VAASA POLYTECHNIC

Frederick Abeku Eshun

THE ROLE TELECOMMUNICATION ON BANKING SERVICES IN GHANA

TECHNOLOGY AND COMMUNICATION
2009

Preface

Telecommunication has been widely recognized as very important in the development in achieving economic growth. It has a very important role to play when it comes to economic development and growth. The demand for telecommunication is fast growing in developing countries like Ghana.

This thesis is about researching into the role of telecommunication in the banking service in Ghana. This work will talk about the role of IT innovations introduced by the various banks in Ghana, the effect they have had of the banking productivity, and growth. It does also address the customer's perceptions on the various innovations in the banking service.

I would like to express my deepest gratitude Dr Adebayo Agbejule, principal lecturer Vaasa University of Applied Sciences who supervised this thesis work, for his time and encouraged throughout this thesis work and my education in Vaasa University of Applied Sciences.

I am very grateful to my parents Mr. Anthony Eshun and Mrs. Ernestina Eshun for their support and encouragement throughout my education. To my siblings Frank, Naana, Rita and Michael i would say thanks and God bless you. My cousins Kofi, Ernest, Ellen, Awo, Baaba, Mansah, Stephen, Ebo and Afua Nyanteng Eshun (my sister in-law)

To those who responded to my questionnaire, thanks and am very grateful for your time and the contributions you made to make this thesis a reality.

VAASAN AMMATTIKORKEAKOULU
UNIVERSITY OF APPLIED SCIENCES
Degree Programme in Information Technology

ABSTRACT

Author	Eshun Frederick Abeku
Title	The role Telecommunication on banking services in Ghana
Year	2009
Language	English
Pages	71
Name of Supervisor	Dr. Adebayo Agbejule

The main objective of this thesis work is to research into the role of telecommunication on banking services in Ghana. The thesis will also address the types of IT innovations in the banking industries and the customer's perception of these innovation. Some of the innovations that will be discussed in this thesis include Automated teller machine (ATM), Internet banking, telephone banking, PC banking branch network and EFTPoS. Effect of IT innovations on products and services, service delivery, how it has made banking enquiries faster and how it has increase banks productivity will also be discussed. The thesis will also talk about the economic and social roles of the telecommunication to the citizens of Ghana. Telecommunication business has been one major source of income to both the Government and the citizens. In this thesis work the survey research method is going to be used to address the research questions.

Keywords Telecommunication, Ghana, banking, Customer

Table of Contents

TABLES

LIST OF FIGURES

1 INTRODUCTION

Telecommunications over the years in Ghana has been seen as one of the economic back bone of the country's income generation. Over the years the Government of Ghana has been in forefront of the information and communications revolution in the last decades. Ghana is one of the first countries in Africa to introduce Telecommunication service, and has also taken steps in making sure service providers and citizens get value for their money. By giving licence to six different major service providers, Ghana has provided the mobile operators a good platform for stiff competitions among themselves which has created a robust and aggressive market for the explosion of wireless communication , whose growth over the years has grown rapidly that it has spread all over the regions of the country. The role of Internet in Ghana over the years has grown so well, making business, students and Government join the global economy whiles increasing developmental opportunity and social cohesion at home.

Research over the years has proven that competitions in the telecommunication has improve performance over monopoly provision around the world, resulting in low pricing, quality of service and wider access and faster expansion of capacity. Over the number of mobile users in the country has increased dramatically, creating lot of jobs and making information easily accessible to all citizens. Research has shown that both public and private investment in telecommunications in Ghana has double over the year's surpassing the investment in agriculture and natural resources such as gold, diamond and bauxite which were the main export commodities of the country. In Ghana development in information and communication technology (ICT) are radically changing the way business are done.

The world is rapidly moving towards an economic system based on the continuous and ubiquitous availability of information. Recent advances in telecommunications technology have been an important vehicle in permitting

information exchange to develop as a valuable commodity. Countries and sector equipped with requisite telecommunications system have been rapidly moving into post-industrial information-based economy growth. For the developing world a modern telecommunications infrastructure is not only an essential for domestic economic growth, but a prerequisite for participation in increasingly competitive world markets and for attracting new investment. In the advanced industrial countries of Europe and North America, universal telecommunication services have penetrated every sector of society. In many developing countries the limited availability of services is constraining economic growth.

Economic development policies in the industrial countries increasingly include telecommunications as an essential component of the economic infrastructure. This realization has been initiated by industry's demand for advanced telecommunications equipment for competitive reasons. The lesser developed countries have begun to recognize that inadequate telecommunications services will be a disincentive to new investment and place existing industry at a competitive disadvantage. The primary economic benefit of improved telecommunications is improved efficiencies in other productive sector. Over 80% of the telephones in the lesser developed countries are connected to businesses or to governments agencies. Few domestic businesses and no international activities could operate competitively without modern telecommunications. The primary benefit include reduced transport, costs, reduced transaction costs, improved marketing information and increased efficiency of industrial production. In all economic sector, agriculture, manufacturing, and services, advanced telecommunications systems are becoming an integral part of business operations. The lesser developed countries must accelerate their application of telecommunication technology or fall further behind in economic competitiveness.

1.1 Purpose of the study

The main objective of this study is to comprehensively analyze the impact of telecommunication and its economical impact on the economy of Ghana.

1.2 Objectives of the Study

i. To determine the current telecommunication situation in Ghana
ii. The potentials of telecommunication in Ghana
iii. The telecommunication's impact on banking services in Ghana
iv. To establish the customer's perceptions on IT innovations in the banking service in Ghana

1.3 Research Questions

i. What are the IT innovations on the banking services in Ghana?
ii. What are customer's perceptions on the effect of IT innovations in the banking services in Ghana?
iii. What are the effects of the IT innovations on the banking services in Ghana?

1.4 Outline of the study

An outline of this study is given in details as presented below.

Chapter 1 contains the introduction to the whole research work. In the same chapter also the purpose of the research, objective of the research and the research question will be discussed.

Second chapter present the Literature review of the role of government agencies like the Ministry of Communication and the National Communication Authority. The chapter will also talk about government policies on licensing, competition policy, interconnection policy, equal access, customer protection and spectrum and frequency management

The third chapter presents the research methodologies used for the research work. In this chapter, the two main research methods namely quantitative and qualitative research will be discussed and also the types of both quantitative like interview and qualitative such as questionnaire and survey will also be discussed. Also

found in this chapter are the choice of the research method and its validity and reliability.

The chapter 4 present the empirical (Data analysis) of the research work.
The fifth chapter of the research will present the conclusion of the work.

2 LITERATURE REVIEW

Government and public agencies in most countries, both developed and less developed, spend large sum of money in infrastructure. The purpose of infrastructure investment is to positively influence economic activity in terms of employment, value added, productivity, capital formation and income. Infrastructure investments also were help with the social and political integration of a region.

Investment in physical infrastructure generally falls into four broad categories; communications; transportation; and land development.

Most of these investments have certain characteristics in common. They tend to have some attributes of public goods in that they require a high initial investment with a relatively low marginal cost once the investment is in place. The provision of service from these industries also provides benefits to a large percentage of business and households of a region and typically has some form of external economies.

The idea that infrastructure investment is correlated with economic development is appealing and intuitive. To imagine an economically developed country without a substantial infrastructure is difficult. However, to state a precise relationship between the two is difficult. For example Balabkin points out that investment in infrastructure must occur before what economist call final demand other such as Hirshman; state that development may cause the investment in infrastructure .

Telephone service is a category of infrastructure investment. The previous discussion of the relationship between infrastructure investment and economic development generally applies to telephone service as a category of infrastructure investment. Some developing countries invest as much as 0.6 percent of their gross domestic product (GDP) in telecommunications. In the 1970 the average was 0.25 percent (developed countries average 0.8 percent of GDP during the same period). At least one group studying the issue suggested that developed

countries invest not less than 0.5 percent of GDP in telecommunications infrastructure.

Telecommunication investments affect economic development in the same general way as other infrastructure investment. It can reduce the cost of production. It can increase revenues. Finally, it can increase employment through both direct and indirect effects.
Telecommunications, however, will affect revenues and cost in more indirect ways than many other types of infrastructure investment. The reason is that much of the benefits of increased telephone service are derived from increase in information and knowledge. Telecommunication increase the available information thereby increases the efficiency of commercial activity.

One indication of the benefit of telecommunication investment is the strong correlation between telecommunication development and overall economic development. A long series of studies, initiated first by Jipp (1963), demonstrated the positive relationship between measure of GNP or GDP per capita and telephone density indicator, including DEL or lines per 100 inhabitants.

Several explanations for the correlation between telephone penetration and GDP have been advanced. Telephone can be seen as stimulant of economic growth; that is, consumption of telephone service actually causes increase in GDP. It is also possible that as economies become more highly developed they need more communication relative to less developed economies. Telecommunications can also reduce transactions costs, widening, the scope of market and thereby increasing competition and efficiency.

Norton (October 1992) published an evidence that shows that statistically, telecommunications investments causes growth in the financial sector hence GDP growth. He assumes transactions cost play a significant role in the economy and applies a model developed by Hirshleifer in which the transaction costs are

considered explicitly. Based on this model Norton developed a theoretical framework to estimate telecommunication role in financial markets and growth.

2.1 Role of Government Agencies

The Government of Ghana has a very important role in playing, on how telecommunication and other business group go about their business in the country. Though most telecommunication firms are owned by private investors, there are rules and regulations they must follow to make work easier and create a very good working environment for other potential investors. The Government has to make sure there is equal level field for competitions among various telecommunication service providers. In this section am going to discuss the various Governmental Agencies and the roles they play in the telecommunication sector of the country.

2.1.1 Ministry Of Communication

- The Ministry of Communication of Ghana is the official mouthpiece of the Government when it comes to telecommunications policies of the country. They are responsible for the periodic review of Telecommunications policies, its effectiveness and success and also consider if there some amendment to be made.
- The Ministry shall participate in a consultative capacity in all National Communication Authority (NCA) public regulatory proceedings in a transparent manner.
- It is the responsibility of the Ministry of Communications to represent the Government on all international negotiations and proceedings relating to the country telecommunication policies. This includes participations in all communication seminars on behalf of the Government domestically and internationally.
- They are also responsible for monitoring all developments in the telecommunication sector, and progress of achieving the objectives of this policy.

- Annually the ministry gives account on the developmental progress in the telecommunication sector of the county. In this report they identify the trends, issues and concerns in relations to sector goals.

2.1.2 National Communication Authority (NCA)

The National Communication Authority (NCA) in Ghana is responsible for regulating the telecommunication sector and implementing the terms of the telecommunication policies. The NCA has the responsibilities of assigning frequency bands on a national or regional geographic basis, to ensure the most efficient utilization of the spectrum and development of service. Some of the responsibilities of National Communication Authority are as follows:

- Issuing of licences and establishing term and conditions
- Regulations of competitions, including interconnection
- Implementation of Universal Access Policies
- Consumer protection
- Technical standards and quality of Service
- Monitoring of operator activity, performances and compliance
- Allocation of scarce resources including management of the frequency spectrum
- Tariff regulation consistent with Ministry Policy.

