

**ACCESS TO, AND UTILISATION OF GLOBAL SYSTEM FOR MOBILE
TELECOMMUNICATIONS SERVICES AMONG SUBSCRIBERS IN IBADAN, NIGERIA**

BY:

Damilola John MICAH

UNIVERSITY OF IBADAN

AUGUST 2014

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ABSTRACT

The deregulation of the telecommunications sector in 2000 led to increased use of the Global System for Mobile Telecommunications (GSM) and Code Division Multiple Access (CDMA). Despite the perceived benefits associated with the utilisation of these services, problems of quality of services, infrastructural constraints and other challenges in the sector have remained largely uninvestigated. The study was conducted to examine access and the quality of services offered by the GSM providers in Ibadan, Southwestern Nigeria.

A synthesis of neoliberal and rational choice theories provided the analytical framework. The research design was a cross-sectional survey. Multistage sampling consisting purposive, simple random, and cluster sampling techniques were used to select locations and respondents. A sample of 1600 respondents were selected consisting 800 GSM subscribers from Ibadan Main City (MC) and the Less City (LC) respectively using Cochran's sample size determination. A semi-structured questionnaire was used to elicit information on socio-demographic characteristics, perceptions on quality of services, and levels of access and utilisation. Quality of service was classified as poor, moderate and good. Access and utilisation were classified as high, moderate and low. Also, 34 In-depth interviews (IDIs) were conducted with service providers and subscribers to elicit information on business operations and challenges in the sector. In addition, four Key Informant Interviews (KIIs) were conducted with regulators in the sector comprising Nigerian Communications Commission (NCC) and Consumer Protection Council (CPC). Quantitative data were analysed at univariate and bivariate levels using descriptive and inferential statistics (Chi-square test at $p \leq 0.05$ and Correlation). Qualitative data were content analysed.

Respondents' age was 29.6 ± 9.3 years, 54.4% were females, 80.4% earned less than ₦50,000 monthly and 72.9% had secondary education and above. Respondents from MC (62.0%) and LC (71.8%) perceived quality of GSM services as poor due to incessant call drops (82.4%), network disruption (78.9%), and poor call set-up (79.5%). Conversely, 55.4% from MC and 60.0% from LC perceived deregulation as beneficial. Access to GSM services in MC as perceived was rated high (38.6%), moderate (54.6%) and low (6.8%) and also in LC rated high (29.6%), moderate (57.4%) and low (13.0%). Respondents from MC (69.0%) and from LC (66.6%) perceived utilisation of GSM as high. GSM was utilised for multi-purposes which included connecting families and friends (94.0%), source of income (84.6%) and internet services (82.8%). High tariffs (89.0%) and indiscriminate erection of masts (65.7%) were mentioned as major challenges by the subscribers. There was positive association between location and perception of quality of services ($r = 0.69$); between age and perception on quality of GSM services ($r = 0.46$); between income and level of utilisation of GSM ($r = 0.56$); location and level of utilisation of GSM ($r = 0.95$); level of utilisation of GSM and building of social networks ($r = 0.89$); perception of deregulation and level of access ($r = 0.21$); perception of deregulation and utilisation of GSM ($r = 0.92$). Respondents from MC (66.4%) and LC (69.6%) rated NCC as efficient, notwithstanding that the regulatory agency was fraught with inactions. Findings from IDIs indicated that infrastructure inadequacies, government's inconsistent policies, vandalisation of base stations, heavy import duties and multiple taxations limited the capacity of GSM providers to offer quality services and lower tariffs. Findings from KIIs identified unauthorised product promotions, arbitrary charges and problem of infrastructure as challenges affecting quality of services offered by GSM operators in the sector.

There was substantial access and utilisation of Global System for Mobile Telecommunications, but the quality of services was considered poor in the study areas. There is need for improvement of infrastructure, security of base station and strict enforcement of laws by the regulatory bodies in order to improve the quality of services rendered by the operators.

Keywords: Telecommunications, Quality of service, GSM operators, GSM subscribers

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DEDICATION

This thesis is dedicated to the entire family of Elder Samuel Akinwale Micah and Madam Bernice Aderiola

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CERTIFICATION

This is to certify that this research work was carried out by Damilola John MICAH (Matric No: 140711) in the Department of Sociology Faculty of the Social Sciences University of Ibadan, under my supervision:

DR. E.E.OKAFOR
SUPERVISOR

DATE

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LIST OF ABBREVIATIONS

GSM :	Global System for Mobile Telecommunications
CDMA:	Code Division Multiple Access
MC:	Main City
LC:	Less City
IDIs:	In-Depth Interviews
NCC:	Nigerian Communications Commission
CPC:	Consumer Protection Council
SOEs:	State-Owned Enterprises
SAP:	Structural Adjustment Programme
GDP:	Gross Domestic Product
TDMA:	Time Division Multiple Access
HSCSD:	High-Speed Circuit-Switched Data
GPRS:	General Packet Radio System
EDGE:	Enhanced Data GSM Environment
UMTS:	Universal Mobile Telecommunications Service
ETSI:	European Telecommunications Standards Institute
MTEL:	Mobile Telecommunications Limited
NITEL:	Nigeria Telecommunications Limited
N.E.T:	Nigeria External Telecommunications Limited
OECD:	Organization for Economic Cooperation and Development
SMS:	Short Message Service
TALCM:	Technology Adoption Life Cycle Model
RCT:	Rational Choice Theory
NLT:	Neo Liberal Theory

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In the last two decades, several developing countries embarked on the reform of public enterprises, including deregulation and privatisation, within the framework of structural macroeconomic reforms and liberalisation (Jerome, 2008). More than 100 countries across every continent, majority in developing nations have deregulated and privatised some of their state-owned enterprises (SOEs). Between 1988 and 1993, over 26,000 privatisation transactions valued at over US\$50,000 were recorded worldwide, generating a gross receipt of US\$271 billion (Kenneth, 1998). Of these transactions, about 900 were conducted in 1993 alone, against only about 60 in 1988. Developing and transition economies accounted for much of this tremendous growth (Sader, 1995). Between 1988 and 1994, developing countries around the world sold about 3,300 SOEs, with sales revenue rising from only US\$2.6 billion at the beginning of the period to a peak of US\$29 billion in 1992 (Kenneth, 1998; Jerome, 2008).

Deregulation means opening up the economy of a nation so that private operators and investors could participate in providing services hitherto monopolised by government (Okafor, 2009). This could be in the area of education, health, banking, oil and gas sector, and telecommunications to mention a few. Deregulation was informed by several considerations. First, by 1985, the quantum of resources required to sustain the SOEs had become an unbearable burden on the affected nations (Central Bank of Nigeria [CBN], 2010). Second, it was envisaged that a carefully planned deregulation programme would be an effective strategy for improving operational efficiency, broadening share ownership, attracting foreign investment and reducing the role of the state where the private sector has the capabilities to operate more efficiently (Jerome, 2008; CBN, 2010). In addition, since the beginning of the 1980s, deregulation of public enterprises has become a major policy tool in both developed and developing countries following the apparently successful privatisation programme in Britain (Jerome, 2002, 2008). Deregulation gained considerable momentum in developing countries given its endorsement by the multilateral financial institutions (World Bank, International Monetary Fund, and World Trade

Organization) as a major factor of adjustment policies (CBN, 2010). The urge for deregulation was further reinforced by the need to reduce government expenditure in the face of escalating fiscal deficits, and was in conformity with the resurgence of “economic liberalism” in the development literature (CBN, 2010).

As it is replicated in most developing countries, the Nigerian economy until recently has witnessed growing involvement of the State in economic activities. The expansion of state-owned enterprises (SOEs) into diverse economic activities was viewed as an important strategy for fostering rapid economic growth and development (Jerome, 1996). Massive foreign exchange earnings from crude oil, which exacerbated unbridled federal government investment in public enterprises, reinforced this view (CBN, 1993). Thus, by 1990, there were over 1,500 public sector enterprises in Nigeria, 600 of which were owned by the federal government and the rest by state and local governments (CBN, 2010). The public enterprise sector excluding petroleum accounted for about 15% of Nigeria’s gross domestic product in 1990 (Jerome, 1996).

However, as argued by Osotimehin, Akinloye and Olasanmi (2010), most of these enterprises were poorly conceived and economically inefficient. They accumulated huge financial losses and absorbed a disproportionate share of domestic credit. By 1985, they had become an intolerable burden on the government budget, as they were being sustained through budgetary allocations from the public treasury. In the wake of the economic recession that began in 1981, following the collapse of oil prices, the activities of public enterprises attracted more attention and underwent scrutiny, much of it centering on their poor performance and the burden they imposed on government finance (Jerome, 2002, 2008). The poor financial returns from these enterprises against the background of severe macroeconomic imbalance and public sector crisis precipitated the concern of government towards deregulation (Jerome, 2008). With the adoption of the Structural Adjustment Programme (SAP) in 1986, SOEs came into the forefront as a major component of Nigeria’s economic reform process. Consequently, the Technical Committee on Privatisation and Commercialisation was established in 1988 to implement the SOEs reform component of SAP (CBN, 2010). In what appears to be a uniquely comprehensive initiative, 101 enterprises in virtually all sectors were slated for total or partial deregulation and another 35 for Commercialisation (Edike, 2006).

This initiative also swept across the telecommunications sector, when in 2000 government deregulated the sector which attracted numerous private operators and investors under the regulation of Nigerian Communications Commission (NCC) (Okafor, 2007, 2009; Ndukwe, 2009, 2010). Since then the subscribers' access and utilisation of GSM services have expanded across cities and towns in Nigeria with real benefits and challenges both to the subscribers and the operators in the system. This is the main focus of this study.

1.2 Statement of the Problem

The decade from 2000 to date is described as Nigeria's telecommunications revolution era given the quantum of growth in the diverse fields of telecommunications services delivery and regulatory advancement. At the beginning of the last decade, the Nigerian government encouraged the evolution of a more focused national telecommunications policy, in which the private sector started playing significant roles in the telecommunications industry. The policy enabled the telecommunications regulators to reinvigorate the framework in a way that boosted the confidence of investors.

The policy enabled the auctioning of digital mobile licenses in Nigeria in 2001 which spurred many activities in the sector. With the telecommunications operators rolling out services in an environment where individuals and corporate organizations have been yearning for services, active subscription and teledensity has risen in the country. In 2001, only 400,000 lines were in operation in Nigeria with teledensity of 0.4. In terms of growth, Nigeria is ranked the largest and fastest growing telecommunications markets in Africa, and among 10 fastest growing telecommunications market in the world. By February 2014, the number of active lines has exceeded 129 million (GSM, CDMA and Fixed Lines combined) with an impressive teledensity of 92.14%. The percentage share of the telecommunications market is put at mobile GSM (97.86%), mobile CDMA (1.86%) and Fixed wireless (0.28%) (NCC, 2014).

The revenues generated by the telecoms industry amounted to \$8.6 billion in 2010 and has maintained a steady growth. It was predicted that the revenues will hit \$11 billion (NGN1.7 trillion) by 2013 (Pyramid Research, 2012). The sector has attracted more than \$18 billion by the end of 2009 from a total private sector investment of about \$50 million

in 1999. The investment in the sector by 2012 was \$25 Billion from 2009, which was a 39 percent growth rate in three years (NCC, 2012). More than NGN300 billion was contributed to the coffers of the Federal government through frequency spectrum sales. The percentage share of Gross Domestic Product (GDP) from telecom sector rose steadily from 0.06 percent in 1999 to 0.62 in 2001, 0.85 in 2002 and 1.06 in 2003. From 2004 to 2010 respectively, the GDP growths were 1.27, 1.57, 1.91, 2.31, 2.92, 3.66 and 4.56 percent. On the annual average, GSM contributed 7.76 to GDP by the end of 2013 (NCC, 2014).

As modest as the achievements made in the telecommunications sector, there are growing concerns that these achievements have not benefitted the stakeholders equally. Ten years after the introduction of GSM in Nigeria generally and in particular the Ibadan city and less city area, problems associated with the utilisation of GSM persist. Users are still faced with challenges of how to maximize the advantages brought by the new technology; manage high tariffs; cope with poor services; face challenges of theft; mobile lies, fraudsters and scammers and so on. The use of GSM while driving has been identified as a major cause of road accidents in major high ways. Similarly, stakeholders in the sector have noted in recent time, the utilisation of GSM to perpetrate examination malpractices in schools and higher institutions, as source of nuisance in public places, infidelity in the family, as a reliable tool for ripping off unsuspecting victims, dupe, steal and murder. At the level of the operators, there are problems of inadequate power supplies, theft and vandalism of equipment, land dispute, import duties and multiple taxation and regulation. Thus, while deregulation may have benefitted in terms of the contributions of GSM to Nigerian economy, at the micro level the perceived benefits are yet to be fully enjoyed.

Despite widespread deregulation efforts in various sectors and in the telecommunications sector in particular in Nigeria, empirical evidence indicates that its anticipated benefits are yet to be felt by the subscribers. Most studies on GSM services in Nigeria have largely focused on the contributions of GSM to the Nigerian economy in terms of job creation, volume of investment in telecommunications sector, relatively easy access to vast majority of people and challenges of infrastructure in the sector (Okafor, 2007; Ndukwe, 2009; Akindele, 2010). However, at the micro level, the perceived benefits are yet to be felt. Few empirical works have examined subscribers' perception of the

quality of services they received, the varieties of services consumers utilise their GSM services for as well as the challenges confronting the subscribers as regards their utilisation of GSM services (Tella, 2007; Manuaka, 2008, Williams, 2009; Soyinka, 2010). Nevertheless, these works in this area are not location specific and hardly examined subscribers' perception of deregulation of the telecommunications sector and the utilisation of GSM services in Nigeria. This is the gap in knowledge that this study investigated.

1.3 Research Questions

Against the background of the above discourse, this study addressed the following research questions.

- i. What is the subscribers' perception of deregulation policy of telecommunications sector and how do the stakeholders (consumers, operators, hawkers, and regulatory officials) describe government policies of GSM services in Nigeria?
- ii. What is the real level of access and utilisation of GSM, benefits and challenges and the main problems facing GSM operators in Ibadan?

1.4 Research Objectives

The general objective of the study was to examine how deregulation has affected access and utilisation of GSM services among subscribers in Ibadan metropolis. However, the specific objectives were to:

- i. Investigate perception of deregulation policy of the telecommunications sector among subscribers in the study areas.
- ii. Examine access and utilisation of GSM services among subscribers in Ibadan metropolis.
- iii. Examine subscribers' perception of the quality of GSM services in the study areas.
- iv. Identify benefits and challenges of GSM services to subscribers in the study areas.
- v. Investigate challenges facing GSM service providers in the study areas.
- vi. Examine stakeholders' perception of government policies of GSM services in Nigeria.

1.5 Significance of the Study

Deregulation is an ideology rooted in neoliberal doctrine. The structuralists such as Marxist scholars have argued over time that capitalism would tend to widen the gap between the owners of means of production and the general masses. Thus, they contended that for there to be improvement in the quality of life of the citizens, there should be state ownership and control of the economy to advance egalitarian society (Ritzer, 2008). However, the trend across the world in the 21st century has demonstrated the invigoration of capitalism through privatisation and deregulation of public enterprises and the economy in both developing and developed nations of the world. Empirical evidence has shown that deregulation may enhance the nation's economic growth but may not translate to the improvement in the quality of life of the masses if they are exploited by the multinational corporations (Jerome, 2008). Thus, Nigeria as a nation has deregulated the telecommunications sector for over a decade now. This study therefore ascertained how the masses have fared in this direction. That is the benefits they have enjoyed and the challenges they are facing as regards the deregulation of telecommunications sector in Nigeria.

