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**ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**E-PAYMENT SYSTEM PRACTICE AND CHALLENGES: THE
CASE OF TOTAL ETHIOPIA**



**BY
ASRAT MANAHILE RETTA**

**JUNE, 2018
ADDIS ABEBA, ETHIOPIA**



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CASE OF TOTAL ETHIOPIA**

BY

ASRAT MANAHILE RETTA

ID.NO. SGS/0363/2009A

ADVISOR: GETIE ANDUALEM (PHD)

**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF GRADUATE
STUDIES, IN PARTIAL FULFILMENT OF REQUIREMENTS FOR THE DEGREE OF
MASTER OF MARKETING MANAGEMENT**

JUNE, 2018

ADDIS ABEBA, ETHIOPIA



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APPROVED BY BOARD OF EXAMINERS

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Endorsement

This thesis has been submitted for examination with my approval as the university advisor.

Main advisor: Name: - ___Getie Andualem (PHD_____

Signature _____

Date_____

Declaration

The researcher here by declares that the thesis on the title, “The Practice and Challenges of E-Payment System (Total Abyssinia Card): In the case of Total Ethiopia”, is his original work and that all sources that have been referred to and quoted have been dully indicated and acknowledged with complete references.

Name: ___ASRAT MANAHILE RETTA_____

Signature: _____

Date: _____

Dedication

This study is dedicated to all my parents, especially to my mother, my sister Widnesh Manahile and my lovely babies Yohana Asrat and Eyob Asrat for their unlimited support and understanding while attending my academic session. I thank you so much; you are my source of inspiration and power to accomplish this course.

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ABSTRACT

The main objective of this paper is to examine the practice and challenges of E-fuel payment system In Total Ethiopia. Semi-structured questionnaires were administered to two hundred fifty five (255) e-fuel card bearers and 25 employees of the organization. Descriptive statistics were employed to analyze data from respondents. The study revealed the Total e-fuel payment system user practice; customers can operate and use it easily. However, customers faced different problems associated with e-payment service. Some of the problems that customers indicated were the network failure, power failure, cheating, deliver invoices and using the card without filling the fuel. Apparently, there are no any kinds of mechanism to control the disruption of fuel cards. In addition, suggestions of the respondents indicated that there is a presence of reconciliation problem between station operation and head office and gap of information exchange between the two extremes. Based on the findings, it is recommended that a proper designation of controlling mechanism create internal controls systems should be developed that could be applied uniformly across all departments involved in the implementation of the fuel card system at office level and also it needs to develop link between company, station and customers.

Key words: Practice and Challenges of E-Payment System Total Abyssinia Card

CHAPTER ONE INTRODUCTION

The chapter one contains the following topics: the back ground of the study, back ground of the industry, statement of the problem, main and sub research questions, research objectives, definition of terms, significance of the study, delimitation of the study, limitation observed by researcher and organization of the paper.

1.1.Back ground of the study

The payment system is an operational network governed by laws, rules and standards that links bank accounts and provides the functionality of monetary exchange using bank deposits (summers, 2012). The payment system is the infrastructure consisting of institutions, instruments, rules, procedures, standards and technical means established to affect the transfer of monetary value between parties discharging mutual obligations. Its technical efficiency determines the efficiency with which transaction money is used in the economy and risk associated with its use (Biago & Massimo, 2001). What makes it a “system” is that it employs cash substitutes with the use of electronic money and other ICT related equipment in its operations. Traditional payment systems are negotiable instruments such as draft cheques and documentary credits such as letter of credits. With the advent of computers and electronic communications a large number of alternative electronic payment systems have emerged. These include debit cards, credit cards, electronic funds transfers, direct credits, direct debits, internet banking and e-commerce payment systems. Some payments include credit mechanisms, but that is essentially a different aspect of payment. Payment systems are used in lieu of tendering cash in domestic and international transactions and consist of a major service provided by banks and other financial institutions.

The rapid rise in the growth of E-payment technology throughout the world is a phenomenon that has been particularly remarkable among many economies, largely because of the e-payment model and ability to store and transfer cash. As a result, all classes of society now have access to financial services as people become increasingly familiar with E-payment-money bill payment system. This concept of marketing being relatively new to most service industries in Kenya has made them to operate in a highly competitive and uneven marketplace characterized with consumers who are highly literate and financially e-transported (Milkau, 2010).

E-payment technology, viewed as a payment or service channel, has the potential to allow two important dimensions to be addressed at the same time: on the demand side, it represents an opportunity for financial inclusion among a population that is underserved by traditional services. On the supply side, it opens up possibilities for service industries to deliver a great diversity of services at low cost to a large clientele of the poorest sections of society and people living in remote areas, (Trim & Tanudjaja, 2013). The enthusiasm about the potential of E-payment money remittance services for Africa's development is based on a view that if many western countries experienced the positive impact of science and technology during the industrial revolution, E-payment money remittance services would, on this basis, assist Africa to assail socio-economic problems (Macharia, 2013).

In 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).

Oil marketers are part of the oil industry's value chain that is broadly described as the downstream segment of the oil business. They act as a link between the consumers, merchants, oil companies and the economy (retailing). According to a Microsoft report, the retail segment of oil marketing faces a lot of changes and managers need to have the ability to implement IT investments. The need to make such investment is to leverage on new technologies in order to leapfrog their competition (Barney, 1991). Munuve (2003) says that some Kenyan oil marketing companies (OMCs) are integrating IT into their payment systems. This has resulted into the emergence of electronic payment platforms like the fuel card and mobile telephone collaboration. Used well, electronic payment systems can be a source of competitive advantage for these companies; its implementation however requires a lot of effort.

Total Ethiopia is one of an international Energy providing company since 1954 G.C in Ethiopia. In the previous years they used cash and coupon method for collection of sales and also their customers using cash and coupons for buying companies fuel and other product for their authorized vehicles. These methods have not been an effective tracking system on vehicle

consumption and recording on travel millage. The leading fuel marketing companies introduced the E- Fuel card system which enables the gap observed on cash and coupon payment system. Total Ethiopia brings Electronic payment system for serving customer and to meet competitive advantage on competitors. Total Abyssinia card provides easy convenient and secured payment mode of systems, it reduces cost and time for both buyers and sellers. The western countries early start in this sector and now they are enjoying on the benefits of cards. In the economies of Africa this system still on an introduction stage on applying of E- Payment systems. However, the system providing some better benefit, still have some areas customer which complains on some issues. On the third of annual staff meeting the company general manager raises some topics about sales collection at Global Hotel. According to the General Manager of Total Ethiopia “Sales not effective unless collection done on due date”. The study their fore seeks to bring more detail about E- Fuel card system, the practice in Total Ethiopia, challenges and how the best way the company uses to achieve the desirable results.

In Ethiopia at the previous year there was four major and famous international oil companies serve the country. They are Shell Ethiopia, Mobil Ethiopia, Agip Ethiopia and Total Ethiopia. Now three oil companies left the country by their own different reason. Total Ethiopia only left from those international companies and soonest one African oil company and some domestic oil companies joined to the business. The current oil energy providing companies are: Total, Oilibya, NOC, YBP, TAF, WAS, etc. In terms of e-payment system Total is the former company even from banks since 2004 G.C and NOC start currently the past two years and also others companies still they use cash and coupons.

1.2.Statement of the Problem

The e-payment system is an operational network governed by laws, rules and standards that links bank accounts and provides the functionality of monetary exchange using bank deposits (summers, 2012). The payment system is the infrastructure consisting of institutions, instruments, rules, procedures, standards and technical means established to affect the transfer of monetary value between parties discharging mutual obligations. Its technical efficiency determines the efficiency with which transaction money is used in the economy and risk associated with its use (Biago& Massimo, 2001).

Payment systems may be physical or electronic and each has its own procedures and protocols. Standardization has allowed some of these systems and networks to grow at global scale, but there are still many countries and product- specific systems. Examples of payment systems that have become globally available are credit card and automated teller machine networks. Specific forms of payment systems are also used to settle financial transactions for products in the equity markets, bond markets, currency markets, futures markets, derivatives, option markets and to transfer fund between financial institutions both domestically using clearing and Real Time Gross Settlement Systems and internationally using the SWIFT network. Electronic Payment Systems (EPS) apart from their convenience and safety also have a significant number of economic benefits which include mobilizing savings and ensuring most of the cash available in the country are with banks. This will make funds available to borrowers both businesses and individuals (Joseph and Richard, 2015). Furthermore, an electronic payment system has the ability to track individual spending; to facilitate the design of products by the banks. This information is also useful to the government when making decisions. EPS also have the ability to reduce cash handling and printing costs. According to Moody's Analytics (2010) real global GDP grew an extra 0.2% a year on average beyond what it would have without card usage. Simply put card usage increases a country's GDP by 0.2% annually.

