lead in electronic payment systems.

Step by step currently (up to April, 2016) in Ethiopia 19 banks are operated. Among the existing banks only 12 are used completed e-banking system.

With regarding to challenges of E-payment in Ethiopia most of the customer and e-payment managers are mentioned as follows: language barriers, poor network connection, lack awareness, Lack of skilled human power, frequent power interruption, Low of financial a network that links different banks (Banks are not yet automated), Resistance to changes in technology among customers and staff due to: Lack of awareness on the benefits of new technologies (Fear of risk), Lack of Unavailability of payment laws and regulations particularly for e-payment, Cyber security issues is a key challenge for smoothly running e-banking in Ethiopia.

With the regarding to prospects of e-banking system in Ethiopia UNECA, World Bank and UNCTAD are helping developing countries to design national e-strategies, including e-commerce, via National Information and Communication Infrastructure plans (UNCTAD (2004).

Commitment of the governments: The Ethiopian government considers ICT as an indispensable tool to alleviate poverty and facilitate a state-transformation aiming an effective and efficient service delivery. It has initiated commendable ICT policy frameworks and several E-Government projects, including the Woreda NET Project

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Late adopter opportunities- The commercial banks in Ethiopia should take advantage of already developed best and existing software applications.

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