THE ADOPTION AND USE OF ELECTRONIC PAYMENT SYSTEMS IN GHANA,
A CASE OF E-ZWICH IN THE SUNYANI MUNICIPALITY

BY

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DECLARATION

I hereby declare that this thesis is my own work towards the Commonwealth Executive Masters in Business Administration (CEMBA) and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the university, except where due acknowledgement has been made in the text.

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DEDICATION

I dedicate this work to my loving and caring mother, Madam Zenabu Issaka (Amaria) whose efforts, pieces of advice, inspiration and encouragement has brought me this far. May the Almighty Allah continue to bless, guard, guide and protect her and her entire family and all who care about her for the rest of their lives.
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ABSTRACT

The introduction of cash is relatively more convenient and an improvement upon the earlier barter system, but it has its own limitations which do not only affect the government but also corporate bodies and individuals. This study was carried out to look into the adoption and use of electronic payment systems in Ghana by individuals, small businesses and corporate bodies with e-zwich as case study. The Technology Acceptance Model (TAM) was used as a framework to study the factors influencing adoption of e-payment systems in Ghana with specific reference to e-zwich; the national switch and smart card payment system. This was done with questionnaires to individuals, businesses and financial institutions to ascertain the types of e-payment systems available, the level of adoption of e-zwich and the various factors affecting the adoption using Sunyani Municipality as a study area. The findings were consistent with the framework. The adoption and use of the e-zwich was found to be low mainly due to the inadequate availability of point of sale terminals at shopping points among others. These are affecting the perceived ease of use even though the perceived usefulness of electronic payment systems is strongly present among individuals and businesses. The study recommended customer education and wide spread deployment of e-zwich point of sale terminals to merchants.
TABLE OF CONTENTS

DECLARATION .......................................................................................................................... ii
DEDICATION .............................................................................................................................. iii
ACKNOWLEDGEMENT ........................................................................................................ iv
ABSTRACT .............................................................................................................................. v
TABLE OF CONTENTS .......................................................................................................... vi
LIST OF TABLES .................................................................................................................. x
LIST OF FIGURES ................................................................................................................ xi
CHAPTER ONE ..................................................................................................................... 1
  INTRODUCTION .................................................................................................................. 1
    1.1 Background of the Study ............................................................................................... 1
    1.2 Statement of the Problem .............................................................................................. 2
    1.3 Objectives of the Study ................................................................................................. 3
    1.4 Research Questions ...................................................................................................... 4
    1.5 Scope of the Study ......................................................................................................... 4
    1.6 Justification of the Study ............................................................................................. 4
    1.7 Limitations of the Study .............................................................................................. 5
    1.8 Organization of Work .................................................................................................. 5
CHAPTER TWO .................................................................................................................... 7
  LITERATURE REVIEW ......................................................................................................... 7
    2.1 Definitions of Electronic Payment Systems .................................................................. 7
    2.2 Types of Electronic Payment Systems ........................................................................ 8
    2.3 Card Payments ............................................................................................................. 9
      2.3.1 Automated Teller Machine (ATM) ....................................................................... 9
      2.3.2 Credit and Debit Cards ......................................................................................... 10
      2.3.3 Smart Cards .......................................................................................................... 10
2.4 Other Electronic Payment Systems .................................................................11
   2.4.1 Electronic Purses/Wallets .................................................................11
   2.4.2 Electronic Funds Transfer at Point of Sale (EFT/POS) ........................11
   2.4.3 Mobile Banking and Money Transfer ................................................12
   2.4.4 Telephone Banking ............................................................................12
   2.4.5 Personal Computer Banking (Home Banking) ....................................13
   2.4.6 Online/Internet Payments .................................................................14
   2.4.7 Electronic Cheque .............................................................................15
   2.4.8 Digitized 'E-Cash' Systems ...............................................................15
   2.4.9 Digital Person to Person (P2P) Payments ...........................................16
2.5 Factors Influencing the Choice of Payment Systems .....................................16
   2.5.1 Customers’ Wealth/Income Level ......................................................16
   2.5.2 Customers’ Educational Level ............................................................17
   2.5.3 Customers’ Employment Level ............................................................17
   2.5.4 Customers’ Personal Preferences .......................................................18
   2.5.5 Transaction-Specific Factors ...............................................................18
   2.5.6 Marketing Campaigns .......................................................................18
2.6 Theoretical Framework: The Technology Acceptance Model .......................18
2.7 The National Switch and Smart Card Payment System; e-zwich ..................22
2.8 Features of E-zwich ..................................................................................22
   2.8.1 Transaction ..........................................................................................22
   2.8.2 Security ..............................................................................................23
   2.8.3 Interoperability ..................................................................................23
2.9 Services Provided by E-zwich ....................................................................23
   2.9.1 Transactional Type ............................................................................23
   2.9.2 Merchant Types ................................................................................27
2.10 Payment Distribution System ................................................................. 28

2.10.1 Procedure ......................................................................................... 29

2.10.2 Benefits .......................................................................................... 29

2.11 Challenges with the Utilization of e-zwich .......................................... 29

CHAPTER THREE ...................................................................................... 32

METHODOLOGY ....................................................................................... 32

3.1 Study design ......................................................................................... 32

3.2 Target population ................................................................................ 33

3.3 Sample Frame ...................................................................................... 33

3.4 Sample Size ........................................................................................ 34

3.5 Sampling Procedure ......................................................................... 35

3.6 Data and Sources ............................................................................... 36

3.7 Data collection instruments ................................................................ 36

3.8 Reliability and Validity ....................................................................... 37

3.9 Data analysis ......................................................................................... 37

CHAPTER FOUR ......................................................................................... 38

ANALYSIS AND DISCUSSION OF RESULTS ........................................... 38

4.1 Socio-Demographic Characteristics of Respondents .......................... 38

4.1.1 Gender ............................................................................................. 38

4.1.2 Age .................................................................................................. 39

4.1.3 Level of Education ......................................................................... 39

4.2 Types of Electronic Payment Systems .................................................. 40

4.3 Types of Electronic Payment Systems provided by institutions ......... 42

4.4 Factors Affecting Customer choice of Payment Systems .................. 43

4.4.1 Customers’ Level of Wealth/Income ............................................... 43

4.4.2 Availability of Payment System ....................................................... 44

4.4.3 Customers’ Level of Education ....................................................... 44
4.4.4 Risk factors (security, safety, ease) ................................................................. 45
4.4.5 Customers’ Personal Preference ........................................................................ 46
4.5 Challenges Involved with the Current Cash Payment System .................................. 46
4.6 Level of Adoption of the E-zwich ................................................................. 47
4.7 Frequency of use of e-zwich smart card ............................................................... 51
4.8 Challenges Involved in the Adoption of E-zwich ............................................. 53
CHAPTER FIVE .............................................................................................................. 58
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS ........................................... 58
5.1 Summary of Findings .............................................................................................. 58
  5.1.1 Types of E-Payments Systems in Ghana ......................................................... 58
  5.1.2 Factors Influencing Choice of Payment Systems ........................................ 58
  5.1.3 Level of E-zwich Adoption ............................................................................ 59
  5.1.3 Challenges Involved With Current Cash Payment System .......................... 59
  5.1.4 Perceived Usefulness of E-zwich ................................................................. 59
  5.1.5 Perceived Ease of Use of E-zwich ................................................................. 60
5.2 Conclusions ............................................................................................................. 60
5.3 Recommendations ................................................................................................. 62
REFERENCES ............................................................................................................... 64
APPENDICES ............................................................................................................. 68
APPENDIX A ............................................................................................................... 68
  Questionnaire for Customers and Individuals ...................................................... 68
APPENDIX B ............................................................................................................... 74
  Questionnaire for Banks and Corporate Bodies ................................................... 74
LIST OF TABLES

Table 1: Gender of clients.................................................................38
Table 2: Level of Education ..............................................................40
Table 3: Types of Electronic Payment Systems in Use by clients .............41
Table 4: Challenges Involved with the Current Cash Payment System ........47
Table 5: Activities e-zwich card is used..............................................51
LIST OF FIGURES

Figure 1: The Technology Acceptance Model; Source (Davis et al. 1989) ............. 20
Figure 2: Age group of respondents ........................................................................ 39
Figure 3: Factors Affecting Customer choice of Payment Systems ...................... 43
Figure 4: Availability of e-zwich terminal ............................................................. 48
Figure 5: Respondents with a valid e-zwich Smart Card ....................................... 49
Figure 6: Use of e-zwich Smart Card for transactions ........................................... 50
Figure 7: Frequency of use of e-zwich smart card per month ................................. 52
Figure 8: E-zwich as a solution to overcome challenges ....................................... 52
Figure 9: Lack of knowledge and skills in basic computing ................................. 53
Figure 10: Complex procedures for conducting payments ...................................... 54
Figure 11: Inadequate Point of Sale Terminals ...................................................... 55
Figure 12: Lack of trust in non-cash payments ...................................................... 56
Figure 13: Inadequate Marketing Campaign/Advertisement .................................. 57
CHAPTER ONE

INTRODUCTION

This chapter provides background information of the study and gives the reader an overview of the research. These include the problem definition, specific research objectives and the research questions. The rest are the scope of the research, the justification of the research, the limitation of the research and its organization.

1.1 Background of the Study

The world has witnessed an upsurge of electronic payment instruments meant to facilitate trade and simplify payments (Abor, 2004). Before the introduction of electronic payment into the Ghanaian banking system, all customers had to walk into the banking hall to undertake transaction of all kinds. Customers had to queue up and spend more hours to talk to a teller for their transactions (ibid). The inconveniences caused by these long queues could discourage many from making transactions especially payments.

For many years, bankers, technology specialists and entrepreneurs among others have advocated for the replacement of physical cash and the introduction of more flexible, efficient and cost effective retail payment solutions (Bank for International Settlement, 1998).

Electronic payment has been designed to help individual customers and companies as well as the banks itself in eliminating or reducing some of the problems inherent in the settlement and payment process (Federal Reserve Bank of New York, 1996). Customers can pay their bills without having to actually move to the bank’s premises.
They may also have access to their account information and even transfer money to
other accounts in the comfort of their homes.

Ghanaian banks are making huge investments in technology to upgrade their
infrastructure in order to provide new electronic information-based services. Electronic services such as online banking are making it possible for individuals and small institutions to take advantage of new technologies at quite reasonable costs (Abor, 2004).

In Ghana, electronic retail payments are being continuously developed, to replace or reduce paper-based payments. Many new payment services have come into existence in recent years, most of which are based on technical innovations such as card, telephone and the Internet (Abor, 2004). Among these payment services are sika card, e-zwich, e-tranzact, tiGO cash, mtn money and zap from airtel.