Furthermore, it is observed that very little empirical works have been done in the area of challenges and problems that confront consumers and users of GSM services in Nigeria. It is documented in the case of most developing economies like Nigeria that GSM services constitute a great deal of potentials and benefits to users. Until empirical studies support these claims, no evidence-base sustainable recommendations can be made on how to tackle the infrastructure constraints in the telecommunications sector. This study therefore, offers a platform to identify and articulate the problems and challenges that are inherent in the sector so as to offer viable recommendations on how these problems and challenges could be overcome and tackled.

In addition, deregulation of telecommunications sector with the operation of GSM services in Nigeria is more than a decade now since it was launched in 2001. In this wise, a policy may not be evaluated in terms of its achievement until after a decade (Nigeria Population Commission, 2006), hence the need for the study. Moreover, consumer behaviour in the field of industrial sociology is the most neglected aspect in this area.

Hence, there is paucity and dearth of academic research in this area particularly in Nigeria. This leaves much to be desired. The study therefore contributed to the existing body of knowledge and academic literature on how to understand and interpret the behaviour of consumers (subscribers) in this dispensation. This study also offered insight into how to consolidate the gains and benefits derived from deregulation of telecommunications services in Nigeria as well as how to meet the challenges in the sector.

1.6 Scope of the Study

The study focused on the perceptions of subscribers in a cross-section survey of the utilisation of telecommunications services especially GSM technology in the deregulated economy. Precisely, the period covered by the evaluation ranged from 2001 to 2011. The study location was Ibadan metropolis comprising both the Main City (MC) and Less City (LC) centres. Specifically, strategic locations such as central markets, secretariats, and community motor parks were visited for data collection. The study also covered the telecom operators, GSM hawkers and Nigerian Communications Commission (NCC) and Consumer Protection Council (CPC) officials in the study areas. Although telecommunications services combine both fixed and wireless technology, subscribers for the latter especially GSM are the largest. This explains the basis for the study focusing on GSM subscribers.

1.7 Operational Definition of Concepts

The study clarifies the following concepts used in the discourse.

1. GSM:

This refers to global system for mobile communications, a portable device for electronic wireless information exchange. It is classified into two forms. There are those with SIM card known as serial identification module that is originally GSM, and others without 'SIM' called Code Division Multiple Access (CDMA) operated by MultiLinks, ZOOM network, Oduduwa Network (O'net), Visafone and Starcomms. In this study, five mobile telecommunications industries were considered, which comprised MTN, GLOBACOM, STARCOMM, ETISALAT, and AIRTEL.

2. **Subscribers:**

This is used to refer to users or consumers of network service provided by GSM operators.

3. **Deregulation:**

This implies the policy by which governments remove, reduce, or simplify restrictions on business and individuals, often ostensibly with the intent of encouraging the efficient operation of private markets, but also with the intent of opening up new areas of trade for speculators. In this study, deregulation refers to the role of CPC and NCC established to regulate activities of GSM service providers.

4. **Utilisation:**

This is used to indicate various services subscribers engaged their GSM phones for and the benefits and challenges encountered. In this study, the indicators for utilisation are measured in terms of Very high, High, Moderate, Low, and Very low.

5. **Access:**

This is used to indicate possession or ownership of GSM services by subscribers. It is measured in this study by indicators of High, Moderate, and Low.

6. **Less-City:**

The less city Local Councils in Ibadan are developing areas which share some features with those of the cities in terms of infrastructures, though they have little or no commercial industrial concentration. They are the transition zones in Ibadan city or otherwise semi urban areas (Ibadanland Development Association [IDA] 2004).

7. **Main City:**

This refers to urban Local Councils in Ibadan. This area comprised Ibadan North LG, Ibadan North West LG, Ibadan North East LG, Ibadan South East LG and Ibadan South West LG (Ibadanland Development Association [IDA] 2004)

8. **Perception:**

This is used in this study to indicate how GSM subscribers described the gains and losses of deregulation of the telecommunication sector which they have experienced.

Perception is measured in this study in terms of knowledge, attitude, practice and belief.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 History of Telecommunications in Nigeria

The invention and development of telecommunications in the world began in the 1830s. The first commercial electrical telegraphy was constructed by Sir Charles Wheatstone and Sir William Fothergill Cooke (Ajayi, 2008). Samuel Morse on the other side of the Atlantic Ocean independently developed another version of electrical telegraphy that he unsuccessfully demonstrated on 2nd September, 1837. Thereafter, Alfred Vail developed another version of the technology and this was successfully demonstrated on 6th January, 1838. The first transatlantic telegraphy label allowing transatlantic telecommunications for the first time was viewed successfully completed on 27th July, 1866. Alexander Bell invented the conventional telephone in 1876 and the first commercial telephone services were set-up in 1878 and 1879 in both Haven and London. However, Nigeria has not been left out of this race for rapid development of telecommunications, although the journey to success in the milieu had been long and tortuous.

The development of telecommunications facilities in Nigeria began in 1886 when a cable connection was established between Lagos and London by the colonial administration (Adegboyegba, 2008). From the very beginning, it was clear that the introduction of telephone services in the country was not induced by economic or commercial motives. It was not meant to enhance economic growth, but it was originally developed as a tool for colonial subjugation (Mazango, 2008). Hence, by 1893, government offices in Lagos were provided with telephone service, which were later extended to Ilorin and Jebba in the hinterland. A slow but steady process of development in the years that followed led to the gradual formation of the nucleus of national telecommunications networks.

However, as the European mercantile activities gained foothold in the country, the first commercial trunk telephone service was established to link Itu and Calabar in 1923. Between 1946 and 1952, a three channel line carrier system was commissioned between Lagos and Ibadan and was later extended to Oshogbo, Kaduna, Kano, Benin and Enugu.

This was connected to the colonial office in London with the commercial centers in Nigeria. In those early days, services were primitive and the coordinated pegboard switching system was used. This later progressed to manual switchboards of different sizes, shapes, and capacities until stronger exchanges were installed into the national network at Lagos Island, Ikeja, Ebute Meta, Apapa and Port Harcourt between 1955 and 1960. The telegraphy service also witnessed a parallel development, from telegraph delivery by way of manual coordinated pegboard switching to the use of Morse code for telex switching. As at 1960, a manual telex exchange of sixty subscriber lines were in service in Lagos. All the above efforts were essentially aimed at improving internal administrative telephone services in Nigeria.

At independence in 1960, with a population of about 45 million people, the country only had about 18,724 phone lines for use. This translated to a tele-density of about 0.5 telephone lines per 1000 people. The telephone network consisted of 121 exchanges of which 116 were of the manual (magneto) type and only 5 were automatic. Between independence in 1960 and 1985, telecoms services become commercialized in Nigeria. The old Department of Post and Telecommunications (P and T) under the Ministry of Communications became separated and Nigeria External Telecommunications Limited (N.E.T) was created to take care of external telecoms services while the old P and T handled internal network. By January 1985, the erstwhile Post and Telecommunications division was merged with NET to form Nigeria Telecommunications Limited (NITEL) a government owned Limited Liability Company (Akinsola, Marlien, and Jacobs, 2005; Ndukwe, 2008).

2.2 Literature Review

Literature review attempts to bring together bulk of scholarly works previously done in particular area of subject of interest to researchers. This provides background

information upon which researcher draws the gap in knowledge that guides new research. This study reviewed some related literature in the following sub section.

2.2.1 Understanding the Meaning and Nature of Global System for Mobile Telecommunication (GSM)

GSM (Global System for Mobile Communications) is a digital mobile telephony system that is widely used in Europe and other parts of the world. GSM uses a variation of Time Division Multiple Access (TDMA) which is the most widely used of the three digital wireless telephony technologies (TDMA, GSM, and CDMA). GSM digitizes and compresses data, then sends it down a channel with two other streams of user data, each in its own time slot. It operates at either the 900 MHz or 1800 MHz frequency band (ITU, 2011). Mobile services based on GSM technology were first launched in Finland in 1991. Today, more than 690 mobile networks provide GSM services across 213 countries and GSM represents 82.4 per cent of all global mobile connections (NCC, 2012). According to ITU (2011), there are now more than 2 billion GSM mobile phone users worldwide. China is the largest single GSM market, with more than 370 million users, followed by Russia with 145 million, India with 83 million and the USA with 78 million users. Undoubtedly, Nigeria has joined the league of world nations that have highest GSM users. Currently, the country has at least 100 million active users with teledensity of 80% (NCC, 2012).

In the GSM technology, network operators have roaming agreements with foreign operators. This makes it possible for users to continue to use their mobile phones when they travel to other countries. SIM cards (Subscriber Identity Module) holding home network access configurations may be switched to those metered local access, significantly reducing roaming costs while experiencing no reductions in service. GSM, together with other technologies, is part of the evolution of wireless mobile telecommunications that includes High-Speed Circuit-Switched Data (HSCSD), General Packet Radio System (GPRS), Enhanced Data GSM Environment (EDGE), and Universal Mobile Telecommunications Service (UMTS) (ITU, 2011). GSM is a standard set developed by the European Telecommunications Standards Institute (ETSI) to describe technologies for second generation (or "2G") digital cellular networks. Developed as a replacement for first

generation analogue cellular networks, the GSM standard originally described a digital, circuit switched network optimized for full duplex voice telephony (Awe, 2007).

The standard was expanded over time to include first circuit switched data transport, then packet data transport via GPRS. Packet data transmission speeds were later increased via EDGE. The GSM standard is succeeded by the third generation (or "3G") UMTS standard developed by the 3GPP. GSM networks will evolve further as they begin to incorporate fourth generation (or "4G") LTE Advanced standards. GSM is a trademark owned by the GSM Association. The GSM Association estimates that technologies defined in the GSM standard serve 80 per cent of the global mobile market, encompassing more than 1.5 billion people across more than 212 countries and territories, making GSM the most ubiquitous of the many standards for cellular networks (Ndukwe, 2010). The GSM family of technologies has provided the world with mobile communications since 1991. In over twenty years of development, GSM has been continually enhanced to provide platforms that deliver an increasingly broad range of mobile services as demand grows. Although the industry started with plain voice calls, it now has a powerful platform capable of supporting mobile broadband and multimedia services.

The GSM Operators in Nigeria

Mobile Telephone Network (MTN) Nigeria

MTN Nigeria is part of the MTN Group, Africa's leading cellular telecommunications company. On May 16, 2001, MTN became the first GSM network to make a call following the globally lauded Nigerian GSM auction conducted by the Nigerian Communications Commission earlier in the year. Thereafter the company launched full commercial operations beginning with Lagos, Abuja and Port Harcourt. MTN paid \$285m for one of four GSM licenses in Nigeria in January 2001. To date, in excess of US\$1.8 billion has been invested by the company building mobile telecommunications infrastructure in Nigeria (NCC, 2012). Since the launch in August 2001, MTN has steadily deployed its services across Nigeria. It now provides services in 223 cities and towns, more than 10,000 villages and communities and a growing number of highways across the country, spanning the 36 states of the Nigeria and the Federal Capital

Territory, Abuja (NCC, 2012). Many of these villages and communities are being connected to the world of telecommunications for the first time ever.

The company's digital microwave transmission backbone, the 3400 kilometre Y'elloBahn was commissioned by President Olusegun Obasanjo in January 2003 and is reputed to be the most extensive digital microwave transmission infrastructure in all of Africa (The Nation, 2012). The Y'elloBahn has significantly helped to enhance call quality on MTN network. MTN Nigeria has more than 48 million subscribers, it has invested NGN563 billion in its infrastructure (NCC, 2011). In 2006, MTN commissioned 7815km fibre-optic network. It has continued to be the cash cow of the MTN Group's operations contributing a large part to the Group's 2010 strong operational performance which saw a 22 per cent increase in subscriber base to 141.6 million from 116.0 million in 2009. MTN Nigeria invested R4.7 billion in infrastructure in 2010.

MTN Nigeria performed well for the period under review despite increased competition in the fourth quarter from Globacom, Airtel and Etisalat. The operator increased its market share to 52 per cent through the capture of more than 60 per cent of the subscribers added by Nigerian market in 2010 (NCC, 2011). Nigeria continues to play a huge part to the Group's global operations, opening doors to other telecom markets and green fields with success story in Nigeria. Nigeria has more than 99 million active subscribers with MTN dominating other operators in subscriber numbers over the past ten years.

Global Communication (GLOBACOM)

Following the launch of its services on August 29, 2003, Globacom mobile has been at the forefront of revolutionary changes in the GSM sector in Nigeria. Globacom has lived up to its commitment to ensure that Nigerians benefit from the advances made in telecommunications and information technology. This it demonstrated by being the only operator in Africa to launch its operations on the superior 2.5G network which enables internet services and the convergence of voice, data and multimedia technologies (NCC, 2011). The company's unparalleled growth is attributable to per second billing as well as its fast pace of deployment, efficient services, array of value added services and strong,

unique marketing initiatives which have made the company unique among the Nigerian telecommunications industry and made it the first choice network.

Globacom boasts a wide variety of innovative packages and tariff plans designed to fulfill the needs of a broad spectrum of market segments in Nigeria. The network became the only operator in Africa to launch its operations on the superior 2.5G network which enables the convergence of voice, data and multimedia technologies. This robust platform not only ensures unparalleled voice clarity and low drop calls but also enables the offering of value added services unavailable on the 2G technology formerly deployed by other operators in the industry (Adebayo, 2008). Globacom had in February, 2008, become the first network in West Africa to commercially launch 3G HSDPA services when it rolled out 3G Plus services to subscribers in the Lagos area. With 3G Plus services, subscribers are able to use their phones for video conferencing and high speed mobile internet access (NCC, 2010).

In keeping with its aspirations to avail Africa the possibilities offered by broadband, Globacom invested in Glo-1 Submarine cable which connects West Africa to UK on a 32 STM64 project cable capacity (Adebayo, 2008). Glo-1 has landing points in Lagos and Bonny in Nigeria, Bude in London and Lisbon in Portugal. Glo-1 is also deploying 16 branching units to connect countries in West Africa. Globacom has begun the rollout of services in some West African countries. It began operations in Republic of Benin on June 5, 2008, and has also won a license to provide GSM services in Ghana with over 22 million subscribers (NCC, 2011).

AIRTEL Nigeria

Airtel Nigeria started operations as Econet Nigeria. Econet was rebranded to Vodacom, South Africa's second largest telecommunications brand. However, Vodacom did not last a week in the Nigeria. The development prompted Nigeria's first GSM brand to operate in the country without identifiable corporate name and strategy for over two months. The circumstances created Vmobile, which was made up of a group of Nigerian entrepreneurs who vowed never to let the brand exit without a fight. They (Vmobile) led the unbranded Vmobile to the threshold of MTC, owners of Celtel brand that later acquired the Vmobile and rebranded it, Celtel in Nigeria (Tell Magazine, 2007). Two years after the

success story of Celtel, Zain announced takeover of the Celtel brand from MTC across Africa and Middle East in 2006 (Tell Magazine, 2007)). Two years later, August 1, 2008, Celtel made the way for Zain following the global acquisition of Celtel International by MTC Group, which transformed to Zain. In just another two years interval, Zain was acquired by Bharti Airtel and rebranded to 'Airtel'.