Electronic payment systems represent what could be a dramatic upgrading of the basic infrastructure of commerce and could slash transaction costs on many different layers of economic activity, potentially yielding major gains for consumers, business owners, and the macro economy at large. However, electronic payments have a long history of fraud, misuse and low reliability (Laudon & Traver, 2002). Proper infrastructure for electronic payments is another Challenge (Taddesse & Kidan, 2005), computer network, reliable telecommunication network and electricity that support electronic platforms are at times not available throughout the country; this negatively affects the development of e-payments (Mishra, 2008).

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Total Ethiopia introduced and applying fuel card system before some years. It has many customers from governmental organizations, private organizations and Embassies. The company still promoting about the e-fuel card benefits to attract new customer and to retain the previous customer. The e-payment system is young in Ethiopia also in Africa. Wondwossen and Tsegai (2005) argue 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 Tiega (2005), an adequate legal structure and security framework could foster the use of E-payments. In line with this, study tries to evaluate the practice of e-fuel card payment system and its challenges in the context of Total Ethiopia.

1.3. Research Questions

1.3.1. Main Research Question

- What are the practice and challenges of Total e-fuel payment system?

1.3.2. Sub Research Questions

- What is the e-fuel payment system at Total Ethiopia?
- What implementation guidelines are in place at Total Ethiopia?
- What controls have been put in place over policy implementation?
- What are the challenges of e-payment implementation?

1.4. Research Objective

1.4.1. General objective of the study

The general objective of the study is to assess practice and challenges of Total Ethiopia E-payment system.

1.4.2. Specific objective of the study

- To examine the practice of e-fuel payment system at Total Ethiopia
- To identify how the implementation guidelines are in place at Total Ethiopia
- To assess the controlling mechanism over policy implementation
- To examine the challenges of Total e-fuel payment system

1.5. Definition of Terms

1.5.1. Conceptual Definition

Pre-paid: payment done on advance

Post-paid: Payment done after usage according to bill

1.5.2. Operational definition

EPT (electronic payment tool): like POS machine

EPT-downloading: reporting of daily sales to main server and receiving order from main server

CDC: Credit downloading on central or pre-paid charging by card presentation

DFC: Charging pre-paid card remotely without presentation card

DFE: Receiving online credited through EPT machine to cards

1.6. Significance of the study

This study helps to the student to acquire knowledge on subject and support as a fulfillment of the requirement to honors Masters on marketing management from Saint Mary's University Addis Ababa. This study further can be used a reference material for the university and also help for researcher as beginning material. Lastly the study can help the company to provide some necessary feedbacks and recommendations from the findings.

1.7. Scope and Limitation of the study

The study is limited in to Total Ethiopia Abyssinia card section and Service stations of the company in Addis Ababa. The study tries to assess experience from the period under the consideration from the beginning of fuel card system in Ethiopia especially the current three years. The population of the study involves low level manager, employees of service station supervisors and customers; the research design chooses descriptive research with cross-sectional design. However, due to time and resource constraints the study was limited on operational areas in Addis Ababa only, not further address up country areas service station and confidentiality to information.

1.8. Organization of the paper

The chapter one introduces about back ground of e-payment system in Total Ethiopia and fuel industry in Ethiopia. The main objective of this study was to evaluate the e-fuel practice and its challenges in Total Ethiopia. The significance of the study is mentioned on different parties like for the student for fulfillment lesson and acquiring knowledge, for university as reference material and for the company to get necessary feedback and recommendations. The study has some limitation to perform in depth due to time and financial problem. The next chapter of literature review more discuss about the e-payment system. Chapter two discuss about theoretical, empirical and frame work of literature review; Chapter three indicates about research methodology and design; chapter four tells about data analysis and interpretation and the last chapter five shows conclusion and recommendation.

CHAPTER TWO LITERATURE REVIEW

The chapter includes theoretical review includes e-payment system, e-fuel system and electronic payment practice and challenges in Ethiopia and tries to identify the benefit through empirical data of different countries and conceptual review indicated in the e-fuel card system.

2.1. Theoretical review

2.1.1. The Concept of E-Payment

E-payment refers as the mode of electronic payment system which does not involve physical cash or money. In other words any cashless electronic payment which includes, bill payment using automated teller machines (AT), credit cards and debit cards, payments via the internet and so forth. E-payment provides various benefits both to consumers as well as merchants. From consumer point of view e-payment provides convenience, security and saving time and cost. On other hand merchants or service providers could benefit on faster payment processes. Credit cards and debit cards are widely used in many business activities, in which many purchases are transacted within these two types of e-payment cards. The retail market purchases such as: from hypermarket, clothing stores and others; professional services which also includes medical, insurance, accounting, auditing; fuel or petrol; mail and telephone order; food and restaurant; and utilities.

Noor Raihan Ab Hamid, Aw Yoke Cheng

Issue 1, volume, January 2013

2.1.2. Type of Cards

Credit-cards: A credit card enables its holder to buy goods and services with a credit card issuer and the amount will be settled at a later date. Card holders are billed on a monthly basis and card holders would have to bear finance charges (interest) on the outstanding amount if the payment is not made by the due date.

Debit-cards: A debit card is a payment card where the transaction amount is deducted directly from cardholder's bank account up on authorization.

Charge-cards: The functionality of a charge card is similar to credit card. However, the charge cardholders must settle their outstanding amount in full by due date every month. Since the

charge cards are often associated with prestige, the fees are generally higher than credit cards
Noor Raihan Ab Hamid, Aw Yoke Cheng

Issue 1, volume, January 2013

E-fuel card: The fuel card system introduced as a way to fill the gap cash and coupon payment system, which is there is no way to control fleet management system in the previous mode of payment. The e-fuel card provides detail report on vehicles consumption and millage and also secured with pass code to protect from theft. According to Ahmed et al (2010) a fuel card allows customer to enjoy convenient, secure and manageable fuel services. The fuel card used as payment card, most commonly for petrol, diesel, oil, car wash... etc. It allows for fuel purchases to be made without using cash at service station. In this study the concern have obviously been laid to rest as evident in the recent escalation in use of cashless media such as pay-at-pump for petrol and diesel.

2.1.3. The Evolution of E-payment System

Electronic innovation in banking industry can be traced back to 1970, when the computerization of financial institutions gained momentum (Malak 2007), However; a visible presence of this was evident to the customers since 1980, with the introduction of ATM. Innovative banking has grown since then, aided by technological developments in the telecommunications and information technology industry. The early decade of the 1990s witnessed the emergence of automated voice response (AVR) technology. By using the AVR Technology, banks could offer telephone banking facilities for financial services. With further advancements in technology, banks were able to offer services, through PC owned and operated by costumers at their convenience, through the use of intranet propriety software. The users of these services were, however, mainly corporate customers rather than retail ones (Sohail & shanmugham 2003). The security first network bank was the first Internet banking in the world that was built in 1995 in USA. After that some famous banks introduced their internet banking one after another, such as Citibank and bank of America.

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2.1.4. E-payment System in Ethiopian Banking Industry

The appearance of E-banking in Ethiopia goes back to the late 2001, when the largest state owned, commercial bank of Ethiopia (CBE) introduced ATM to deliver service to the local users. In addition to eight ATM Located in Addis Ababa, CBE has had Visa membership since

November 14, 2005. But, 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 E-payment system. As 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 E-Banking since 2006 (Gardachew 2010). Dashen bank, a forerunner in introducing E-banking in Ethiopia, has installed ATMs at convenient locations for its own cardholders. Dashen's ATM is available 24 hours a day, seven days a week and 365 days a year providing service to 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. In the year 2011 the payment card services have witnessed significant strides, Dashen's ATM service expanded to 70 and 704 POS terminals (Annual report of the bank 2011).

Available services on Dashed Bank ATMs are: Cash withdrawal, Balance Inquiry, Mini statement, Fund transfer between accounts attached to a single card and Personal Identification Number (PIN) change. Currently, the bank gives debit card service only for Visa cards. Dashen bank clients can withdraw up to 5,000 birr in cash and can buy goods and services up to 8,000 to 13000 birr per day. Expanding its leadership, Dashen Bank has begun accepting MasterCard in addition to Visa cards. Dashen won the membership license from MasterCard in 2008 (source). Harnessing its leadership with advanced banking technology, Dashen Bank signed an agreement with iVery, a South African E-payment technology company, for the introduction of mobile commerce in April 21, 2009. According to the agreement, e-fuel Payment Technologies has licensed its Gateway and MiCard E-payment processing solution to Dashen Bank. Dashen's Modbirr users can transfer 500 birr to other Modbirr users in 24 hours a day. This would make Dashen Bank the first private bank in Ethiopia to acquire E-commerce and mobile merchant transactions (Amanyehun 2011). Although Dashen's new technology is one step ahead in that it allows transfer of funds from one's account to others, the first ever E-banking gateway was signed between Ethiopian Commodity Exchange (ECX) and Dashen Bank and CBE. The E-banking system being developed with both banks is designed to give a secure electronic data sharing gateway between clients, banks and ECX, by facilitating a smooth transaction (Abiy 2008) By the end of 2008 Wegagen Bank has signed an agreement with Technology Associates

(TA), a Kenyan based information technology (IT) firm, for the development of the solutions for the payment system and installation of a network of ATMs on December 30, 2008 Zemen Bank, the only Ethiopian bank anchored in the idea of single branch banking, by launching full-blown internet banking, a service which is new to Ethiopian banking industry in the year 2010. The bank tested the venture through its first phase of the online service, and now it is already started the full-fledged version, which enable customers to make online money transfer freely. Previously, the online banking service, delivered by the bank, only gave access to bank statements and exchange rate information. The new and never-been-tried service proposed by the bank is to include free account money transfer, corporate payroll uploading system where employers could upload payroll to the system and make payments to individual worker's accounts online and online utility bill settlement system, when utility companies are ready (Asrat 2010).