1.2 Statement of the Problem

The exchange of goods and services conducted face-to-face between two parties’
dates back to the beginning of recorded history as practiced in the barter system. Eventually, trade became more complicated and inconvenient since it was sometimes very difficult for one to find a trader who was interested in ones kind of goods.

The above inconvenience caused humans to invent abstract representations of value. For instance, cowries were introduced to solve some of the problems and difficulties associated with the barter system. As time passed, representations of value became more and more abstract; progressing from cowries to bank notes in the form of cash.

Though the introduction of cash is relatively more convenient and an improvement upon the barter system and the cowries, it has its own problems and limitations, these
problems and limitations do not only affect the government but also corporate bodies and individuals. Among these problems and limitations are the following:

i. The need for the government to produce cash in the form of bank notes.

ii. The need for the government to replace torn bank notes due to mishandling.

iii. The need for corporate bodies to have several branches to receive payment.

iv. The need for corporate bodies to provide space to accommodate long queues.

v. The refusal and reluctance of clients to pay bills due to long queues.

vi. The risks involved in carrying cash to the revenue collection centres.

vii. The lost of man hours in trying to join long queues.

There is obviously the need to find solution the aforementioned problems and limitations of the use of cash. Among the solutions provided is the electronic payment system. In Ghana, the e-zwich is being implemented by Bank of Ghana with support of all the financial institutions in the country. This project seeks to study the adoption and use this electronic payment system in Ghana.

1.3 Objectives of the Study

The general objective of the research is to study into the adoption and use of electronic payment systems in Ghana. The specific research objective seeks to;

i. Identify the forms of Electronic Payment Systems in use in Ghana.

ii. Identify the factors affecting the choice of Payments Systems in Ghana.

iii. Evaluate the challenges involved in the existing Payment Systems in Ghana.

iv. Assess the level of adoption and use of the e-zwich.

v. Examine the challenges involved in the adoption and use of the e-zwich.
1.4 Research Questions

Given the problems identified with excessive decency of cash in transactions in Ghana, this has led to various initiatives on Electronic Payment Systems in Ghana. It is in the view of this that the research seeks to find answers to the following questions.

i. What are the forms of Electronic Payment Systems in use in Ghana?

ii. What factors affect the choice of Payment Systems in Ghana?

iii. What are the challenges involved in the existing cash Payment System?

iv. To what extent has the e-zwich been adopted by banks, businesses and individuals?

v. What are the challenges involved in the adoption of the e-zwich as Payment System?

1.5 Scope of the Study

The research would concentrate on electronic payment systems in Ghana with specific interest on E-ZWICH, the national switch and smart card payment and settlements system that creates an electronic clearing house for all banking and financial institutions, as well as a biometric smartcard which is a very secure way of paying for goods and services. This research covered banks, businesses and individual in the Sunyani Municipality.

1.6 Justification of the Study

Despite the recent remarkable successes in the introduction of some electronic payment systems in Ghana, their adoption and utilization is perceived to be low. Few researches have been conducted to ascertain this what has contributed to the low
adoption rates. It is in the light of this that the research seeks to discover the reasons underpinning the low adoption rates.

The findings of the research could be used by the government and all stakeholders to make decisions as how to improve and promote non-cash payment systems since a reliable and efficient payment system is crucial to the orderly operation of a nation’s banking and financial system, its real economy and to the reputation of the central bank (Central Banking of America, 2004).

1.7 Limitations of the Study

Among the limitations of the research was the unwillingness of some respondents to pick the questionnaire and the late return of completed ones. The research was also limited to residents and businesses in the Sunyani Municipality.

1.8 Organization of Work

This research would be presented in five (5) chapters in well-structured and coordinated order as outlined below:

Chapter one (1) gives a brief but concise history (background information) of payment system, from their unsophisticated beginnings in ancient times up to date, the statement of the problem, the general and specific objectives for the research, the research questions, the research methodology employed, the scope of research, the justification of the research, limitations and delimitations of the research as well as the organization of the research.

Chapter two (2) discusses the literature review of some payment systems; discusses the Technology Adoption Model - A Theoretical Bases, Electronic Payment Systems in Ghana, Factors Affecting the Choice of Payment Systems, The e-zwich: the
National Switch and Smart Card Payment System, Level of Adoption of e-zwich and Factors Affecting the Adoption of e-zwich.

Chapter three (3) outlines the methodology employed where details of steps to be taken to conduct the research, the population, and the sampling techniques and data analysis will be covered.

Chapter four (4) deals with the analysis and discussion of the results from the chapter three (3) above.

Chapter five (5) gives a succinct summary of the findings, conclusions and recommendations.
CHAPTER TWO

LITERATURE REVIEW

This chapter provides the theoretical framework for the research and reviews relevant literature for the research.

2.1 Definitions of Electronic Payment Systems

Electronic payment system does not lend itself to universal definition. According to Humphrey et al (2001), electronic payment refers to cash and associated transactions implemented using electronic means. Typically, this involves the use of computer networks such as the Internet and digital stored value systems. The system allows bills to be paid directly from bank accounts, without the account holder being present at the bank, and without the need of writing and mailing cheques.

Electronic payment (E-payment) can be defined as ‘payment by direct credit, electronic transfer of credit card details, or some other electronic means, as opposed to payment by cheque and cash’ (Agimo, 2004). It was also defined as “a payer’s transfer of a monetary claim on a party acceptable to the beneficially” (European Central Bank, 2003).

According to Kalakota & Whinston (1997), electronic payment is a financial exchange that takes place online between the buyer and the seller. The content of this exchange is usually the form of digital financial instrument such as encrypted credit card numbers, electronic checks, or digital cash that is backed by a bank or an intermediary, or by a legal tender.
According to Pariwat & Hataiseere (2004), for the achievement of effective and efficient retail payment systems, the following considerations that shape the choice of payment method for consumers and businesses should be taken into account; the convenience, reliability and security of the payment method, the service quality, involving such features as the speed with which payment are processed; the level and structure of fees charged by financial institutions; taste and demographic; and technological advances which have improve the speed, convenience and flexibility of different payment systems.

For the purpose of this thesis, the term “electronic payment” refers to as convenient, safe, and secure methods for payment of bills and other transactions by electronic means such as card, telephone, the Internet, Electronic Fund Transfer. Electronic payment gives consumers an alternative to paying bills and debts by cash, cheque and money order. Its main purpose is to reduce cash and cheque transactions.

2.2 Types of Electronic Payment Systems

New electronic payment systems are being introduced into Ghana at an increasing rate. Forecasts indicate that this trend will continue for foreseeable future. Works by Deutche Bank Research (2001), Vartanian (2000) and Birch (1998) looks at the future of electronic payments.

Several researchers have addressed the problem of retail payment, Ferguson (2000), Malek (2001), Bank for International Settlements (2000), Mester (2000) and Information Technology Outlook (2000) studied various aspects of this subject.

The work carried out by Abor’s analyses the perception of bank customers pertaining to the effect of technological innovations on banking services in Ghana (Abor, 2004).
A number of studies have also concluded that information technology has appreciable positive effects on bank productivity; cashiers’ work, banking transaction, bank patronage, bank services delivery and customers’ services (Balachandher et al, 2001; Hunter, 1991; Yasuharu, 2003). In effect, it enhances savings mobilization and financial intermediation. Efficient payment systems rely on non-cash payments, and that an efficient and reliable payment system facilitates economic development (Annon, 2003).

Carow and Staten (1999) used a logistic regression model to investigate preferences of consumers in using debit cards, credit cards, and cash for gasoline purchases. Humphrey and Hancock (1997) have provided an extensive survey of the payments literature. Using the Federal Reserve’s 1995 Survey of Consumer Finances (SCF), Kennickell and Kwast (1997) analyzed the influence of demographic characteristics on the likelihood of electronic payment instrument usage among households.

### 2.3 Card Payments

#### 2.3.1 Automated Teller Machine (ATM)

ATM is a combined computer terminal, with cash vault and record-keeping system in one unit, permitting customers to enter the bank’s book keeping system with a plastic card containing a Personal Identification Number (Rose, 1999). Mostly located outside of banks, it can also be found at airports, shopping malls, and places far away from the home bank offices, and offering several retail banking services to customers thus reducing workload of human tellers. First introduced as cash dispensing machines, it now provide a wide range of services, such as making deposits, funds transfer between two or more accounts and bill payments (Abor, 2004).
The Trust Bank first introduced ATMs in 1995 that allow customers 24-hour access to their funds. Since then almost all the major banks have followed suit.

2.3.2 Credit and Debit Cards

This is a plastic card that assures a seller that the person using it has a satisfactory credit rating and that the issuer will see to it that the seller receives payment for the goods or items delivered. This represents the automated capture of data about purchases against a revolving credit account (Pierce, 2001). Introduced more recently, debit together with credit cards represent the most rapidly growing method of payments in several countries (Pierce, 2001). When a payment is made through a debit card, the funds are immediately withdrawn from the purchaser's bank account. The advantage is that the buyer has the funds to make the purchase and paid for right away, so there's no credit card shock when the statement arrives in the mail (Pierce, 2001).

Major international credit cards such as Visa, MasterCard, American Express and others such as Maestro are accepted as a medium of payment in major shops, hotels, restaurants, supermarkets and travel agencies in Ghana. Most of these cards may be also used at ATMs belonging to some of the banks to collect small amounts of local currency (Ghanaweb, undated).

2.3.3 Smart Cards

A smart card is a plastic card with a computer chip inserted into it and that store and transacts data between users (Smart Card Basics, 2004). The data in a form of value or information is stored in the card’s chip, either a memory or microprocessor. Smart card-enhanced systems are in use today throughout several key applications, including
healthcare, banking, entertainment and transportation (Smart Card Basics, 2004). One of the features of this card is that it improves the security and convenience of transactions. The system works in virtually any type of network and provides security for the exchange of data (Smart Card Basics, 2004).

2.4 Other Electronic Payment Systems

2.4.1 Electronic Purses/Wallets

There are two categories of electronic wallet (e-wallet), these are;

E-wallets that store card numbers; this is a virtual wallet that can store credit card and debit card information. Other information that can be stored on this card is passwords, membership cards, and health information. Some of the e-wallets make it easier for consumers to buy goods using the card (Rudl, undated).

E-wallets that store card numbers and cash; the second category of a digital wallet is where consumers store digital cash, which has been transferred from a credit card, debit card or virtual cheque inside their e-wallets. It operates like having a virtual savings account where charges are made for ongoing purchases, particularly micro-payments (Rudl, undated).