Airtel Nigeria has moved from the 2G network where it started its mobile network service nearly 10 years to a 2.5G and later 3G network, adapting modern technologies and soft switches to drive an IP enabled Next Generation Network (NGN) in its operations. Airtel (then Zain Nigeria) in 2009 successfully deployed a next-generation blade mobile soft switch in Nigeria through Huawei, a leader in providing next-generation telecommunications network solutions for operators around the world. Acclaimed for its efficient quality of service which has won it awards annually, Airtel Nigeria has 3G license and made its cell sites and telecom backbone 3G compliant. Airtel Nigeria expanded its existing fiber network to ensure superior quality and secure services to a growing subscriber base (Punch Newspaper, 2009). On the heels of an immensely successful project to build a 4000 km nationwide fiber backbone network, Airtel extended its contract with Nokia Siemens Networks to handle implementation of the additional 600 km. It created wide capacity for Nigeria's growing number of customers demanding high quality broadband services by deploying self owned fiber.

ETISALAT Nigeria

Etisalat Nigeria has witnessed consistent and rapid growth in its subscriber base since it formally commenced commercial operations in the country in October 2008 after a grand and innovative entry into the market. Etisalat offers fixed line services over its Next Generation Network, and provides mobile users with a range of services and applications such as GPRS, 3G and BlackBerry. Wael Ammar, chief commercial operator Etisalat Nigeria, said as the demand for intercontinental connectivity continues to grow at a remarkable rate, world governments are encouraging investment in new technologies to bolster the performance of their national economies (Ammar, 2009). To this end, he said operators all over the world are deploying Next-Generation Networks for both fixed-line and wireless environments which in turn allow an increasing volume of services to be

provided to even more consumers. The enormous advancement in technology education of the local population has driven the demand for greater capacity which will prove an enormous boost to the economy.

Etisalat Nigeria in 2010 recorded over six million subscribers on its network. In March 2011 the company sealed agreements for a \$650 million loan split into 2 tranches: NGN 82.5 billion naira and \$100 million. The syndicated loan facility which is the landmark transaction in the telecommunications sector for 2011, may offer the opportunity to aggressively intensify Etisalat Nigeria's network expansion across the country and offer better quality service to its customers. The operator also bought broadband capacity from Main One, a sub-sea cable operator, and is looking at buying more capacity from another sub-sea cable operator to boost its operations (Ndukwe, 2009). In December 2010, Etisalat Nigeria acquired the 3G license to further develop the market for mobile broadband in Nigeria. Etisalat has placed a strong emphasis on offering data services to all its customers from launch through enabling strong signals in all its cell sites throughout Nigeria. Now with 3G, it has further developed data and mobile broadband portfolio and offer customers even higher levels of service as the pent-up demand in Nigeria for Broadband continue to rise. Etisalat has within the last two years built over 2,000 cell sites in Nigeria with all its services in all the 36 States, covering 55 per cent of Nigeria's population (Ammar, 2010). Etisalat partnered with service providers including Alcatel and Huawei to provide quality service to its customers.

MTEL

Mobile Telecommunications Limited (MTEL) was a subsidiary of Nigerian Telecommunications Limited (NITEL) providing analogue cellular services to the nation in the pre-mobile telecommunications boom. Following the plan by the Federal Government to privatise NITEL, MTEL was separated as a distinct network ahead of plans of the privatisation programme for the First National Operator (FNO) (Ndukwe, 2009). NITEL paid \$285 million fee for the digital mobile license (DML) for the provision of GSM services to become the third licensee after MTN and Econet Wireless. However, while the two other GSM operators launched in August 2001, it was not until 2002 that MTEL launched following hiccups in its privatisation of the national operator. MTEL at the height

of its success as GSM service provider had about 200,000 subscribers which inadvertently plummeted as the crisis hit the mobile service provider under the watch of Transnational Corporation of Nigeria (Transcorp) (NCC, 2010). Today MTEL is awaiting a new owner as government struggles to come to terms with what went wrong in the failed efforts to privatise the ailing company. MTEL had services spread over 36 states of the federation including Abuja, the federal capital.

2.2.2 Public Sector Reform: a Critique of Telecommunication Sector

The phenomenal increase in the number of State Own Enterprise (SOE) reform programmes in both developed and developing economies generated a lot of research interest in the last decade of the 20th century (Saunders, Warford, and Wellenius, 1994). The bulk of the research efforts, however, are intuitive, mainly theoretical and country specific. They address why governments have opted for reforms, how reforms were implemented, the degree of implementation and the problems encountered (Onis, 1991; Ramandaham, 1989; Jerome, 1995). These studies may be useful guides to policy makers on how to carry out successful state enterprise reform including deregulation and privatisation, however they are deficient because they fail to address systematically how deregulation has affected the performance of divested firms and they do not link outcomes to their causal factors (Jerome, 1996).

Very few studies analyse the impact of public enterprise reform on profitability, productivity, exports, and budgetary impacts, to mention a few. Moreover, many of the studies also suffer from basic methodological deficiencies (Levy and Spiller, 1996). For example, using cross-sectional data, Foreman-Peck and Manning (1988) conducted total factor productivity analyses to compare the performance of British Telecom (BT), which was privatized in 1984, with the performance of five telecom firms in Europe. They concluded that British Telecom is apparently less efficient than the companies in Norway and Denmark are, but more efficient than those in Spain and Italy. Their finding is inconclusive, and moreover ownership is by state in Norway, but mixed in Denmark, Spain

and Italy. This methodology is incapable of linking variations in performance with the change in the company's ownership (Jerome, 1996).

In a related study, Bishop and Kay (1988) compared the performance of a number of privatized firms in the United Kingdom (shipping, airline, gas, telecom, oil and automobile industry) with another set of firms under state control (in rail, steel and postal sector) using several indicators, including revenue, employment, profit margin and total factor productivity. Their finding is also inconclusive since both privatized and non-privatized firms experienced an upsurge in all the indicators used (Jerome, 1996). Thus, the emphasis on privatisation as a means of enhancing efficiency is not supported by the evidence on the relative performance of private and public enterprises in the United Kingdom. It should be noted, however, that the study did not adjust for differences in the sectoral characteristics of the firms analysed.

Galal and Nauriyal (1995) probably represent the most comprehensive study on the impact of deregulation on efficiency and state budget. They examined the welfare consequences of privatisation in Chile, Malaysia, Mexico and the United Kingdom through a sample of 12 firms covering telecommunications (three firms), airlines (four firms), electricity (two firms), a lottery company, and a port and transport company. The welfare implications were measured in terms of the impact of divestiture on major economic actors (the government, consumers, buyers of firms and competitors). The study compared the post-divestiture performance of the selected enterprises with what their performance would have been without divestiture. Thus, a counterfactual scenario was created for each enterprise, with the difference between the level of welfare under divestiture and the counterfactual scenario attributed to divestiture.

With the exception of Mexico Airlines, divestiture was found to improve world welfare in all the 12 cases. The expected stream of benefits to the society from divestiture was estimated at an annual average of 26%. This was attributed to several factors, including a dramatic increase in investment and improved productivity in nine of the 12 firms. In all but five cases, consumers were considerably better off or unaffected (Galal and Nauriyal, 1995). This study is deficient on two grounds, however. First, it omits countries typical of Africa, which are characterized by low per capita income, highly distorted markets and relatively weak institutional capabilities. Second, despite the scope

and subtlety of the methodology used, the underlying assumptions were highly tenuous, did not relate to the environmental realities and hence incompatible with the policy-oriented nature of the study (Jerome, 1996).

The World Bank (1996) conducted a very innovative study on the political economy of state enterprise reform. The study investigated the economic problems that arise when governments own and operate enterprises that could be managed by the private sector and the political obstacles to reforms. It substantially advanced privatisation beyond its current micro and macro studies to include meso level phenomena such as laws, regulations and institutions. The 12 countries constituting the sample for the study included Chile, China, Egypt, Ghana, India, Mexico, the Philippines and Poland. Others were the Republic of Korea, Senegal and Turkey. The study appraised common obstacles to reform and ways in which some countries have overcome them. It reports a wide range of experience on the basis of which the performance of each country was assessed relative to the criteria established by the study team. At one extreme are Chile, Korea and Mexico with success stories, and at the other are India, Senegal and Turkey with woeful results. The others were adjudged to have recorded mixed results. Ghana was the only marginally acceptable success story in Africa. The report thereby offers guidance for successful 'SOE' reform and suggests ways in which foreign assistance can be harnessed to enhance the success of these reform efforts. The report is flawed on several grounds, especially from an African perspective (Jerome, 1996).

First, the criteria for the inclusion of the countries in the sample were not explained. Second, regardless of the basis for the selection, the problems and issues identified in the sample countries do not adequately reflect the situation in most African economies, in spite of the presence of Egypt, Ghana and Senegal in the sample of countries studied (Nwafor, 1997). Apart from the very limited coverage, there are several formidable obstacles confronting privatisation in Africa. These include the technically difficult nature of the privatisation process, lack of transparency in the conduct of the exercise and absence of well-established capital markets. The generalized analyses and findings do not hold sway as privatisation in Africa has been adopted against the background of extremely distressed economic circumstances.

It is therefore not surprising that privatisation has failed to meet expectations in several African countries (World Bank 2001), though the level of development impact may differ considerably. Several cross country and multiple industry studies have also been conducted, beginning with the pioneering study by Megginson (1994). They compared the pre and post-privatisation financial and operating performance of 61 firms that experienced full or partial privatisation through public share offerings from 32 industries in 18 countries (6 developing and 12 industrialized) between 1961 and 1990. Several financial indicators were examined, including mean and median level profitability, sales level, operating efficiency, capital investment, leverage (gearing) ratios and dividend payout figures. The study documents strong performance improvements undertaken without sacrificing employment security. After privatisation, most of the firms experienced an upsurge in real sales, profitability, capital investment spending, operating efficiency and labour force. While the study overcame the difficulty of obtaining comparable pre and post-privatisation data for a large, multinational, multi-industry sample of countries, it is unfortunately limited to mostly Organization for Economic Cooperation and Development (OECD) and other developed countries (Jerome, 1996). Moreover, the method of privatisation was through the issuing of shares on the local stock exchange (often referred to as an “initial public offering”, or IPO). One could argue that since most of the cases reviewed came from industrialized settings, and that the IPO method is usually applied to high-quality candidates, then the positive findings might not apply in non-industrialized countries, or to firms divested by methods other than share issuing (Jerome, 2002).

In a related study, D’Souza and Megginson (1998) compared the pre- and post-privatisation performance of 78 firms from 25 countries privatized through public offering between 1990 and 1994. The sample included 14 firms from banking, 21 in utilities and 10 from telecommunications. The performance indicators are mean and median levels of returns on sales, employment, sales efficiency, capital expenditure/sales and debt/assets. The study represents a marked improvement on the earlier study on two counts. First, it includes samples from 21 developing countries. Second, it also differentiates between competitive and non-competitive sectors. The results are sufficiently robust for proponents of privatisation. Profitability increases significantly, although the increase is more in regulated or non-competitive industries, whereas operational efficiency increases less in

those cases indicating that a certain degree of market power is being exploited. The study reports that employment increases in all cases and this is inconsistent with the literature (Jerome, 2002).

Boubakri and Cosset (1998) extended the analysis by looking at privatisations conducted in developing countries. They examined transactions in 21 developing countries—mainly middle income, but including Bangladesh, Jamaica, Nigeria, Pakistan and the Philippines. They reported that privatised firms, on the average, showed significant increase in profitability, operating efficiency, capital investment spending, real sales, employment levels and dividends. This study is quite encouraging for proponents of privatisation, since it finds positive results non-industrialized settings, arising from a variety of sales methods. However, the study also documents an important fact: the number and degree of success of privatisation are significantly associated with a country's level of income. The lower the income level of a country, the more difficult it will be to start privatisation, and the more likely it will be that results will be modest (Jerome, 2002).

La Porta and López-de-Silanes (1997) analysed the performance of 218 enterprises in 26 sectors privatized in Mexico between 1982 and 1991 using 7 broad indicators, including profitability, operating efficiency, employment, and wages and capital employed. Others were taxes, total output and prices. For each firm, they measured the change in any given indicator of performance by comparing its value in 1993 with its average value of the four years preceding privatisation. The study controlled for macroeconomic and industry factors by computing the same indicators for a sample of private firms (Jerome, 2002). It documents remarkable increases in profitability after privatisation, underpinned by higher operating efficiency: on average, a 24-percentage-point increase in the ratio of operating income to sales, significant increases in profitability and output, and substantial decreases in unit costs and employment levels (though the blue-collar workers who retained their jobs received large salary increases) (La Porta and López-de-Silanes, 1997).

The authors attribute 57% of the performance improvement to productivity gains, 30% to laying off workers (an empirical evidence of possibility for job loss in a deregulated regime) and 10% to price increases. They also document that deregulation—particularly the removal of trade barriers and price controls—is associated with more rapid convergence to industry performance using regression analysis. Several sector specific

studies have also been conducted on the outcome of reforming telecommunications services, albeit in developed economies (Takano, 1992; Oniki Oum, Stevenson, and Zhang, 1992; Imai, 1994; Foreman-Peck, 1991). Most of the studies on the impact of reform in the telecommunications sector have relied on total factor productivity analysis. That is level of productive gain in GDP.

Foreman-Peck (1991) appraised the success of the British privatisation programme. Specifically the study examined whether the transformation in the telecommunications sector altered or improved performance over that of the previous state regime. Estimates of changes in internal efficiency were obtained by two methods: total factor productivity analysis and econometric simulation (Jerome, 2002). Both approaches suggest a substantial improvement in the productivity performance of the telecommunications industry after privatisation. Takano (1992) examined the process, as well as benefits and losses stemming from the partial privatisation of Nippon Telegraph and Telephone Corporation (NTT), a government monopoly producer of domestic telecommunications services in Japan. The study evaluated the benefits to four important actors: NTT proper, stockholders, users and government. The methodology adopted was to analyse in depth the changes that took place before and after privatisation between 1985 and 1990. It estimated the overall net benefit to be US\$65.8 billion, with the largest gains accruing to the government and users.

Oniki *et al.* (1992) assessed the impact of deregulation on NTT through improved management and operations by estimating a translog variable cost function for 1983– 1989 fiscal years. According to the study, deregulation resulted in a cost reduction of 1.31 or 2.29%, depending on the specification of the cost function adopted. In the same vein, Imai (1994) estimated the cost reduction associated with the 1985 deregulation of international telephone services in Japan. The study estimated that NTT's unit cost fell by a wide margin after deregulation (54.5%). The efficiency gain was fully passed on to telephone users in the form of user rates. The increment of consumers' surplus was estimated at 253.4 billion yen after deregulation. Recent studies in the telecommunications sector seek to explore the regulatory institutions of different countries using the new institutional economics (Levy and Spiller, 1996; Galal and Nauriyal, 1995). A common feature of these

studies is lack of formal statistical testing; rather, they rely on an analytical framework and systematically collected and researched evidence.