2.1.2.1 Licensing

The National Communication Authority is the only institution mandated by the Government to give licence to prospective telecommunication firms wanting to operate in Ghana. The main reasons for the licences are to check unauthorised firms operating without the knowledge of the Government. The licence is done in an open, non-discriminatory, and transparent for each party to be satisfied. The NCA in consultations with the ministry of Communication determines the application criteria, procedures and terms of conditions associated with the licence. The National Communication Authority (NCA) has the right to withdraw the licence of firms. Licences fees are determine by the National Communication

Authority in consultation with the Communications Ministries. Licences for Mobile phone service providers are based on the usage of the national resources like the electromagnetic spectrum.

2.1.2.2 Competition Policy

The National Communication Authority has the competition policy in place to make sure there is fair, transparent and non-discriminatory telecommunication market environment. In every society where there are more than one firms operating in the same field there is always competitions among them and one will be better than the other, in the telecommunication sector of Ghana there are six different service providers that operates in the country. The policy is to ensure that these service provider's works in harmony with each other. The National Communication Authority has the mandate to determine specific procedures, rules, regulation and administrative structures to ensure the competitiveness of this policy. The policy makes sure that small and big service providers are all treated in an equal and fair manner.

2.1.2.3 Interconnection Policy

The National Communication Authority has an interconnection between the various mobile service providers, where subscribers from different service providers can connect to each other without much difficulty. This interconnection must be of adequate quality for the purpose of transmitting traffic between subscribers of different network. In order not for service providers to charge subscribers who do not subscribes to their product the National Communication Authority must negotiate with the service providers on the charges. Service providers are free to negotiate agreement themselves on such term and conditions as they may choose, so long as the terms and conditions are favourable to each other. The interconnection policy allows user from different service providers to make call to other network anytime, any day and anyway without much difficulties and at a cheaper rate.

2.1.2.4 Equal Access

Mobile users who want to use mobile must have access to any of the service providers they like. Customers have the right to choose between which service providers they want to subscribe to and the kind of service they want. Service providers should not in any way block customers when they want to use other network of their choice.

2.1.2.5 Customer Protection

The National Communication Authority (NCA) has to make sure that service provider give very good service to their customers. Service providers are to submit periodic report to the Communication Authority on their performance, and they have to make independent investigation into these reports. All service providers are requires to establish service levels agreement with their customers, which they have to identify the minimum quality of service standard they are entitled to and how much compensation they must get when they fails to meet up to their standards. The NCA are to establish policies that requires service providers to responds to the problems of customers on time, and also provide more reasonable and convenient access to the customers representatives.

Technical standards service of quality of service includes bandwidth, signal quality of network, network congestion; connect failure rate and others the NCA may establish. The NCA make the performances of the various service providers public and on region-by-region basis, and makes recommendations where compensations and other required are not met. It is the responsibilities of the NCA to protect telecommunication users in Ghana from unfair marketing practice of service providers and the unfair usage of private customers' information's without their knowledge and permissions. They educate consumers on their right and also sanctions service provider who disrespect the privacy of their customers.

2.1.2.6 Spectrum and Frequency Band Management

Spectrum and frequency band is the properties of the Government of Ghana, and the National Communication Authority is responsible for allocating spectrum and

frequency bands to service providers. They also have a monitoring policy the checks on the service providers as to whether they are using the frequency band they have been allocated to. With the emergence of technology and market change and new frequency bands becoming available for use, the NAC may have to periodically review all the allocation of spectrums in Ghana and relocate frequencies consistent with international standards and the interest of the service providers and their consumers. The allocation of frequency bands are done in an open and fair manner to the satisfaction of both parties. Service providers found to be misusing the frequency band they have been allocated are made to pay penalties or their licences redrawn.

2.2 Description of Telecom Service Providers in Ghana

Telecommunication service providers in Ghana over the year have increased from three to six in the last ten years. Most of the service providers in the mobile telecom industry, particularly the GSM service providers are all multi-national companies. It has been proving that the main reasons of their coming to Ghana is that either a complete buy out of local interest or they go in for a foreign-local partnership in which they are going to be the majority share holders.

Currently six service providers that operate in Ghana are as follow Vodafone (Ghana Telecom), Mobile Telecommunication Network (MTN), Tigo Ghana, Zain Ghana, Kasapa Ghana, and GLO. Investcom bought 98 percent of Scandcom and changed its name from Areeba to MTN; Zain Ghana bought Western Telesystem Limited (WESTEL); Vodafone international now holds 70 percent share of Ghana Telecom; Millicom International Cellular SA rebranded Mobitel/Buzz to Tigo and Celtel Ghana now known as Kasapa. Globacom Ghana (GLO) is the only foreign service providers that obtained a direct licence from the National Communication Authority.

Data from the National Communication Authority ending July 2009, indicated that out of total of 10,242,916 mobile phone subscribers in the country MTN has 6.8 million subscribers representing 52 percent of the whole market, Tigo has 2.9

million subscribers, Vodafone followed with 1,648,544 subscribers and Kasapa with 386,991 subscribers. But recent statistics indicates that MTN still leads the market share with 54 percent followed by Tigo with 23 percent, Vodafone 14 percent Zain Ghana with 5 percent, Kasapa with 3 percent and the Vodafone the only service provider that has licence to provides fixed lines, now has about 160,000 fixed lines. The sixth licences operator, Globacom (GLO) will start to operate in Ghana in the middle of this year. With less than one million telecom lines in the country in 2003, the current number of telephone lines has increased to twelve million representing fifty-five per cent population penetrations and was projected to reach sixty per cent penetration in 2010.

2.2.1 Vodafone Ghana (Ghana Telecom)

Ghana Telecom now Vodafone was established after the World War II as a wing of then Post and Telecommunication Corporation. For the company to work as a commercially viable entity, it was split into two independent divisions by the Government of Ghana, Ghana postal and Ghana Telecom. The Government of Ghana some years ago awarded G-com (Telekom Malaysia) 30 per cent stakes of Ghana Telecom (GT) for US $38 million making them majority representation on the GT board and making them the management control of the company.

In the year 2001 when they failed to honour their contractual agreement, the Government bought back it 30 per cent and subsequently contracted Telenor Management Partners (TMP) of Norway to manage. On July 23, 2008 Vodafone International Plc successfully acquired 70 per cent of Ghana Telecom for US$900 millions making them majority share holders and the Government holding 30 per cent making them minority share holders.

The deal gives Vodafone controls of Ghana’s dominant fixed-line and broadband provider, and its third largest mobile service provider, which operate GSM service under the Onetouch brand. According to Vodafone Onetouch had 1.4 million subscribers, representing 17 per cent of the market share as of March. Ghana Telecom claims 99 per cent share of the country’s retail ASDL market and

controls 99 per cent of access lines. As at the end of the first quarter of the year, GT has 379,000 fixed lines and 15,000 broadband connections. Under the terms of acquisitions, the Government of Ghana will transfer its existing fibre network asset to Vodafone Ghana. In the next five years, Vodafone is expected invest $500 million in it operation and also seek to extend network reach and complete its fibre backbone.

Some of the services provided by Vodafone Ghana are as follows.

- Vodafone Chat
- Vodafone Voice SMS
- Vodafone Conference Calling
- Vodafone family & friends
- Vodafone Information Shopping
- Vodafone International Roaming
- Pre paid & post paid service
- Internet Service (dial-up and Broadband)

2.2.2 Mobile Telecommunication Network (MTN)

In December 1995, Scancom was awarded the first national license to operate and maintain 900GSM network in Ghana. In November 1996, Scancom became the first private GSM mobile service provider in Ghana under the service name Spacefone, covering all major cities in Ghana that is Accra, Tema, Kumasi, Takoradi, as well as the major mining cites like Obuasi and Babiani. In August 2005, Scancom announced that they have rebranded Spacefone and it was to be known as Areeba. Areeba was a single brand name of Scancom in Europe, the Middle East and Africa. By the year 2005 Areeba had about 1.4 million subscribers making it the largest Mobile service providers in Ghana. In July 2006 Mobile Telecommunication Network (MTN), acquired Investcom Limited which owned Scancom Ghana Limited operators of areeba in Ghana. The brand name areeba was changed to MTN, Scancom was still the registered owner of the brand expect the Scancom is now owned by MTN group. After one year of rebranding MTN in Ghana the organization if focused on consolidating its position as the

leader in the market and to fulfil its commitment of bringing world class telecommunication service in Ghana.

In this regards, MTN has invested much in network expansion initiative meant to enhance speech quality, improve coverage intensity and to extend coverage to new areas. MTN has integrated mobile telecommunication into the development of a brand that has become a lifestyle. MTN Ghana acknowledges its responsibility towards its stakeholders to sustain long term mutual value. In this regards MTN, has establish a very good relationship with the Government and community groups to enables them to work together to achieve profitability. MTN Ghana has established various foundations which is driving its Corporate Social Responsibility programs. MTN Ghana is the leader mobile service in Ghana with 54 per cent of the whole market share.

MTN Ghana recently launched its 3.5G technology in Ghana that will put MTN Ghana at the forefront of technology and in the league of top mobile service provider globally. 3.5G is the generic term used for the next generation of mobile communications system that support the effective delivery of a range of data-orientated services. This technology also provides more efficient system for the transmission of existing service such as voice, text, and data, supporting far greater speed than what is available today. MTN Ghana is the first mobile service provider to introduce 3.5G technology in Ghana.

Vision of MTN Ghana

To be the leading Telecommunication service provider in emerging markets.

Mission of MTN Ghana

Building shareholders values by ensuring maximum customer satisfaction through providing latest telecommunication services, at the most economical rates whiles meeting its social responsibilities as a good corporate citizen and providing growth prospect for its employees.

MTN Ghana offers varieties of products and services.

- GPRS Roaming
- WECA Tariffs
- Blackberry phones
- MTZ zone which gives fantastic discount to pre paid subscribers
- Free midnight call
- MTN Mobile Broadband
- MTN Loaded

MTN MobileMoney

Ghana's effort at creating a cashless free society received a major boost from MTN, with the introduction of a new service called MTN MobileMoney. According to the CEO of MTN, Brett Goschen the product will greatly facilitate payment across the country, not only MTN customers. Already nine banks and several business outlets have signed up as merchant of the service. With MobileMoney customers can load their wallet, transfer money to MobileMoney wallet, transfer money to a non mobile service, buy MTN airtime, withdraw money, transfer money from a merchant to a MobileMoney wallet or a non mobile user and a host of service. Charges on the service are affordable and some transactions are free of charge.

2.2.3 Tigo Ghana (Millicom Ghana Ltd)

Millicom Ghana Limited operators of Tigo cellular networks, was the first mobile network incorporated in the in sub-Saharan Africa, in March 1992. Millicom Ghana Limited a subsidiary of MIC, best know many in Ghana as simply as Mobitel/Buzz is down in history as the first company to launch a mobile telecommunication network in Sub-Saharan Africa. In 1992 Millicom Ghana introduced its GSM service under the brand name Buzz. Buzz GSM with its trendy lifestyle image offered very exciting service to its numerous subscribers.