2.4.2 Electronic Funds Transfer at Point of Sale (EFT/POS)

EFT/POS is an online system that involves the use of plastic cards in terminal on merchants’ premises and enables customers to transfer funds instantaneously from their bank accounts to merchant accounts when making purchases. It uses a debit card to activate the transfer process (Chorafas, 1988).
2.4.3 Mobile Banking and Money Transfer

According to Zika (2005), a mobile payment is an electronic payment made through a mobile device (e.g., a cell phone or a Personal Digital Assistant, PDA). This uses a mobile device to initiate and confirm electronic payment. In the field of payments, mobile phones opportunity is seen in the embedded SIM (smart) card used to store information of users. The advantage of not needing to use other devices such as modems, point of sale terminals, and card readers for mobile payments is also quite clear (Zika, 2005). Costello (2003) envisaged that further developments in the mobile payments content were inevitable in the near future. Mobile devices might be used in micro-payments such as parking, tickets, and re-charging mobile phones.

Currently, most Banks provides active mobile banking services known as SMS Banking. This allows customers to do some banking enquires on their mobile phones. Customers do not need to go to their branch to do the following transactions: balance enquiry, transaction enquiry, cheque book request, statement request, and payment of utility bills. With this product, customers can easily check their account balance. Among the mobile money transfers in Ghana are the tiGO cash from tiGO, the mtn money transfer from MTN and the zap from airtel.

2.4.4 Telephone Banking

Telephone banking or telebanking is a form of virtual banking that deliver financial services through telecommunication devices. Under this mechanism, the customer transacts business by dialing a touch-tone telephone connected to an automated system of the bank. This is normally done through Automated Voice Response (AVR) technology” (Balachandher et al, 2001).
Telebanking has numerous benefits for end users. To the customers, it provides increased convenience, expanded access and significant time saving. Instead of going to the bank or visiting an ATM, retail banking serves the same purpose for customers to get the services at their offices or homes. This saves customers time and money, and gives more convenience for higher productivity (Leow, 1999).

Telephone banking is on the ascendancy in Ghana. “Barclays Bank Ghana launched its telephone banking services in August, 2002. SSB Bank also launched its “Sikatel” or SSB Call Centre telephone banking in 2002. The services available with this system are; to ascertaining credible information about the bank’s products, the customers’ complaints, bank statements and cheque book request and any other complaints and inquiry” (Abor, 2004).

2.4.5 Personal Computer Banking (Home Banking)

This term is used for a variety of related methods whereby a payer uses an electronic device in the home or workplace to initiate payment to a payee. In addition to computer technology, it can be performed using the telephone and interactive voice response (Chorafas 1988). “PC- Banking is a service which allows the bank’s customers to access information about their accounts via a proprietary network, usually with the help of proprietary software installed on their personal computer” (Abor, 2004). It is used to perform a variety of retail banking tasks, and offers the customer 24-hours services. “PC-banking has the advantage of reducing cost, increasing speed and improved flexibility of business transactions” (Balachandher et al, 2001).
Some banks have started to offer PC banking services, mainly to corporate clients, to initiate a range of automated transactions from their own offices or homes. “The banks provide the customers with the proprietary software, which they use to access their bank accounts, sometimes via the World Wide Web (WWW). This is on a more limited scale though, as it has been targeted largely at corporate clients” (Abor, 2004). Banks offering PC banking services in Ghana include; GCB, Ecobank, SCB and Barclays. Stanchart with their Domestic Payment Service (DPS), allows subscribers to transfer payment and direct debit information in an electronic format from their computers to the bank.

2.4.6 Online/Internet Payments

This is the means by which customers transact business with a bank through the use of the Internet network. Customers can access their bank accounts and make transfers through a web site provided by the bank and complying with some rigorous security checks. The Federal Reserve Board of Chicago’s Office of the Controller of the Currency (OCC) Internet Banking Handbook (2001), describes Internet Banking as “the provision of traditional (banking) services over the internet”.

The Internet is able to offers instantaneous settlement of transactions and the prospect of a highly cost effective payment system for low value transactions. The Internet has the potential to reach majority of customers since it can disseminate "advertising material" through World Wide Web home pages and product databases (Neuman & Medvinsky, 1996).
2.4.7 Electronic Cheque

Electronic cheques are used in the same way as paper cheque – the clearing between payer and payee is based on existing and well known banking settlement system. The only difference between paper and electronic cheques are the dematerialization of the payment instrument which is passed on via computer networks like Internet in the later technology. E-Check proposed by Financial Services Technology Consortium (FSTC) is an example of the electronic cheque (United States Department of the Treasury Conference, 1996).

Electronic cheques also known as e-cheques are virtual cheques that allow consumers to use Internet in making cheque payments. The buyer fills out a form (that looks like a cheque on the screen) with the necessary information. The information then goes through a transaction service, depending on which way one chooses to accept check payments (Rudl, undated).

2.4.8 Digitized 'E-Cash' Systems

E-cash payment system takes the form of encoded messages and representing the encrypted equivalent of digitized money. One key attraction is that it avoid the time and expense associated with becoming an approved credit card accepting merchant. It does not require the use of intermediary; therefore anyone can effect payment directly (Crede, undated).

However, most present schemes require the direct involvement of a bank for its system of digital cash issuance. According to Crede (undated), a bank is integral to the scheme, since it is required to hold collateral and to provide ultimate settlement of e-cash to more directly convertible currencies.
2.4.9 Digital Person to Person (P2P) Payments

Bank-based P2P system allows users to send money from bank accounts and credit cards electronically. It employs e-mail services to notify recipients of an impending funds transfer. Most bank-based P2P requires the sender to register with the P2P site. Most of the providers allow users to move money a limited amount of money around the world (Rudl, undated).

P2P e-mail payments are offered mainly through Yahoo!, the Postal Service, and some banks. Example of companies that offers P2P payment services is MasterCard which enable users to use digital wallet to make payments from a credit or debit account to any person in the world, in their local currency, directly into their bank account or as a cheque mailed to that person (Rudl, undated).

In the perspective of this research, much attention would be given to e-zwich.

2.5 Factors Influencing the Choice of Payment Systems

An individuals’ choice of a payment system is as a result of certain factors, discussed below are the factors; Customers’ Wealth/Levels of Income, Educational Level, Employment Level, Personal Preferences, Transaction-Specific Factors and Marketing Campaigns.

2.5.1 Customers’ Wealth/Income Level

Consistent with Kennickell and Kwast (1997) research, wealth has an important role to play in terms of consumer’s decisions on payment choice. Consumers’ wealth may influence payment choice and the availability of payment instruments that one can choose. For instance, while wealthy consumers may be able to fund their obligations generally, consumers that experience brief financial shortfalls may not find electronic
bill payment desirable as a payment instrument (Mantel, 2000). In such a situation, the consideration of the risk factor will let some consumers to avoid using pre-authorized electronic bill payment.

2.5.2 Customers’ Educational Level

On the bank customers’ survey, we also focused on education, because this might affect the demand for electronic banking products. For example, Kennickell and Kwast (1997) have illustrated how education play important role in determining household use of e-money products. Kwast and Kennickell concluded that the US market for such products is still highly specialized, with the demand coming almost entirely from higher income, younger, and more educated households that have accumulated significant financial assets.

Educational levels of customers determine whether consumers will adopt electronic payment or not. Studies have shown that highly-educated people patronize electronic payment products than less-educated people. The technicalities involved in some electronic payment transactions discourage less educated customers to patronize its use (Annon, 1999).

2.5.3 Customers’ Employment Level

Those employed who receive their pay through the banks are more likely to use electronic means of payment. Employees, through their constant contacts with banks are more exposed to payment products, and are therefore, likely to patronize the products. According to Ferguson (2000), more than half of the workers in the US, in 2000 receive a direct deposit of their pay through the Automated Clearing House.
2.5.4 Customers’ Personal Preferences

Another factor influencing payment instrument choice pertains to customers’ personal preferences. The following six general consumer preferences were identified: (1) control and customer service; (2) budgeting and record keeping; (3) incentives and low cost; (4) convenience; (5) safe, easy and convenience; and (6) privacy and security.

2.5.5 Transaction-Specific Factors

Transaction-specific is another factor that influences consumer decision-making in payments. This relates to the specific nature of the payment being made, where it is being made, and how the consumer views their relationship with the merchant (Mantel, 2000). The use of a particular payment instrument may depend on the value of the bill (whether it is large or small). Also the availability of payment infrastructure determines the choice of payment instrument (Mantel, 2000).

2.5.6 Marketing Campaigns

Another factor that influence consumer decision-making relate to marketing campaigns. Increased use of electronic payment instruments are believed to have been achieved through large-scale consumer marketing campaigns funded by some financial institutions. The marketing activities employed by the financial institutions are expected to aid utilities by educating consumers as to the benefits, ease of use, convenience, and security of paying bills electronically (Mantel, 2000).

2.6 Theoretical Framework: The Technology Acceptance Model

According to Taylor and Todd (1995), the problem of innovation diffusion can be approached from several levels. Some researchers have approached the problem from
a micro-view within a societal context or at country level (Madden, Savage, and Coble-Neal 2000; Wolcott et al. 2001; Larry et al. 2002; Kiiski and Pohjola 2002; La Ferle, Edwards, and Mizuno 2002). Other researchers have examined this issue at an organizational level (e.g. Harrison, Mykytyn and Riemenschneider 1997; Plouffe, Hulland and Vandenbosch 2001) and still other researchers have approached this issue by investigating the determinants of adoption and usage by individuals (Mathieson, 1991).

Taylor and Todd (1995), further distinguish the research on the determinants of information technology usage into two streams; those based on intention-based models, exemplified by such theories as TAM and diffusion of innovation best exemplified by Rogers’ diffusion of innovation theory (Rogers, 1995).

TAM as proposed by Davis, Bagozzi, and Warshaw (1989) to explain computer usage behaviour is one of the most-widely used models in the technology adoption. The TAM has received extensive empirical support through validations, applications, and replications (Mathieson 1991; Plouffe, Hulland and Vandenbosch 2001; Legris, Inghamb and Collerettec 2003).

It was adapted from the Theory of Reasoned Action (TRA) which was developed by Ajzen and Fishbein (1980) which is very general. TRA is designed to explain virtually any human behavior (Ajzen and Fishbein, 1980) and consists of two factors that affects behavioural intentions; attitude towards behaviour and subjective norms. Attitude is defined as an individual’s positive or negative feeling towards performing an action. Subjective norm is the individual’s perception of social pressure to perform the behaviour.
The TAM proposes two specific beliefs; perceived ease of use (PEOU) and perceived usefulness (PU) that determine one’s behavioural intention to use a technology. Behavioural intention is a measure of the strength of one’s intention to perform a specified behaviour. Figure 1 below shows the TAM.