Levy and Spiller (1996) conducted a comparative analysis of the impact of core political and social institutions on regulatory structures and performance in the telecommunications industry in Jamaica, the United Kingdom, Chile, Argentina and the Philippines. The study examines, among others, how each country resolved its regulatory problems and explicates the relationship between regulatory outcomes and performance. Galal and Nauriyal (1995) explored the relationship among the outcomes of regulatory reforms, regulatory incentives and government commitment on the basis of the recent regulatory experience of seven developing countries: Argentina, Chile, Jamaica, Malaysia, Mexico, the Philippines and Venezuela. They attempt to link the performance of the telecom sector with the extent to which these countries successfully resolved the information asymmetry, pricing and contracting problems. Chile was found to be the most successful in resolving the information, incentives and commitment problems through competition, benchmark pricing and embodying the regulation in a law that is difficult to change. On the other hand, the Philippine was the least successful despite over four years of private sector involvement in the telecom sector. Consequently, the sector continues to suffer from under-investment and low productivity. Other countries had mixed results.

Furthermore, several empirical studies have been conducted on the impact of telecommunications infrastructure investment on economic growth and development. However, while much have been written about the experiences of developed countries on the linkages between telecommunications and economic growth, there have been few corresponding studies from developing countries especially those in Africa whose economies are vulnerable to disruption associated with gross inadequacy of infrastructure service (Osotimehin, Akinkoye, and Olasanmi, 2010). Many economists have observed a positive correlation between the level of telecommunications use and some index of economic well being. For instance, Jipp (1963) studied the relationship between the income of a nation and telephone density, using data from different countries, and found a positive correlation between the two. According to Saunders, Warford, and Wellenius (1994), the role of telecommunications in economic development was examined and some positive results discovered in the late 1970s. In addition, Bee and Gilling (1976) studied

the relationship between telephone facilities and their use and economic performance using data from 29 countries at different stages of development. There is clear evidence in literature that telecommunications infrastructure serves as a primary source of economic development. This evidence has been further established in the current study.

Generally, majority of the studies on the impact of telecommunications infrastructure on economic output focused exclusively on developed countries and the empirical evidence on the relationship between telecommunications and economic growth in developing countries is scattered and far without conclusive results. In fact, the clues on the link between telecommunications infrastructure stock and economic growth in developing countries stem mainly from cross-country studies. The comparability between developed and developing countries in literature raises many questions because telecommunications investment may have various effects for economies at different stages of development. As a result, the conclusion drawn from those wealthy countries may not be directly relevant to those less developed economies. Thus, the need for empirical studies in this direction using single country data in a developing economy has become apparent in view of the desirability and even inevitability of telecommunications infrastructure investment as a tool for meaningful economic growth and development.

In a similar vein, it suggests the paucity of empirical evidence to gauge the success of state enterprise reform programmes in African economies. The need for more empirical studies in this aspect has become apparent in view of the desirability and even the inevitability of SOE reform as a major tool for meaningful and sustainable economic reform. It is necessary to identify the major factors that need to be considered to ensure an appropriate design and to facilitate successful implementation of SOE reform in Africa, especially in the Nigerian context. This will be important to consolidate the gains in the telecommunications sector.

2.2.3 Deregulation and Telecommunications in Nigeria

Deregulation gained popular acceptance in the twenty first century following its adoption in most developing nations, especially those in Africa. The notion is that for every economy to transcend from agrarian to technologically advanced one there must be opportunities created for market economy to flourish (Sava, 1987). In this way, every

barrier and restriction to effective operation of private capital must be removed. In its simplest term, deregulation, which gained widespread currency in the period 1970-2000, can be conceived as a process by which governments remove, reduce, or simplify restrictions on business and individuals, often ostensibly with the intent of encouraging the efficient operation of markets, but also with the intent of opening up new areas of trade for speculators (Okafor, 2009).

It follows that for private capital to function effectively in an economy, government must relax regulation of any form that inhibits the flow of private ownership or otherwise capitalism. In this wise, such practice allows for capital flight from international communities across borders. It must be noted that deregulation is synonymous with privatisation, though some little differences may be apparent. Privatisation is the transfer of public ownership to private individuals with requisite capital to acquire the sales of government shares or bond. Deregulation may not necessarily involve the sales of government asset. Rather, the invitation to private capital investment in the domestic economy is motivated through the relaxation and abolition of state bureaucracy or regulations. However, there are three main methods of privatisation. These are share issue privatisation (SIP) – selling shares on the stock market; asset sale privatisation—selling the entire firms or part of it to a strategic investor, usually by auction; and voucher privatisation—shares of ownership are distributed to all citizens, usually for free or at a very low price (Okafor, 2009).

Therefore, it follows from the above that asset sale privatisation seems prevalent in the Nigerian context, particularly for telecommunications sector. This was the situation with NITEL when it was sold to private investors, though the transfer of ownership was not successful as no viable investor has taken possession of the Corporation. Notwithstanding the privatisation of NITEL, the adoption of deregulation thesis in Nigeria has opened up telecommunications business to numerous private investors. This is within the ambit of Neoliberalism that emphasizes capitalist market economy.

However, telecommunications sector was in the previous decades dominated by the Nigerian Telecommunications Limited (NITEL), which came into operation in 1985. This was a result of the merger of the Telecommunications Division of the erstwhile Department of Posts and Telecommunications (*P and T*), the body in charge of the

Nation's internal network on the one hand; and a limited liability company called the Nigerian External Telecommunications (NET) Limited, which was responsible for external telecommunications services and thus providing a gateway to the outside world on the other hand (Akinrele, 2002). NITEL was set up to reverse the defects which characterised telecommunications development between Independence and up till 1984. This included yawning shortfalls between targets and their realisation due to poor management, lack of accountability and transparency and a shockingly low level of indigenous technical expertise. The establishment of NITEL was to harmonise the coordination of the external and internal telecommunications services, rationalise investments in telecommunications development and provide easy access, efficient and affordable services (Akinrele, 2002).

Although there were modest developments in the telecommunications industry since the formation of NITEL in 1985, the sector was seriously lagging behind in terms of its tele-density. During this era, Nigeria had only 700,000 telephone lines out of which only 400,000 were connected for its highly mobile population estimated at over 120 million (Imai, 1994; Akinrele, 2003). In order to tackle the foregoing shortcomings, Decree No. 75 of 1992 deregulated the industry notably through the establishment of the Nigerian Communications Commission (NCC). The main objectives of the commission include creating a regulatory environment for the supply of telecommunications facilities and services, facilitating the entry of private entrepreneurs into the market and promoting fair competition and efficient market conduct among all players in the industry (Ndukwe, 2004).

Sequel to the reform, the NCC approved almost 200 operating licenses for private providers of various telecommunications services, including internet services providers, which of course has in turn generated a high demand for telecommunications equipment, accessories, consultancy and technical partnerships (Ndukwe, 2007). In addition, NITEL approved eight private firms to be connected to its switching systems to provide more lines (with greater efficiency and service) and thus act as a buffer for the grossly inadequate NITEL services. Despite all these efforts, it was quite clear that there was a dire need for government to be more pro-active about improving telecommunications. As a result of the inefficiency and wastages in the sector, deregulation becomes the unavoidable consequence through public sector reform. Therefore, in 2000 the NCC awarded licenses

for Global System of Mobile Communications (GSM) to NITEL by auction to two preferred bidders – *Econet* Wireless Nigeria Limited (now Airtel mobile) and *Mobile Telephone Networks* (MTN) Nigeria Limited, though they did not start operation until 2001. The licenses were bought at almost US\$240million, the highest amounts ever paid for such licenses in the world (Ndukwe, 2009).

The GSM technology has completely overshadowed NITEL's landlines, as the demand is high for them due to efficiency, despite the astronomical tariffs its consumers were subjected to (Aihe, 2005). However, in recent time, the tariff rate is gradually falling due to market competition to suit consumer's use. These cumulative events eventually spurred the NCC, through the Bureau of Public Enterprises (its secretariat) to seek to privatise NITEL by requesting core investors to acquire controlling interest in the entity and manage its day-to-day activities (Ikhemuemhe, 2005). The proposed privatisation commenced quite significantly with an auction process whereby it was sold to Investors International (London) Limited (IILL), a U.K. based investor at US\$1.37 billion. The IILL paid up the mandatory 10% deposit, but was unable to make up the balance by the end of several deadline periods, thereby derailing the process (Ikhemuemhe, 2005). The BPE is currently reviewing the best option for the privatisation of NITEL. The most preferred appearing to be sale by auction of a fixed percent to a core investor who will act as manager, coupled with an initial public offer (IPO) of the remainder to the general public (Ndukwe, 2007). It must be stated that the sale of NITEL is still deadlocked as ownership is yet to be transferred to private hands.

In 2003, NCC awarded a second national carrier license to *Globacom* Nigeria Limited, the only company out of three who expressed an interest that was able to come up with the US\$20 million 10% deposit of the auction price requested by the NCC (Ndukwe, 2004). It is important to note that currently, the GSM operators in Nigeria have doubled the number of the first generation (MTN, AIRTEL AND GLOBACOMM) previously licensed. Competition among the operators has also forced down tariffs relatively compared to what was obtained in the early period of active deregulation (Tade, 2004). However, since there are new entrants in telecommunications industry within the framework of free market economy, it becomes increasingly important to evaluate the mode of operation and possible challenge(s) that confront operators in the emerging

market. The analysis of the utilisation of GSM services by subscribers is important. It is until when access and utilisation of GSM services is transformed into real benefits for users that deregulation policy of government may be considered successful (UNDP, 2003, 2007, 2009). This underlines the root of this study which is hinged on Neoliberal ideology and Rational Choice.

2.2.4 Technology Innovation and Consumer Behaviour

The pace of technology innovation has reached an unusually high proportion especially in the last few decades where progress witnessed matched that of the entire nineteenth century (Kurzweil, 1998). However, while breakthrough innovations are recorded in space, bio and computing technologies almost on daily basis, few industries match the rate of diffusion taking place in telecommunications (Ahmad and Ahmad, 2008). Theoretically, diffusion pattern is influenced by a number of factors notably, consumer behaviour, customer sophistication and per capita income (Pumalainen and Sundqvist, 2005). Nonetheless telecommunications (particularly mobile telephony) services are receiving rapid diffusion irrespective of country characteristics. In Nigeria, for example, active telephone lines increased from 400,000 in early 2001 (before GSM roll-out) to whopping 25 million in 2006 (Ahmad, 2007). The current population of GSM subscribers is over 100 million. Despite rapid diffusion however, mobile telephone represents an industry where consumers' perceptions and satisfaction judgments are continuously changing due to intense competition (Busacca and Padula, 2005). A Survey of US consumer perceptions of mobile service showed that the level of satisfaction is lower for mobile service carriers and high for other service sectors. About 35 percent of US mobile subscribers in 2004 reported that they were considering switching mobile service carriers (Lim, Widdows and Park, 2006). The situation in Nigeria differs as diffusion and consumption rate is increasing (Ahmad and Ahmad, 2008), though it is not without some challenges.

As a result of low satisfaction expressed by consumers, telecommunications firms are losing 2-4 percent of their customers monthly, leading to loss of millions in revenue (Aydin and Ozer, 2005) for American society. It becomes imperative for telecommunications firms to ensure clients' satisfaction, as it leads to loyalty, continuous

patronage, positive word of mouth, paying less attention to advertisements of competitors, delivers more ideas and suggestions (Hesselink and Wiele, 2003), and ultimately increased market share, profitability, and customer retention (Rust and Zahorik, 1993; Anderson, Fornell and Lehman, 1994; Ittner and Larcker, 1998). Effective marketing becomes an essential ingredient for success in mobile telephony industry. This underlies the endless advertisement and promos carried out by GSM service providers in Nigeria.

Thus, studies have shown that the diffusion of GSM technology in Nigeria is widespread given the monthly rise in subscriber rate (NCC, 2010). This can be understood in the context of Roger's (2007) ideology *diffusion of innovation* based on four variables. These are innovation; how information about the innovation is communicated; time; and the nature of social system, all of which facilitate technology diffusion. These variables are called the marketing-mix of technology innovation (Ahmad and Ahmad, 2008). Therefore, since it is shown that GSM technology is widely adopted, consumed or utilised, and patronize by Nigerian subscribers, it becomes imperative for empirical study to explain pattern of utilisation and variables that pose challenge to both consumers and operators.

2.2.5 Global System for Mobile Telecommunications (GSM) in Nigeria

The GSM revolution in Nigeria started in August 2001 and this brought a great change in Information Technology (IT) in Nigeria (Adegoke, Babalola, and Balogun, 2009). Since it was launched, mobile telephony has rapidly become the most popular method of voice communication in Nigeria. Today, the services of GSM incorporated internet services and other value added. Growth in this sector has been so rapid that Nigeria has been rightly described in various media as "one of the fastest growing GSM market in the world". Indeed, these developments have been truly explosive according to statistics from the Nigeria Communications Commission (NCC). This explosive growth has brought huge profits to operators and revenue to government through tax and license fees (NCC, 2009).

As revolutionary as GSM may seem to be, many problems have bedeviled the sector in the recent past (Aduge-Ani, 2007). Some of the problems are instability in power supply; security of infrastructure, inter-network connectivity, network congestion (that is network efficiency) such as call set up and call drop – termination of calls. All these

factors contribute in one way or the other to the poor quality of services rendered by GSM operators in the country. Worried by the state of development in the industry, the nation's lawmakers (upper legislative house) set up a committee to investigate the inefficiency of the service providers (Adegoke, *et al.*, 2009). In addition, the House of Representative on July 18, 2007 invited the service providers to appear before its *ad hoc* committee mandated to investigate the activities of the service providers. They maintained that the move became necessary due to the public outcry on the epileptic services, as well as its economic and social implications. Despite the effort by the government, the problem appeared perpetual.

The NCC, in a statement through the executive commissioner in charge of licensing and consumer affairs (Bashir, 2009), maintained that “the situation of service inefficiency is unacceptable to the commission. Nigerians cannot pay for services that they cannot get. It is not done anywhere in the world. People should expect to get a better quality of service”. The Commission went further and directed that operators should stop all forms of promotion until their quality of service improves. It is documented that GSM is an instrument in the hands of unscrupulous Nigerians called the advance fee fraud star (419s) that engage the use of GSM phones to defraud innocent citizens. About NGN1 billion is estimated as annual lost to 419s operation in Nigeria through the use of GSM services (NCC, 2009). Unfortunately, this trend has continued to increase without boundary and abating. The consequence is that consumers bear the brunt of the financial loss. This situation is made possible because GSM services allow subscribers to hide their numbers which makes it difficult to trace once fraud is suspected, or perpetrators could dispose of such line(s) once it has achieved its nefarious aim (NCC, 2010). The registration of SIM cards is an attempt to reduce the rate of GSM fraud in Nigeria. Yet the process is fraught with some inadequacies.

The widespread fake GSM accessories have become a worrisome scenario to subscribers in Nigeria. It is now difficult to replace damaged GSM batteries and other accessories with original ones. The GSM market is flooded with fake and substandard phones otherwise known as ‘refurbished’, a slang used to qualify fake products in GSM market (Fanawopo, 2007). However, the surge of GSM telecommunications in the Nigerian market has opened up room for expansion and competition among operators. This led to erection of tower mast in strategic places in both rural and urban areas for service

coverage. The problem thus, is that some of these operators often violate the NCC rule guiding erection of masts for network coverage. Usually, there is stipulated distance that must be kept between a mast location and human habitation (Yusuf, 2009). This is to prevent human health from direct poisonous emission of the mast. What is obtainable in most urban cities is the nearness of masts to residential building. This is a serious threat to human health.