Over the year Tigo Ghana has been able to maintain its fast rate of subscriber, revenue growth and a very high quality of service. Tigo Ghana is the second leading GSM service provider in Ghana, with 23 per cent of the market share.

Products and services Tigo Ghana has on the market so far are as follows

- Credit sharing
- Per second Billing
- Free itemized Billing
- Conference Call
- Google SMS search first in Ghana
- Free night call
- SMS & MMS

2.2.4 Zain Ghana Ltd

In October 2007, Celtel International, a subsidiary of Zain (formerly named MTC Group) announced that they have acquired 75 per cent of Western Telesystem Ltd (WESTEL) from the Government of Ghana for $120 million. The Government of Ghana still holds 25 per cent shares holdings through the Ghana National Petroleum Corporation (GNPC). Westel was the second service provider in Ghana licensed to provide fixed and mobile (GSM) telecommunication services.

The Zain Group, the leading telecommunication in the Middle East, aim to launch enhanced telecom service in the whole country in the first of 2008. The company also looks forward to promoting Ghana as the gate way to West Africa through one network, the world first borderless network This will offer their customers the opportunities to move freely across geographical borders using the same access in their home country, and to make calls without roaming surcharges and without having to pay to receiving incoming calls and messages.

The service also allows customers to buy and top up with local airtime when they visit countries where Zain operates. Currently Celtel's one networks service operates in six countries in East and Central Africa for 160 million people. Zain Ghana currently holds 5 per cent of Ghana's mobile telecom market share.
Currently Zain Ghana offers variety of products and services, some of their products and services are listed below.

- One Network Service
- Me2U
- Conference call
- Roaming
- Voice Mail
- SMS Text Messages
- International Dialling

2.3 General Services provided by the Telecom providers

2.3.1 Short Message Service (SMS)

Short Message Service (SMS) is a technology that allows sending and receiving text messages to and from mobile phone. It is an instant messaging (IM), type of communications service and it enables users to exchange messages in real time with other users. Each message can be 160 characters long and sent to and from users of different service providers. All mobile phones available now support SMS. SMS has become a global phenomenon, with billions of text message sent worldwide every week. A number of SMS information based services include social news, entertainment news, weather, travelling information and sports news. SMS is particularly popular with customers with pre-paid subscription.

In Ghana mobile service providers have seen pre-paid customers make as many SMS calls compared to contract based customers. MTN Ghana offers two types of SMS services namely SMS-MO (Short Messaging Service-Mobile Originating) and SMS-MT (Short Messaging Service-Mobile Terminating). SMS-MO enables customers to send text messages to other GSM users. It can be used anywhere in the world where MTN has a roaming agreements with networks that support SMS. SMS-MT on the other hand enables you to receive short text messages up to 160 characters in length.

2.3.2 Multimedia Messaging Service (MMS)

Multimedia Messaging Service (MMS) is a store and forward messaging service that allows mobile subscribers to exchange multimedia messages with other mobile subscribers. Multimedia Messaging Service (MMS) is an upgrade of Short Message Service (SMS), with MMS supporting the transmission of additional types like text, picture, video, audio or combination of all four.

The originator can easily create a multimedia Message, either using a built-in or accessory camera, or can use images and sounds stored previously in the phone. With the Multimedia Messages when the recipients phone is off the message is stored and sent as soon as the recipients switch on their phone. With MMS it is possible to send message from phone to e-mail unlike with SMS which is only phone to phone. In order to send and receive MMS message, the users must have a compatible phones. Majority of modern phones support MMS.

2.3.3 Roaming Service

The roaming service offers mobile phones users to constantly use their phone anywhere. With the roaming service subscribers keeps constant contact with distant family members, friends and business partners. It is a service that allows subscribers to use their phone whenever they are outside their country of origin.

Mobile service providers around the world have agreement among themselves that allows mobile users from different countries uses their networks. In some roaming service subscribers are charged the same their local call charges from their home country or the charges are based on the agreement between the service providers.

2.3.4 Customer Service

Customer Service personals of mobile service providers gives subscribers information about their account and also attends to their problems. Customer service personals are the links between the service providers and the subscribers

in providing good and quality services to both parties. The Customer call centre attends to all service range. They advice subscribers on new product and services available for use. New and prospective subscribers are also advice about their products and services. The highly trained call centre agents offers efficient and flexible customer care services, and also provides telemarketing for other companies.

2.3.5 Voice Call

It's a normal phone call between mobile phone users to constantly get in touch. It can be call from users on the same network and to and from different networks. Mobile phone users keep constant in-touch with family members, friends, business partners and other very important contact through call. With voice calls normal phones can be used and its can be from mobile to fixed line.

2.3.6 Video Call

It's a normal phone call between mobile phone users to constantly get in touch. It can be call from users on the same network and to and from different networks. Mobile phone users keep constant in-touch with family members, friends, business partners and other very important contact through calls. It is a face to face conversation in real-time wherever subscribers may be, when contact receive a call they will be prompted to accept video call. With video call for one to make and receive a video call, the users must have compatible phones for video calling.

2.3.7 Short Number or Common Short Codes

This is a special telephone numbers, significantly shorter than the full telephone numbers, which can be used to address SMS, MMS messages from mobile phones or fixed phones. The short codes are widely used for a value added service like television voting, charity donations, ordering ringing tones and other mobile service such as SMS alert. Messages sent to short codes are at premium rate than the standard rating or free in some cases. The short codes are made to be shorter to read out easier to be remembered than a normal telephone numbers. Currently in Ghana mobile services providers uses three, four, and five digits short codes.

The short codes numbers are mostly used by radio stations, television stations and other advertising companies.

2.4 Telecommunication and Banking in Ghana

Over the years telecommunication, has played very important role in the banking system in Ghana. Many banks in Ghana have always sought a media through which they would serve their customers in a more cost-effective way and also increase the utility of their customers. Their main objectives were to serve their customers conveniently, in the process increase productivity and competitiveness.

Telecommunication and electronic technology have been used extensively in banking for many years to advance agenda of the banks. The earliest forms of telecommunication and electronics used in Ghana were of mainly office automation devices. Telephone, telex and facsimile were used to speed up and make more efficient, the process of serving their customers. For decades they have remained the main information and telecommunication technologies used for transacting business in most Ghanaian banks.

As competition grew strong in the banking sector, many Ghanaian banks started using new technological innovations such as Personal Computer (PC) as back-office operations used by their tellers to service their customers. Advancement in telecommunication, has made it possible for many banks in Ghana to networks their various branches and operations thereby making one-branch philosophy a reality, increasing productivity and customer satisfaction. Barclays Bank (GH) and Standard Charted Bank (GH) are the first banks in Ghana to begin with the networking of their branches the Ghana, which in a long way changed the banking landscape in the country.

In Ghana, the most technological innovation used has been the Automated Teller Machine (ATM), with emergence of telecommunication in Ghana more and more technological innovations has been introduced in the banking sector of Ghana, some of these innovations includes telephone banking, internet banking, branch networking, electronic cards, personal computer banking and electronic funds

transfer at point of sales. Many customers considers technological innovations as important in their choice of bank, and banks that delayed in the implementation of these various technological innovation tends to lose most of their customers to other banks with technological innovations.

Many banks are making huge investments in technology to maintain and upgrade their infrastructures, in order not only to provide new electronic information – based service, but also to manage their risk position and pricing. At the same time, new off-the shelf electronic service such as online retail banking are making it possible for small financial institution to take an advantage of new technologies at quite reasonable cost. These developments may ultimately the competitive landscape in the banking sector. Telecommunication affects financial institutions by easing enquiry, saving time, and improving service delivery.

In recent years investment in information technology by banks in Ghana has served to streamline operations, increase productivity, increase competitiveness, and increase the variety and quality of service provided. According to Yasuharu (2003), implementation of information technology and communication networking has brought revolution in the functioning of the banks and financial institutions. It is argued that dramatic structural changes are in store for financial service industry as a result of the internet revolution. The introduction of ICT in the delivery of banking services, especially by the new banks in Ghana, has created a new wave of competition in the banking and investment industries.

Telecommunication has made it easier for banks to reach wider clientele within short period of time, which is largely affecting the overall effectiveness of the bank in a very positive way. Customer having the opportunity to make bank transaction via internet, telephone and SMS have helped decongested the banking hall, resulting in the bankers serving customers quickly and effectively, this decongestion of the banking hall has save both the banks and the customer time in order to attend to other business.

2.4.1 Forms of Information Technology Innovation (Electronic Delivery Channels)

Technological innovation has been identified to contribute to the distribution channels to banks. The electronic delivery channels are mostly referred to as electronic banking. Electronic banking allows customer to have easy access to their money and also control their financial business anywhere at anytime through automated teller machine (ATM), or direct deposit of paycheques into checking or savings accounts. Electronic banking also known as electronic funds transfer (EFT), uses computer and electronic technology as a substitutes for cheques and other paper transactions. Many banks and financial institutions use ATM or debit cards and personal identification number (PIN) for this purpose. The various electronic delivery channels are discussed below.

2.4.2 Automated Teller Machine (ATM)

Automated teller machine is an electronic terminal that let customer banks almost anytime. It's a computerized telecommunication device that provides the customer of a bank or financial institutions with access to financial transaction in public space without the need of bank teller. On modern, automated teller machines (ATM) the customers are identified by inserting a plastic ATM cards with magnetic stripes or a plastic smartcard with a chip, that contains a unique card number and some security information such as expiring date, or CVV. Security is provided by customer entering a personal identification number (PIN). To withdraw cash, make deposit and transfer funds between accounts, customers generally insert an ATM card and enter their personal Identification number (PIN).

Some financial institutions, banks and ATM owners charge a fee, particularly to customers who don't have accounts with them. ATM tells the customers the charge fee and its amount on the screen before transactions are completed. In Ghana the Trust Bank is the first bank to installed ATM in the country in 1995.

Ghana Commercial Bank started its ATM offering in 2001 in collaborations with Agricultural Development Bank. Not long after, most of the major banks began their ATM networks at competitive position. Due to technological advancement in technology, ATM are able to provide a wide range of services such as cash withdrawal, change pin, account balance enquiry, funds transfer, print mini statement, request for bank statement and cheque book, make a cheque request, and pay utility bills.

2.4.3 Telephone Banking

Telephone Banking is a service provided by banks, which allows its customers to transact banking business over the telephone. Telephone Banking is a very convenient, fast and easy method of gaining access to your bank account at anytime from any location, seven days a week, and twenty four hours a day using any touch tone telephone. Most telephone banking uses an automated phone answering system with phone keypad response or voice recognition capability.