The agreement signed by three private commercial banks to launch ATM and POS terminal 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 an 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 (Binyam 2009).The following provides the E-banking services, which are available in the Ethiopia banking industries at present.

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2.1.5. E-payment Services Provided by Four Ethiopian Banks

Commercial Bank of Ethiopia (CBE):- Automated teller machine (ATM) and Telephone bill payments, point of sales terminal (POS).

Dashen bank: - Automated teller machine (ATM), Mobile Banking (Modbirr), point of sale (POS) terminals, Telephone banking.

Wegagen Bank:- Automated teller machine (ATM), point of sale (POS) terminals and Telephone banking service

Zemen Bank: - Automated teller machine (ATM), online banking. Point of sale (POS) terminals, internet banking, Mobile/phone banking

The researcher, 2012

2.1.6. Challenges of E-Payment Practice

The rapidly growing information and communication technology (ICT) is knocking the front-door of every organization in the world, where Ethiopian banks would never be exceptional. In the face of rapid expansion of electronic payment (E-payment) systems throughout the developed and the developing world, Ethiopia's financial sector cannot remain an exception in expanding the use of the system (Gardachew 2010). Technological innovations play a crucial role in banking industry by creating value for banks and customers, that it enables customers to perform banking transactions without visiting a brick and mortar banking system. On the other hand E-banking has enabled banking institutions to compete more effectively in the global environment by extending their products and services beyond the restriction of time and space (Turban 2008). However, mirroring the development of E-commerce, the adoption and diffusion of electronic banking (E-banking) system is not well developed in Ethiopia. All banks in Ethiopia are too late to move with technological advancement and they should clearly chart out the time schedule for their integration and technological advancement. Some of the banks even today do not have their own websites which can help them to provide at least the information on financial services offered by them (source).

All most, all banks operated in Ethiopia with some exemptions to provide service to customers by using traditional systems that is why every bank customer is highly dissatisfied by the disappointing status of financial development in Ethiopia. Even the time wasted in travelling for search of bank branches and the long waiting time to access the account is really disappointing. This is particularly because of the non-integration of branches of the same bank, i.e. even within individual banks their branches are not linked to each other and it is a must to physically visit the

branch in which an account has been opened. As it is stated in different E-banking literature some of the problems related with adoption of E-banking are: Low level of internet penetration and poorly developed telecommunication infrastructure (source). According to Jensen (2003), most countries in Africa, except South Africa, have Internet infrastructure only in their major cities. Lack of suitable legal and regulatory framework for E-commerce and E-payment is another impediment for the adoption of new technology in banking industry. 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 and 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 (Gardachew 2010). But risks related with security issue, lack of competition among local & foreign banks and social awareness on the E-banking system were not addressed.

In order to encourage further E-banking adoption in developing countries, a better understanding of the barriers and drivers impacting E-banking adoption is critical (Zhao *et al.* 2008). By gaining an in-depth understanding of the factors and conditions that influence developing country's ability to fully adopt and realize its benefits, strategic implications can be generated for the researchers and practitioners regarding how to promote the growth of E-banking in the developing countries. However, despite the importance of these adoptions, limited studies are currently available in developing countries, especially in Ethiopia (source). Therefore, more studies are still required to understand the relevance of E-banking in the country to identify areas in which the country lags behind that inhibit their E-banking adoption and diffusion. Therefore, to address the current gap in the literature, this study is designed to identify the E-banking adoption situation in Ethiopia and commonly focusing on the investigation of factors that affect adoption of E-banking system.

E-banking is a form of banking service where funds are transferred through an exchange of electronic signal between financial institutions, rather than exchange of cash, checks, or other negotiable instruments (Kamrul 2009). E-banking, also known as electronic funds transfer (EFT), is simply the use of electronic means to transfer funds directly from one account to

another, rather than by check or cash (Malak 2007). The term of E-banking often refers to online banking/Internet banking which is the use of the Internet as a remote delivery channel for banking services (Furst & Nolle 2002). With the help of the internet, banking is no longer bound to time or geography. Consumers all over the world have relatively easy access to their accounts 24 hours per day, seven days a week. Another definition of E-banking is that, E-banking is the use of a computer to retrieve and process banking data (statements, transaction details, etc.) and to initiate transactions (payments, transfers, requests for services, etc.) directly with a bank or with other financial service provider remotely via a telecommunications network (Yang 1997). It should be noted that electronic banking is a bigger platform than just banking via the internet. E-banking can be also defined as a variety of platforms such as internet banking or (online banking), TV-based banking, mobile phone banking, and PC (personal computer) banking (or offline banking) whereby customers access these services using an intelligent electronic device, like PC, personal digital assistant (PDA), automated teller machine (ATM), point of sale (POS), kiosk, or touch tone telephone (Alagheband 2006). Different forms of E-banking system were discussed as follows.

Automated Teller Machines (ATM) -It is an electronic terminal which gives consumers the opportunity to get banking service at almost any time. To withdraw cash, make deposits or transfer funds between accounts, a consumer needs an ATM card and a personal identification number (PIN) (source).

Point-of-Sale Transfer Terminals (POS) -The system allows consumers to pay for retail purchase with a check card, a new name for debit card. This card looks like a credit card but with a significant difference. The money for the purchase is transferred immediately from account of debit card holder to the store's account (Malak 2007).

Internet / extranet banking-It is an electronic home banking system using web technology in which Bank customers are able to conduct their business transactions with the bank through personal computers.

Mobile banking-Mobile banking is a service that enables customers to conduct some banking services such as account inquiry and funds transfer, by using of short text message (SMS) (source). Banks offer Internet banking in two main ways. An existing bank with physical offices can establish a Web site and offer Internet banking to its customers in addition to its traditional

delivery channels. A second alternative is to establish virtual branchless or Internet-only, Bank almost without physical offices. Virtual banks may offer their customers the ability to make deposits and withdraw funds via ATMs or other remote delivery channels owned by other institutions (Furst & Nolle 2002). In the context of this study E-banking were not considered as only transferring of service by using internet connection rather it considered as multi-channel service provided through ATM, internet banking, Mobile banking (Modbirr system), point sale terminal and telephone banking.

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2.1.7. Factors influencing the adoption of E-Payment System

Many researchers have been used different frame works in the study of adopting new technological innovation. Among frameworks that have been developed based on the past studies includes, the Technology-organization-Environment framework (TOE) (Tornatzky & Fleischer 1990), which identifies three basic Factors for the adoption of technological innovation, i.e., technological factors, organizational and environmental factors. TOE framework was proposed by Tornatzky and Fleischer; it is designed for studying the likelihood of adoption success of technology innovations. This framework is a comprehensive and well received framework in the context of innovation adoption by organizations and has been used in many studies (Salwani *ETa.l.*, & Ellis 2009; Chang *et al.* 2007; Zhu & Kraemer 2006). According to Tornatzky and Fleischer (1990), technology adoption within an organization is influenced by factors pertaining to the technological context, the organizational context, and the external environment. Based on this, the researcher adopts the TOE framework to summarize possible key factors affecting E-banking adoption as shown as follows.

Technological factor refers to adopter's perception of E-banking attributes. Typical characteristics of technology considered in technology adoption studies are based on the assumption of Roger's diffusion of innovation (Rogers 2003), Which include relative advantages (perceived benefits), and relative disadvantages (perceived risks). While the organizational factor refers to the organization's characteristics that influence its ability to adopt and use of E-banking system.

The environmental factor refers to the external environment in which an organization operates and its condition for supporting the development of E-banking services.

The Organizational factors are financial and human resources Environmental factors, legal framework, national ICT infrastructure, competitive pressure, government support E-Banking, adoption Technological factors and perceived risks (relative disadvantage). Another factor which can affect the adoption of technological innovation is an external environment legal frame works, national ICT infrastructure, competitive pressure and government support. There are limited numbers of studies conducted in Ethiopia on the adoption of technological innovation. Specifically, Gardachew (2010) conducted research on the opportunities and challenges of E-banking in Ethiopia. The aim of his study was focused on analyzing 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 neighboring countries, high rates of illiteracy and absence of financial networks that links different banks.

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2.1.8. Challenges and opportunities of E-payments 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 employs 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 Tiega (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.