**Figure 1: The Technology Acceptance Model; Source (Davis et al. 1989)**

Perceived usefulness is defined as a prospective user’s subjective probability that using a specific application system will increase his or her job performance within an organizational context (Davis, Bagozzi and Warshaw, 1989). Further, the TAM assumes that perceived usefulness will be influenced by perceived ease of use, because other things being equal, the easier is a technology to use, the more useful it can be.

Perceived ease of use refers to the degree to which the perspective user expects the target system to be free of effort (Davis, Bagozzi and Warshaw, 1989). By assuming that other variables are constant, the easier is a technology to use, the higher is its possibility to be adopted by users.
A study in America conducted by Venkatesh and Morris (2000) found that in making a decision to adopt a technology, women were mostly influenced by their perception of the technology’s usefulness. Hofstede (1997) also found men to be more concerned with achievement than women. Minton and Schneider (1971) as cited by Venkatesh and Morris (2000), state that men may be more task-oriented than women. In this context, task-orientation may be defined as the accomplishment of a task that requires the use of technology.

In contrast, the impact of perceived ease of use of adoption among women has been found to be stronger than men (Venkatesh and Morris 2000). Low self-efficacy among women substantiates this finding. However, it should be noted that low technology adoption among women are not only caused by the level of self-efficacy. Social and cultural factors may also factor into technology adoption (Scott, Semmens and Willowghby 1999; La Ferle, Edwards and Mizuno 2002).

The TAM also assumes that external variables such as characteristics of system design, training, documentation and characteristics of the decision-maker may also influence technology usage (Davis, Bagozzi and Warshaw, 1989). In practical examination, this external variable may manifest in differences among men and women experiences (Legris, Inghamb and Collerettec, 2003).

Since epayment system is innovative technology, factors affecting its adoption in Ghana may be explained using TAM. In Ghana, some studies have been done on the usage of ICT in the Financial Sector. However, the issue of adoption of e-payment system has not been explained or tested against some established theories such as TAM. Again, the external factors in TAM vary with environment and the level of
development in society. TAM would help identify the external factors affecting the adoption of e-payment systems in Ghana among businesses and individuals.

2.7 The National Switch and Smart Card Payment System; e-zwich

The research concentrates more on the e-zwich because it is a government of Ghana sponsored National Switch and Smart card payment system. The e-zwich payment system is an innovative method for improving accessibility to banking and retail services in Ghana. The e-zwich system offers deposit taking financial institutions (Universal banks, Rural banks and Savings and Loans) a platform that enables them to inter-operate (www.ghipss.net/e-zwich). This therefore, enables e-zwich cardholders to perform banking and retail transactions at the outlets of other e-zwich financial institutions. As an e-zwich cardholder, you have available to you a large group of banks and their branches where your e-zwich transactions can be performed. It is therefore no more necessary to commute to a specific bank just to do banking transactions. The e-zwich smart-card is currently the only card in Ghana that provides the convenience of nationwide access as well as greater control over transactions for cardholders, retail merchants and other corporate users.

2.8 Features of E-zwich

2.8.1 Transaction

The e-zwich point of sale (POS) supports both online and offline transactions. This dual capability ensures that e-zwich services can be accessed in all parts of the country whether or not the area has good communications network. Transactions such as Cash Deposit, Cash withdrawal and Sale are completed offline and consequently could be successfully completed in the remotest part of the country without regard to the efficiency of the telecommunication infrastructure.
2.8.2 Security

An e-zwich cardholder benefits from the highest security standards through the biometric (fingerprint) client authentication system. As a requirement, all fingers of a cardholder are scanned during enrolment and the templates stored on the client card. When performing any transaction, the e-zwich device (ATM or POS), will demand the verification of the cardholder by comparing the fingerprint presented on the device scanner to any of those stored on the card. By implication, a stolen or lost card cannot be used by anyone except the owner. Any transaction that results in the movement of funds off an e-zwich card requires the biometric verification of the cardholder before the transaction can be successfully completed.

2.8.3 Interoperability

A key difference between the e-zwich card and other electronic payment instruments is the fact that e-zwich can be accessed more widely. Currently, all the major banks, rural banks and savings and loans companies offer services to all e-zwich cardholders regardless of the bank that issued the card. Retail and corporate merchants are also able to offer e-zwich services to all e-zwich cardholders. As e-zwich cardholders, you therefore can leverage on the branch network of all participating financial institutions for all e-zwich transactions as if they were outlets of your bank without any complications (www.ghipss.net/e-zwich).

2.9 Services Provided by E-zwich

The e-zwich provides two main services; transactional and merchant types.

2.9.1 Transactional Type

The transactional type of services provided comprises banking and money transfer.
Banking

The banking transactions by e-zwich includes; savings, cash deposit and withdrawal.

Savings: The e-zwich card currently has four wallets activated. These are; Primary, Savings, Transport and Secondary. Funds maintained in the savings wallet may attract interest based on the rate payable by the issuer bank. Interest is calculated daily by the switch and credited at the end of the month to the client card’s host balance. A 10-digit code is then created for the card to load either manually on the POS using the code and amount (offline) or automatically through a communication network (Online) (www.ghipss.net/e-zwich).

Cash Deposit: The e-zwich card can hold cash deposits for its cardholders in the same way that money can be deposited into bank accounts. The funds deposited on a card remains on it until it is used at a POS or e-zwich ATM. Cash deposits can be done from any e-zwich bank regardless of the bank that issued the client card. Thus a card issued at bank A can deposit funds at bank B. Keeping money on an e-zwich card is therefore the same as keeping it in a bank account. The added advantage of an e-zwich card is that when needed, the funds can be accessed from multiple institutions including other banks and retail merchants (www.ghipss.net/e-zwich).

There is currently no limit to the amount of money that can be deposited on the card. There is also no fee charged for this transaction. Cash deposit is typically done by a bank teller. Retail merchants can however include this to their suite of transactions on condition that they allocate funds to be converted to e-money through their banks. A retail merchant that performs cash deposit is referred to as a merchant agent. Money
deposited on an e-zwich card is protected by the biometric data (fingerprints) of the cardholder (www.ghipss.net/e-zwich).

Cash Withdrawal: Cash withdrawal involves the reduction of the electronic value stored on an e-zwich card in exchange for cash. This can be done by a bank teller or at a retail merchant. The process involves the authentication of the cardholder and the update of the funds on a client card by the e-zwich device (POS or ATM). Cash withdrawal transactions are also Offline transactions and do not require communications with a third party server. It can therefore be completed anywhere in the country (www.ghipss.net/e-zwich).

There is currently no limit to how much can be withdrawn from an e-zwich card except where the client has placed a limit during enrolment. For merchants (bank tellers and retail), cash paid-out to e-zwich clients are credited to their bank accounts the day after settlement of their POS devices (www.ghipss.net/e-zwich).

Money Transfer

E-zwich also offers a variety of very cost effective and speedy money transfer options to users. Money transfers can be made from or to other e-zwich cards or to and from traditional bank accounts. Depending on the type of transfer, the recipient could receive the remittance by the next day or immediately the transfer is completed by the sender (www.ghipss.net/e-zwich).

Money transfer to an e-zwich card (the card number of the recipient card is required) is successfully completed with the creation of a 10-digit code by the system host (switch). When a transfer to another e-zwich card is done online, the 10-digit code is created immediately and printed on the sender’s receipt. This code enables the
recipient to receive the money but has to be loaded by the recipient’s card on an e-zwich device (POS or e-zwich ATM). The code is an irreversible and secure tool usable only by the recipient card. The code can however be loaded manually together with the transferred amount offline or directly from the switch online. The list below describes the various money transfer options available on the e-zwich system.

**Card to Card Transfer:** Where there is unreliable communication network, card to card transfer can still be carried out using the off-line option. Under offline transfer option, the money transferred is available to the recipient only after settlement of transactions on the POS/ATM device (www.ghipss.net/e-zwich).

**Cash to Card Transfer (transfer with card):** This money transfer option is a direct cash transfer to an e-zwich smart card. The sender provides the bank teller with the recipient’s e-zwich number and the cash amount to complete the transfer. The money transferred can be loaded at any available POS/ATM device in country.

**Card to Bank (Online real-time):** This option enables e-zwich cardholders to transfer funds to and from their personal traditional bank account linked to their e-zwich cards in real-time”. Traditional accounts are linked to e-zwich smartcards at registration. The bank account.... transferred amount. Currently, this service is available to e-zwich cardholders whose banks’ have completed the full e-zwich integration with banking system- please check with bank for this service (www.ghipss.net/e-zwich).

**Third Party Payment (linked/One-off account transfer):** This option allows e-zwich smartcard holders to transfer money to any traditional bank account in Ghana. The account is an offline transfer and requires the e-zwich device (e-zwich ATM or POS) to settle for the funds to reach the bank account. This option offers the e-zwich card
holders the convenience of linking up to eight (8) traditional bank account numbers to their smart card (www.ghipss.net/e-zwich).

Transfers to these accounts can be done by selecting the relevant account from the list display on the POS device. Corporate institutions and service providers can use this option to remotely collect regular payments from their customers remotely across the country without any further investment.

Where an account has not been linked, it is still possible to enter the details manually on the e-zwich device and transfer to such traditional bank accounts from an e-zwich card (www.ghipss.net/e-zwich).

2.9.2 Merchant Types

The merchant types available are the merchant agent and the retail merchant.

 Merchant Agent

A merchant agent is a retail merchant who is able to deposit e-money onto client cards in exchange for cash. To qualify, a retail merchant is only required to deposit cash with their bank to be converted to electronic money. This is then downloaded to the POS and can be used for cash deposit transaction.

 Retail Merchant

An e-zwich retail merchant is one that accepts payment for goods and services from e-zwich smartcard. Daily sales are credited to the retailers’ traditional bank account the day after settlement. All retail merchant are registered on the switch and are allocated unique merchant reference numbers (MRN) (www.ghipss.net/e-zwich).
In a payment transaction funds are transferred from the e-zwich smartcard to that of the retail merchant housed in the POS device. Funds on a Retail Merchant’s card are secured and can only be transferred to the linked bank account of the merchant after settlement of the POS device. Retail merchants are able to offer all e-zwich transactions except cash deposit which typically offered by banks. To be able to offer cash deposit a retail merchant would have to become a merchant agent.

2.10 Payment Distribution System

The e-zwich Payment Distribution system is an application which provides a secure and convenient method that allows an organization to pay its beneficiaries on their e-zwich smart cards. The PDS system can be used for the distribution of SALARY/ WAGE/ PENSION/ LOAN Payments. This application can be run by a Financial Institution on behalf of an employer or by the employers themselves.

Payments can be made in a batch or single transaction by importing the payment file into the PDS system and processing the payment online. The switch creates individual 10-digit codes for each recipient representing the amount paid and is immediately available to be loaded.