2.2.6 Factors Affecting GSM Services Efficiency

The decade of operation of GSM services in Nigeria have been confronted with several challenges. According to Fanawopo (2007) the problems such as instability in power supply, security of infrastructure, call drop, congestion, and network accessibility as well as advance fee fraud (419), and import duty and tax regime have continued to make GSM services unfriendly and less advantageous to both service operators and consumers. As a result of these challenges, the anticipated benefits in Nigeria have continued to diminish when it is compared to other nations of the world such as Britain, South Africa, France and USA to mention a few (Onifade, Longe and Ogundiran, 2009).

Security of Infrastructure

Outside of the armed forces and Nigeria Police, the three leading GSM operators, MTN, AIRTEL, and GLOBACOM have the highest number of security guards on their payroll. These security guards were employed to guard infrastructural equipment against theft and vandalism. As of October 2007, AIRTEL had 2500 base stations, MTN – 2900, and Globacom – 3000. This translates to having 5000, 5800, and 6000 security guards, respectively, on their payrolls (since two personnel were guarding every base station). The direct implication of this is that the cost incurred for these security guards goes into the total cost of operation and subsequently leads to increases in call tariffs (Bakare and Gold, 2010).

The presence of these security guards at the base stations, however, has not totally prevented armed robbers, thugs, and hoodlums from vandalizing and carting away generators and valuable equipment at base station sites. In addition, some base stations have been shut down due to these nefarious activities (Adegoke, 2009). Unfortunately,

GSM infrastructure and masts have been the main target of the dreaded terrorist group *BOKO HARAM* in the Northern Nigeria. The technical implication of this is that once a base station is shut down, call transmission for subscribers in that location would automatically be transferred to another nearby base station which will lead to network congestion. Subsequently, subscribers within this area will experience poor quality of service (Bakare and Gold, 2010).

Instability in Power Supply

A recent study revealed that 78% of the total cost of operations by GSM operators goes into the provision of generators and fuel (Osotimehin, *et al.*, 2010). The epileptic nature of power supply system in the country has necessitated the over-dependence on generators. The direct implication of this is that call tariffs will drastically increase. Apart from this, it is obvious that the cost of procurement and fueling is also enormous. If power supply system is stable, this huge amount could have been used in upgrading and optimizing existing base stations in order to improve service efficiency (Balogun, 2010). Also, additional base stations and switching centers could be built for network expansion which will eventually alleviate congestion and the network will have capacity to handle more calls. So, the network problems experienced in the country may not be divorced from the instability in power supply (Ajayi, 2008).

Call Set Up

One of the major problems encountered by subscribers is the inability to access the network when initiating a call. This is worrisome to the extent that subscribers often have to dial several times before getting connected (Soyinka, 2009). Worse still, when connected, it may not be to the number actually dialed. In this situation, it is often embarrassing to hear *wrong number* from the other end of the call (Adegoke, Babalola and Balogun, 2009). According to an earlier survey carried out by the NCC (2010), all three major operators (AIRTEL, MTN, GLO) were found to perform poorly in the area of number of times that users had to dial before a proper connection is made. The survey shows that less than half of the subscribers on each of the networks do get their calls through on the first or 2nd attempt (AIRTEL – 43%, MTN – 42% GLO – 42%). In other words, subscribers who dial 3 times or more were: AIRTEL – 56%, GLO – 57%; and

MTN – 57% (Soyinka, 2010). The results of sampled opinions (NCC, 2010) shown in the tables 2.1.1 and 2.1.2 below still do not improve in the current findings as quality of service has not matched desired expectations of subscribers.

Table 2.2.1: Subscribers Dialing Three or More Times Before Getting Connected

CITY	AIRTEL %	MTN %	GLO %
Abuja	56	63	67
Kaduna and Zaria	49	50	45
Kano	61	53	39
Maiduguri	41	52	53
Jos	53	58	48
Bauchi	57	68	49
Ibadan	66	61	62
Calabar	55	79	50
Port-Harcourt	54	47	20
Owerri	63	54	45
Enugu	57	59	61
Benin	51	60	58
Lagos	55	39	50
Ilorin	56	36	33

Source: (NCC, 2010)

National estimate of subscribers dialing their GSM phones three or more times before connected: AIRTEL = 50%; MTN = 53%; GLO = 52% (NCC, 2014).

Table 2.2.2: Subscribers Connected to Numbers not Dialed

CITY	AIRTEL %	MTN %	GLO %
Abuja	38	35	27
Kaduna and Zaria	41	36	28
Kano	39	42	35
Maiduguri	69	68	54
Jos	46	29	34
Bauchi	39	60	31
Ibadan	35	37	32
Calabar	35	34	30
Owerri	33	31	41
Enugu	39	33	33
Benin	32	51	23
Lagos	31	37	32
Ilorin	40	35	32

Source: (NCC, 2010)

National estimate of GSM subscribers connected to numbers not dialed: AIRTEL = 34%, MTN = 32%, GLO = 28% (NCC, 2014)

Dropped Calls

This is a situation where an established call is abruptly terminated while conversation is still on-going. Calls are dropped if a mobile subscriber moves out of a coverage area (dead spot) and the signal cannot be maintained between the phone and the

network (Fanawopo, 2007). This may be due to several reasons. For example, calls may be dropped upon handoff between cells within the same provider's network. It may be due to an imbalance of traffic between the two cell sites area of coverage (Adebayo, 2008). If the new cell site is at capacity, it will not be able to accept the additional traffic of the call trying to "hand in". It may also be due to the network configuration not being set up properly such that one cell site is not aware of the incoming traffic (Ndukwe, 2008). If the phone cannot find an alternative cell to handoff to the call is lost.

Calls can also be lost if the mobile phone at the other ends loses battery power or stops transmitting. A survey conducted by NCC (2010) showed clearly that one of the most important problems customers perceived, that affects quality of service is in the area of dropped calls. Data from the survey showed MTN – 67%; AIRTEL – 64%; and Globacom -64%. This is further represented in table 2.1.3

Table 2.2.3: Summary of Dropped Calls and their Locations

CITY	AIRTEL %	MTN %	GLO %
Abuja	67	69	60
Kaduna and Zaria	29	67	59
Kano	74	77	73
Maiduguri	47	34	34
Jos	57	64	74
Bauchi	32	36	58
Calabar	65	59	75
Owerri	52	62	51
Enugu	69	57	60
Ibadan	65	67	66
Benin	62	71	70
Port-Harcourt	84	78	79

Source: (NCC, 2010)

National estimate of GSM subscribers that experienced dropped calls: AIRTEL 64%; MTN 67%; Glo 64% (NCC, 2014)

Congestion in GSM Communication

Congestion is the unavailability of network to the subscriber at the time of making a call. It is the situation when the blocking occurs and no free path can be provided for an offered call (Syski, 1986). This occurs when a subscriber cannot obtain a connection to the

wanted subscriber immediately. The ideal telephone system is a situation where it is possible for all subscribers to talk in pairs simultaneously. If one connecting device be allocated for a pair of subscribers, then the number required will be too high to be reasonable (Syski, 2001). Such an ideal system is impracticable because of its enormous size, very high cost and maintenance difficulties (Kuboye, 2010). If it is therefore necessary to reduce the number of connecting devices, it means that the subscribers are confronted with the possibility that some of their calls may be unsuccessful. The reduction in number of connecting resources consequently leads to reduction in the number of conversation which can take place simultaneously.

2.2.7 GSM Services and Economic Activities in Nigeria

The concept, importance, economic implications and policy implication of GSM have been discussed by some authors and researchers. According to Balogun (2010), the emergence of GSM facilitates economic development as it provides easy and effective communication needed to stimulate and promote trade between Nigerian and its foreign partners in the world. Tella (2007) stated that GSM has emerged as an integral essential part of the culture and life of Nigerians. It had played a significant role in communication and encourages investment. In respect of employment, Manuaka (2008) and Okereocha (2008) found that, over 1,000,000 Nigerians have been directly and indirectly employed by the operators, while supportive enterprises and service organizations like banking, haulage, consultancies and insurance and so on have themselves blossomed. At least 89% of sampled respondents in Ibadan utilised GSM for economic activities

According to Soyinka (2008), mobile phone has empowered the poor by opening up veritable windows of wealth generation for them to get out of the scourge of poverty through employment. For Adebayo (2008), the introduction of mobile telecoms has the potential for reducing the cost of doing business and increasing output. Okereocha (2008) and Ndukwe (2008) reported that the GSM business has contributed to the economies of Nigerians in the area of GSM recharge card printing and of course GSM repairs, call centres, sales of accessories and hawking have been exploited for economic gains. This has had the effect of saving Nigeria of about \$150 million monthly while providing employment and new skills to the dealers. It has also improved entertainment and

networking among Nigerians, using short message service (SMS), and the signal calls. This view has been collaborated by Okereocha (2008). In his (Okereocha) view, the telecommunications sector has become a major tool for empowering Nigerians, and with the continued inflow of massive investments and the doggedness of the industry regulator, the future look bright.

Sridhar and Sridhar (2003) argued that telecommunications has the potential to benefit urban areas, employers, employees and the society by reducing the need to travel and reducing office distractions. Findings in this study showed that one of the major benefits of GSM in Ibadan was the reduction in rate of travelling as people could easily communicate family and friends at both short and long distances which enabled them to save cost. As Egan (1997), pointed out, IBM reported savings of \$75 million in real estate expenses related to office space because of telecommuting. Also, companies' choice of talent gets widened to even "mobility-impaired" talent. Contrary to perception, telecommunications has also increased employee participation in organizational activity. As at 2002, more than 108 million users world-wide are working outside the boundaries of their enterprise. Evidence of such teleporting has been found in India, Europe, and U.S.A (Bakare and Gold, 2011). Nigeria is not the least in this case because evidence from Ibadan also revealed that there were people who traded their businesses through contact on the GSM telephone.

National productivity has also been enhanced as travel times and associated risks have been reduced, business communications improve and the rural-urban divide narrow down. Social and family relationship and the security situation have also been significantly enhanced. A significant number of not-for-profit corporate social responsibility (CRS) initiatives are being sponsored by the operators (Bakare and Gold, 2011). Ndukwe (2008) argued, GSM has discouraged rural- urban migration, unlike before when rural dwellers were always eager to visit the cities. Now with GSM they travel to cities without boarding a vehicle. The introduction of GSM has also shown a potential for reducing crime and mortality rate (NCC, 2010). Accessibility to phone services ensure quick calls to security operations when the need arises as well as informing the first stations during fire incidents to save life and property.

Balogun (2010) stressed, GSM is used by Nigerians mostly to communicate with another. He explained that students used it to communicate with their course mates, friends, lecturers and family relatives. Additionally, family matters, finance, and academic matters constitute the topics/ subject of mobile communication for a majority of students, but mobile phone has limited the need for most of the students to travel followed by facilitation of exchange of information anytime the need arises. The benefits of GSM communications cut across socio-economic, cultural, political and demographic aspects of life. However these benefits appear to be threatened due to array of challenges that confronted the usage in Nigeria.

2.2.8 Access and Utilisation of GSM in Nigeria

Spore (2008) pointed that half of the world's 6.5 billion now use a mobile phone, compared with 2 billion just 2years ago. In Africa, mobile phone business is the most rapid growing sector of the economy with over 150 million subscribers (Scheen, 2008). Adogla (2009) said the annualized aggregate growth rate in handset number was pegged at a healthy 58%, a figure that clearly propelled the African cellular market to outperform all others worldwide. In Nigeria, the introduction of GSM in 2001 marked the positive contribution of telecommunications to socio-economic activities of the people. According to NCC (2012), the GSM industry empowered at least 84.3 million subscribers and with an impressive tele-density of about 72.20. In Ibadan for instance, more than 95% of the sampled respondents possessed GSM phones used for communication. The breakdown of subscribers revealed that telecommunications is dominated by GSM users (89%) and distantly followed by Code Division Multiple Access system (CDMA) and fixed wired/wireless. Indeed, less than 10% of telecom subscribers in Ibadan were connected to CDMA. Empowerment of citizens with mobile phones has transformed businesses and way of life in urban and rural areas of the country. The benefit spread across different sectors of the economy-health, education, communication, agriculture, industry, banking, wildlife and trade.

In agriculture, the mobile phone holds the ace in the application of modern information communication technologies (ICT) to disseminate information and knowledge to farmers. ICTs have the greatest potential to act as a facilitator for specific development

oriented programmes that are currently operational at grassroots in Nigeria (NCC, 2010). Access to ICTs provides information on prices, markets, technology and weather to the farmers. Community-based tele-centres have the potential to empower rural communities and facilitate socio-economic developments in agriculture using selected ICTs (e-mail, internet, phone, radio, TV, print) to accelerate the wider delivery of appropriately packaged agricultural information and other relevant information for the poor. In the fisheries sub-sector, mobile phones are used to coordinate fishing efforts (Adogla, 2009); product marketing, talk and to improve safety (Spore, 2008) as well as linking fishermen and wholesalers together for business (Scheen, 2008).

The mobile phone communication benefits education at several levels. The pervasiveness of GSM has brought about rapid social, political and economic transformation, which has culminated in a network society organized around ICT (Yusuf, 2005). Currently e-learning is becoming one of the most means of using ICT to provide education to students both on and off campus by means of teaching online offered through web based systems. Considering the role of education in nation building and the population explosion in the secondary school these days, the use of ICT in the teaching-learning process becomes imperative. This is true because its adoption by the teachers will enhance effective teaching. Such issues like good course management, content creation, self-assessment, self-study, collaborative learning, task oriented activities, and effective communication between the actors of teaching/learning process and research activities will be enhanced by the use of ICT based technology (Ajayi, 2006). In recent time, most of these services are powered by GSM technology.

In Nigeria, the available infrastructures for ICT in most tertiary institutions are grossly inadequate. It was observed that most university students still visit internet cafe off campus because of demand on the internet on-campus. The bandwidths shared on most of these systems at cyber cafés are still low. As a result, much time is wasted on internet browsing. Olaniyi (2006) stated that most of the institutions of higher learning in Nigeria have started building their ICT centres but they focus on internet facilities without considering other components that make up ICT centre. Although access to internet services in the Nigerian education sector may appear low, the provision of data services by

GSM providers widened the level of coverage. In this way, there are people especially students who could browse the internet on their mobile phones.

Undoubtedly, ICT makes access to education more flexible and reduces barriers of time and place. In addition, communication technologies can also enhance the quality of university teaching and research. The internet has emerged arguably the most visible component of the information and communication technologies. The rate of adoption of the internet exceeds that of all technologies before it. Its uses comprise communication, publishing and research. The dynamics of adoption and usage of ICT could be examined at three levels, which are the macro-(national), meso-(sectoral) and micro-(organizational and individual) levels. Oyelaran-Oyeyinka and Adeya (2004), Achimugu and Afolabi (2009) investigated the level and depth of use of computers by university staff. From their survey in Nigeria, 58.5% used computers for word processing, 32.2% used it for spreadsheet and data processing and 20.5% used it for programming, 66.9% used it for email/internet while 9.4% used the computer for other purposes apart from the aforementioned. There is a higher degree of e-mail and internet use within the private universities compared to the public universities. The main reason could be as a result of better facilities at some of the private universities coupled with lower densities of users per access point. This implies faster connections, shorter waiting times, less congestion and lower cost as the private institutions often provide free access for the staff. The challenges facing Nigerian public universities pertaining ICT acceptance and usage for teaching and learning is primarily lack of commitment by the government in terms of funding, staff training and stable power supply (Oye, Salleh and Iahad, 2011).