On the other hand the study conducted by Daghfous and Toufaily (2007) on the success and critical factors in adoption of E-banking by Lebanese banks. The research was conducted on the factors that can lead to success the adoption of E-banking and the other factors that can constitute as barrier to its adoption, it focus on the organizational, structural and strategic factors which can accelerate or, on the contrary, slow the adoption of this electronic mode of distribution and communication by the banks, through analyzing the case of the Lebanese market. In order to test

the validity of the theoretical framework, structured survey was used, interview questionnaire that was given to E-banking managers or to information technology managers of all the banks on the official list of institutions operating on the Lebanese market, with a total of 57 banks, 31 of them operate internationally and 26 are strictly local. Were used to gather data. The results of their study shows that the organizational variables (bank size, functional divisions, technical staff, technical infrastructure, perceived risks, decision makers` international experience and mastery of innovation) are variables which exert significant impact on the adoption of E-banking, among the structural characteristics, the result revealed that internal technological environment of the bank is a very important factor in determining the adoption of E-banking, also the result shows that banks which are developing in the international scale are more likely to adopt E-banking innovations. Finally the result of the study indicated that extent of penetration of E-banking in the growth phase of an emerging market has an important correlation with the improvement of commercial performance (source).

The study of Shah *et al.* (2005) on critical success factors (CSF) in E-Banking conducted in United Kingdom, aims to determine the critical issues related to financial sector organizations when they establish businesses online. The survey method was used by researchers which target the financial sector in the UK. The study indicates that Understanding the CSFs in E-banking is important for senior management of banking related organizations, because it would potentially help them improve their strategic planning process. The analysis of the study indicates two major types of statistical analyses were conducted, descriptive statistical analyses and factor analysis. In descriptive analyses, the factors (or variables) were ranked in order of their mean score, the highest score being the most important and so on. The top six factors in order of importance were: user-friendly website, systems security, support from top management, fast responsive customer service, promotion of electronic commerce within organization, and all time availability of services and rapid delivery of services. Factor analysis, which was done to group together, related variables to uncover factors (in terms of factor analyses), found the following factors to be critical for the success in E-banking. Issues related to organizational flexibility and speed of services delivery were found to be at the top of the importance list. Issues related to organizational flexibility and speed of services delivery were found to be at the top of the importance list. Business processes and systems integration and enhanced customer services were next in the list of importance. Gerrard *et al.* (2006) in their study in Singapore identifies risk

to be an important factor for Internet banking adoption. All respondents who did not use Internet Banking services had a negative perception of the security in Internet Banking. The respondents perceived that there were many security risks when using the internet. They felt the privacy was a concern, feeling all their financial information could be in jeopardy. Risk was one of the two most frequently mentioned factors in their study, “Concern about risk was mentioned by all respondents. An empirical investigation conducted by Sathye (1999) on the adoption of Internet Banking by Australian consumers also identified, security concerns as key factor in internet banking adoption. A report on Internet Banking in Australia finds that, security concerns among banks and customers are keeping both away from Internet Banking (Sathye 1999).

The main obstacles and barriers that oppose E-banking adoption are the concerns of security, privacy of information and technology investment cost. Also the literature indicates that according to the customers there are different factors that influencing the adoption of E-banking such as, perceived advantages and other factors related to the services itself & how to be accepted and used by the customers, which differ from country to country, reflecting the economic and technological development in each country. In this study researcher has identified the main factors influencing adoption of E-banking in Ethiopian banking industries by using survey and interview conducted with managers of the selected banks (source).

Although there are many associated benefits with the adoption of E-banking, there are many reasons which obstruct implementation of the system. In case of Ethiopian banking industries, many private banks still using old banking system and don't have access to take advantage from electronic banking facilities. Wondwossen & Tsegai (2005) observed the following reasons which may be considered as hindrance factors for the use of electronic payment system in Ethiopia. These hindrance factors include, lack of appropriate infrastructure for E-payment, lack of internet facilities with customer and learning how to interact with bank website.

2.2. Empirical review

A report by Nilsson (2013) indicates that cashless transactions are expected to be one of the growth areas for the payment processing industry in the United States. According to the report, economists points to the fact that cashless transactions volume doubled between 2002 and 2011. In 2013 fuel cards, debit cards and credit cards payment exceeded cash payment for the first time; there by rendering card purchasing was the preferred payment method of us customers. The

trend according to Kassavana (2014) is predicted to accelerate credit purchases growing at the rate of 7% per annum and debit transaction expanding at the unprecedented rate of 21% annually.

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Gardachew (2010) conducted research on the opportunities and challenges of E-banking in Ethiopia. The aim of his study was focused on analyzing 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 neighboring countries, high rates of illiteracy and absence of financial networks that links different banks.

The other descriptive case study analysis conducted by Khalfan *et al.* (2006) on ‘Factors influencing the adoption of internet banking in Oman, aimed to identify the main potential factors or impediments that are currently inhibiting the incorporation or adoption of E-commerce applications in the Omani Banking sector. Data, used in their study were collected using semi structured interviews and survey questionnaire as well as reviewing some bank documents. The results of their study provide a Pragmatic picture about the adoption of E-Commerce applications in the core financial sector domain of Oman. One of the main findings is that security and data confidentiality issues have been a major barrier. The banking sector was reluctant to use E-commerce applications as they felt that transactions conducted electronically were open to hackers and viruses, which are beyond their control. Lack of top management support is the other inhibiting factor in the adoption of electronic commerce applications as per their finding.

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CHAPTER THREE RESEARCH DESIGN AND METHODOLOGY

This chapter indicates how the study was conducted. The researcher plans to perform using descriptive research design. The population and sampling methods are discussed. Finally the researcher indicates data collection method.

3.1. Research Approach and Design

The researcher used mixed research approach where both quantitative and qualitative data were employed. The researcher plans and chooses descriptive research design and using cross sectional method as the way to explore reasons and facts. To explore the facts from different respondent division and collect answers examine results.

3.2. Sampling Design and Population

3.2.1. Target Population

Target population is a characteristic on a specific group, which is the entire of mass observation and the parent group from which a sample is to be formed. The researcher target population is mainly focus on customers, Total Ethiopia Abyssinia Card section employee and Total Ethiopia service station supervisors. This research represents the Total Ethiopia customers and employees from card section and station supervisors; therefore the target population of this study was 700 customers of e-fuel users, and employees.

3.3.2 Sample Size

The total populations of this research were 700; accordingly, using the formula Yeman (1967), the researcher determine a sample size of 255. Apart from this in order to substantiate the analysis additional data were collected from 15 dealer employees (station supervisors) and 10 Company employees. Totally from 280 respondents data were collected.

3.3. Sampling Techniques

The researcher chooses convenient sampling techniques to determine the practice and challenges by using e-fuel card and questioner disseminated for customers from back office of Abyssinia card section. In order to select the customer respondent the researcher employed a non-probability convenient sampling techniques. However, employees of station supervisors were selected randomly.

3.4. Source and Method of Data Collection

The researcher data were gathering from both primary and secondary data sources. Primary data were collected from of e-fuel customers, card section employees and station supervisors and secondary Data were gathered from company internal source of annual and quarterly report and previous researches. Apart from these to explore the necessary and valuable information the researcher used questioner. The researcher also used Likert scale questioner and the answer of respondents provides quantitative and qualitative data from semi-structured and standardized questioner and the response also predetermined from close ended question.

3.5. Data Analysis Methods

The researcher analyzed the collected data using descriptive data analysis techniques such as frequency tables and interpreted in to percentage form to give meaningful quantitative information.

3.6. Reliability Test

This study mainly performed a reliability using Cornbach's alpha coefficient method, and the result shows that the data is 72.1 %reliable.

CHAPTER FOUR PRESENTATION AND INTERPRETATION OF DATA

4.1. Demographic Characteristics of Customer Respondents

Data were collected from a total of 255 respondents, where 186 (72.9%) of the respondents were male and the rest 69 (27.1%) of them were females. The researcher collects the data from three different groups customers, station supervisors and employees; accordingly, 230 (90.2%) of them were customers, 15 (5.9%) of them were station employees and the rest 10 (3.9%) of them were supervisors. Furthermore, respondents were categorized in to five age groups, the first groups are those respondents who are less than 25 years of age which accounts 5.9 percent of the respondents; the second group were 26 to 34 years of age, this age groups incorporate 33.7 percent of the respondents and the third group were 35 to 44 years of age which contain 36.5 percent of the respondents. The last groups of age were 45 to 54 and above 55 years of age, these age groups incorporate 18 and 5.9 percent of the total respondents. The analysis shows that majority of the customers of the e-fuel payment are males, also majority of the service users are youngsters ranged between 26 and 40 years of age.