Paying unto e-zwich cards empowers employers and institutions to control when their beneficiaries receive payments as the funds are immediately available after processing is complete. For employees who require having funds transferred into their traditional bank accounts, the system allows them to split income received from the PDS between their bank accounts and e-zwich cards.
2.10.1 Procedure

The under listed are the procedures to be followed in order to get an organisation’s employees paid through e-zwich;

i. Inform the bank to set up your organization as e-zwich employer

ii. Determine Administrator(s) who would operate the PDS

iii. Each Administrator would be required to have one employer card for processing the payments

iv. The administrator(s) would have to enrol and their fingerprints captured on their employer cards.

v. Before processing request by cash or cheque for e-money equivalent to the total payment to be made including fees.

vi. After e-money has been created for your MRN, you can process the payment.

vii. The system debits your e-money stock and transfers to the card numbers (USNs) of the recipients.

2.10.2 Benefits

The under listed are the benefits associated when an organization adopts e-zwich as a means of paying its employees;

i. Payments is made entirely at the convenience of the employer

ii. Recipients receive their funds as soon as processing is complete

iii. Processing can be made to cardholders of all participating financial institutions

iv. Processing is secure as the processing agent/official is biometrically verified.

2.11 Challenges with the Utilization of e-zwich

The government of Ghana, through the Central Bank, in 2008 deployed a national electronic payment platform, christened e-zwich, in its bid to reduce cash handlings,
ensure personal safety in payment systems, and to eliminate inflationary price rounding-up practices, as is fast becoming the global trend.

Primarily, the platform was designed to promote seamless banking and financial services to all Ghanaians. The Central Bank was optimistic that the project would be a major transformer of the financial system, because it would rope a lot more people into the banking sector, above the estimated twenty (20) per cent of the population currently in the banking sector (www.davidajao.com/blog/2008/02/01).

Some financial analysts even suggested that this huge technological infrastructure could be used to restore some amount of sanity in public sector pay systems, as the platform could be used to store all fingerprints of public sector workers electronically. The euphoria generated from the onset, witnessed mass e-zwich registration exercises across the country.

However, some few years down the line, the objectives of the deployment of the system seems to be fast dwindling, due to the numerous challenges affecting easy access to e-zwich services, which has eventually turned the all-important biometric smart cards into mere plastic objects in the hands of those who have it.

Many of the challenges have come as a result of the difficulty in getting access to point of sale (POS) devices, and the frequent challenges faced during the biometric authentication that are required to establish peoples' identities, before they can use the card, and many others. These challenges seem to be fast defeating the objectives for which such a capital intensive system was deployed by the Bank of Ghana. Certainly, such an important project, into which so much has been invested, cannot be left to go down the drain, as indications are pointing to (www.davidajao.com/blog/2008/02/01).
It is however gratifying to know that the managers of the system are coming to terms with the fact that the system is not working to expectations, and needs a change in strategy, to make it gain wider acceptance and patronage.

The General Manager in-charge of Project and Business Development at GhIPSS, Archie Hesse, has been reported as saying that merchants would be offered flexible terms to acquire point of sale devices, which they complain are too expensive, while some strategic institutions like the education sector have been earmarked to install the POS free of charge for a year (www.davidajao.com/blog/2008/02/01).

The earlier the managers of the system changed this strategy, to drum home the concept and make it workable to the ordinary man on the street, the better it would be for the system, so that it does not become yet another white elephant project, as Ghanaians would one day demand accountability for the project.
CHAPTER THREE

METHODOLOGY

The methodology section of the study provides the basis through which the empirical data is obtained to answer the research questions and hence by extension the research problem. This chapter focuses on the method that was employed to collect the data for the study. It discusses the research design, population for the research, sample and sampling procedure, the research instruments, data collection procedure, data analysis procedure and ethical issues.

3.1 Study design

This study employed the exploratory design. According to Babbie (2005) exploratory research involves collecting information for the purpose of answering research questions concerning the current status of phenomena. The goal is to investigate social phenomena without explicit expectations (Russell, 2006). Exploratory research is used when the topic or issue is new and when data is difficult to collect. The focus of exploratory design is on gaining insights and familiarity on social phenomena.

According to Singer and Willett (2003) exploratory research design is applied when the research objectives include the gaining perspective regarding the breath of variables operating in a situation. It is also applied when the study is identifying and formulating alternative courses of action. In addition, Shields and Patricia (2006) observed that exploratory research design is flexible and can address research questions of all types (what, why, how). The design can also utilize both qualitative and quantitative methods including questionnaires to gather data. In addition, the design helps determine the appropriate data collection methods and selection of
subjects. The qualitative research method employed is the case study. Case study research excels at bringing us to an understanding of a complex issue or object and can extend experience or add strength to what is already known through previous research. Case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships.

3.2 Target population

All revenue-collecting institutions like Internal Revenue Service’s (IRS), Volta River Authority/Northern Electricity Department (VRA/NED) and Ghana Water Company Limited (GWCL) and also banks, businesses and individuals in the Sunyani Municipality constituted the target population for the study. However, due to the large number of organisations and businesses involved, a sample was drawn from the population for the study.

3.3 Sample Frame

The sample was drawn from the frame that consisted banks and other revenue-collecting agencies in the Sunyani Township. The banks included the Ghana Commercial, Barclays, Procredit, Societal Generale-Social Security Bank, Ecobank, Agricultural Development, Stanbic, National Investment, Unique Trust Bank, Guaranty Trust Bank, Zenith Bank, First Allied Bank and Sahel Sahara Bank. Revenue-collecting agencies such as the Ghana Revenue Authority, the Ghana Water Company and the Northern Electricity Department and shops like Melcom Ghana Limited and Eusbett Hotel Limited were included in the frame.
Corporate bodies in the telecommunication sector such as MTN, tiGO, Vodafone, Expresso and Airtel were not included in the frame because they have designed and implemented their own electronic payment systems for their clients and others.

3.4 Sample Size

In order to get a sample size which is representative of the population of customers, the International Fund for Agricultural Development (IFAD, 2009) formula for determining sample size is applied.

IFAD sample size formula:

\[ n = \frac{t^2 \times p(1 - p)}{m^2} \]

Description of variables in the formula

- \( n \) = required sample size
- \( t \) = confidence level at 95% (standard value of 1.96)
- \( p \) = estimated proportion of the study population with similar characteristics.
- \( m \) = margin of error at 5% (standard value of 0.05)

With proportion of the study population that make one form of payments or the other (p) set at ninety one (91) percent which is equivalent to 0.91 the sample size for the study is calculated as follows:

Calculation of the sample size

\[ n = \frac{t^2 \times p(1 - p)}{m^2} = \frac{1\cdot96^2 \times 0\cdot91(1-0\cdot91)}{0\cdot05^2} = \frac{0\cdot31462704}{0\cdot0025} = 125\cdot850816 = 126 \]

The calculated sample size (n) of 126 customers was employed for the study. The 126 customers were proportionally allocated to the 18 selected institutions with each institution having 7 customers to respond to questionnaires. In addition, 18 key
informants from the banks and revenue agencies including branch managers, sales/marketing executives, and customer relations managers were included in the study. Thus in all, the study employed a sample of 144 respondents.

3.5 Sampling Procedure

A non-probability sampling technique was employed in the study. Under this sampling technique, purposive sampling was used. The purposive sampling technique was deemed the appropriate means of getting respondents who are knowledgeable and well abreast with the subject matter of interest (Sarantakos, 2006).

In line with the purposive sampling method, branch managers, IT executives, sales/marketing executives, and customer relations managers and customers of the selected banks and revenue-collecting agencies were in the sample frame were contacted to participate in the study. These respondents were selected on the basis of their level of expertise regarding the adoption of electronic payments including the e-zwich in their daily operations as well as issues relating to the benefits and the challenges that come along with the adoption of the e-zwich as a means of electronic payment system.

In respect of the customers of the banks and revenue-collecting agencies, a grab or accidental sampling was used to select those who patronised the premises of the banks and revenue-collecting agencies at the time of the survey to participate in the study. The choice of respondents was based on the fact that the characteristics of the potential respondents from the frame have been identified to be relevant to the study.
3.6 Data and Sources

Data for the study was collected from both primary and secondary sources. This was based on the assertion by Bliakie (2000) who argued that using multiple sources of data reduces the peculiar biases of each one. Thus, the administration of questionnaires formed the basis of primary data. Data collected from these sources centred on the themes related the adoption of the e-zwich payment system by the various banks and revenue-collecting agencies.

Information from published and unpublished sources including journals, textbooks, periodicals, government publications, the internet as well as reports and official documents from the Bank of Ghana served as secondary sources of data. In rare situations where official statistics were available, the recentness of the data determined its usefulness.

3.7 Data collection instruments

Questionnaires were used to collect primary data for the study. This was done following a thorough literature search that was conducted to determine and categorize concepts and variables that have been used in similar past studies. The instruments comprised a mix of open-ended, close ended questions and Likert scale statements. The rationale behind using questionnaire was that the respondents selected could read and write in the English language. Besides, the use of questionnaire for explorative studies such as the present one is known to be quite valid and reliable if well structured (Sarantakos, 2006).

The questionnaires were categorised into sections with each section focusing on one objective. Thus, the questions centred on the forms of electronic payment systems in
use in Ghana; the factors affecting the choice of payments systems; the level of adoption of the e-zwich and; the challenges involved in the adoption of the e-zwich as a payment system.

3.8 Reliability and Validity

To ensure that the instrument for the data was reliable such that the results obtained were valid, the questionnaire was pre-tested in Berekum; a town located about 30 kilometers away from Sunyani and also in the Brong Ahafo Region. Two banks, the Ghana Commercial Bank and Barclays Bank (Ghana) Limited were purposively selected for the pilot study. The questionnaires were administered on two Managers, two Customer Service Advisors and two tellers of these banks through purposive sampling.

The pilot study allowed for modification of those items on the questionnaire that were considered unclear, inaccurate, inappropriate and misleading. Thus, the pilot study ensured that the instrument was valid and reliable and hence appropriate for the study.

3.9 Data analysis

Data collected from the field were analysed using descriptive statistics. Prior to the analyses, the data were edited and coded to ensure consistency. The Statistical Package for the Social Sciences (SPSS version 16.0) was employed to process and analyse the data. Analytical methods such as frequencies, percentages, proportions were then used to analyse the data collected from the field. The results were then presented in the form of tables, charts and graphs.
CHAPTER FOUR

ANALYSIS AND DISCUSSION OF RESULTS

This chapter presents the analysis and discusses the results of the study.

4.1 Socio-Demographic Characteristics of Respondents

This section describes the socio-demographic characteristics of respondents. Data gathered and analysed were about socio-demographical variables such as gender, age, educational levels, employment status, and monthly income bracket and the bank or organisation they operate with.