The lack of adequate healthcare is one of the most onerous aspects of poverty. There has been significant focus on using ICTs to actually deliver healthcare (telemedicine) and as a way of educating people on health issues in Nigeria. For instance, preventive measures against AIDS and recent incident of bird flu are communicated to the poor through television, Internet, radio, posters. However, there are other uses of technology, which have the potential for revolutionary improvements in the delivery of healthcare. In most cases, the technology is being used in its simplest forms to aid in the collection, storing and retrieval of data and information.

Two years after introduction of GSM in Nigeria, Idowu *et al.*, (2003) conducted an interview among medical practitioners in some Nigerian teaching hospitals to find out the current level of utilisation of phones to facilitate patient care at their own expenses. Neither the government nor hospital management had taken up the responsibility. Currently, the number of GSM service providers in the country has increased significantly and all of them keep rolling out several service options or packages including internet services with varying benefits to attract customers. Although, a GSM based referral system was developed, validated and recommended for use in the primary health care centre, how far this has enhanced the development of an ICT-driven health care practice in Nigeria is still to be known (Okafor, 2009). Nevertheless, GSM services now facilitate health provision as users now get health tips on their phones by means of short message service (SMS).

Recently, information is recognised, as a prerequisite for empowerment (World Bank, 2002) and participation by encouraging people to be active in the development process, to contribute ideas, take initiative, articulate needs and problems and assert their autonomy (Ascroft and Masilela, 1994). ICT is the latest in the series of continuing technological revolutions. It has significant influence on gender empowerment, by better equipping women to take advantage of opportunities, and access services provided by ICT to exercise their rights and hold state and non-state actors accountable. There is therefore the need for greater concentration on the use of ICT for gender empowerment in Nigeria. For instance, United Nations Millennium Declaration (2001) has ensured that globalization becomes a positive force for the entire people of the world's people and to combat poverty, hunger and disease and to stimulate development that is truly sustainable, and to ensure that the benefits of new technologies are available to all. Women's full and equal access to ICT-based economic and educational activities supports women's contributions in both business and home-based activities and improves women's socio-economic status, strengthens the family and provides access to information, freedom of expression and formal and informal associations. ICTs also provide options for women including overcoming illiteracy, creating opportunities for entrepreneurship, allowing women to work from home and care for their families, accessing ICTs from rural locations and enhancing and enriching quality of life. The provision of GSM services is the easiest and

fastest way to access ICT in the 21st century (Ndukwe, 2008). Therefore, by extension Nigeria has impressive record of ICT utilisation because of the current tele-density.

In Nigeria, the ICTs have also helped to impact on the livelihood strategies of small-scale enterprises and local entrepreneurs as well as in the enhancement of various forms of social capital. A proportion of the research literature discusses social capital and ICT from general internet studies as well as specifically place based research (O'Neil 2002). Social capital theory, particularly since Putnam (2000), has attracted the attention of scholars working to understand ICT in local as well as historical communities. While Putnam's theory focuses on the value of bridging across-group social ties, earlier social capital theory particularly Coleman (1988), emphasizes the value of bonding within-group social ties.

ICTs initiative is part of existing social interactions; they reduce the friction of space not the importance of place (Hampton 2004). The technologies have been viewed as part of a complex ecology of communication tools that enable local social interactivity. For instance, the Internet is a tool for maintaining social relations, information exchange, and increasing face-to-face interaction, all of which help to build both bonding and bridging social capital in communities (Kavanaugh and Patterson 2001). ICT initiatives play a significant role in developing and sustaining local social ties and stronger ties are characterized by broader media usage (Haythornthwaite, 2005). To buttress the above position, more than 89% of GSM users in Ibadan and by extension Nigeria as whole (NCC, 2012) have utilised their GSM phones to connect family and friends. This has helped to build strong social bond and collective solidarity.

2.2.9 GSM Services Provision and Quality of Network

Telecommunications infrastructure remains one of the major issues affecting technology deployment required for growth and development in Nigeria (Awe, 2007). When Nigeria gained independence in 1960, there were only 18,724 functional telephone lines for an estimated population of 45 million. During this time, the tele-density ratio was 0.04 telephones per 100 people (Mughele *et al.*, 2011). In the thirty years of military rule, there was very little investment in telecommunications, and other sectors did not fare any better. According to the International Telecommunications Union, by 1996 Nigeria's tele-

density ratio was a mere 0.36 (Ajala, 2005). It rose slightly to 0.4 by 1999 (Ndukwe, 2008). Nigeria's tele-density was a far cry from the African average of 1.67. Even the NCC admits that Nigeria has had a very limited telephone network for many years, and the waiting list is estimated at over 10 million people, who applied to the incumbent monopoly, NITEL for services.

However, with the liberalisation of the telecommunications industry in 2001, the story changed dramatically. The tele-density ratio tripled within just one year of GSM operation. By May 2005, Nigeria with an estimated population of 128,771,988 had more than 9 million GSM subscribers, making the country one of the fastest growing GSM markets in the world. At the moment, there are four active GSM operators in Nigeria, which included MTN, Globacom, Airtel, and Etisalat. The NITEL's operation of MTEL has been in extension. Also, in Nigeria, there is operation of CDMA services such as Visafone, Multilinks, Starcomms, and Zoom wireless. It was predicted that between 2003 and 2006, Nigeria's GSM market would be Africa's fastest-growing mobile market, and this prediction had been fulfilled. The competition is getting fiercer by the day as operators have to compete desperately for the same potential subscribers (NCC, 2012).

Four years after the start of the GSM era in Nigeria, the focus gradually shifted from providing coverage to provision of quality service. Mughele, Olatokun and Adegbola, (2011) observed that the euphoria of owning a phone set is gradually giving way to complaints of dropped calls and congestion. The operators are fast realizing that they are in a highly competitive environment where subscribers can make or break them. Dissatisfaction by subscribers gives rise to a high rate of subscriber churn and low revenue for the operator. The performance of the network has a direct impact on the revenues. The NCC is putting pressure on the operators to step up the quality of services offered to Nigerians and had even gone a step further to award contracts to private companies to conduct comparative analyses of the quality of service offered by each of the operators. The NCC has further threatened to sanction any operator that fails to pay attention to quality (NCC, 2012).

The GSM mobile telephone offers high quality voice communications and low bandwidth (9.6kb/sec) data connections for fax, short message service (SMS) and full dial-up connection to the internet for e-mail and web browsing, usually requiring a mobile

computer or intelligent handset. The need for mobile computing came as a result of the need to access information anywhere, anytime. The drawback of this system is its inefficient use of the radio resources (Ndukwe, 2008). The increasing need of mobile telephone and devices for data communication drives the need for a fast, reliable and available infrastructure. Mobile communications now offer a lot of services ranging from voice call to mobile internet, multimedia and e-mails. Mobile terminals are now becoming complex embedded systems, with stringent real time requirements for signaling and voice processing (Scuria, 2001). There are many technical challenges to be solved to make all of these components work as envisaged.

Quality of service can therefore be determined by the following variables. This includes the rate at which difficulty occurs over time, rate of response over time, tariff and availability of communication channels. Since most of these problems involve entities and relationships in reality which is dynamic in nature, it therefore needs a dynamic ontology. Aside from telecommunications, other service oriented domains finds ontological models to be useful tools (Intelligent Integration of Railway Systems [InteGrail] (2010)). This domain knowledge requires management, and this is one challenge of knowledge representation with ontologies and their incomplete knowledge representation (Brewster and O'Hara, 2004, 2007; Church and Smith, 2007).

The handsets sold over the next few years are likely to operate much more differently than those of today because of innovation that is characteristic of telecommunications world. GSM is going to play a practical and pragmatic role in making all of these features work. Many people are attracted to GSM because of its mobility features. GSM is now a means of livelihood for many people as more individuals are engaged in phone-related businesses. Another thing that attracted many subscribers is the marketing strategies of the operators and competition to get many subscribers, even though their infrastructure cannot sustain them. Some operators complained of exorbitant fee to obtain licenses for operation in Nigeria, so they have to get as many subscribers as possible for them to recover their money. These factors have led to congestion on the Nigerian GSM network. The causes of congestion in GSM services in Nigeria have been identified as follows.

Lack of Adequate Base Stations

On December 29, 2003, Vanguard published a report where Adrian Wood, the Managing Director of MTN made a declaration that they have 1.5 million subscribers and that they had only 670 base stations all over the country. That gives an average of 2,238 subscribers to a base station, which is highly inadequate. Now the numbers of GSM/CDMA subscribers has increased drastically due to a landslide reduction in tariffs and SIM card. It is doubtful if mobile communication Base Stations (BS) had a matching increase. The present ratio is about 10,000 subscribers to one base station (Mughele, Olatokun and Adegbola, 2011). This situation fell below international standard of 100 subscribers per one BS.

Lack of Adequate Channels

The inadequate base stations automatically produce inadequate channels to support the subscribers and the service rolled out by these operators. The channels determine the total number of subscribers that can be allowed to use a base station simultaneously at any point in time (NCC, 2005). This trend remains the same because any time a base station is added to network, a high-level of promotion will be rolled out in order to attract more customers.

Competition for Subscribers among the Operators

It seems the highest priority of the GSM operators in Nigeria is the total sum of money they will make from the subscriber base and not the overall quality of service (Mughele, Olatokun and Adegbola, 2011; NCC, 2012). So, they have catchy advertisements and often make false declarations to attract customers to their network, but they don't have infrastructure to sustain and satisfy customer demands. This action resulted in too many subscribers which their network could not support.

Lack of End-to-End System

The GSM operators in Nigeria are still depending on radio waves to transfer speech and data from base stations to mobile switching centres. Radio wave signals are subject to interference from other electromagnetic waves generating systems such as radio and television. When such interference occurs, it could lead to call setup failure, call drop, or other distortions (Mughele, Olatokun and Adegbola, 2011).

Lack of Good Quality Phones

In any radio link communication, it is the radio link between handset and base station that remains the weakest part of the communication system. If conditions are unfavorable, or the user moves into a tunnel during a call, they will lose connection (Mughele, Olatokun and Adegbola, 2011). Good quality handsets with higher frequency wave intensity will make a call more stable and reduce interference from another caller. This is justified by the regulation of the power control that transmits power between the terminal and base station. It is very important to have efficient power control in order to keep interference at a minimum.

Lack of Good Communication Terms between different Networks

One of the reasons for poor inter-network communication is the inability to agree on the sharing ratio of the revenue between the network operators. As a result the numbers of lines that are open for interconnectivity are small compared to the total number of lines (NCC, 2011). For example, as of December 2005, MTN had about 6 million subscribers and Mtel had about 3.5 million subscribers. Then MTN only agreed to open up 600 lines to the Lagos region and 300 lines to the Abuja region for interconnectivity with MTN (NCC, 2010). This is why subscribers find it difficult to interconnect in both networks. Although interconnectivity is opened to every GSM/CDMA line today, tariff and network have continued to erode customers' satisfaction.

2.2.10 Benefits and Challenges of GSM

According to National Bureau of Statistics (2010), GSM facilitates economic development as it provides easy and effective communication needed to stimulate and promote trade between Nigeria and its foreign partners in the world. On the domestic shore, GSM plays a vital role in communicating government programmes thereby linking

them to entire sectors of the economy in order to achieve a common goal. Above all, it encourages investment which in the long run promotes employment opportunities. At microeconomic level, the sector contribution to GDP increased by 53% in 2003 and has contributed at least 8.2 percent by 2010. This makes it the third highest contributor ahead of the financial sector which has been in operation for about 100 years. The sector has attracted foreign direct investment of about \$5billion (NCC, 2012).

In respect of employment, over 135000 persons have been directly and indirectly employed by the operators and their distribution chain components. The industry supported service sectors such as banking, insurance, consultancies (legal, accounting, HR, tax), haulage, shipping and IT, as well as the small and medium scale enterprises (SME) segment of the economy. According to a report in Nigeria Tribune Newspaper July 16, 2004, 2010 and 2012, government treasury has been boosted by payment of over 200 Billion Naira in taxes and levies from GSM services. National productivity has also been enhanced as travel times and associated risks have been reduced, business communications improved and the rural-urban divide narrowed down. Social and family relationship and the security situation have also been significantly enhanced. A significant number of not-for profit corporate social responsibility initiatives are being sponsored by the operators.

In the views of Adeyeye (2005), GSM has discouraged rural- urban migration, unlike before when rural dwellers were always eager to visit the cities. Now with GSM, they travel to cities without boarding a vehicle. The introduction of GSM has also shown some potential for reducing crime and mortality rate. Indeed it has made health services easy and widespread because many users now access their Doctors and care givers through phone calls. Accessibility to phone services ensure quick calls to security operators when the need arises as well as informing the first stations during fire incidents to save life and property. Adomi (2006) stated that GSM is used by Nigerians mostly to communicate with one another. Students use it to communicate with their course mates, friends, lecturers and family relatives. In addition, family matters, finance, and academic matters constitute the topics/subject of mobile communication. Mobile phone has limited the need for people to travel because of the facilitation of exchange of information anytime the need arose.

Since the introduction of GSM to Nigeria in 2001, mobile phone has become a powerful tool for communication across the country among both the young and the old, as

it has been changing the lifestyle of people. While the older Nigerians use mobile phones for voice communication, teenagers and young adults have adopted the use of short message service (SMS), internet on facebook, youtube, and tweeter as their major way of socializing and maintaining real-time relationships. SMS has found relevance in almost every sphere of Nigerian social life. It has been adopted as the major means of establishing romantic relationships among young people. Several books are on sale in markets in the major cities around the country that give advice to tongue-tied young lovers in the techniques of wooing ladies they admire through text messages. Andrew Walker, a BBC correspondent in Nigeria, noted in his report of October 10, 2008, on BBC News, 'Nigerians are compulsive text senders'. Text messaging has also become popular medium for the construction of Christian values, belief systems, and sentiments in Nigeria (Chiluwa, 2008; Taiwo, 2008). The thriving community of SMS users in the country has also grown into a strong force in fighting exploitation of the masses (Taiwo, 2008). In the business sphere, SMS is employed in banking services for notification of payments and withdrawals. Several programmes on the electronic and print media also solicit SMS from the public for counseling and feedback.

GSM is also presented as being able to make people to communicate with each other, on real time basis, saving time and money, among other conveniences. It facilitates access to up-to-date information to support real time decisions, increases efficiency in environmental monitoring, disaster control and emergency management. Examples given to corroborate these assertions include traffic report by some radio stations in Nigeria which communicates traffic situation to motorists and helps reroute vehicles in case of an unforeseen road blockage that may occur as a result of accidents or flooding. Cited as a case in point was the Ikeja cantonment disaster of 27 January, 2002 in which friends and relatives used the mobile phones to communicate freely with each other and coordinated responses (NCC, 2003). GSM is believed to contribute to the improvement in the living conditions of people in the rural areas by allowing them to communicate easily amongst themselves and with relatives, friends and business associates living elsewhere. More rural businesses and better employment opportunities that can greatly reduce the problem of rural-to-urban migration has started to emerge. The GSM operators alone have generated

3,500 direct employment and an estimated 10,000 to 200,000 indirect employment opportunities (National Bureau of Statistics, 2011).