For security reasons, the customer must first authenticate through a numeric or verbal password or through a security question asked by live customer care personal. According to Leow (1999), telephone banking has numerous benefits for both banks and their customers. On the part of the customers, it provides increased convenience, expanded access and significant time saving. With respect to the banks, the cost of delivering telephone-based service is cost saving than those of branch based services.

With telephone banking, customers cannot make cash withdrawals and deposit but other transactions like account balance information, electronic bill payment, funds transfers between a customer’s accounts. Its saves customers from number of hours spent in the banking hall, making the banks to give good quality of services to their customers and making time to attend to other issues. Telephone banking offers retail banking service to customers at their office/home as an alternative to going to the banking hall or to the ATM for transactions.

In 2002, Barclays Bank Ghana launched Ghana's fully automated telephone banking operation. Telephone banking representatives are trained to do what was traditionally available only at the branch like loan application, investment purchases and redemptions, chequebook order, debit card replacement and change of address.

2.4.4 Internet Banking

The idea of internet banking was to give customers access to their personal account online anytime, anywhere. It's the perfect way for customers to do their banking transaction whether from home, the office or when travelling because the service is available 24 hours a day seven days a week. Internet banking gives the customers the opportunity to choose their own banking hours giving them greater control of their finances. It's secure, fast and easy to use. Customers have access to their latest balance, statement, view account details, customise, print, download statement and obtain history of all their account.

Internet banking gives customers the chance to check their balance and transaction details, transfer money to business partners, family and friends, pay utility bills, enquire of daily forex rate, request for cheque book and statement of account from the comfort of their home or offices without having to visit the bank. With internet banking customers need to log in with their log in ID and password in order to access their account. Banks like Barclays Ghana, Standard Charted Bank Ghana, Ecobank Ghana, and other banks have all launched their internet banking services.

2.4.5 Personal Computer Banking

A personal Computing Banking let customers handles many banks transactions via their personal computers, with the help of proprietary software installed on their computers. Once access is gained, the customer can perform a lot of retail banking services. The increasing awareness of the importance of computer

literacy has resulted in increasing the use of personal computers. This certainly supports the growth of personal computer banking which virtually establishes a branch in the customer's home or office and offers 24 hours service, seven days a week.

2.4.6 Branch Networking

Networking of branches is the computerization and inter-connection of geographically scattered stand-alone bank branches, into one unified system in the form of Wide Area Network (WAN) or Enterprise Network (EN), for the creating and sharing of customer information and records. It offers quicker rate of inter-branch transactions as the consequence of distance and time are eliminated. Also, with the several networked branches serving the customer populace as one system, there is simulated division of labour among banks branches with its associated positive impact on productivity among the branches. With this system customers can transact banking business in any branch of their without travelling to their bank where they have their account.

2.4.7 Electronic Fund Transfer at Point of Sales (EFTPoS)

An electronic fund transfer at point of sale is an online system that allows customers to transfer funds instantaneously from their bank accounts to merchants' accounts when making purchase at (purchase point). Increased bank productivity results from the use of EFTPoS to service customers shopping payment requirements instead of clerical duties of carrying cheque and cash withdrawal for shopping. This system is a 24 hours, and seven days a week service that continues even after banking hours. It does not require the customer to withdraw money from the banking hall or the ATM before shopping can be made. It's save customer's time and it easy and secure to use.

2.5 Internet Service in Ghana

Internet is the communication protocol that allows heterogeneous computer and protocols to communicate with each other, thereby linking local area networks into a single communication network. Internet services in Ghana started in the early nineties (1989/90), with the initiation of a pilot project by the Pan African

Development Information system (PADIS) and the International Development Centre (IDRC) Fidonet network to connect the Ghana National Scientific and Technological Information Network (GHASTNET), the Association of African Universities (AAU) and the Technology Transfer Centre (TTC), to GreenNet in London by dial-up. The service was limited to e-mail which was sent 3 times a week at 2400bps.

AAU started using Unix to Unix copy protocol (UUCP) while the health institutions migrated to HealthNet.The HealthNet system was based on satellite technology at this time. Full commercial internet access went live in January 1995 with pioneering work done by Network Computer System (NCS). Network Computer System is the first internet service provider in Ghana, and operates at 384 kbps through F1 Intelsat earth station. The company is also involved in consulting services, network installation, and maintenance and training services.

Network Computer Service (NCS), is the first company to establish global internet gateway with full connectivity in Ghana, and it is the top level domain administrator for .gh. Network Computer System has also set up a new point of presence (POPs) in the Ashanti (Kumasi) and Western (Takoradi) Regions. The company started an Electronic Data Interchange (EDI) network service, which they did in collaboration with General Electric Information Services and the International Finance Corporation (IFC).

The EDI enables inter-business electronic exchange of business documents in a standard format. Such business documents include invoices, purchase order, bills of laden, etc. The two other commercial internet service providers Ghana Internet System (InternatGhana) and Africa online each using 128kbps connection to the US via Ghana Telecom’s infrastructure. InternetGhana is a Ghanaian company licensed to provide internet service. InternetGhana operates a full digital to the internet, connecting to the world renowned InternetMCI’s supper high bandwidth internet backbone in New York. InternetGhana operates at 128 Kbps, and besides Accra it has set a point of presence in Kumasi. AfricaOnline Ghana is a subsidiary

of Africa online which is the first internet service provider of internet communications service throughout Africa, bringing internet users a level of expertise and breadth of service unequalled by any other on the continent.

AfricaOnline has evolved its charter to provide leading-edge internet service to thousand of successful individuals and companies in Ghana and in Africa. AfricaOnline reached an agreement with Ghana post office to provide free e-mail address upon request for use at post offices where the public can send e-mail for about 0.25c per message. In the first three months of the operation, over 30,000 e-mail addresses have been issued. According to the National Communication Authority over 39 internet service providers have been licensed but there are currently 8 internet provider operational in Ghana namely Network Computer System (NCS), AfricaOnline, InternetGhana, Africa express, IDN, WWWPLUS, ESS Ltd, and Africanus.net. Each internet service provider connect to the international internet links independently and there is no local internet exchange or peering , meaning local internet exchange traffic has to reach the international links before it drops to Ghana.

2.5.1 Internet Usage in Ghana

Internet usage in Ghana has taken off unprecedented way with individuals and companies rushing to get access to the internet. The increase of internet cafes has been a one important contributory factor. Though internet cafes are found in every part of the country, majority of them are found in the country's capital Accra. Places like Kumasi, Tema, Takoradi and other major cities in Ghana, internet cafes are fairly distributed. With the number internet access centres (Café, communication centres, telecentres) mushrooming all over the city, it is estimated that the cities alone has over hundreds of internet access centre with occupancy rate reaching over 90 per cent in most centres.

Growth has also been particularly strong in the private sector for which the internet has become a very important tool for business. Many private and Government firms now uses internet in their day to day activities, thereby

increasing productivity, reducing error rates and saving time and money. Currently it is estimated that over 15,000 users have direct connection to the internet, whilst it is estimated that over 50,000 users have access through shared internet connections- homes, offices, through friends and cyber cafes.

The Government of Ghana does not have a clear policy on the use of internet, but it's has not been hostile to its implementation, though in recent past the National Communication Authority shut down one internet service provider InterCom Data Network (IDN) and some internet operators for operating voice over IP (VOIP) technology. E-mail is the most used internet application in Ghana, the ordinary person likes the fact he /she can be reached by the click of the button through their inbox. Web browsing is another application where most people use to visit websites content produced in and outside Ghana. Figure 5.1 below summaries the distribution of the subscribers. The cross-section include university lectures, Governments officials, Individuals, Schools and Colleges, international agencies, embassies, corporations and various NGOs. It is an encouragement to know that businesses are the main users of internet in Ghana.

2.5.2 How to Get Connected to Internet in Ghana

In Ghana the most popular backbone options for internet connectivity is the dial up access, using basically the services of Ghana Telecom (Vodafone Ghana). Many mobile service providers like MTN Ghana, Vodafone Ghana, Tigo Ghana, Zain Ghana and other service providers now provides mobile broadband to its customers. Mobile phone service providers deliver their broadband using ADSL technology. ADSL technology allows users to have internet access and normal voice telephony at the same time. Most private firms and government agencies tends to use leased line from Ghana telecom, while some also uses wireless connection such as radio links, satellite and broadband access.

2.5.3 Internet Cafes

Internet cafes are the most important and popular options for internet connectivity for majority of internet users, since individuals and some organisations can not

afford dedicated access and have to use shared access. Most internet cafes provides e-mail access whiles some provides almost all internet service plus other services such as printing, scanning, and other services. Internet cafes in Ghana over the year have increased tremendously with majorities of them found in the capital Accra. All universities and polytechnics in Ghana are hooked to the internet, with some access for all teaching staff. Though graduate students have access to the internet, majority of undergraduate level have to use privately run internet cafes dotted all over their campuses. Some notable internet café operators in Ghana are Busyinternet, BusinessGhana, MyNet, Easy internet, intercity internet café and many others.

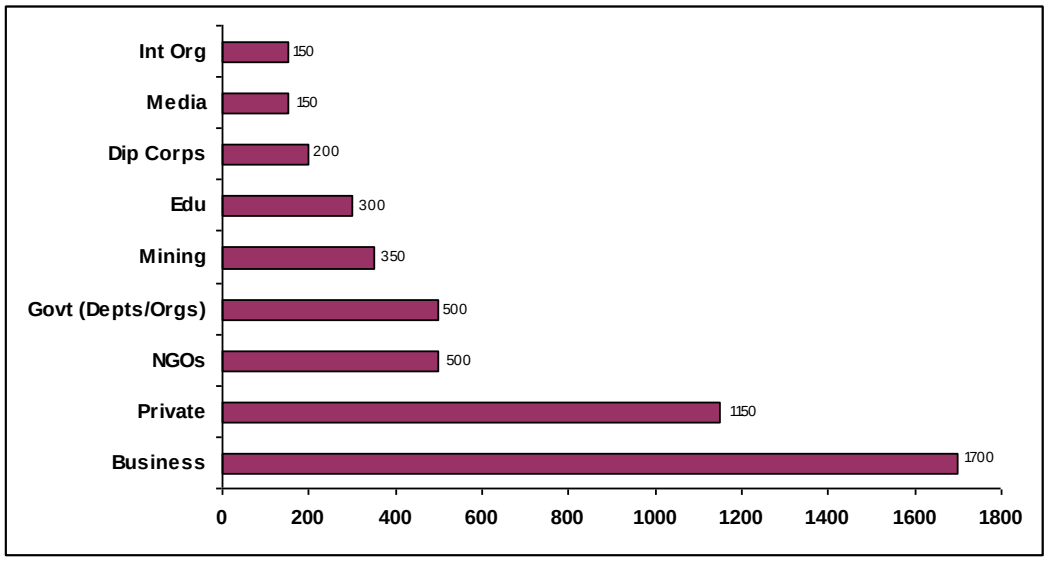

Fig. 1 Internet subscribers by categories

Source: Network Computer Systems Ltd (Ghana)

The use of internet in Ghana varies from people to people. There are various reasons why people use internet in Ghana. Internet usage can be categories into the following groups

- Education/ Research
- Business
- Entertainment

2.5.4 Education/Research

Internet over the years has been an essential tool in the education system of Ghana. Many Ghanaian students now uses internet as part of their educational development. Teachers and students are learning to use the internet in a variety of ways to enhance their teaching and learning experience. The Ghanaian tertiary education sector is the most advanced in the development and use of internet in the country.