4.1.1 Gender

Gender is an importance variable in the adoption of technology. Hence the study sought to find out the gender of respondents in relation to the adoption of the E-ZWICH as shown in Table 1 below.

Table 1: Gender of clients

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>68</td>
<td>54</td>
</tr>
<tr>
<td>Female</td>
<td>58</td>
<td>46</td>
</tr>
<tr>
<td>Total</td>
<td>126</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Fieldwork, July 2011

Out of the 126 clients that took part in the study, 54 percent were males whiles 46 percent of them were females. Hence more males indicated they have signed on to the e-zwich smart card than females as indicated by Table 1. The findings follow the observations made by Venkatesh and Morris (2000), that men may be more task-
oriented than women. In this context, task-orientation may be defined as the accomplishment of a task that requires the use of technology.

4.1.2 Age

Age is a key variable that influences the ability and capacity of people to embrace new things, events or conditions. One’s age determines his/her interest in adopting new technology. From Figure 2, the study revealed that customers within the age group 31-40 formed the majority of respondents (52 percent) that embraced the e-zwich payment system. This was followed by 41-50 age groups with the least group being those aged 60 years and above.

**Figure 2: Age group of respondents**

![Age Group of Respondents Graph]

Source: Fieldwork, July 2011

4.1.3 Level of Education

Education is a crucial variable that helps in the understanding and application of basic concepts, principles and regulations. Since the focus of the study was to examine the level of adoption of E-zwich, it was important to find out the level of education of the respondents as this will help to assess the level to which they can appreciate key
issues in the technology. The study revealed that all the respondents had attained some level of formal education. Table 2 shows the highest level of education of respondents.

As indicated in Table 2, 30 percent of the respondents indicated they had up to Basic/MSLC level education, with 20 percent having Secondary/vocational/Technical education. The Majority of the respondents (48 percent) were HND/ Degree holders whiles 2 percent had attained post-graduate level of education.

Table 2: Level of Education

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic/ MSLC</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td>Sec/Voc/Tech</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>HND/Degree</td>
<td>60</td>
<td>48</td>
</tr>
<tr>
<td>Post-graduate</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>126</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Fieldwork, July 2011

As indicated in Table 2 above, the level of education of respondents was relatively high. Hence they are able to use the e-zwich smart card to make payments and also use it for other transactions with little difficulty.

4.2 Types of Electronic Payment Systems

The objective of this section of the chapter was to identify the types of electronic payment systems being used by customers of the selected banks. This is in view of the fact that there are several payments systems in use globally and their use depends on a
variety of reasons. Respondents were asked to tick among the available payment system, those they use for banking transactions. Table 3 presents the results. Out of the 126 respondents, 49 representing 39 percent indicated the use the ATM Card for transactions. This was followed by 34 percent that used Mobile Money Transfer system. 17 percent indicated they used the E-zwich smart card with 9 percent using telephone banking. The least used payment system is the Credit/debit card which was indicated by 3 percent of the respondents.

Table 3: Types of Electronic Payment Systems in Use by clients

<table>
<thead>
<tr>
<th>Electronic Payment Systems</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM Card</td>
<td>49</td>
<td>39</td>
</tr>
<tr>
<td>Mobile Banking/Money Transfer</td>
<td>34</td>
<td>27</td>
</tr>
<tr>
<td>E-zwich</td>
<td>21</td>
<td>17</td>
</tr>
<tr>
<td>Telephone Banking</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Online Banking</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Credit/debit Card</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Electronic Cheque</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Electronic Purse/Wallets</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Digitized ‘E’ Cash</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Smart Card</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Digitized P2P</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>None</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>126</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Fieldwork, July 2011

As indicated in the Table 3 above, 5 percent of the respondents said they do not use any of the existing electronic payment systems available in the country for
transactions. For the rest of the payment systems, the respondents have not adopted them for payments or transactions with the banks and other corporate institutions.

The above findings show that the ATM Card is the most common payment system used by customers for transactions. It also point to the fact that most of the existing payment systems have are not being used by customers in the Sunyani Municipality for transactions.

4.3 Types of Electronic Payment Systems provided by institutions

On the part of the banks and other corporate institutions, the study sought to find out the types of electronic payment systems they have adopted for conducting transactions with their clients. This was done in order to determine the availability of the various payment systems or otherwise for clients who want to do business with the institutions. The results revealed similar findings from the customers. The types of electronic payments options made available by the institutions were ATM, Mobile Banking/Money Transfer, E-zwich, Telephone Banking and Credit/debit Card facilities.

The study revealed that other payment options such as Electronic Cheque, Electronic Purse/Wallets, Digitised ‘E’ Cash, Electronic Funds Transfer/Point Of Sales (EFT/Pos), Smart Card and Digitised Person- to- Person were not available in all the institutions sampled for the study.

The above findings follow similar trends in the case of the customers/clients of the institutions sampled where it was revealed that the ATM, Mobile Money transfer and telephone banking were the main electronic payment options that they use in transactions with their institutions. The implication is that clients adopted payment
systems that are provided by service providers. Hence once a particular electronic payment system is not available in the institution, their clients do not adopt it. Consequently, the availability of the payment option determines its use or otherwise.

4.4 Factors Affecting Customer choice of Payment Systems

The purpose of this section of the chapter is to determine the factors that influence the type of payment systems that customers or clients adopt. The literature argues that people adopt or refuse to adopt a particular type of payment system based on variety of reasons. This study therefore sought to find out if these reasons pertain to the Sunyani Municipality as well.

Figure 3: Factors Affecting Customer choice of Payment Systems

4.4.1 Customers’ Level of Wealth/Income

Mantel (2000) asserted that the income level of customers influence the type of electronic payment system they adopt. This was ascertained in this study by asking customers the extent to which they agree with the statement.
As indicated in Figure 3 above, 82 percent of the customers agreed that their income or wealth influence the type of electronic payment system they patronize. 4 percent were not certain whiles 14 percent disagreed with the statement. With the majority of the respondents (82 percent) agreeing to the statement, this indicates that the income or wealth of customers have a strong influence on the type of payment system they will opt for.

4.4.2 Availability of Payment System

The objective was to determine from respondents their opinion on how the availability of payment system influences their choice of payment system they use for transactions.

On the availability of payment system, 91 percent of the respondents agreed to it as a factor that influences their choice of payment system. 5 percent disagreed with 4 percent not certain. The above finding attests to the fact that the type of payment system that clients use is influenced by its availability. As shown in Table 3 above, the banks and corporate institutions admitted that they did not have some payment systems such as electronic cheques, digitised ‘E’ cash, and digital P2 system. The unavailability of these types of payment systems implies that clients cannot and will not be able to adopt them. This is mainly so because it is the responsibility of the service provider to provide the electronic payment system for use by their clients.

4.4.3 Customers’ Level of Education

The Technology Acceptance Model that was adopted as a conceptual framework for the study posits that the extent of knowledge regarding a particular technology influences the rate at which it is adopted for use. In line with the above observation,
this study sought to find out the influence of education on the choice of payment systems that clients adopt.

In relation to level of education, 64 percent of the respondents agreed, whiles 34 percent disagreed. 4 percent of the respondents expressed no opinion. This means that one’s level of education influences the type of electronic payment system adopted.

The findings confirm the assertion by Annon (1999) that level of education of clients’ determines the type of e-payment system they prefer. Indeed, the technicalities involved in some electronic payment transactions discourage less educated customers to patronize its use (Annon, 1999).

4.4.4 Risk factors (security, safety, ease)

The purpose of this analysis is to find out if the risks involved in using a particular payment mode affect its adoption foe electronic payments. Risks include security of transactions, data protection, and other safety measures.

From Figure 3, 91 percent of the respondents agreed that considerations of risks influence the type of electronic payment system they adopt. 9 percent were undecided, none of the respondents disagreed. It is clear from the above Figure that customers have a strong agreement of the view that the inherent risks involved in the use of a payment system determines which one they opt for. The findings follow similar observations made by Mantel (2000) where more than 90 percent of clients who use electronic payments consider risks (security, privacy and safely) involved.
4.4.5 Customers’ Personal Preference

To determine whether customers’ personal preferences such as control, customer service, budgeting, incentives, convenience, etc affect choice of electronic payment systems, the views of respondents were sought.

The findings in Figure 3 show that 80 percent of the customers think personal preferences influence the type of electronic payment systems they adopt. 6 percent were not certain whiles 14 percent disagreed with the statement. The findings show that the majority of the respondents (80 percent) of the clients adopt electronic payment system based on their personal preferences such as customer service, budgeting, incentives and convenience. The finding also gives an indication that those banks and institutions that do not meet the preferences of their clients discourage them from adopting particular type of electronic payment system.

4.5 Challenges Involved with the Current Cash Payment System

The objective of this section of the chapter was to find out whether respondents have challenges with the current cash transaction method. The study revealed that all the respondents had some challenges as indicated in Table 4 below. 30 percent indicated few bank/office branches, 27 percent indicated long queues, 20 percent indicated short banking/working hours and 9 percent indicated bulky bank notes.
Table 4: Challenges Involved with the Current Cash Payment System

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Few Bank/Office Branches</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td>Long Queues/Time Wasting</td>
<td>34</td>
<td>27</td>
</tr>
<tr>
<td>Short Banking Hours</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Bad Attitude of Tellers/Cashiers</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Few Payment Methods</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Use of counterfeit Notes</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Bulky Bank Notes</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Dishonoured Cheques</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>126</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Fieldwork, July 2011

4.6 Level of Adoption of the E-zwich

The purpose of this section of the study was to assess the level to which the e-zwich smart card have been adopted by customers of banks and other corporate institutions for business transactions in the Sunyani Municipality. Hence customers were asked if they have heard of the e-zwich Smart Card Payment System. All the 126 customers who took part in the study admitted that they have some information related to the e-zwich card.

In order to determine the level of adoption, it was expedient to find out from the service providers including the banks and other corporate institutions if they have the e-zwich terminal in their companies/institutions.
The study found that out of the 18 corporate executives or their representatives interviewed, 13 of them representing 72 percent indicated they have the e-zwich point of sale terminal in their organisations. However, 5 respondents representing 27 percent said they do not have a point of sale terminal where users of e-zwich could visit to transact business. The results show that most of the institutions have a point of sale terminal for users of the e-zwich smart card.

With most of the institutions indicating that they have point of sale terminals for e-zwich smart card holders, the study went on to find out from the customers if they have a valid e-zwich smart card that can be used for transactions. The results are presented in Figure 4 above.