Table 4.1 description of gender and age respondents of customer

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	186	72.9	72.9	72.9
	Female	69	27.1	27.1	100.0
	Total	255	100.0	100.0	

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	under 25	15	5.9	5.9	5.9
	26-34	86	33.7	33.7	39.6
	35-44	93	36.5	36.5	76.1
	45-54	46	18.0	18.0	94.1
	55 years and above	15	5.9	5.9	100.0
	Total	255	100.0	100.0	
Type					
		Frequency	Percent	Valid Percent	Cumulative Percent
Station Supervisor		15	5.4	5.4	5.4
Company Employee		10	3.6	3.6	9.8
Customers		255	91.0	91.0	100.0
Total		280	100.0	100.0	

In addition to the above mentioned points the education level and year of service were also assessed, according to the analysis result 8.6 percent of the respondents were at high school level, 4.3 percent of them were at technical school level, and 34.5 percent of the respondents had college diploma. In addition to these, 47.8 and 4.7 percent of the respondents were degree and master's degree holders respectively. The analysis shows that majority of the customers of the e-payment were degree holders which indicates the more peoples are educated the more they became the user of the e-payment system.

Table 4.2 level of education of respondents

Level of Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High school	22	8.6	8.6	8.6
	technical school	11	4.3	4.3	12.9
	college diploma	88	34.5	34.5	47.5
	BA/BSc	122	47.8	47.8	95.3
	MA/MSc	12	4.7	4.7	100.0
	Total	255	100.0	100.0	

4.2. Customers Perception towards E-Payment Practice

4.2.1 E-Payment Application

Regarding the application of e-payment the first raised for customer respondents were to what extent the card payment system were easily adopted by the customer, in this regard only 8.7 percent of the respondents agreed that the payment system was easy to adopt, the rest majority (88.7%) of the respondents confirmed that the e-card payment system was not easy to adopt; although 86.1 percent of the respondents said that there are fuel card system implementation guidelines. 76.5 percent of the respondents confirmed that there is an adequate infrastructure to apply e-fuel card payment system. Furthermore, 81.8 percent of the respondents replied that the fuel card payment system is adequately functional. Apparently, the qualitative analysis indicated that the E-card payment system makes task easy and better payment system and had good advantage in support of fleet management. They further reflect that not only the payment system minimize time and money, it also provides the necessary data for customers.

In addition to the above statistics it is possible conclude through observing the mean statistics of the table below. Accordingly, the adaptation of the card system and dissemination of guidelines had a mean score of less than 2.8, which also tells us there is a problem on the adoption of the payment system as well as disseminating the guideline to employees. Apart from the above two points all the other items had a mean score of above 3.42; which implies proper guidelines were prepared for customers with adequate infrastructure and functional cards.

Table 4.3 e-payment application

Statements	SD	D	N	A	SA	Mean	St.Dev.
The card system is easy to use for customer	13.9%	74.8%	2.6%	5.2%	3.5%	2.10	0.825
There are fuel card system implementation guidelines	1.7%	4.3%	7.8%	59.1%	27%	4.05	0.824
The implementation guide lines Disseminated to employee	13%	47%	10.4%	23.5%	6.1%	2.63	1.156
Fuel card guide lines are available to customers.	0.9%	3.5%	7%	68.7%	20%	4.03	0.698
There is an adequate infrastructure to apply e-fuel card payment system.	1.7%	7%	14.8%	65.2%	11.3%	3.77	0.805
The fuel card payment system is adequately functional.	3.5%	7.8%	7%	69.6%	12.2%	3.79	0.882
The fuel-card card payment system has positive acceptance by customer.	0%	3.5%	4.3%	60.9%	31.3%	4.20	0.676

4.2.2. Controlling Mechanism over the Application of E-Fuel Cards Transaction at Station

Here customers were asked what they observe during the time they visit the station. According to 85.2 percent of the respondents in Total Ethiopia there were general controlling mechanisms of the application. Apparently, if something unusual happen on the station the employees respond was fast and reliable; this was confirmed by 80.9 percent of the respondents. In addition to these, more than 90 percent of the respondents replied that the E-card payment system had reliable and secure information system. Under the analysis of controlling mechanism from customer's point of view the minimum mean is 3.85 and the maximum is 4.37; this implies customers are feels comfortable with the current controlling mechanism of the organization.

Table 4.4 Controlling Mechanism of E-Payment

Statements	SD	D	N	A	SA	Mean	St. Dev.
General and application control applied in Total Ethiopia	2.6%	5.2%	7%	60%	25.2%	4.00	0.877
For any inconvenience in the station there is reliable and fast response from the station	2.6%	4.3%	12.2%	67.4%	13.5%	3.85	0.803
E-card payment have reliable and secure information system	0.9%	1.7%	7%	40%	50.4%	4.37	0.765

4.2.3. Challenges in E-Fuel Application

This section refers what challenges and obstacles are observed in the overall application of the e-payment system. Respondents were asked to what extent the connection between station and head office were good, in this regard, 74% of the respondents replied that there is good connection between service station EPT machine and head office server. Also 77.4 percent of the respondents agreed that station pump attendant serve customer well on EPT. Conversely, concerning the stability of the internet 61 percent of the respondents confirmed that there was no good internet connection system to apply e-fuel system comfortably, as well as the overall environmental situation didn't encourages investing more in upgrading e-payment system.

Apart from these, the open ended questions show that there is no any online (fast) mechanism to control the payment system just in case the card is lost. In addition to this, the station employee and the drivers can make an agreement and can do whatever they want; there is nothing to trace such exposures. The respondents also mentioned that there is no means of online communication between the customer organization and Total Ethiopia that can report the progress of the card activities. Furthermore, the qualitative analysis shows that the font size of the credit invoice is very small and difficult to read and settle credit payments.

Table4.5. Challenges of e-fuel Payment

Statements	SD	D	N	A	SA	Mean	St. Dev.
There is good internet connection system to apply e-fuel system comfortably	9.6%	51.3%	10.9%	21.3%	7%	2.65	1.126
There is good connection between service station EPT machine and head office server (pooling)	1.7%	1.7%	22.6%	67%	7%	3.76	0.682
station pump attendant serve customer well on EPT	3.5%	12.2%	7%	68.7%	8.7%	3.67	0.923
The political situation affects e-payment system	6.1%	18.3%	17.4%	54.3%	3.9%	3.32	1.015
The profit margin in fuel sales makes satisfied the stakeholder	11.3%	38.3%	33%	14.3%	3%	2.60	0.970
There is a governmental regulatory frame work affect the business	2.6%	19.1%	34.8%	39.6%	3.9%	3.23	0.893
There is a high pressure from competitors related to card payment	2.6%	57.4%	21.7%	14.3%	3.9%	2.60	0.905
The overall environmental situation encourages to invest more in upgrading e-payment system	4.3%	57.4%	13%	17.8%	7.4%	2.67	1.056

Apart from the abovementioned challenges customers were also asked separately whether they believe the e-fuel card system is a secured payment system, accordingly, 166 (72.17%) out of 230 were said that the e-fuel payment system is not a secured payment system, however, 64 (27.82%) of them replied that the e-payment system is a secured payment system. In line with these respondents give some justification regarding the insecurity of the e-payment system; according to them currently there is no mechanism to save the card from abuse it since there is no mechanism and system that control the integration between station employee, EPT machine and the customer of e-card payment user. Apart from these, respondents further mentioned that the station dealers give invoices without filling the fuel.

Table 4.6 security of e-fuel payment system

	Yes		No		Total	
	Count	Percentage	Count	Percentage	Count	Percentage
E-fuel card system is a secured payment system	64	27.82%	166	72.17%	230	100%

4.3. Company Card Section Employees and Station Supervisors Perception towards the Practice of E-Payment

In pursuit of substantiate the information generated from customers data were also collected from employees of the organization, basically from station supervisors and employees the company. Accordingly, totally, data were collected from 25 employees, among them 15 (60%) of them were station supervisors and the rest 10 (40%) of them were employees of company works at card section. Apparently, all of the 10 employees are from the main office of total Ethiopia and the rest 15 are station employees of dealers. Total Ethiopia didn't distribute the fuels by its own self mostly, it give the franchise to dealers, however, it supervise the activities of each dealer; this is the reason why all of the sample station supervisors are employees from the dealer and the entire are employees from Total Ethiopia who work in Abyssinia card section.

Table 4.7 Job category of respondents and their employers

Job * who is your employer Cross-tabulation					
Count					
		Who is your employer		Total	
		Total Ethiopia	Dealer		
Job	Station Supervisors	0	15	15	60%
	Card section Employee	10	0	10	40%
Total		10	15	25	100%
		40%	60%	100%	

4.3.1. E-Payment Application

Although considerable amounts of responders had a doubt on easy adoption of the e-payment system, however, majority (76%) of the employee respondents agreed that the e-payment system were adopted easily by customers. There are also implementation guidelines of the card system, this was confirmed by 79 percent of the respondents; however, 20 percent of the employee respondents neither agree nor disagree. Although majority of the employee respondents confirmed the existence of implementation guideline, however, only 48 percent of them replied that the guideline is properly disseminated to customers. In addition to this employees were asked to what extent the manuals are easily available to customers, 64 percent of the employee respondents agreed that the manuals are available any time for customers, however, 16 percent of the employees disagrees the availability of the guideline at any time, and 20 percent of them neither agreed nor disagree.