All the major universities of the countries have their own separate computer labs with broadband connection, which enables student to have access 24-hours to the internet. Internet on the campuses has open up new opportunities for student to share idea with other student from other institutions. In the past students met their colleagues in other institutions only during sporting time, musical festivals, educational forums and other activities, but with the emergence of internet students frequently meet and hear from each other.

With internet student have unlimited access to information, that enables them to participate in the learning process with their fellow students and also increase student-teacher interactions. Ghanaian student have contact with student and teachers of other institutions, both local and international to share ideas.

With the use of internet students have easy and quick access to information for their research work. Many students use the internet as a search tool in their thesis or project works. Institutions in Ghana and other institutions around the world are into partnership agreement into research works. With internet teachers from different institute join up in research works both locally and international.

Research institutions like the Council for Scientific and Industrial Research (CSIR), Ghana Energy Commission, Foods and Drugs Board and the Ghana standard Boards all have partners outside Ghana they work together. There is also universities-universities collaborations between universities in Ghana and other universities across the world too working on research works.

2.5.5 Business and Internet

Internet has very important role to play in the economic sector of the country. Many business firms advertise their product on the internet. Many companies in Ghana now transact business on the internet with their customers and their business partners. Companies in Ghana have partners around the globe, which they have to be in touch with on a daily basis through internet. Banks in Ghana now used the internet to interconnect their branches and also offer internet banking for their customers, making bank transaction easier and also save time and money. Shipping companies' tracks incoming vessels from abroad using the internet thereby make congestions in the harbour and clearing good so fast and easy. Internet in Ghana has changed the faces of business in and has change the perception of the citizens on business issues.

2.5.6 Internet Marketing

Internet Marketing or online Marketing is a marketing process where business firm markets their products and services on the internet. The internet has brought many unique benefits to the marketing, one of which being lower cost of distribution of information and media to a global audience. Internet marketing is sometimes considered to have a broader scope because it is not only refers to digital media such as the internet, e-mail and wireless media. Internet marketing also includes management of digital customer data and electronic customer relationship management (ECRM) systems.

Internet marketing ties together creative and technical aspect of the internet, including design, development, advertising and sales. Internet marketing in Ghana has opened up many Ghanaian companies to customer in and outside of the country, who want to purchase many in Ghana goods and also for Ghanaians who want to buy things outside the country through the internet. There are many web hosting companies in Ghana that have website of all major companies in Ghana. Some of these web hosting companies includes BusinessGhana, WebStar, and GhanaClassified and many other up and coming ones, who advertise Ghanaian companies and their products and services.

2.6 Major Web Hosting Companies in Ghana

2.6.1 BusinessGhana

BusinessGhana is an Internet Presence Provider (IPP) located in Accra with a mission to categorise and define Ghanaian business site on the internet. In view of this, it has created the biggest Directory Listing of all Ghanaian business sites, grouped into divisions which make it easier for searching and comparing firms in the same type of business. BusinessGhana is a department of Zipzig ventures, an information technology company in Ghana.

2.6.2 WebStar

Webstar provides useful information that is relevant to those who are interested in anything Ghanaian. They also offer web site design services as an integral part of developing cohesive body of information.

2.6.3 Ghanaclassifieds

Ghanaclassifieds is an online marketing service that develops and creates a website presence of dynamic investment/financial opportunities where actual transactions between Ghanaian companies and institutions with other world-wide partners take place. The website is home to many companies profiles of more than 1000 different industries in Ghana, available for instant access to every internet users.

2.7 Entertainment and Internet

Entertainment has been known as one reason why people use the internet. Many internet users in Ghana today prefer to surf the internet for the purpose of entertainment. Electronic mail (e-mail), visiting chat room, downloading games, downloading movies, watching TV online, downloading music and internet calls.

2.7.1 Electronic Mail (e-mail)

Electronic mail (e-mail) is the transmission of text based messages between networked computers. E-mail was one of the earliest and most basic resources on

the internet and in many ways it still acts as the lowest common denominator for computer communication; many computers that cannot access other internet service can still exchange e-mail with machines on the internet. E-mail is the most used internet application in Ghana, the ordinary person likes the fact he /she can be reached by the click of the button through their inbox.

Many internet users in Ghana use e-mail as a form of communication tools to have constant touch with family relations, friends and business partners. Electronic mail (e-mail) has many advantages over other forms of communication like telephone, fax. With e-mail it is free of charge, fast, delivers information in a digital format and it requires less physical effort. Unlike other forms of communication that requires the attention of both parties, e-mail does not require the attention of both parties at the same time. It is easy to send the same piece of information to several people at the same time. For example with e-mail one can send circulate memo, agendas, and minutes and information to co-workers and colleagues.

With suitable encoding methods, e-mail can be used to send any kind of computer file, including pictures, sounds, programs, and movies. An e-mail message consists of a header and a body. The header contains the identity of the sender, date, receiver, subject, CC, message ID, and a reply to. The sender show the person who is sending the mail, date shows when the message was sent, receiver shows the e-mail address of people who are to receive the mails, subject which contains a description of the subject matter of the message and CC shows those who are going to receive the message in addition to the addressee.

3. Research Methodology

The base in any research is to collect and analyze data. The method used should be chosen according to the problem and purposes of the research. (Nyberg, 19999: 81). There are two main types of research methods namely Qualitative and Quantitative research methods. Qualitative research and Quantitative research are considered to be soft science and hard science respectively.

In Miles and Huberman's 1994 book of Qualitative Data Analysis, quantitative researcher Fred Kerlinger is quoted as saying there's no such thing as qualitative data. Everything is either 1 or 0" (p.40). To this another researcher, D.T. Campbell, asserts, "All research ultimately has a qualitative grounding" (p.40). This back and forth banter among qualitative and quantitative researchers is "essentially unproductive" according to Miles and Huberman. They and many other researchers agree that these two research methods need each other more often other than not. Qualitative data, typically involves words and quantitative data rather deals with numbers, there are some researchers who feel that one is better (or more scientific) than the other. Another major difference between the two is that qualitative research is inductive and quantitative is deductive. In qualitative research, a hypothesis is not needed to begin research. However, all quantitative research requires a hypothesis before research begins.

Another major difference between qualitative and quantitative research deals with the underlying assumptions about the role of the researcher (see the table 1 below). In quantitative research, the researcher is ideally on neither objective observer who neither participates in nor influence what is being studied. In qualitative research however, it is thought that the researcher can learn the most by participating and / or being immersed in a research situation. These basic underlying assumptions of both methodologies guide and sequence the types of data collection method employed.

Table 1 Qualitative vs. Quantitative

Qualitative Research	Quantitative Research
The aim is a complete, detailed description	The aim is to classify features, count them and construct statistical model in an attempt to explain what is observed
Researcher may only know roughly in advance what he/she is looking for	Researcher know clearly in advance what/she is looking for
The design emerge as study unfolds	All aspects of the study are carefully designed before data is collected
Researcher is the data gathering instrument	Researcher uses tools such as questionnaires or equipment to collect numerical data
Data is in the form of words, pictures or objects.	Data is in the form of number and statistics
Subjective-individuals' interpretation of event is important. eg uses participant observation, in-depth interview	Objective-seek precise measurement and analysis of target concepts, eg uses survey, questionnaires etc
Qualitative data is more 'rich', time consuming and less able to be generalized	Quantitative data is more efficient, able to test hypotheses but may miss contextual details
Researcher tends to become subjectively immersed in the subject matter.	Researcher tends to remain objectively separated from the subject matter
Recommended during earlier phases of research project	Recommended during latter phase of research project

2.8 Quantitative Research

In quantitative research, the aim for the research is to classify features, count them, and construct statistical models in attempt to explain what is observed. All aspect of the study is carefully designed before data is collected. It involves those methodologies such as surveys, questionnaires, and sociograms (diagrammatic

representations of interaction between individual) which enable data (concrete or conceptual) to be collected, measured and compared with a standard. (Louis Cohen, Lawrence Manion, Keith R.B. Morrison)

Quantitative research generates statistics through the use of large-scale survey research using methods such as questionnaires or structured interviews. If a market researcher has stopped you on the street or you have filled in a questionnaire which has arrived through post, this falls under the umbrella of quantitative research. This type of research reaches many more people, but the content with those people is much quicker than it is in qualitative research.

Questionnaire: - Is a commonplace instrument for collecting data beyond the physical reach of the researcher, that is, from a large or diverse sample of people. It is an impersonal instrument for collecting information and must, therefore contain clear questions, worded as simple as possible to avoid any confusion or ambiguity since the researcher probably will not be present to explain what was meant by any one particular question. The questionnaire should be designed to fulfil a specific research objective; it should be brief and the sequence of the question logical.

Survey: - Is a methodology which can use different instruments such as observation, interview, or a written list of questions called questionnaire. Surveying is the process of conducting a study from a representative sample of specific population (for example, women in the force and recent immigrants). If a questionnaire is used, it may be comprised entirely of closed questions, multiple-response questions, Lickett scale questions (differential sliding scale or rating scale questions) or opened-end questions, or may be a combination of all question styles. Data recording sheets for observation or a short list structured interview questions are two other instrument that can be used during survey.

2.9 Qualitative Research

In qualitative research, the aim of the research is complete and detail description. The researcher may only know roughly in advance what he/she is looking for. The design emerges as the study unfolds and data is in the form of word, pictures or objects. The focus of qualitative methodologies is the way in which participants (rather than the researcher) interpret their experience and construct reality. Example of qualitative research includes unstructured interview, focus group, and participant observation. (Harvey Russell Bernard)

Qualitative research explores attitudes, behaviour and experience through such methods as interview or focus groups. It attempts to get an in-depth opinion from participants. As it is attitudes, behaviour and experience which are important, fewer people takes part in the research, but the contact people with these people tends to last a lot longer.

Interview: - May be tightly structured, semi-structured, unstructured, in-depth or conversational. This methodology involves the researcher and the interviewee in a one-to-one situation and may be quite time consuming. The researcher may interview several people at different time using the same interview question schedule (Harvey Russell Bernard).

2.10 Research Method Used

The research method used in this thesis work was quantitative research methods. In part of the research work interviews were conducted in the course of thesis work and also sent questionnaires out for people to answer.

2.11 Validity and Reliability

According to B. White (2000p.25) can validity be proven if the research design fully addresses question and objectives that the researcher is trying to answer.
Reliability concerns consistency and the research and weather another researcher would find the same answer if he conducted research using the same research design.

Precision (Winter 2000), credibility and transferability (Hoepf, 1997) provide the lenses of evaluating the findings of a qualitative research, whiles in quantitative research, validity is correctness of results and reliability is consistency of means of measurement.