Source: Fieldwork, July 2011
Out of the 126 customers interviewed, 30 of them representing 24 percent confirmed that they have a valid e-zwich smart card that can be used for transactions. This is against 99 customers (76 percent) who indicated that they do not have a valid e-zwich smart card. The results show that the proportion of respondents that did not have e-zwich smart card far exceeds those that have a valid card.

To further assess the extent of adoption of the e-zwich smart card for electronic payments, those customers that had a valid smart card were asked if they ever used the card for transactions.
Figure 6: Use of e-zwich Smart Card for transactions

Source: Fieldwork, July 2011

From Figure 6, out of the 30 customers who indicated they have a valid e-zwich smart card, only 17 percent use it for transactions related to electronic payments. 83 percent of the customers said they do not use the card for transactions. The finding reveal that the level of adoption of the e-zwich for electronic payments is very low considering the fact that the proportion of customers that use it is less than 20 percent. This is against the backdrop that 70 percent of the corporate executives indicated they have terminals in their institutions for conducting electronic payments.

For the 17 percent of the customers that used the e-zwich smart card for transactions, the study investigated the type of transactions they used the e-zwich card for.
Table 5: Activities e-zwich card is used

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment for goods and services</td>
<td>7</td>
<td>41</td>
</tr>
<tr>
<td>Cash transfers</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>Checking account balance</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Printing mini statements</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Ordering bank drafts</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Fieldwork, July 2011

The results from Table 5 show that 41 percent of the customers that use the e-zwich smart card to pay for goods and services. 29 percent use the card for cash transfers; whiles 18 percent use the card to check balances regarding their transactions. 1 percent of the customers indicated they use the card for printing mini statements and ordering bank drafts respectively. The findings imply that payment for goods and services, and cash transfers were the dominant activities that customers used their e-zwich smart cards.

4.7 Frequency of use of e-zwich smart card

The study also examined the frequency of use of the e-zwich smart card system. The purpose was to help make a meaningful judgement on the level of adoption. Hence the 17 customers that used the e-zwich card were asked to indicate the number of times they used it for transactions per month.

The results in Figure 7 below show that 52 percent of the customers used the card twice a month. 30 percent said once every month, whiles 13 percent choose thrice a
month. 5 percent of the customers used the card four times or more in a month. Hence, the majority of the respondents used the e-zwich card twice a month.

**Figure 7: Frequency of use of e-zwich smart card per month**

![Frequency of use of e-zwich smart card per month](image)

Source: Fieldwork, July 2011

**Figure 8: E-zwich as a solution to overcome challenges**

![E-zwich as a solution to overcome challenges](image)

Source: Fieldwork, July 2011
From Figure 8 above, 83 percent of the respondents agreed that the e-zwich is solution to overcome the existing challenges whiles 17 percent felt that the e-zwich smart card system cannot help to overcome the existing challenges. The results show that the proportion of respondents that felt the e-zwich can be adopted to mitigate the challenges that exist with the use of ordinary payment modes.

4.8 Challenges Involved in the Adoption of E-zwich

Notwithstanding the fact that the e-zwich has been recognised as an efficient medium for conducting electronic payments, its adoption is associated with some challenges (Abor, 2004). Using a five point Likert Scale statements the study sought the opinion of respondents on the challenges involved in adopting the e-zwich smart card payment system.

Figure 9: Lack of knowledge and skills in basic computing

Source: Fieldwork, July 2011
The results in Figure 9 above show that 90 percent of the respondents agree that limited knowledge and skills in computing constitute a challenge in the adoption of the e-zwich smart card. 6 percent were undecided whiles 4 percent disagreed. The findings give a strong indication that limited knowledge on how to operate the e-zwich was preventing most people from using it for payments.

The finding follows the assertion in the conceptual framework guiding the study (Technology Acceptance Model) where the adoption of a new technology is based on the knowledge that people have concerning its operation.

**Figure 10: Complex procedures for conducting payments**

![Complex procedures for conducting payments chart]

Source: Fieldwork, July 2011

The results in Figure 10 above show that 75 percent of the respondents agreed that complex procedures involved in conducting payments with the e-zwich constitute a challenge. On the other hand, 15 percent disagreed, whiles 10 percent showed no opinion. The implication is that most of the respondents are concerned that the operation of the e-zwich payment is complex and tends to discourage them from using it for payments.
From Figure 11 above, all the respondents expressed their opinion regarding inadequate point of sale terminals. 70 percent of the respondents agreed that inadequate point of sale terminals was a hindrance to the use of the e-zwich smart card. While 30 percent of them disagreed. The results show that the point of sale terminals is limited. The findings confirm the conclusion made by the Bank of Ghana (2010) that most of the service providers in Ghana do not have the e-zwich point sale terminals where payments can be done electronically.

Source: Fieldwork, July 2011
With respect to lack of trust in non-cash payments, 74 percent of the respondents agreed, 9 percent were not certain whiles 17 percent disagreed. Thus, the percentage of respondents that agreed far exceeds those that disagreed given the impression that most of the respondents did not have confidence in the electronic payment systems including the e-zwich smart card. Poor networks, connection errors and transaction errors have made some people to lose confidence in electronic payment modes. Instead they prefer cash payments which can be observed directly and verified instantly (Abor, 2004).
The response on inadequate marketing campaign or advertisement showed that 69 percent agreed. 9 percent were not certain. 22 percent of the respondents disagreed with the statement. The above finding suggests that most of the respondents are not adequately informed about the e-zwich smart card, its uses and how it operates. Under the circumstances, they are not well-informed about the e-zwich payment systems and are consequently discouraged from using it to make payments. Analysis of the challenges is in line with the conceptual framework that guided the study.

The Technology Acceptance Model posits that attitude towards the use of new technology is influenced strongly by perceived ease of use and perceived usefulness of the technology. The extent to which a technology is useful depends on the marketing strategies employed to educate people concerning the benefits of the new technology. Inadequate and unsustainable marketing campaigns discourage the use of the e-zwich smart card as a medium for making electronic payments.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The previous chapter analysed and discussed the data collected in relation to the objectives of the study. This chapter summarises the key findings from the study, draws conclusions based on the findings and then makes recommendations in relation to the objectives of the study.

5.1 Summary of Findings

Based on the results of the study discussed in the previous chapter, the following key findings were made.

5.1.1 Types of E-Payments Systems in Ghana

On the types of electronic payment systems adopted by customers for making payments, the study found that the ATM Card was the dominant medium. This was followed by Mobile Money Transfer system. The least used payment system is the Credit/debit card. Similarly, the ATM and Mobile Money Transfer System were the main type of electronic payment services provided by the institutions sampled for the study.

5.1.2 Factors Influencing Choice of Payment Systems

Customers’ wealth/income, availability of payment system, customers’ level of education, risk factors (security, safety, and ease) and personal preferences of customers were found to be the main driving factors that influenced the choice of
payments of customers. For each of the above factors, respondents strongly agreed to the fact that they affected type of payment options they choose.

5.1.3 Level of E-zwich Adoption

The study found that even though most of the sampled institutions have the e-zwich point of sale terminals, few of their customers adopted the e-zwich smart card as a medium for making electronic payments or transacting business with these institutions. Again, few customers had a valid e-zwich smart card that can be used for electronic payments.

For the few respondents that have adopted the e-zwich smart card for payments, it was found that payment for goods and services and cash transfers were the two main activities they engaged in. The frequency of use of the smart card was dominated by twice per month as indicated by the majority of the respondents.

5.1.3 Challenges Involved With Current Cash Payment System

The majority of the respondents confirmed that the existing system for making payments was fraught with challenges. Of the challenges, long waiting queues, dealing with bulky cash and limited payment options were identified as the main obstacle to the ordinary payment systems that do not involve the use of the e-zwich smart card payment system.

5.1.4 Perceived Usefulness of E-zwich

A greater percentage of the respondents confirmed that the e-zwich smart card can be adopted as a means to overcome the challenges that are fraught with the ordinary non-electronic payment system. This indicates that the respondents are aware of the perceived usefulness of e-zwich.
5.1.5 Perceived Ease of Use of E-zwich

However, most of the respondents strongly agreed that the e-zwich smart card payment system also faces some challenges which affect its perceived ease of use. Lack of knowledge and skills in basic computing, complex procedures for conducting payments, inadequate point of sale terminals and lack of trust in non-cash payments were found to be the main challenges facing the adoption of the e-zwich smart card for conducting electronic payments.

5.2 Conclusions

Based on the problem statement and objectives of the study, the following conclusions were made:

The study showed that there are electronic payments systems in Ghana. The types of electronic payment systems available to customers were few. The ATM Card, Mobile Money Transfer system and Telephone Banking and Credit Card were the few electronic payment systems. Other payment systems such as Electronic Cheque, Electronic Purse/Wallets, Digitised ‘E’ Cash, Electronic Funds Transfer/Point Of Sales (EFT/Pos), Smart Card and Digitised Person-to-Person were not available for use by the customers. The fact that the service provides failed to introduce these payment systems made it impossible for their customers to adopt and use them for electronic transactions.

With respect to choice of payments, customers’ adopt a particular payment option based on a number of factors they considered to be in their favour. Hence such factors as customers’ wealth/income, their level of education, availability of a particular payment system, risk factors (security, safety, and ease) and personal preferences of
customers were the driving forces that influenced the choice of payments of customers. These factors are affecting the behavioural intention to use and actual use of electronic payment systems in Ghana as noted in the Technology Acceptance Model. Under the model, individual factors such as personal preferences and organisational factors such as security influence the behavioural intention to use or not to use a new technology.

The existing payment systems were fraught with challenges that affected the ease and convenience of use. Under the circumstances, the e-zwich smart card payment system has been recognised as a means of overcoming the challenges associated with the existing or ordinary payment systems. However, the level of adoption of the e-zwich smart card for electronic payments is very low. A few customers have adopted the e-zwich smart card for making payments as many of them do not have the e-zwich smart card.

Notwithstanding the fact that the e-zwich smart card payment system has been recognised as a solution to the problems inherent in the existing payments system, its introduction in Ghana is replete with some challenges. These challenges such as lack of knowledge and skills in basic computing, complex procedures for conducting payments, inadequate point of sale terminals and lack of trust in non-cash payments have discouraged most people from adopting it for electronic payments.

The Technology Acceptance Model provides the basis for making inferences regarding the adoption of the e-zwich smart card. The challenges identified affect perceived ease of use even though the perceived usefulness has been identified through the challenges affecting the current cash transactions in Ghana. Hence the
challenges customers encounter in the use of the e-zwich smart card have led to its low level of adoption.

5.3 Recommendations

Based on the findings and conclusions of the study, the following recommendations are made:

Even though there are electronic payment systems in Ghana, the existing ones are few. There is the need to introduce more electronic payment modes in the country. Government needs to ensure that the cost of telecommunications, hardware and software are made cheap, which will involve examining existing taxes and import duties. New technology and changes in the banking laws can produce change. Therefore, there is the need for the government to remove barriers to innovation, including regulatory barriers to pave way for rapid development of the electronic payment systems in Ghana.