In addition this, questions also raised regarding the e-payment infrastructure, accordingly, 64 percent of the respondents replied that there were an adequate infrastructure to apply e-fuel card payment system; however, 16 percent of them didn't agreed on this issue. Only 56 percent of the respondents confirm that trainings were provided from the company about e-fuel application for employees, with regard to this 32 percent of the respondents neither agree nor disagree. In addition to these, 84 percent of employee respondents confirmed that fuel-card card payment system has positive acceptance by customer. Apart from the percentage analysis mean were employed as a measure of central tendency, accordingly, all of the raised questions had a mean score of greater than 3.5, which implied according to the views of employee respondents the e-payment system is adopted easily by customers as well as guidelines were provide for those who would like to use it in case there is difficulty. If the guideline doesn't help customers to understand the e-payment system the company provides the necessary training for customers.

Table 4.8 the application of e-payment from employee's perspective

Statements	SD	D	N	A	SA	Mean	St. Dev.
The card system easily adopted by the customer	0%	12%	12%	56%	20%	3.84	.898
There are fuel card system implementation guidelines	0%	4%	20%	52%	24%	3.96	.790
The implementation guide lines Disseminated to employee	0%	12%	40%	32%	16%	3.52	.918
Fuel card guide lines are available to customers.	0%	16%	20%	56%	8%	3.56	.870
There is an adequate infrastructure to apply e-fuel card payment system.	4%	12%	20%	52%	12%	3.56	1.003
Trainings were provided from the company about e-fuel application for employees	4%	8%	32%	48%	8%	3.48	.918
The fuel card payment system is adequately functional.	4%	0%	4%	56%	36%	4.20	.866
The fuel-card card payment system has positive acceptance by customer.	0%	8%	8%	44%	40%	4.16	.898

4.3.2. Controlling Mechanism over the Application of E-Fuel Cards Transaction at Station

80 percent of the employee respondents confirmed that general and application control mechanisms were applied in total Ethiopia. The fuel card system were authorized by the reliable management before they implemented, this was confirmed by 84 percent of the respondents. In

addition to this, according to 78 percent of employee respondents for the purpose of control jobs were segregated to different position; apart from the segregation, manager’s control and check the implementation of the system regularly, this was replied by 64 percent of the respondents; conversely, 32 percent of the respondents neither agree nor disagree. 72 percent of the respondents also confirmed that pump attendant list was given to the company as well as the service station receives pump attendant code from the company. In addition to percentage analysis mean analysis were also performed, accordingly, all of the anticipated questions regarding controlling mechanism had a mean score of greater than 3.3, which implies over all the controlling mechanism were good according to the employee respondents.

Table 4.9 Employees view on controlling mechanism of E-fuel payment

Statements	SD	D	N	A	SA	Mean	St. Dev.
General and application control applied in Total Ethiopia	0%	8%	12%	48%	32%	4.04	.889
The fuel card system is authorized by the reliable management before they implemented	0%	0%	16%	60%	24%	4.08	.640
Jobs are segregated to different position for control	8%	4%	20%	56%	12%	3.60	1.041
The controls over the implementation of the system are regularly checked by manager	4%	0%	32%	36%	28%	3.84	.987
Pump attendant list is given to the company	8%	8%	12%	32%	40%	3.88	1.269
The service station receive pump attendant code from the company	0%	8%	20%	36%	36%	4.00	.957
Every pump attendant uses code to use pump and the system functional	4%	36%	8%	24%	28%	3.36	1.350
It is possible to identify which pump attendant perform sales on identified pump if needed	0%	12%	20%	36%	32%	3.88	1.013

4.3.3. Challenges in E-Fuel Application

Possible estimated challenges were raised to employee respondents structurally; firstly, since e-payment system needs internet connection, respondents were asked if the internet connection challenged their service, accordingly, 28 percent the sample employee respondents confirmed

that there no good internet connection system to apply e-fuel system comfortably; however, the same amounts of respondents replied that the internet connection were good and it is stable to use the e-payment system. With regard to this majority (44%) of the sample employee respondents neither agrees nor disagrees. Moreover, 44 percent of the respondents confirmed that there is good connection between service station EPT machine and head office server, however, 36 percent of the respondents didn't agreed on the issue of stable internet connection between station and head office; and the rest 20 percent neither agree nor disagree.

Furthermore, only 8 percent of the sample employee respondents said that there is a high pressure from competitors related to card payment; however, 44 percent of them confirmed that there was no as such competitor's pressure related to card payment system. The rest 48 percent of the sample employee respondents neither agree nor disagree regarding competitors pressure. Mean was also used to make a decision concerning the perception of sample employees; accordingly, the question raised regarding internet connection stability had got a mean score of 2.92 which almost at disagree level, which indicates the instability of internet connection challenged the organization. The other issues mentioned as a challenge didn't create much problem on the implementation of e-payment.

Table 4.10 Challenges in E-Fuel Application employee's perspective

Statements	SD	D	N	A	SA	Mean	St. Dev.
There is good internet connection system to apply e-fuel system comfortably	20%	8%	44%	16%	12%	2.92	1.256
There is good connection between service station EPT machine and head office server (pooling)	0%	36%	20%	32%	12%	3.20	1.080
station pump attendant serve customer well on EPT	4%	16%	24%	32%	24%	3.56	1.158
The political situation affects e-payment system	0%	24%	48%	12%	16%	3.20	1.080
The profit margin in fuel sales makes satisfied the stakeholder	40%	24%	32%	4%	0%	2.00	1.000
There is a governmental regulatory frame work affect the business	16%	8%	56%	16%	16%	2.84	1.028
There is a high pressure from competitors related to card payment	4%	40%	48%	8%	0%	2.60	0.707
The overall environmental situation encourages to invest more in upgrading e-payment system	8%	28%	12%	44%	8%	3.16	1.178

4.4. Mean Statistics Summary of Practices and Challenges of E-Fuel Card Payment

Apart from the frequency distribution means statistics were employed in order to summarize the response of both customers and employees. The first issues were about the benefits of e-fuel payment system, the mean statistics of both customers and employees were above four, which implies both of the respondents got that the e-payments system is benefiting sides, customers and service providers in terms of its reliability and security. With regard to the applicability of the payment system, from customer's side it, this particular issue had a mean score of 3.49, and from employees perspective it had 3.78; and overall this service dimension had a mean score of 3.36; the statistics indicate that the system is easy and simple to adoptable with adequate infrastructure supported by little trainings.

In addition to the above mentioned points analysis were also performed regarding the controlling mechanism over the application of E-Fuel cards; accordingly, from customers point of view the controlling mechanism had a mean score of 4.07 and from employees perspective it had 3.83, and overall it had a mean score of 3.95, which indicate there is adequate controlling activities at station level, where jobs are segregated to different position for control, card system are authorized by the reliable management before they implemented and the controlling implementation regularly checked by manager. Furthermore, the last issue were deals with the challenges of the e-fuel payment system application, the mean statistic of this were 2.99 which shows the payment system application had a little challenges; the main and basic challenge of the system were the absence of good internet connection; since the e-payment system doesn't work without connection.

Table 4.11 Description of mean summary

Items	Customers		Employees and supervisors		Total	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
E-Fuel Card Payment Benefits	4.60	0.8214	4.39	0.7210	4.49	0.7712
E-Payment Application	3.49	0.8500	3.78	0.8951	3.63	0.8725
Controlling Mechanism of E-Fuel Cards Transaction at Station	4.07	0.815	3.83	1.0182	3.95	0.9166
Challenges In E-Fuel Application	3.06	0.9462	2.93	1.0608	2.99	1.0035

CHAPTER FIVE SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary of Key Findings

- 8.7 percent of the respondents agreed that the payment system was easy to learn, the rest majority (88.7%) of the respondents confirmed that the e-card payment system was not easy to understand for new customer.
- 86.1 percent of the respondents said that there are fuel card system implementation guidelines. 76.5 percent of the respondents confirmed that there is an adequate infrastructure to apply e-fuel card payment system.
- There is a problem on easily understanding of the payment system as well as disseminating the guideline to customers. However, proper guidelines were prepared for customers with adequate infrastructure and functional cards
- In Total Ethiopia there were general controlling mechanisms of the application. Apparently, if something unusual happen on the station the employees respond was fast and reliable. Further, the E-card payment system had reliable and secure information system.
- There is good connection between service station EPT machine and head office server and also station pump attendant serve customer well on EPT.
- there was no good internet connection system to apply e-fuel system comfortably, as well as the overall environmental situation didn't encourages investing more in upgrading e-payment system
- 166 (72.17%) out of 230 were said that the e-fuel payment system is not a secured payment system, however, 64 (27.82%) of them replied that the e-payment system is a secured payment system
- All of the 10 employees are from the main office of total Ethiopia and the rest 15 are station supervisor which means employees of dealer.
- Total Ethiopia didn't distribute the fuels by its own self mostly, it give the franchise to dealers, however, it supervise the activities of each dealer; this is the reason why all of the sample employees are from the dealer and all of the employees are from Total Ethiopia Abyssinia Card Section.