The proliferation of mobile phones in Africa is not just helping the people to fulfill their interpersonal communication needs. It is also transforming the political and social landscape of these developing countries by empowering the people to participate in their own political affairs. In Nigeria, text messaging was used in the 2011 general elections as a tool for systematic election monitoring. The Network of Election Monitors (NEM) associates in each of Nigeria's 36 states recruited additional volunteers and forwarded mass reminders about the performance on the morning of the elections. Multiple messages from the same polling site were crosschecked for accuracy, and over 10,000 messages, describing both orderly voting experiences and widespread fraud, were received (Independent National Electoral Commission [INEC], 2011).

This kind of open monitoring of elections gives the electorate an overview of situations all over the country. It also tells the whole world what really transpired during the elections. It complements the work of election observers, who may find it difficult to cover a country as vast as Nigeria in one day. In addition to this, in recent times, text messages are specially created to critique the state and its agents. Despite the fact that these creative messages only circulate among a group of young people, they say a lot about how Nigerians feel about the government and its agencies. GSM offers information and knowledge, which are critical components of poverty alleviation strategies. It makes available easy access to huge amounts of information useful for the poor. Through the new technology, particularly networked Internet technologies, anyone can find almost anything. There are fewer secrets, and fewer places to hide. Educated but poor farmers and traders in Nigeria are now promoting their products and handle simple transactions such as orders on the web with payment transactions for goods being handled off-line (Pyramid Research, 2010). Evidence has also shown that even though trading online is not a common practice by the poor Nigerian, the technology is cheaper and faster paper-based medium, telephone or fax. Electronic-commerce enables entrepreneurs to access global market information and open up new regional and global markets that fetch better prices and increase earnings. The realisation of the importance of GSM technology led federal government of Nigeria to

propose the purchase of 10 million GSM phones to empower rural farmers (The Punch Newspaper, 2013).

Much as GSM presents tremendous opportunities for improved and efficient methods and approaches to environmental resource utilisation, there are potential dangers associated with it. Crime remains elusive and ever strives to hide itself in the face of development. As measures and techniques for detecting crimes and criminals advance, criminals also look for means of hiding from these measures. The Internet which could be accessed from GSM currently serve as a hiding place for fraudsters who have simply migrated from the streets to an electronic platform offered by the World Wide Web. Different nations have adopted different strategies to contend with crimes depending on their nature and extent. Certainly, a nation with high incidence of crime cannot grow or develop. That is so because crime is the direct opposite of development. It leaves a negative social and economic consequence (UNDP, 2009). For Nigeria, a nation in the process of saving her face regarding cyber crimes, efforts are now being directed at the sources and channels through which cybercrimes, kidnapping and murder are being perpetuated. This necessitated the policy of SIM cards registration stipulated for all GSM operators.

High volume of equipment which has terminal lifespan flooded the nations under the guise of bringing in cheap, fairly used GSM and ICT equipment especially the disused, low grade. Unfortunately, the disposal of the chemical-laden equipment could spell monumental damage to the soil, water bodies, and worse still to the air directly should they be discarded by burning. There is spate of indiscriminate erection of communication masts across the landscape. This is often dangerously close to residents with radiation effect that may be potent sources of terminal diseases (Yusuf, 2009). Whether it can cause brain tumor is still being debated (Okafor, 2007). However, in a Lagos-based study, the exposure of male mice to radiofrequency radiations from mobile phone (GSM) base stations at a workplace complex and residential quarters caused 39.78% and 46.03%, respectively, in sperm head abnormalities compared to 2.13% in control group (NCC, 2012). The possible implication on human health could therefore be inferred. Nigerians nevertheless continue to have the allergy that mobile phone masts trigger many health symptoms including anxiety, nausea and tiredness, among other health hazards.

On the other hand, fears over use of mobile phones and emission from Base Transceiver Stations (BTS) may have been doused by a forum of experts, who said there was no substantiated evidence that they were harmful to human health (NCC, 2012). Indeed, scholars have carried out so many studies over the last 20 years to determine the vulnerability of peoples' health to mobile phones and BTS access, yet no health effects have been established or diagnosed (NCC, 2012). Besides, research is yet to suggest any consistent evidence of adverse health effects from exposure to radio-frequency fields at levels below those that cause tissue heating. As such, a BTS is a system that allows communication between network providers and mobile or wireless devices, such as cell phones and laptops that use wireless internet. A *BTS* uses radio frequencies to receive and transmit data. Notwithstanding all these supposed proofs, researches are still ongoing. In Lagos, experts from abroad joined their Nigerian counterparts to further brainstorm on possible health implications of mobile phone use as well as BTS erection near residential areas.

According to the reports from the experts, research has not been able to provide support for a causal relationship between exposure to electromagnetic fields and self-reported symptoms, or electromagnetic hypersensitivity (World Health Organisation [WHO], 2010). The experts who were from the World Health Organization (WHO), Mobile Manufacturers Forum, GSM Association, International Commission on Non Ionizing Radiation Protection (ICNIRP), the Federal Ministry of Health and the Ministry of the Environment were drawn from the various fields of health, environment, ICT and National Assembly (NCC, 2010). Nevertheless there is continuous public outcry about indiscriminate erection of BTS close to human abode.

There is hardly controllable habit of receiving and making phone calls while driving, using phones when closed to a working petrol engine, especially power generating sets, more so that the prevailing power situation has turned these generating sets into 'necessities' and are sometimes in their multiples in each dwelling. These are fatal risks often assumed in ignorance. The use of cell phone while driving has been equated to driving under the influence of alcohol (Ogunbodede, 2010). In a recent study, about 23.5% of respondents made calls while driving and 50% received calls. Also 23.5% were reported to often read text messages behind wheels and perhaps, more ridiculously, that some 3.9%

of the respondents do send text messages while driving (NCC, 2010). In the current study however, at least 71.2% of the respondents agreed that using GSM phones by vehicle drivers on motion was a potential source of accident on the Nigerian high ways. Flexibility in travel while reducing peak hour traffic to and from work could also generate more of less significant vehicular trips during normal working periods. Also, tele-working may encourage increased urban sprawl by commuters who see less travel as trade off for longer trips from more spacious living environment.

Outside the armed forces and Nigeria Police, the three leading GSM operators, MTN, AIRTEL, and GLOBACOM have the highest number of security guards on their payroll (Ndukwe, 2010). These security guards were employed to guard infrastructural equipment against theft and vandalism. As of October 2007, Airtel had 2500 base stations, MTN-- 2900, and Globacom-- 3000. This translates to having 5000, 5800, and 6000 security guards, respectively, on their payrolls (since two personnel were guarding every base station). The direct implication of this is that the cost incurred for these security guards goes into the total cost of operation and subsequently leads to increases in call tariffs. The presence of these security guards at the base stations, however, has not totally prevented armed robbers, thugs, and hoodlums from vandalizing and carting away generators and valuable equipment at base station sites. In recent time, there were vandalisations of GSM masts by the activities of *BOKO HARAM* terrorist in Northern Nigeria. As a result, some base stations were shut down due to these nefarious acts. The technical implication of this is that once a base station is shut down, call transmission for subscribers in that location would automatically be transferred to another nearby base station which will lead to network congestion. Subsequently, subscribers within this area will experience poor quality of service.

Furthermore, this research revealed that 78% of the total cost of operations by GSM operators goes into the provision of generators and fuel. The epileptic nature of power supply system in the country has necessitated the over-dependence on generators. The GSM operators attribute the high tariff structure to the extremely high overhead costs of doing business in Nigeria especially given the infamously epileptic nature of power supply. One of the major cellular phone providers in the country spends about N21 billion annually on electricity generation at its base stations (Tell Magazine, 2011). This cost is

passed on to the cell phone user. The direct implication of this is that call tariffs will drastically increase. Apart from this, it is obvious that the cost of procurement and fueling is also enormous. If power supply system is stable, this huge amount could have been used in upgrading and optimizing existing base stations in order to improve service efficiency. Additional base stations and switching centers could be built for network expansion which will eventually alleviate congestion and the network will have capacity to handle more calls. So, the network problems experienced in the country cannot be completely divorced from instability in power supply.

The Nigerian Communication Commission (NCC) and the National Lottery Regulatory Commission (NLRC) inaugurated a joint committee to enforce new guidelines and stop frivolous lottery shows (NCC, 2012). There has been public outcry questioning the authenticity of most lottery shows run by telecoms services providers in the country. A statement by NCC indicated that as competition becomes stiffer in the telecoms industry, service providers consistently device new ways of attracting new customers and retaining old ones within their networks. Promotions and lotteries have become prominent tools used by service providers to delight their teeming subscribers. In a bid to ensure sanity in the industry, NCC published specific guidelines on advertisement and promotions of lottery activities (NCC, 2012). Part of the strategy for the co-operation by the two agencies is to form a synergy as well as guidelines that will ensure that consumers are never short changed while participating. Therefore, it has become expedient to ensure that lottery in Nigeria is done creditably given the number of complaints trailing most lottery shows (NCC, 2011). Although the proposed synergy between NCC and NLRC appeared promising and resounding, it is not certain whether consumers may be protected in the hands of cheaters in the sectors. Evidence suggested that GSM operators still engaged in the services of unwholesome promotions and lotteries which are at the expense of subscribers.

2.2.11 Provision of Quality Service and Consumer Satisfaction in the Telecommunications Sector

The telecommunications is a part of larger class of industries, public utilities, with similar technological, economic and public service characteristics. According to Melody

(2001) public utilities derived from the law in any country. Where the demand for a good or service is considered a common necessity for the public at large and the supply conditions are such that the public may not be provided with reasonable service at reasonable prices. Service is a form of attitude which is related to satisfaction and also leads to consumer loyalty (Johnson and Sirikit, 2002) and future purchase. In particular consumers prefer service quality when the price and other cost elements are held constant (Boyer and Hult, 2005). It has become a distinct and important aspect of the product and service offering (Wal, 2002). According to Leisen and Vance (2001) service quality helps to create the necessary competitive advantage by being an effective differentiating factor. Service quality was initiated in the 1980s as the worldwide trend when marketers realized that quality product alone could not guarantee then maintenance of competitive advantage (Wal, 2002). Competitive advantage is a value-creating strategy, simultaneously which is not implemented by any existing or potential competitors (Barney, 1991). A competitive advantage is also sustained when other companies are unable to duplicate the benefits of this strategy.

Service quality is essential and important for a telecommunications service provider company to ensure the quality service for establishing and maintaining loyal and profitable customer (Zeithaml, 2000; Leisen and Vance, 2001). Johnson and Sirikit (2002) stated that service delivery systems have the ability to allow managers of companies to identify the real customer feedback and satisfaction on their telecommunications service. In this way, quality reflects the customers' expectations about a product or service. Lovelock (1996) stated that this customer driven quality replaced the traditional marketing philosophies which was based on products and process. Service quality is different from the quality of goods. Services are intangible, perishable, produced and consumed simultaneously and heterogeneous (Zeithaml and Bitner, 2000). It is a major problem for the telecommunications service providers, especially for the mobile telecommunications service providers to deliver quality service consistently. According to Wang and Lo (2002) in marketing and economics quality often depends on the level of product attributes. They also mentioned that there are two primary dimensions for quality in operation management. At first, fitness of use, which refers to product or services that is supposed to do and possess features to meet the customer needs. Another one is reliability, which

represents the product that is free from deficiencies. Accordingly, it is important for a company to understand how customers perceive their service quality.

Consequently, Rust and Oliver (1994) pointed out that companies need to measure consumers' satisfaction with their products and services. Generally, service and product quality is in the mind of the consumer. So, it is necessary for the mobile telecommunications service provider to talk with the consumers when measuring quality. This is because quality reflects the extent to which a product or service meets or exceeds consumers' expectations (Wal, 2002). Wang and Lo (2002) studied on comprehensive integrated framework for service quality, customer value, and customer satisfaction and behavior intentions of customers in China's mobile phone sector. In this study, they conceptualized factors with service quality as antecedents to customers' overall evaluation of service quality rather than dimensions or components of the construct. In the study, they found that the competition between two mobile phone service providers is more intense than ever. This competition is not only in network quality by a large amount of investment in network extension and upgrading but also in customer retention and acquisition by direct and indirect price reduction.

Service quality has a significant influence on consumer perception regarding choice of mobile telecommunications service provider. Price competition has become cutthroat in mobile telecommunications industry. Trebing (2001) mentioned two sets of strategies for pricing behaviour. The first is limit entry pricing, which is used for protection of the market position of the firm. The second is the high access charges for new entrants, and the third one is tie-in sales to write off old plant or standard investment against captive customers. Limit entry pricing involves setting low prices in highly elastic markets to attract or retain large customers with monopolistic buying power, while maintaining high prices in inelastic markets. Price plays a vital role in telecommunications market especially for the mobile telecommunications service providers (Kollmann, 2000). It is included not only the purchase price but also the call and rental charges. Generally, a price dominated mass market leads to customers having more choice and the opportunity to compare the pricing structures of different providers. Therefore, the more the company offers lower charges, the more customers will commit themselves to the telephone networks, as a result of which more call minutes will be achieved.

According to Kollmann (2000), income from the number of call minutes determines the basic commercial success for the network providers. He also added that the success of the telecommunications sector in market place is dependent on continuing usage and pricing policies, which need to be considered on several levels. This is right from the beginning when purchasing the end-user set because a common strategy for a company extending their product or service is to differentiate their offerings vertically (Draganska and Jain, 2003). Price has a significant influence on consumer perception regarding choice of mobile telecommunications service provider. Product quality and availability of consumer's perception of product quality is always an important aspect of a purchasing decision and in market behavior. Consumers regularly face the task of estimating product quality under conditions of imperfect knowledge about the underlying attributes of the various product offers with the aid of personal, self-perceived quality criteria.

According to Sjolander (1992), the consumer behavior in modern market is different from the theoretical case of consumer decision making in free markets. Generally, free and competitive markets are composed of buyers and sellers each of whom possesses: perfect information about all possible products and their respective utilities; a well defined and explicit set of performances; The ability to determine optimal combination of various products given their budget constraints; a knowledge of price, which does not affect the subjective wants or satisfactions of the consumer (Monroe and Petroschius, 1973 adapted by Sjolander, 1992).

In fact, it is necessary to define quality before it can be measured. There is no global definition of quality (Sebastianelli and Tamimi, 2002). It can be defined in a variety of ways. Yoon and Kijewski (1997) pointed out that quality can be categorized into two perspectives. One is the marketer's perspective, which is typically product-based or manufacturing-based and another one is consumer's perspective, which is typically user-based or value-based. Generally, product quality from the marketer's perspective is associated with specific feature, function or performance of a product. On the other hand, product quality from the consumer's perspective is associated with the capacity of a product to satisfy consumer needs (Archibald *et al.*, 1983). According to Lambert (1980) consumers often attribute quality to branded products on the basis of price, brand reputation, store image, market share, product features and country of manufacture. So,

price is an indicator to measure the product quality, which is based on the theory that quality is a measure of the utility, or the want-satisfying capacity of products (Sjolander, 1992). He also added that the more quality a product possesses the more utility it contains, and the higher price it will obtain in an open market exchange. That means similar products offered to the market at different price, contain different amounts of utility, and that there is a direct relationship between quality and price. The actual price-quality relationship is a complex interaction between price, brand name, store image, product features, and brand awareness (Lambert, 1980; Gerstner, 1985).