The level of adoption of the e-zwich smart card is very low. There is the need to put in place measures to ensure that more people adopt the e-zwich smart card for electronic transactions. Increased educational/marketing campaigns will help users and potential users to know the benefits that come with the adoption of the e-zwich. Such campaigns must be sustained for a long time to ensure that all sections of the populace are made aware of the nature and use of the e-zwich smart card system.

The inherent risks and lack of trust in electronic payments discourage consumers from adopting them for payments. There is the need for banks and other service providers to educate consumers about all of their payment system options and the pro and cons of each. Consumers will need to be informed about the potential liability for the use of
new types of electronic payment, so they can understand how it differs from cash. This will make them well-informed and choose payment options that will bring maximum value to them.

The existing points of sale terminals are few with some of the machines being faulty. The Bank of Ghana should introduce more terminals in the various locations for people to adopt for transactions. The introduction of bonuses and incentives for those who use the e-zwich smart card for transactions will encourage more people to adopt it for electronic payments.

There is limited infrastructure in relation to Information Communication Technology (ICT) in the country. All forms of electronic payment systems including the e-zwich depend largely on the availability of an efficient ICT infrastructure where reliable network connectivity, durable hardware and high expertise in ICT are available. Government and stake holders in the communication sector must increase expenditure on ICT to ensure that the entire country is covered with a reliable technology. This will facilitate the introduction of more electronic payment options and also encourage more people adopt them for electronic payments. It will also reduce the burden on the existing non-electronic payment options as well as the infrastructure used to conduct such payments.
REFERENCES


APPENDICES

APPENDIX A

Questionnaire for Customers and Individuals

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COMMONWEALTH EXECUTIVE MBA DISSERTATION

Questionnaire No........

The purpose of this study is to assess the adoption of electronic payment systems by banks and businesses in the Sunyani Municipality. This questionnaire is designed to elicit information regarding this research work. You are kindly requested to answer the questions as frankly and openly as you can. You are also assured of full confidentiality, privacy and anonymity of any information that you provide. Thanks for your co-operation.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

RESPONDENTS

Q.1 Gender (1) Male [    ], (2) Female [    ]

Q.2 Age (1) 18-25[    ], (2) 26-35[    ], (3) 36-45[    ], (4) 46-55[    ]

Q.3 Level of education
(1) Basic/MSLC [    ], (2) Sec/Voc/Tech [    ]
(3) HND/Degree [    ], (4) Post-Graduate[    ]

Q.4 Level of employment
(1) Employed (Part time or self-employed) [    ], (2) Unemployed [    ]
Q.5 If employed, indicate your monthly income brackets

(1) Less than GH¢ 100 [ ], (2) From GH¢ 100-300 [ ]
(3) From GH¢ 301-500 [ ], (4) More than GH¢ 500[ ]

Q.6 Which bank/organization do you operate with? ……………………

Q.7 What type of account do you operate?
(1) Savings [ ], (2) Current [ ], (3) Savings and Current [ ]

SECTION B: TYPES OF ELECTRONIC PAYMENT SYSTEMS

Q.8 In the list below, indicate the types of Electronic Payment Systems that you have used for transactions by ticking the appropriate box where it applies.

<table>
<thead>
<tr>
<th>NO</th>
<th>PAYMENT SYSTEM</th>
<th>USED (✓)</th>
<th>NOT USED (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>ATM CARD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>E-ZWICH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>TELEPHONE BANKING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>ONLINE BANKING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>MOBILE MONEY TRANSFER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION C: FACTORS AFFECTING CUSTOMERS’ CHOICE OF PAYMENTS SYSTEMS

Q.9 The following factors affect the choice of payment systems that customers adopt for banking transactions. Kindly indicate the extent of your agreement by ticking the appropriate box.

SA: Strongly Agree; A: Agree; U: Undecided; D: Disagree; SD: Strongly Disagree

<table>
<thead>
<tr>
<th>NO</th>
<th>STATEMENT</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Customers’ wealth/income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Availability of payment system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Customers’ level of education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Risk factors (security, safety, ease)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Specific nature of payment made</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Personal preference of customers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION D: LEVEL OF ADOPTION OF THE E-ZWICH: THE NATIONAL SWITCH AND SMART CARD PAYMENT SYSTEM

Q.10 Have you heard of the e-zwich Smart Card Payment System?

(1) Yes [    ],  (2) No [    ]
Q.11 Have you registered for the e-zwich Smart Card?
   (1) Yes [    ], (2) No [    ]

Q.12 Do you have a valid e-zwich Smart Card?
   (1) Yes [    ], (2) No [    ]

Q.13 Have you ever used the e-zwich Smart Card for any transactions?
   (1) Yes [    ], (2) No [    ] (If NO; skip to Q.16)

Q.14 If yes, which of the following activities did you use the e-zwich Smart Card for?
   (a) Cash transfers [    ]
   (b) Checking account balance [    ]
   (c) Printing mini statements [    ]
   (d) Payment for goods/services [    ]
   (e) Order bank drafts [    ]
   (f) None of the above [    ]

Q.15 How many times do you use the e-zwich Smart Card for transactions per month?
   (1) Never [    ], (2) Once [    ], (3) Twice [    ]
   (4) Thrice[    ], (5) Four or more [    ]

Q.16 How many people/friends do you know have and use the e-zwich Smart Card?
   (1) None [    ], (2) One [    ], (3) Two [    ], (4) Three [    ], (5) Four/more [    ]
SECTION E: CHALLENGES INVOLVED IN THE CURRENT PAYMENT METHOD

Q.17 Do you encounter any problems when making payments at the bank?

(1) Yes [    ],   (2) No [    ]

Q.18 If yes, which of these problems do you encounter in making payments in banks?

(a) Few Bank Branches [    ]
(b) Long Queues/ Time Wasting [    ]
(c) Few Payment Methods [    ]
(d) Bad Attitude of Tellers/Cashiers [    ]
(e) Armed Robbery Attacks [    ]
(f) Use of counterfeit Notes [    ]
(g) Bulky Bank Notes [    ]
(h) Dishonoured Cheques [    ]
(i) Short Banking Hours [    ]

Q.19 Do you think the adoption of Electronic Payments (e-zwich Smart Card) can reduce the above problems?

(1) Yes [    ],   (2) No [    ]

SECTION F: CHALLENGES INVOLVED IN THE ADOPTION OF E-ZWICH

Q.20 Kindly indicate the extent to which you agree with the following statements regarding the challenges involved in the adoption of the e-zwich Smart card Payment System.
SA: Strongly Agree; A: Agree; U: Undecided; D: Disagree; SD: Strongly Disagree

**Disagree**

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Lack of knowledge and skills in basic computing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Complex procedures for conducting payments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Preference for human tellers to machines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Preference for cash/paper payments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Lack of trust in non-cash payments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Inadequate point of sale terminal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Inadequate marketing campaigns/adovertisements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Personal preference of customers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>Poor attitude to new products and services</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

Q.21 In your opinion, what measures should be put in place to overcome the challenges involved in the adoption of the e-zwich Smart Card for Electronic Payments?

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73
APPENDIX B

Questionnaire for Banks and Corporate Bodies

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COMMONWEALTH EXECUTIVE MBA DISSERTATION

Questionnaire No........

The purpose of this study is to assess the adoption of electronic payment systems by banks and businesses in the Sunyani Municipality. This questionnaire is designed to elicit information regarding this research work. You are kindly requested to answer the questions as frankly and openly as you can. You are also assured of full confidentiality, privacy and anonymity of any information that you provide. Thank you for your co-operation.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Q.1 Gender (1) Male [   ], (2) Female [   ]

Q.2 Level of Education
   (1) Basic/MSLC [   ], (2) Sec/Voc/Tech [   ],
   (3) HND/Degree [   ], (4) Post-Graduate [   ]

Q.3 Name of bank/organization…………………………………………..

Q.4 Position/Title……………………………………………………………….

Q.5 How many years have you worked at your present job?
   (1) Below 1 year [   ], (2) 1 - 5 years [   ],
   (3) 5 - 10 years [   ], (4) Above 10 years [   ]

74
SECTION B: FORMS OF ELECTRONIC PAYMENT SYSTEMS IN USE BY BANKS AND CORPORATE ORGANISATIONS

Q.6 In the list below, indicate the types of Electronic Payment Systems adopted by your bank/organization for transactions by ticking the appropriate box.

<table>
<thead>
<tr>
<th>NO</th>
<th>PAYMENT SYSTEM</th>
<th>USED (√)</th>
<th>NOT USED (√)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>ATM CARD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>E-ZWICH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>TELEPHONE BANKING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>ONLINE BANKING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>MOBILE MONEY TRANSFER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION C: LEVEL OF ADOPTION OF THE E-ZWICH: THE NATIONAL SWITCH AND SMART CARD PAYMENT SYSTEM

Q.7 Do you have the e-zwich terminal in your Bank/Organization?

   (1) Yes [  ],      (2) No [  ]

Q.8 If yes, does your Bank/Organization have a specific teller/location for the e-zwich Smart Card Payment System?

   (1) Yes [  ],      (2) No [  ]

Q.9 Do you allow clients to make payments/withdrawals with their e-zwich smart card?

   (1) Yes [  ],      (2) No [  ]   (If No; skip to SECTION D)
Q.10 If yes, which of the following activities do you use the e-zwich Smart Card for?

(Tick as many as apply)

(a) Cash transfers [ ]
(b) Checking account balance [ ]
(c) Printing mini statements [ ]
(d) Payment for goods and services [ ]
(e) Order bank drafts [ ]
(f) None of the above [ ]

Q.11 How many times do your clients use the e-zwich Smart Card for transactions per month?

(1) Never [ ], (2) Once [ ], (3) Twice [ ]
(4) Thrice [ ], (5) Four or more [ ]

SECTION D: CHALLENGES INVOLVED IN THE ADOPTION OF THE E-ZWICH: THE NATIONAL SWITCH AND SMART CARD PAYMENT SYSTEM

Q.12 Kindly indicate the extent to which you agree with the following statements regarding the challenges in the adoption of the e-zwich Smart card Payment System.
Q.13 In your opinion, what measures should be put in place to overcome the challenges involved in the adoption of the e-zwich Smart Card for Electronic Payments?

Lack of knowledge and skills in basic computing
Complex procedures for conducting payments
Preference for human tellers to machines
Preference for cash/paper payments
Lack of trust in non-cash payments
Inadequate point of sale terminal
Inadequate marketing campaigns/advertisements
Personal preference of customers
Poor attitude to new products and services