- Payment system helps customers in terms of saving time and money. E-payment is currently the most secured payment system as well as it provides the necessary data for you and customers.
- Station supervisor and company employees confirmed that the e-payment systems were learned easily by customers. There are also implementation guidelines of the card system,
- Only 48 percent of them replied that the guideline is properly disseminated to customers. 64 percent of the employee respondents agreed that the manuals are available any time for customers, however, 16 percent of the employees disagrees the availability of the guideline at any time
- Supervisor and employee respondents confirmed that general and application control mechanisms were applied in total Ethiopia. The fuel card system were authorized by the reliable management before they implemented,
- apart from the segregation, manager's control and check the implementation of the system regularly and pump attendant list was given to the company as well as the service station receives pump attendant code from the company
- 28 percent the sample employee respondents confirmed that there are no enough internet connection system to apply e-fuel system comfortably; however, the same amounts of respondents replied that the internet connection were good and it is stable to use the e-payment system.
- there is good connection between service station EPT machine and head office server, however, 36 percent of the respondents didn't agreed on the issue of stable internet connection between station and head office; and the rest 20 percent neither agree nor disagree.
- There is a high pressure from competitors related to card payment; however, 44 percent of them confirmed that there was no as such competitor's pressure related to card payment system

5.2. Conclusion

The study was conducted to assess the practice and challenges of E-fuel payment in Total Ethiopia. The analysis were done from both customers and employees perspective; Majority of the Total Ethiopia e-payment customers were comfortable by the e-fuel payment services provided to them. The e-fuel payment service practice rendering better benefits comparing cash and coupon method; however, customers faced different problems associated with e-payment service. Some of the problems that customers indicated were the network failure, power failure, cheating, deliver invoices and using the card without filling the fuel. Apparently, the there is no any kinds of mechanism to control the disruption of fuel cards. In addition, suggestions of the respondents indicated that there is a presence of reconciliation problem between station operation and head office and gap of fast information exchange between the two extremes.

5.3.Recommendation

- Total Ethiopia must ensure that the implementation guidelines are rightfully employed at every stage of implementation. There has to be proper channels to ensure that the implementation guidelines are reviewed and disseminated to employees and customers. The company can put in place implementation leaders or teams so as to encourage a system of compliance to set system implementation guidelines.
- The company must ensure and create internal controls systems that could be applied uniformly across all departments involved in the implementation of the fuel card system. The company should have to invest in personnel that are capable of designing appropriate internal controls so that the specialist won't miss the requirements thereof.
- This research couldn't be because it did not include all branches fuel station and dealers. However, the results of this study are able to give some dimensions to researchers as a bench mark for further researches.
- The need for further research into this aspect is further compounded by the facts that electronic payment particularly in the industry is not a matured phenomenon. Studies involving more representative sample need to be carried out to further test and confirm the findings of the study. In the same context, there is need for further research to focus on the critical success factors in the application of E-fuel payments system and strategies of its successful implementation on connecting links between EPT machine and pumps to minimize or avoid such fraud.
- The need of fast internet connection highly important for applying e- payment system in terms of up grading better band width for such service and it needs to work collaborating with stake holders on implementation of sustainable network availability and recommending on better internet service provider.
- The company must work for better solution on avoiding cheating on station by applying better technology by collaborating with government.

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APPENDIX

Saint Mary's University
School of Graduate Studies Faculty of Business,
Department of Marketing Management

A Survey on E-Fuel Card Payment (to be filed by employee)

Dear respondents,

The objective of this survey is to gather, analyze, and synthesize relevant, accurate, sufficient, and timely information that will provide insights about **“the practice and challenges of e-payment system (Total Abyssinia Card).”** The findings of this survey will be used to make recommendations to fuel card marketers to enhance their level of insight about buying behavior of consumers. This questionnaire consists of three sections: section I, deals with the general profile of the respondents; section II, covers E- Fuel card payment System dimensions and features ; section III, deals with e-fuel security , opportunity and challenges of E-card Payment system The information you provide in this survey will be used for the stated purpose and it will be held confidential. I appreciate your voluntary and valuable participation in this survey. I thank you in advance for sharing your valuable experience and time with us in completing the questionnaire. Please do not write your name on the questionnaire. If have any further enquiry you can reach me via: e-mail: asmar_ds@yahoo.com/asratmanahile.12@gmail.com & cell phone +251911693561/ office +251114651125 ext.159

Thank you.
(The researcher)

Section I: General Information of Respondents (employees)

Direction: Please select an appropriate response category by encircling the appropriate number from given alternatives.

1. Gender

- 1) Male 2) Female

2. Which of the following age category describes you?

- 1) Under 25
2) 26- 34
3) 35 - 44
4) 45- 54
5) 55 years and above

3. How many years you have worked in this sector?

- 1) 0 – 5
2) 6 – 10
3) 11 – 20
4) 21 – 30
5) 30 years and above

4. Who is your employer?

- 1) Total Ethiopia 2) Dealer

5. Can you describe your educational status?

- 1) Elementary school 4) College diploma
2) High/Secondary school 5) BA/BSc degree
3) Technical School 6) MA/MSc degree
7) PHD

Section II: E-Fuel Dimensions

Direction: Please indicate your degree of agreement/disagreement with the following statements associated with **E-Fuel Dimensions** by encircling the appropriate number. (1-Strongly disagree; 2-Disagree; 3-Neutral; 4-Agree; and 5-Strongly agree) Key: SDA= strongly disagree; DA= Disagree; N=Neutral; A= Agree, SA= strongly agree.

1) E-Payment Application

S. No	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
2.1	The card system easily learned by the customer	1	2	3	4	5
2.2	There are fuel card system implementation guidelines	1	2	3	4	5
2.3	The implementation guide lines disseminated to employee	1	2	3	4	5
2.4	Fuel card guide lines are available to customers.	1	2	3	4	5
2.5	There is an adequate infrastructure to apply e-fuel card payment system.	1	2	3	4	5
2.7	The fuel card payment system is adequately functional.	1	2	3	4	5
2.8	The fuel-card card payment system has positive acceptance by customer.	1	2	3	4	5

2) Controls over the application of e-fuel cards transaction at station

S. No	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
3.1	General and application control applied in Total Ethiopia	1	2	3	4	5
3.2	The fuel card system is authorized by the reliable management before they implemented	1	2	3	4	5
3.3	Jobs are segregated to different position for control	1	2	3	4	5
3.4	The controls over the implementation of the system are regularly checked by manager	1	2	3	4	5
3.5	Pump attendant list is given to the company	1	2	3	4	5
3.6	The service station receive pump attendant code from the company	1	2	3	4	5

4) Do you have suggestion for better way of post- paid collection?

5) Is there any opportunity or challenges affect e-fuel payment system; please forward your opinion on the provided space?

Thank You for committing your precious time to fill up the questionnaire!!!

የቅድስተ ማሪያም ዩኒቨርሲቲ

ድህረምረቃ ፕሮግራም የገበያ አስተዳደር ትምህርት ክፍል

በነዳጅ ካርድ የክፍያ ዘዴ ላይ ለመመረቂያ ፅሁፍ ወይም ጥናት የተዘጋጀ መጠይቅ (በደንበኞች የሚመለሱ ጥያቄዎች)

የጥናቱ ርዕስ: የቶታል ኢትዮጵያ አብሲኒያ ካርድ ክፍያ ዘዴ ልምድ እና ተግዳሮቶች (በቶታል ኢትዮጵያ አክሲዮን ማህበር የሚል ነው።) ወደ ደንበኞች ለምትሰጡኝ ጊዜ ፣ ታማኝነት እና ፈጣን ምላሽ አስቀድሜ አመሰግናለሁ።

የዚህ ጥናት ዋና አላማ በገበያ አስተዳደር ትምህርት ለድህረ ምርቃ መርሀ ግብር መሰፈርት ሚሚያ ሲሆን ፣ በተጨማሪም ለቶታል ኢትዮጵያ የደንበኞችን ፍላጎት ማወቅ እና አተገባብር ላይ የታዩ ክፍተቶችን ለድርጅቱ አስተያየት ለመስጠት ነው ። ይህ መጠይቅ ሦስት ክፍሎች ያሉት ሲሆን ፣ ክፍል I አጠቃላይ የደንበኞች መረጃ ፣ II የነዳጅ ካርድ ክፍያ አተገባብር ፣ III የነዳጅ ካርድ ክፍያ ተግዳሮቶች እና መልካም ሁኔታዎች የሚሉ ናቸው። በተጨማሪም መጠየቅ የምትፈልጉት ነገር ካለ በዚህ አደራሻ ሊያገኙኝ ይችላሉ። ስልክ +251911693561/+251114651125 ውስጥ መስመር 159 እና በድህረጽ asmar_ds@yahoo.com/asratmanahile.12@gmail.com በድጋሚ አመሰግናለሁ!!!