3 THE EMPIRICAL CASE ANALYSIS

The methodology adopted involved the conduct of interview and preparations of numbers of questionnaires. The questionnaires were designed to ascertain customers' perceptions on the effect of IT innovations or electronic delivery channels on the banking services in Ghana. The response were measured with five points rating scales where Strongly Agree (SA) =4, Agree (A)=3, Strongly Disagree (SD)=2, Disagree (D)=1 and Neutral (N)=0. The sample size was chosen based on the basis that they have at least one form of IT innovations channels. A total of 200 questionnaires were sent out, but 102 responses were received representing a response rate of 51%. In order to ascertain perceptions of banking customers with respect to the effect of technological innovations on banking services, descriptive statistics were employed in the presentation and analysis of results.

A) What electronic delivery channels used by Ghanaian banks?

Table 1 show the types of electronic delivery channels utilized by Ghanaian banks. The analysis was based on six main delivery channels discussed in this thesis work namely ATM, Internet Banking, Telephone Banking, PC Banking, EFTPoS and Branch Networking. The information was from internet research, personal interview with Bank officials and customers. From the table its shows that with increased in telecommunication in Ghana, competitions among banks in Ghana on technological innovations have also increased. Most customers consider all these factors before choosing the banks they want to save with. ATM and Branch Network are the most popular electronic banking delivery channels in Ghana. Internet Banking, Telephone Banking, PC Banking and EFTPoS, over the years are emerging strongly and its hoped in years to come customers are going to patronise them.

From Table 2 **A** means the banks provides those services

From Table 2 **R** means the banks do not have those services yet

Table 2 Electronic Delivery Channels Used by Ghanaian banks

Banks	ATM	Internet Banking	Telephone Banking	P C Banking	EFTPoS	Branch Network
Ghana commercial Bank	A	R	R	A	A	A
Barclays Bank (GH)	A	A	A	A	A	A
Standard chartered Bank	A	A	A	A	A	A
Ecobank Gh. Ltd	A	A	A	A	A	A
Merchant Bank	A	A	A	A	A	A
Cal Merchant Bank	A	A	A	A	A	A
Societal Generale SSB	A	A	A	R	A	A
Fidelity Bank	A	A	A	A	A	A
The Trust Bank (TTB)	A	A	A	A	A	A
Stanbic Bank	A	R	R	A	A	A
Metropolitan & Allied Bank	A	A	A	A	A	A
First Atlantic Merchant	A	A	A	A	A	A
National investment Bank	R	R	R	R	R	A
Unibank	A	A	A	A	A	R
Amalgamate Bank	A	A	A	A	A	A
Prudential Bank	R	R	R	R	R	A
Zenith Bank	A	A	A	A	A	A

B) Do you use any IT innovation for your bank transaction?

Table 3 shows the response to questionnaire as to whether if a customer uses any of the IT Innovation introduced by the banks in Ghana. The result shows that 95.1 percent representing 97 out of the total 102 respondent use one form of electronic delivery system or the other. 4.9 percent representing 5 out of the total respondents responded that they are yet to use any of the electronic delivery system. From the table the results indicates that bank customers in Ghana to a large extent patronize the technological innovations been introduced by banks in Ghana.

Table 3 Use of IT Innovation

Responses	Frequency	Percentage
Yes	97	95.1
No	5	4.9
Total	102	100

C) What type of IT innovation is used by the customer?

From Table 4 below, the results shows that out of the 97 respondents who admitted that they have been using any IT innovation introduced by the banks in Ghana, 64 responded that they frequently use the ATM for their financial transactions, representing 65.9 percent. Internet Banking followed with 15 out of the 97 respondent representing 15.5 percent uses the internet banking for their financial transactions. Telephone Banking is the next IT innovation used by customers. Out of the 97 respondent who responded to the questionnaires 10 answered that they preferred the telephone banking to all the IT innovations in the banking sector. PC Banking followed with 5 respondent representing 5.2 percent and 3 responded that they use other IT innovation for their bank transactions representing 3.1 percent. ATM is the most widely used IT innovation used in Ghana, by customers for their day-to-day financial transactions, and almost all the

banks and financial institutions in Ghana today has ATM around all the corners of the country.

Table 4 Types of IT Innovations used by Customer

Electronic Channel Delivery	Frequency	Percentage
ATM	64	65.9
Internet Banking	15	15.5
Telephone Banking	10	10.3
PC Banking	5	5.2
Others	3	3.1
Total	97	100

D) How often the customer uses the ATM in a month?

Table 5 shows the number of times bank customers uses the ATM for their various financial transactions. Some financial transactions customers used the ATM for are cash transfer, printing mini statement, check account balance and top up credit to their phone. ATM is the most used IT innovation in Ghana and the IT innovation customer use. The result from the table above indicates that greater number of respondent to the questionnaires on the frequent use of the ATM, show that out of 64 responses 50 responded that they use the ATM more than thrice in a month representing 78.1 percent of the respondents. 8 customers responded that they used the ATM three times in a month representing 12.5 percents ,4 customers also responded that, they used the ATM twice in a month representing 6.3 percent and 2 customers also responded that they use the ATM in a month for their financial transactions, representing 3.1 percent of the total responses.

Table 5 Uses of ATM per Month

Usage per Month	Frequency	Percentage
Once	2	3.1
Twice	4	6.3
Thrice	8	12.5
More	50	78.1
Total	64	100

E) What is the frequent use of internet banking in a month by the customer?

Internet banking is a new IT innovation introduced by many banks in Ghana. Many customers used the internet banking introduced by the various banks for their financial transactions like checking account balance, request mini statement, pay utility bills, money transfer and loading mobile phone airtime. Table 5 shows the usage of internet banking among customers. 6 out of the 15 respondent representing 40 percent indicate that they use the internet banking for their financial transaction more than three times in a month. 5 responded they use the internet banking thrice in a month representing 33.3 percent, 3 customers responded they use the internet banking twice in a month representing 20 percent of the total response and 1 customer uses the internet banking in a month representing 6.7 percent.

Table 6 Uses of Internet Banking in a Month

Usage per Month	Frequency	Percentage
Once	1	6.7
Twice	3	20.0
Thrice	5	33.3
More	6	40.0
Total	15	100

F) What is the frequent use of telephone banking in a month by the customer?

From Table 7 below result the responses from customers, it indicates that telephone banking has not gotten lot of patronage among customers in Ghana. Results from the questionnaires shows that 10 out of the 97 customers who responded that they use IT innovation, responded that they use telephone banking for their financial transactions. Financial transactions that can be made through the telephone banking are requesting of mini statement, checking account balance, electronic bill payment, funds transfers between a customer's accounts. Results from the table 7 below shows that 7 out of the 10 respondent responded that they use telephone banking more than once in a month, representing 70 percent and 3 out of the 10 respondents responded that they also use telephone banking once a month, representing 30 percent of the total responses.

Table 7 Uses of Telephone Banking in a Month

Usage per Month	Frequency	Percentage
Once	3	30
More	7	70
Total	10	100

G) What is the frequent visit to the banking hall in a month by the customer?

The frequency of customers' bank visit is shown in table 8. Out of the total of 102 respondents, 45 representing 44.1 percent mentioned that, they visit their banks more than three times in a month, 30 representing 29.4 percent also visit their various banking hall three times in a month. The numbers of respondent who visit their banks twice in a month are 13 representing 12.8 percent. Total of 8 customers also responded they visit the banking hall once in every month and that represent 7.8 percent, lastly 6 customers do not visit their banking at all in a month representing 5.9 percent. The results indicate that customers of banking services in Ghana still finds it very useful to visit their bank branches regularly every month to transact some banking business such as detailed bank statement request, loan application, foreign funds transfer, cash deposit for which other IT innovations like ATM, Internet banking, Telephone banking cannot offer.

Table 8 Frequent Bank Visit in a Month

Number of visit per Month	Frequency	Percentage
None	6	5.9
Once	8	7.8
Twice	13	12.8
Thrice	30	29.4
More	45	44.1
Total	102	100

H) What difference IT innovation has made in terms of banking enquiries?

Table 9 shows the responses of customers as to how IT innovations have help in making banking enquiries faster. Out of a total of 102 responses, 75.5 percent representing 77 respondents agrees that IT innovations makes enquiry about the state of their accounts faster whiles 9.8 percent representing 10 respondents disagreed. In all 15 respondents representing 14.7 percent remains neutral.

Table 9 How IT Innovations has made baking enquiries faster

Response	Frequency	Percentage
SD	2	2.0
D	8	7.8
N	15	14.7
A	35	34.3
SA	42	41.2
Total	102	100

I) What effect IT innovation has on time involved in banking transactions?

From the below table 10 the responses of customers confirm that technological innovations reduce the time involved in bank transactions. Out of 102 respondents, 85 representing 83.3 percent agreed that the time involved in transacting business with their various banks can be reduced significantly with the introduction of IT innovations by the banks. A total of 11 respondent representing

10.8 percent however could not decide if they agree or disagree. But total of 6 respondents representing 5.9 percent disagrees that IT innovation has save them time in their business transactions

Table 10 Time Involved in banking Transactions

Responses	Frequency	Percentage
SD	1	1.0
D	5	4.9
N	11	10.8
A	30	29.4
SA	55	53.9
Total	102	100

J) What is the effect of IT innovation on banking service delivery?

With the introduction of Telecommunications and Information Technology in every sector of the economy has increased service delivery, which the banking sector has greatly benefited from well. IT innovations introduced by the banks in Ghana has increase quality of service delivery. From the above table, the results indicate that customers agree that IT innovations introduced by their banks have greatly influenced and enhanced service delivery in a positive way. From table 11 about 91 representing 89.2 percent of the customers who responded agreed that IT innovations have improved the quality of service delivery in the banking sector. The number respondent who held a neutral view are 6 representing 5.9 percent and 5 respondents representing 4.9 percent however disagreed that IT innovations has really improve quality of service the banking service.

Table 11 Effect of IT innovation of Service Delivery

Responses	Frequency	Percentage
SD	2	2.0
D	3	2.9
N	6	5.9
A	42	41.2
SA	49	48.0
Total	102	100

K) What is the effect of IT innovation on products and services of banks?

From the table 12 below, majority of the customers who responded to the survey generally agreed that the quality of products and services of banks have been improved with IT innovation. Response received from customers indicate that almost 85 customers representing 83.3 percent out of the 102 customers who responded, agreed that IT innovations has improves the quality of products and services of banks, while 7 respondents representing 6.9 percent however disagree that IT innovation has really have an effect on the quality of products and services of the banks. In all 10 respondents responded that they don't agree or disagree with that view.

Table 12 The Effect of IT Innovations on Products and Services of Banks

Response	Frequency	Percentage
SD	2	2.0
D	5	4.9
N	10	9.8
A	50	49.0
SA	35	34.3
Total	102	100

L) What are the general satisfactions customers get by using IT innovation?

From table 13, out of a total of 102 respondents, 90 respondents representing 88.2 percent agreed that IT innovations provides adequate responses to their inquiries of products and services information, as against 2 respondents representing 2 percent who totally disagree with this assertion.

Table 13 General Customer Satisfaction

Response	Frequency	Percentage
SD	1	1
D	1	1
N	10	9.8
A	60	58.8
SA	30	29.4
Total	102	100

M) What is the effect of IT innovation on customer patronage of banks products?

The results from table 14 show that customers are very much willing to patronise the products and services of their various banks. 74 respondents representing 72.5 percent of the customers agreed that they will continue to patronise the products and services of their banks. However they believe that IT innovation in a way attract customers to banks. However nearly 13 respondents representing 12.8 disagree. 15 respondents representing 14.7 neither agreed nor disagreed with this assertion. From the responses from the customers it shows that most of them are satisfied with the products and services offered by their respective banks and so will continue to save with the banks.

Table 14 Effect of IT innovation on Customers Patronage of Banks product

Responses	Frequency	Percentage
SD	5	5.0
D	8	7.8
N	15	14.7
A	45	44.1
SA	29	28.4
Total	102	100

.

N) What is the effect of IT innovation of transaction cost on banking services?

The results as shown in Table 15, confirms that the advent of IT Innovations in the workings of the banking services in Ghana has lead to increased bank charges. A greater number of the customers believe that IT innovations have increased charges they pay on their financial transactions. Respondent numbering about 78 representing 76.5 percent responded that IT innovations have resulted in increased bank charges. Even though 11 respondent representing 10.8 percent remains neutral on these assertion 13 respondents representing 12.7 percent disagree. The result shows that bank charges has increased as a results of increased investments in IT Innovations by the various banks

Table 15 Effect of IT Innovation on Transaction Cost

Responses	Frequency	Percentage
SD	5	4.9
D	8	7.8
N	11	10.8
A	50	49.0
SA	28	27.5
Total	102	100

O) Has IT innovation increased banks productivity?

Table 16 shows, the responses of customers on the effect of IT innovations of banks productivity. The results from the customers indicates that IT innovations has had and serious impacts on banks productivity. A total number of 93 customers representing 91.2 percent agree that IT innovations increase banks productivity, whiles 2 customers representing 2 percent did not agree that IT innovations increase banks productivity.

Table 16 IT Innovations and Banks Productivity

Responses	Frequency	Percentage
SD	1	1.0
D	1	1.0
N	7	6.9
A	66	64.7
SA	27	26.5
Total	102	100

P) What is the effect of IT innovation on banking growth?

The response of customers with respect to the impact of IT innovations on the growth of their banks is shown in the table 17 below. About 75 customers representing 73.5 percent agreed that IT innovations have made a positive impact on the growth of their banks as compared to 10 customers representing 9.8 percent of the total responses disagreed. The results shows that IT innovations like ATM, Internet Banking, Telephone Banking and others has gone a long way in to have a positive impact on the growth of banking in Ghana.

Table 17 IT Innovations Effect on Banks Growth

Responses	Frequency	Percentage
SD	3	2.9
D	7	6.9
N	17	16.7
A	46	45.1
SA	29	28.4
Total	102	100

Q) What is the importance of human teller to banks customers?

The table 18 below shows responses to customers, if human tellers in the banking halls are still important when it's comes to financial transactions. Customers still believe that though many banks have introduced lot of IT innovations human tellers are still relevant in the banking business. About 84 customers representing 82.3 percent still agree that human teller is still important, whiles 5 customers representing 4.9 percent however disagree on this assertion. The results confirm the facts that human tellers are still considered important in banking, even in the face of increased investment in IT innovation and electronic delivery systems. This indicates that banks customers in Ghana still highly value the importance of the personal touch in the banking services.

Table 18 Importance of Human Teller to Banks Customers

Responses	Frequency	Percentage
SD	1	1.0
D	4	3.9
N	13	12.8
A	45	44.1
SA	39	38.2
Total	102	100

SUMMARY

The advances in telecommunication have certainly introduced new delivery channels in the Ghanaian banking industry. This thesis sought to evaluate the perceptions of banking customers regarding the effect of IT innovations on banking services in Ghana.

During the study it was noted that most of the banks in Ghana provides at least one form of IT innovation. The analysis was based on six main delivery channels namely Automate teller machine (ATM), internet banking, telephone banking, PC banking, EFTPoS and branch networking. During my research I found out that ATM and branch networking are the most popular electronic channels in Ghana. Internet Banking, Telephone Banking, PC Banking and EFTPoS, over the years are emerging strongly and its hoped in years to come customers are going to patronise them. ATM was found to be the most widely used IT innovation used in Ghana, by customers for their day-to-day financial transactions, and almost all the banks and financial institutions in Ghana today has ATM around all the corners of the country.

Out of the 97 respondents who responded that they have been using any IT innovation introduced by the banks in Ghana, 64 responded that they frequently use the ATM for their financial transactions and the represent 65.9 percent. Internet Banking followed with 15 out of the 97 respondent representing 15.5 percent uses the internet banking for their financial transactions. Telephone Banking is the next IT innovation used by customers. Out of the 97 respondent

who responded to the questionnaires 10 answered that they preferred the telephone banking to all the IT innovations in the banking sector. PC Banking followed with 5 respondent representing 5.2 percent and 3 responded that they use other IT innovation for their bank transactions representing 3.1 percent.

Customers also feel that with the introduction of IT innovations has made banking enquiries faster and has reduced the number of time they had to visit the banking halls for banking transactions. They believe that the various innovations introduced by the various banks have improved the quality of services in the banking sector thereby increasing productivity and growth.

Discussion

What does the future holds for telecommunication and banking in Ghana as well as what is the position of Ghana in West Africa in terms technology/ telecommunication in Banking?

There are several organizations currently working towards promoting mobile (phone) banking in Ghana. Innovations and new services in one bank will almost definitely be replicated by competitors within a very short time. There is a lot of room for development and there is keen competition amongst banks.
I think Ghana is well ahead of most West African countries due to rapid rate of development and a good conducive business environment. (Mrs Afua Eshun).

The future for telecommunication in banking in Ghana is very bright because there are so many banking institutions being established and as results of that the competition is great and it is really making the banking institutions to come out with innovative telecommunication technology programmes in banking. Ghana from all indication would not be long to be the leading country to have the best banking system propel by innovative information technology in West Africa, thus in the nutshell I will say Ghana is leading the way in the whole of West Africa for implementing information technology in banking industry. (Mr Ibrahim Fynn)

The telecommunication and the banking industry in Ghana now are like a competition and are going to be more competitive in the near future. Ghana is doing well in terms of technology/telecommunication in banking. Almost all the banks are doing the internet banking and we have e-zich as well which you can use your finger print and at the same time used at ATM , so what i will say is Ghana is doing well in this our sub-region. (Obed Asiedu)

3.1 Implication of the telecommunication service in Ghana

Some of the implication can be econonomical and social.

Economic benefit of telecommunication to Ghana

Since the expansion of telecommunication technology in Ghana in the early 1990s, telecommunication has played a very important role in the economic and social development of the country. One important benefit of telecommunication is the degree to which they have enhanced instant communication among Ghanaian on one hand, and also between Ghanaians and people in distant places around the globe on the other. The role of telecommunication in Ghana has grown dramatically, allowing business, citizens, students, and Government to join in the global information economy while increasing development opportunities and social cohesion at home. Telecommunication has made the world one in such a way that information and data moves swiftly from persons in different continent.

Fuchs (1997) has argued that communication technology can serve as a ‘’market maker’’, since it can provide a foundation for the private sector to eventually develop their entry into the marketplace. Fuchs’ observation is applicable to the relationship between communication or call centres and small scale business in

Ghana. To small-scale business conducting their trade down the street or across the country, communication or call centres offers the know-how, the workers and the equipment to deliver their communication-related needs. Small-scale businesses that depend on communication or call centres includes drivers, electricians, auto mechanics, traders, artisans, painters, photographers, and caterers often depend on communication and call centres to reach their clients.

Telecommunication has helped modernize Ghanaian society in many respects. It's been noted that telecommunication has helped in open up Ghana to the world business community, many business and financial firms have moved away from olden way of doing business to modern way of doing business. Many business firms in Ghana has their partners scatted across the country and outside the country, and the forms of doing business is through the mobile phone and through the internet. Companies and business firms in Ghana have used telecommunication to help build global empires. Another fundamental economic importance of telecommunication in Ghana is the important employment opportunities that they have generated particularly for Ghanaian youth.

The level of employment growth varies widely depending on the range of services and the nature of transaction handled by various internet service providers and mobile service providers. It is estimated that telecommunication companies offers job to people with both skilled and unskilled qualification. Telecommunication has made life in the urban and rural areas easier with regards to message dissemination. Most Ghanaians depends on telecommunication been it mobile phone or the internet, to link up with family and friends, transact all kind of business deals, and meet new friends. In times of distress or violence people depend on telecommunication to get in contact emergency services like the police and fire fighters.

The Government of Ghana believed that efficient management of information is a prerequisite for social and economic development, especially in a rapidly changing and an increasingly demanding national and global environment. Both

the local political and economic elite continue to espouse the view that by embracing telecommunication and information technology Ghana will benefit from a broader participation in the global trade and correct perceived underdevelopment in the nation's economic system.

Telecommunication has opened Ghana to the rest of the world, with lot of foreign investors coming to Ghana on daily basis to invest in the economy of the country. Various sectors of the Ghanaian economy has benefited from telecommunication service providers. Some organizations that have benefited from telecommunication service providers are as follows banks, schools, government agencies, shipping companies and private firms and individuals. With telecommunications in Ghana it has helped in firms giving good quality of service to their customers and thereby increasing growth and productivity. There has been increase in the private sector of the economy.

4.1.2 Employments Opportunities

Telecommunication service provider in Ghana employs about million of Ghanaians into various field of work. Most of the workers are employed in installation, maintenance and repair occupations or office and administration support. Installation, Maintenance and repair worker are the technical people who run day-to-day works on the field. They are trained to install, repair, and maintain telecommunication equipments, cables and access lines and telecommunication systems. They connect the central office to the customers outside and install poles and terminals, and place wires and cables that lead to a customer's home.

Their work includes setting up, rearranging and removing the complex switching and dialling equipment used in the central office. They also solve network-related problems and technical support to customers on other services such as high-speed internet connection, and on their telephone lines.

The office and administrative staffs may include the Chief Executive, accountant, human resource manager, and customer care personals. They take care of the running of the company on daily basis. They assist customers with specialised

services reverse-charge calls, provide telephone lines and also provide emergency assistance. Customer service personals help customers to understand new and varied type of services offered by telecommunication service providers. These office administrative workers keep service records, compile and send bills to customers, and prepare statistical and other company report and other duties.

Telecommunication companies in Ghana also offer job opportunities to citizens with no skills and no educational background. Employment opportunities available for such people ranges from selling phone cards, SIM Cards, selling top up credits, internet café attendants, communication/ call centre attendants, and credit transfer vendors.