(ጥናት አድርገው)

መመሪያ

- ስም መጻፍ አያሰፈልግም
- መልስ ነው ብለው ባመኑት ቦታ ያክቡበት
- ተጨማሪ አስተያየት ወይም ቅሬታ ካልዎት በተዘጋጀው ቦታ ያስፍሩ

ክፍል I: ስለደንበኞች አጠቃላይ መረጃ

1. ምታ?

1) ወንድ

2) ሴት

2. እርስኦ ከዚህ ከሚከተሉት በየትኛው የዕድሜ ክልል ላይ ይገኛሉ?

1) ከ 25 ዓመት በታች

4) ከ 45 — 54

2) ከ 25 — 34

5) ከ 55 ዓመት እና በላይ

3) ከ 35 — 44

3. ለምን ያህል ዓመት በስራ ገበታ ላይ ቆይተዋል ?

1) ከ 0 — 5

4) ከ 21 - 30

2) ከ 6 — 10

5) ከ 31 ዓመት እና በላይ

3) ከ 11- 20

4. እርስኦ ከዚህ ከሚከተሉት በየትኛው የትምህርት ደረጃ ላይ ይገኛሉ?

1) የመጀመሪያ ደረጃ

5) በመጀመሪያ ድግሪ

2) ከፍተኛ ሁለተኛ ደረጃ

6) በሁለተኛ ዲግሪ

3) በሞያ ማሰልጠኛ

7) ዶክተር

4) ዲፕሎማ

8) ሌላ _____

ክፍል II : የነዳጅ ካርድ ክፍያ ዘዴ

መመሪያ: እባክዎ ከተሰጡት አማራጭ ውስጥ በተቀመጡት መስፈርት ደረጃ ላይ በሚስማማዎት ቁጥር ላይ በማክበብ ይግለጹ :: የመስፈርት ደረጃዎቹም እንደሚከተለው ቀርበዋል (1- በጣም አልስማማም 2- አልስማማም 3- መልስ የለኝም 4- እስማማለሁ እና 5- በጣም እስማማለሁ)

0) የነዳጅ ካርድ የክፍያ ዘዴ ጥቅም

ተ. ቁጥር	ዝርዝር ሃሳብ	በጣም አልሰማም	አልሰማም	መልስ የለኝም	እሰማለሁ	በጣም እሰማለሁ
1.1	የነዳጅ ካርድ ክፍያ ዘዴ ጠቀሜታ ያለውና የተሻለ ክፍያ አይነት ነው	1	2	3	4	5
1.2	የካርድ ክፍያ ዘዴ ለትራንስፖርት አስተዳደር ጥሩ ድጋፍ ይሰጣል	1	2	3	4	5
1.3	የካርድ ክፍያ ዘዴ ጊዜን እና ገንዘብን ይቆጥባል	1	2	3	4	5
1.4	የካርድ ክፍያ ዘዴ አስተማማኝ የተጠበቀ ዘዴ ነው	1	2	3	4	5
1.5	ስለተጠቀሙበት ፍጆታ ለውስጥ አዲተርም ሆነ ለሀገር ውስጥ ገቢዎች መረጃ በቀላሉ ክፍያዎቹ ያገኛሉ	1	2	3	4	5

1) የነዳጅ ካርድ ክፍያ ዘዴ አተገባበር

ተ. ቁጥር	ዝርዝር ሃሳብ	በጣም አልሰማም	አልሰማም	መልስ የለኝም	እሰማለሁ	በጣም እሰማለሁ
2.1	የነዳጅ ካርድ ክፍያ ዘዴን በቀላሉ ለመረዳት ያሰችግራል	1	2	3	4	5
2.2	የነዳጅ ካርድ ክፍያ ሠራተኞች በዋናው መስሪያ ቤት ስለካርድ ጥቅም እና መረጃ የመሰጠት ድጋፍ ይሰጣሉ	1	2	3	4	5
2.3	የነዳጅ ማደያ ሠራተኞች በታማኝነትና በስርአት ያስተናግዳሉ	1	2	3	4	5
2.4	የነዳጅ ካርድ አጠቃቀም መመሪያ ክፍያዎቹ ያገኛሉ	1	2	3	4	5
2.5	ለነዳጅ ካርድ አጠቃቀም የተሙዋላ መሰረተ ልማት አለ	1	2	3	4	5
2.6	ስለካርድ አጠቃቀም ለደንበኞች ስልጠና ይሰጣል	1	2	3	4	5
2.7	በቶታል ዋና መስሪያ ቤት እና በማደያ ያሉ መሰረተ ልማት መሰሪያዎች በጥሩ ሁኔታ ይስራሉ	1	2	3	4	5
2.8	የካርድ ክፍያ ዘዴ በደንበኞች ዘንድ ጥሩ ተቀባይነት አለው	1	2	3	4	5

2) የነዳጅ ካርድ ክፍያ ዘዴ ቁጥጥር

ተ. ቁጥር	ዝርዝር ሃሳብ	በጣም አልስማማም	አልስማማም	መልስ የለኝም	እስማማለሁ	በጣም እስማማለሁ
3.1	በድርጅቱ ያለው አጠቃላይ የክፍያ ዘዴ ጥሩ የቁጥጥር ስርዐት አለው	1	2	3	4	5
3.2	በነዳጅ ማደያ ለሚገጥሞ ችግር ከማደያው ወይም ከድርጅቱ ሃላፊዎች ፈጣን ምላሽ ያገኛሉ	1	2	3	4	5
3.3	የካርድ ክፍያ ዘዴ ጥሩ እና አስተማማኝ የመረጃ ስርዐት አለው	1	2	3	4	5

3) በነዳጅ ካርድ ክፍያ ዘዴ የሚገጥሙ ተግዳሮቶች እና መልካም ሁኔታዎች

ተ. ቁጥር	ዝርዝር ሃሳብ	በጣም አልስማማም	አልስማማም	መልስ የለኝም	እስማማለሁ	በጣም እስማማለሁ
4.1	ቀልጣፋና ወጥ በሆነ የመረጃ ፍላጎት(ኢንተርኔት) ይስተናግዳሉ	1	2	3	4	5
4.2	በቶታል ዋና መስሪያ ቤት እና በነዳጅ ማደያ ሠራተኞች መካከል ጥሩ መግባባት አለ	1	2	3	4	5
4.3	የነዳጅ ማደያ ሠራተኞች በካርድ ማሸን በደንብ ያስተናግዳሉ	1	2	3	4	5
4.4	የሀገሪቱ ወቅታዊ የፖለቲካ ሁኔታ በነዳጅ ካርድ ክፍያ ዘዴ ችግር ፈጥሮአል	1	2	3	4	5
4.5	ከነዳጅ ሽያጭ በሊትር ጥሩ ትርፍ(ማስፋፊያ ለማድረግ የሚያበረታታ) ይገኛል ብለው ያምናሉ	1	2	3	4	5
4.6	መንግስት ለነዚህ የክፍያ ዘዴዎች ትኩረት/ድጋፍ ይሰጣል	1	2	3	4	5
4.7	ቶታል ኢትዮጵያ በካርድ ክፍያ ዘዴ ከተወዳዳሪዎቹ የሚመጣ ክፍተኛ ውድድር አለበት	1	2	3	4	5
4.8	በአጠቃላይ የሀገሪቱ ወቅታዊ ኢኮኖሚ እና ሌሎች ሁኔታዎች የተሻለ ቴክኖሎጂ እና ኢንቨስትመንት ለማድረግ ይጋብዛል	1	2	3	4	5

ክፍል III: የካርድ ክፍያ ዘዴ ደህነት ተግዳሮቶች እና መልካም ሁኔታዎች

1) የነዳጅ ካርድ ክፍያ ዘዴ ከስርቆት ወይም ከማጭበርበር የተጠበቀ ዘዴ ነው ብለው ያምናሉ?

- 1. አዎ ነው
- 2. አይደለም

2) እባክዎ ይህ የክፍያ ዘዴ ከስርቆት የሚጠበቅበትን መገለጫዎች ቢገልጹልን?

6) እባክዎ ይህ የክፍያ ዘዴ ለስርቆት ወይም ለማጭበርበር የሚጋለጥበት መንገድ ካለ ቢገልጹልን?

7) እርሶ የድህረ ክፍያ (ዱቤ) ደንበኛ ከሆኑ ስለክፍያ አሰባሰብ የተሻለ የሚሉት ሃሳብ ካለ ቢገልጹልን?

8) በካርድ ክፍያ ዘዴ መስተካከል አለበት ወይም ጥሩ ስለሆነ መቀጠል አለበት የሚሉት ሃሳብ እና አሰተያየት ካለ ቢገልጹልን?

ውድ ጊዜዎትን ሰውተው ይህን መጠይቅ ስለሞሉልኝ ክልብ አመሰግናለሁ!!!