4.2 Revenues Government Get from Telecommunication

4.2.1 *Communication Service Tax (CST)/ talk tax*

In June 2008, the government of Ghana introduced the communication service tax, know as Talk Tax. The communication tax is tax on communication service usage charged to consumers by the communication service providers who are licensed by the National Communication Authority (NCA). The tax forms part of effort by the government to widen the tax net in order to increase revenue. The tax which consumers paid to the communication service providers also attract charges on internet, broadcasting, cable, maritime, and satellite services as well as other services provided through transmission or signal to produce sounds or visual images. As of March 2009 the communication service tax has raised GHC 760 million for the government. The Value Added Tax (VAT) services, which are responsible organization for collecting the tax has adopted software that would help monitor revenue generated by the Communication Service Tax (CST). They have also set for itself a target to collect GHC 855.35 million this year.

4.2.2 Ghana Investment Funds for Telecommunication (GIFTEL)

Ghana Investment Fund for Telecommunication (GIFTEL) is an established investment fund for collecting financial contribution from telecommunications sector licensees, which shall be distributed to promote universal access and

universal services. Every operator that has been either licensed and/or authorised by the National Communication Authority (NCA) will have specific options and scope of contributions as defined in their respective license and/or authorisation. Contribution to the GIFTEL begins in January 2005. The objective of the fund is to make sure telecommunication is easily accessible across the country. The Government uses proceeds from the funds to increase infrastructure development and making communication and information to all part of the country efficient and of good quality.

4.3 Social Importance of Telecommunication in Ghana

Telecommunication is playing an increasingly important role is social life of many Ghanaians. It's estimated that telecommunication service providers in Ghana have had very important social impact on the economy of the country. Telecommunication companies have established various social intervention programmes designed to better the life of many less privileged people and communities. Telecommunication service providers in Ghana, over the past years have invested lot of money into corporate social responsibilities (CSR) projects.

Most of the amount of the funds is invested in education, health and other social need of the people and communities. On education, there are scholarships for brilliant but needy students, building new schools, contribution to a number of educational funds set up by traditional councils across the country such as Otumfuo Education Fund, Dakpema Education Fund, Ga Traditional Council, Bolga Traditional Council and other have all benefited from these funds set up by the Telecommunication service providers. Tertiary education has also benefited from the social responsibilities of telecommunications companies.

Vodafone Ghana as part of their corporate responsibilities towards education in Ghana donated a multi-purpose industrial printers to four public universities to enable the better resource reprographic centres. They also helped light up the street of Kwame Nkrumah University of Science and Technology (KNUST) under

a street light project and also sponsored the award for the best Electrical Engineering student award of All Nation University.

MTN Ghana in the year 2008 invested over GHC 2 million into their corporate social responsibilities (CSR) project according to the Chief Executive officer of the company Mr Brett Goschen. According to him the company spent GHC 929,580 on its education flagship project dubbed MTN Learning Centre. Under this project ten ICT centres were provided across the ten regions of the country. On scholarship, the MTN's scholarship scheme they spent GHC 108, 607 and also another GHC 97,214 for the Academy Education Development (Teaching and learning aid projects). Across the country various telecommunication companies have helped communities in building schools, libraries, ICT centres, and staff bungalows.

On health MTN alone spent GHC 650,000 on their health flagship project. They used part of the funds in refurbishing the second floor of the Maternity Ward of the Kole-bu Teaching hospital; and GHC 124,129 for the construction of an Intensive Care Unit (ICU) at the Princess Marie Louis Children hospital in Accra. All telecommunication companies have helped in various ways on the health sector of the country like sponsoring Aids Campaign programmes, health walk, and contributed to the Ghana Cardiothoracic funds at Kole-bu teaching hospital.

Entertainment and Sport in Ghana has greatly benefited from telecommunication service providers. MTN, Vodafone, Tigo, Zain, Kasapa and Globacom have all been supporting various entertainment and sports programmes. Currently Globacom is the main title sponsors of the Ghana premier league. Tigo and MTN are the sponsors of Kumasi Asante Kotoko football club and Accra Hearts of Oak respectively.

5. CONCLUSION

The rapid development of new telecommunication technology and the isolated part of African countries means that many key people in government positions are not yet aware of the new technologies and the contribution it can make to the economic and social developments of the people and the communities as a whole. Users who are familiar with this new technologies has a very important role to demonstrate its benefits and also have a major vital role to play in convincing and sensitizing major policy makers in Government, potential investors, and potential service providers.

The role of telecommunications in overall national development needs to be raised to the highest political level. Government must make sure there is a very good and siren atmosphere to attract investors locally and internationally to invest in the telecommunication sector of the economy. It's the responsibilities of the Government to make sure there is peace and assurance to potential investors on how save their investment will be protected and why they should do business in Ghana.

It is believed that every investor require a peaceful and safe environment for business and investment. The low economic and development status of third world country like Ghana will continue to be a major problem for telecommunication users and a hindrance to the introduction of new technologies. The Government should put in place good licensing policies that could attract and encourage new investments in the telecommunication infrastructures and competitions within the sector. Most often in Ghana it is not surprising to find government officials interest as the main determinant factor in the telecommunication market at the expense of the state, competition, innovation, and the consumer interest.

Quality of service is an important variable in determining the strength of the relationship between investment and growth. Quality of service includes minimizing outages, and blockages as well as the ability to expand to meet new

demands. Also installing new equipment that can provide a broader array of service will have a greater impact than marginal expansion of existing network, providing that preconditions for modernization of other sector of the economy are present. Ensuring the reliability of services is vital to the long-term sustainability of new telecommunication project. Users will not be inclined to pay for services that are erratic and unreliable. Customers are always ready to pay for good quality of service.

According to Chris Addy-Nyo study on 3G mobile in Ghana one conclusion he made of which, i perfectly agree with him, he said license fee paid for spectrum use may also include administrative costs to offset the regulatory expenses in administering spectrum resources and daily administration in the industry. Fee should not impose unnecessary cost on the industry; it should be based on a cost recovery scheme, which allocates the costs among market operators, usually based on percentage revenue of an operator share of the market. Telecommunication license should balance regulatory certainty with flexibility necessary to address future changes in the market.

This is necessary to balance future changes in technology, market structure and government policy. Usually this is done by using regulatory instruments other than license but in developing economies like Ghana where the regulatory environment is less developed; it is often necessary to include a comprehensive codification of the basic certainty required to attracting new entrant and investment. Licenses conditions should be flexible enough to allow integration into the regulatory framework and also consider future changes in regulatory reforms.

There are several organizations currently working towards promoting mobile (phone) banking in Ghana. Innovations and new services in one bank will almost definitely be replicated by competitors within a very short time. There is a lot of room for development and there is keen competition amongst banks.

The future for telecommunication in banking in Ghana is very bright because there are so many banking institutions being established and as results of that the competition is great and it is really making the banking institutions to come out with innovative telecommunication technology programmes in banking. Ghana from all indication would not be long to be the leading country to have the best banking system propel by innovative information technology in West Africa, thus in the nutshell I will say Ghana is leading the way in the whole of West Africa for implementing information technology in banking industry.

The telecommunication and the banking industry in Ghana now are like a competition and are going to be more competitive in the near future. Ghana is doing well in terms of technology/telecommunication in banking. Almost all the banks are doing the internet banking and we have e-zich as well which you can use your finger print and at the same time use ATM so what will say is the Ghana is doing well in this our sub-region.

REFERENCE:

Printed Literature

National Telecommunication Policy (Republic of Ghana)

Alleman , James, Edward Beavais, Lary Cole, Niel Stolleman, " La trafication de Telecommunication," (co-authored) le bulletin de l'IDATE, No 24, Aout 1986

Balankins , Nicholas W " Barriers to technological transfer; infrastructure Difficulties in Nigeria

Alleman and Emmerson (eds), Perception on the telephony industry: The challenge for the future, New York, Harper 8 Row, 1998

Antonelli, Cristiano "Multinational Firms International Trade and International Telecommunication, "Information Economics and Policy, 1, December 1984 pp.333-343

Jipp, A. "Wealth of Nation and telephone Density", Telecommunication Journal, July,1963

Norton, Seth, W, "Transaction Costs, Telecommunication and the Microeconomics of Macroeconomics Growth, "Economic development and cultural change, vol 41, No 1, October 1992.

Research Methods in education By Louis Chohen, Lawrence Manion, Keith R.B Morrison.

Social research methods By Harvey Russell Benards

Miles and Huberman, Qualitative Data Analysis,1994

Yasuharu, UKAI, The effect of information system in Banking services, 2003

Leow, Hock Bee, "New Distribution channels in banking services" Bankers Journals Malaysia No. 110, June 1999, p.48-56

Technological Innovation and Banking in Ghana: An Evaluation of customers' perceptions by Joshua Abor

Telecommunications and Economic Development: Empirical Evidence from Southern Africa by James Alleman, Carl Hunt,Donald Micheals, Milton Mueller, Paul Rappoport, Lester Taylor

3G Mobile Policy: The Case of Ghana by Chris Ardy-Nayo

Electronic Source:

http://www.modernghana.com/newsp/199350/1/pagenum1/telecom-in-ghana-a-game-of-multinationals.html#continue

http://ghanabusinessnews.com/2009/04/24/ghana-to-license-third-parties-to-provide-telecom-infrastructure-for-co-location/

http://www.vodafone.com.gh/About-Us/Vodafone-Ghana.aspx

http://www.thefreelibrary.com/African+Mobile+Operators+Spacefon+and+Spacetel-Benin+Choose+NMS...a0127532334

http://business.everythinghana.com/index.php?option=com_mtree&task=viewlink&link_id=181&Itemid=26

http://www.tigo.com.gh/

http://www.gh.zain.com/en/phone-services/index.html

http://www.zain.com/muse/obj/lang.default/portal.view/content/Media%20centre/Press%20releases/Ghana%20acquisition

http://news.myjoyonline.com/business/200907/32928.asp

http://www.uneca.org/aisi/NICI/country_profiles/ghana/ghaninter.htm

http://www.balancingact-africa.com/news/back/balancing-act54.html

http://en.wikipedia.org/wiki/Online_marketing

http://www.ghanatoday.com/index.php?option=news&task=viewarticle&sid=16961

http://www.bmj.com/archive/7018ed.htm

http://www.cisco.com/en/US/prod/voicesw/networking_solutions_products_genericcontent0900aecd804f00ce.html

http://voip.about.com/od/voipbasics/a/whatisvoip.htm

http://www.bls.gov/oco/cg/cgs020.htm

http://www.businessghana.com/portal/news/index.php?op=getNews&news_cat_id=&id=110587

http://www.ftc.gov/bcp/edu/pubs/consumer/credit/cre14.shtm

http://en.wikipedia.org/wiki/Automated_teller_machine

http://en.wikipedia.org/wiki/Telephone_banking

http://www.freepatentsonline.com/6760414.html

http://wilderdom.com/research/QualitativeVersusQuantitativeResearch.html