Overall, the quality of a product is also related to the availability of the product's main functional features on one hand and the consumer's experience-in-use of the other auxiliary features on the other hand (Yoon and Kijewski, 1997). A product's main functional features are the sources of the primary benefits that the consumers expect to obtain when purchasing a product. In general, consumers' evaluations of a product's overall quality are related to the availability of these features in comparison with the competition (Lambert, 1980; Nowlis and Simonson, 1996). Hence, it is necessary to talk to the consumers for measuring the quality, since quality reflects the extent to which a product or service meets or exceeds consumers' expectations (Wal et al. 2002). So, the success of the telecommunications sector in market place is also dependent on product quality and availability. Product quality and availability has a significant influence on consumer perception to choose mobile telecommunications service provider.

Promotion is one of the medium which is used by organization to communicate with consumers with respect to their product offerings (Rowley, 1998). It is an important part for all companies, especially when penetrating new markets and making more or new customers (Kotler, 1999). They also mentioned that promotion is the activities that communicate the product or services and its merits to target customers and persuade them to buy. Generally, promotion is concerned with ensuring that consumers are aware of the company/firm and its products that the organization makes available to those consumers (Root, 1994). More specifically, the objectives of any promotional strategy such as increased sales, maintain or improve market share, create or improve brand recognition, create a favourable climate for future sales, inform and educate the market, create a competitive advantage, relative to competitor's products or market position and improve

promotional efficiency (Rowley, 1998). The base of this position explains the sporadic nature of promos and lotteries offered by GSM operators in Nigeria.

According to Alvarez and Casielles (2005) promotion is a set of stimuli that are offered sporadically, and it reinforces publicity actions to promote the purchasing of a certain product. Promotional offer consists of several different objects to create a better sale impact, for example, coupons, samples, premiums, contests, point-of-purchase displays and frequent-buyer programmes. Each of the promotion techniques are intended to have a direct impact on buying behaviour and perception about the company or service providers. The objectives of promotion will be reached to a greater extent when it is done sporadically, when the consumer does not expect it. Promotional action must be planned, organized, integrated into the establishment's marketing plan and must incorporate the needs and satisfaction of consumers. It is unfortunate that some GSM services providers have seized promotion as a way to win teeming customers, exploit them while providing poor services. In Nigeria for instance, NCC has stepped up its surveillance of GSM operators to check arbitrary promos and lotteries which in most cases negate business ethic of equity.

2.2.12 Adoption of Technology, Applications and Internet Services

One popular framework for studying the adoption of technological applications is the Technology Acceptance Model (TAM), developed by Fred Davis in 1986 (Davis, 1989; Davis, Bagozzi and Warshaw 1989). This model has been widely employed to understand the actual use of specific computer applications, and how such use is determined by cognitive and affective variables: 'perceived usefulness' and 'perceived ease of use' via 'attitude toward using the application'. Although Davis' model has been rigorously tested and statistically and conceptually validated (Davis 1989; Cheung and Huang 2005; Elwood, Changchit and Cutshall 2006; Park 2009), modifications and improvements have been made over the years to the original model. This includes the inclusion of 'compliance', 'identification' and 'internalisation' constructs in a study on the adoption and usage of new computer programs among hospital staff (Malhotra and Galletta 1999); the integration of an additional affective dimension, 'perceived change', in a survey on laptop acceptance among students at a University (Elwood *et al.* 2006); and the adding

of 'use of other technologies' and 'motivation' in an online survey on the adoption of a commercial electronic courseware at a U.S. University (Park 2009).

The above examples suggest that adopting technologies for specific ends is more complex than assuming natural inclination of the users to pick it up if it is available. Findings have shown that Internet has become integrated into the lives of students. They utilise the internet in their day-to-day lives, be it for academic or general purposes. While the internet is still mainly used for information seeking, it is also utilised for entertainment and socialisation purposes and, overall, users particularly students were positive toward the development of the Internet accessed via GSM innovation. Internet integration is thus expected to gain more momentum as the technology becomes more accessible. The accessibility of the Internet has increased and continues to increase, not only due to the rising number of internet Services Providers but also due to the increasingly available access modes, notably mobile access. The activities of users on the Internet ranged from using e-mail to real-time chatting, playing games reading/watching/listening to news, looking for jobs and making friends, and so forth. This is in parallel with findings on Cambodian Facebook users, who have increasingly integrated Facebook into divergent aspects of their lives, including fun seeking, socialising and friendship maintenance (Saray, Chea and Peou 2010). Also, in the current study, GSM users in Ibadan utilised their mobile phones to access facebook for similar purpose in the case of Cambodia, though this pattern was found among youths.

In terms of the students' attitudes, the Internet appeared to be readily embraced by the students. A sense of optimism about what the internet could do for society was common and was also supplemented by a sense of enthusiasm toward its development. The users felt relatively comfortable with the Internet presence and their experience with it. All these facts may be tempting to suggest that a new generation of 'digital natives' (Prensky, 2001), or 'Net Generation' (Tapscott 1999), is arriving in a section of society. The internet users have socialised into a new environment of social relations, meanings and action, one which primarily involves not just the Internet (Chivoïn and May, 2011), but also other digital technologies such as mobile phones and computers. The implication may be plausible. It is premature at best and naive at worst to claim these 'digital natives' are making use of the internet to the best of overall interest or their academic endeavour, not

least demanding an entirely new pedagogical paradigm (Bennett, Maton and Kervin 2008). The utilisation of the Internet via mobile phones for academic purposes by students remains marginal, highlighting an under-use, or even inadequate understanding, of the Internet and its potential. Findings showed serious under-utilisation of the internet for teaching and learning. Although students used internet search engines at least once a week to get information for their academic work, this could be qualitatively problematic. With the noticeable absence of training programs on Internet searches and other related skills in virtually all school and university curricula, using search engines risks the possibility of encountering overwhelmingly abundant information at best, and of worthless or misleading information at worst.

Educational institutions have to acknowledge that training provision of internet-related skills is premised on the fact that internet access *per se* does not warrant better learning experiences. This may be achieved through increased access to GSM phones that have internet program. In addition, digital divides due to gender and experience were found (Chivoïn and May, 2011). In terms of use, male students were more likely to use the internet and to rate themselves as more internet-competent. Females tended to be more gratified than males with internet access at home and on mobile phones, two access modes that were likely to provide more privacy than the others. Differences also emerged in the aspects of use motivations, optimism and academic internet use. Seeking information and entertainment from the Internet was more common among males than females and among the more experienced than less experienced users; whilst socialisation use was more popular with experienced users. Overall, male and experienced users were more positive toward the internet and often utilised the internet for academic purposes (Chivoïn and May, 2011). Although there were significant differences between male and female in terms of internet utilisation, the gap is increasingly bridged by the increased access and utilisation of GSM phones in Nigeria. Evidence showed that female subscribers mostly students now accessed the internet frequently on their phones, browse, chat and make new friends on the facebook. Female university students have also used mobile phones such as blackberry to solve their school assignments.

Internet cafes remain the most crucial access point for users. For the university students, Internet cafés were the most used and most strongly associated with all Internet

uses: information seeking, entertainment, socialisation and, most crucially, academic utilisation (Chivoïn and May, 2011). In the Nigerian context however, GSM has gradually reduced the spate of seeking internet information in the cafés. This is because service providers now introduced modem devices for personal browsing. The provision of internet services by GSM/CDMA operators is still fraught with network failures and instability. However, with the persistent enthusiasm to give the internet an integral role in education over the last decade (Selwyn, 2008); internet use among students has been researched in many countries. International research findings consistently demonstrate that the use and motivation to use the internet by students tend to be overshadowed by purposes other than academic utilisation. In addition, the digital divide is persistent in a number of aspects, most noticeably within gender and race, while Internet use among students is also linked to different positive outcomes, possibly creating new types of exclusion.

In Taiwan, for instance, research on Internet use by students found that among Taiwanese high school students, males use internet more than than females (Tsai, Lin and Tsai 2001), while Tsai and Lin (2004) discovered that males viewed the Internet more as a 'toy' and less as 'technology', a 'tool' or 'tour' than females. Females use the Internet more pragmatically rather than 'enjoyed' it compared to males; and males had a stronger perception of usefulness and control of the Internet. Among Taiwanese university students, Peng, Tsai and Wu (2006) found similar nuanced differences. Males were more positive toward the Internet, and showed higher perceived self-efficacy of the Internet. In Britain, university students used the Internet more for communicative rather than academic purposes, and Internet use was rather female-dominant and dependent on the students' subject areas of study (Marriott, Marriott and Selwyn 2004; Selwyn 2008; Walmsley, White, Eynon and Somerfield, 2003). Gender was also more perceptually relevant in Selwyn's (2007) finding that undergraduate students tended to regard e-learning as 'feminine', which he attributed to the preconceived gender-stereotyping that females studied more than males.

Other aspects of internet use among university students in Britain showed a mutually positive relationship between 'internet identification' and 'internet use for educational work' among first-year undergraduate students (Joiner *et al.* 2006). Elsewhere, there are findings that reveal similar issues of academic internet use and divide among

students. Cheung and Huang (2005) surveyed undergraduates at a university in the United States and found that Internet use meant more positive perceptions of learning and job prospects. A survey by Cotton and Jelenewicz (2006) reported that race and internet experience were significant factors in different types of uses among university students in the U.S. White students played more games and used chat rooms less than non-white students, and more experienced users played more online games and also used chat rooms more. Similar findings were documented in other countries. For instance, Hong and Huang (2005) reported that students in China used the Internet for chatting (67%), followed by playing games (43%), reading information (38%), and viewing pornography (20%). The dominant uses of the Internet by university students for communication and entertainment were also common in South Africa (Odero, 2003) and Namibia (Belcastro, 2002). In the Nigeria context, students have used internet mostly for entertainment followed by connecting family and friends and academic work. Findings in this study have shown that internet services became widespread following the introduction of mobile phones.

The world is fast becoming a global village, and this is claimed to have been facilitated by the internet and other information and communication technologies (Onimode 2000; Bamiro, Oluleye and Tihamiyu 2005; Okafor and Imhonopi, 2011). The advent of the Internet has been seen as one of the major exciting events in the second half of the 20th century. The reason the internet seems this significant is because it contains the biggest resource for information in the entire world and enables people to utilise an interactive mechanism to constantly communicate with each other (Okafor, Imhonopi and Urim, 2011). As Bussiek (2005) has noted, the spread of the internet is an unprecedented success story in the history of communication compared to radio, which took 38 years to reach more than 50 million users, and television which took 23 years. The internet is said to have spread to 50 million users within only 5 years. The growing relevance and speed of information retrieval in all aspects of human life is considered vital to development in countries the world over. With the current information explosion, and the clamour for digital libraries, users can source and utilise information with less stress (Okoro and Okoro 2006; Okafor, Imhonopi and Urim, 2011).

The GSM revolution has contributed tremendously in making access and utilisation of internet services widespread. It is now possible for users to access internet on their

phones at the comfort of their time and location. This has reduced the burden and cost of internet cafes that deprived access and effective utilisation. The tremendous growth of the Internet and the World Wide Web is said to have revolutionised communication, so much so, that the ancient dream of a scholar who knows all things happening in the world without venturing outdoors has finally become a reality (Ololube 2005; Okafor, Imhonopi and Urim, 2011). The rapid changes taking place in the world economy and industrial development have been driven by three technological waves: information technology, technology, and materials. Of these, according to Ajayi (1996), information technology has the greatest influence on virtually every aspect of human activities.

The Internet, in particular, has been considered to have revolutionised the way people collaborate and communicate through the global services it offers (Okafor, Imhonopi and Urim, 2011). Such services include electronic mail, file transfer protocol, Gopher, Wais and Telnet, to mention but a few (Osofiyan, 1996). In spite of the rapidly changing world economic order, several studies (Ajayi 1996; Singh 2002; Nwagwu and Agarin, 2007) have pointed out that the African continent is still lagging behind because of its existing poor infrastructure, and its unique socio-economic, cultural and political situations – all of which pose major obstacles to the introduction and implementation of new technologies for internet workings. However, the problem mentioned above is disappearing especially when it is viewed from the revolution in the telecommunications sector in Nigeria. Now there is bridge in digital divide as more and more Nigerians utilise their GSM phones to connect friends and families, browse the internet and socialize on *facebook* and *youtube*.

2.2.13 Marketing Technology Innovation and Customer Satisfaction

Kotler (1991) stated that marketing concept is the logical starting point for the search for new products and ideas concerning customers need and wants. In this way, firm's success is highly dependent on the extent to which it could integrate its knowledge about the customers with its own intellectual, creative capacity and skills. Consequently, competitive advantage is secured through intelligent identification and satisfaction of customers' needs better than competitors and sustenance of customer's satisfaction through better customer service tools. Marketers use numerous tools to elicit the desired responses

from their target markets. These tools constitute a marketing mix, a set of marketing tools that the firm uses to pursue its marketing objectives in the target market. McCarthy (1999) classified these tools into four broad groups that he called the four Ps of marketing: product, price, place, and promotion. Marketing-mix decisions must be made to influence the trade channels as well as the final consumers. Typically, the firm can change its price, sales-force size, and advertising expenditures in the short run.

However, it can develop new products and modify its distribution channels only in the long run. Thus, the firm typically makes fewer period-to-period marketing-mix changes in the short run than the number of marketing- mix decision variables might suggest. According to Kotler (2010), Marketing Management entails the art and science of applying core marketing concepts to choose target markets and get, keep, and grow customers through creating, delivering, and communicating superior customer value. It is a discipline which focused on the practical application of marketing techniques and the management of a firm's marketing resources and activities (Joshi, 2005). Competition is a critical factor in marketing management which includes all actual and potential rival offerings and substitutes that a buyer might consider. In the telecommunications Industry, competition is intense and several factors are forcing major changes. Mergers and consolidation have completely altered the industry's landscape and cross-border ownership of telecom businesses is making this a globalized industry.

Deregulation and privatisation will have a continual effect worldwide. Internet and wireless technologies are continuing to advance rapidly and quickly changing customer preferences, disrupting traditional communication methods and forcing prices downward. The telecommunications industry encompasses many technology-related business sectors including: Local and long-distance telephone services, wireless communications, Internet, Fiber-optics, Satellites, Cable TV systems. Cable companies are now aggressively offering local telephone service and Internet service. Telecommunications service providers are now selling TV via internet protocol services, competing directly against cable for consumers' entertainment dollars and making the relationship between the telecom and cable sectors more and more complex (Obasan and Soyebó, 2011). Ingenuity, innovation, insight and a reasonable approach to spending and investment can help to move the industry ahead. To drive these, telecommunications service providers will need to employ

cost-effective business intelligence (BI) solutions and design the appropriate marketing management techniques to achieve their organisational objectives.

Fornell (1992) and Levesque and McDaugall (1996) assumed that Customer's satisfaction holds the potential for increasing an organization's customer base, increase the use of more volatile customer mix and increase the firm's reputation. Kotler (2010) defined customer service as a series of activities designed to enhance the level of customer's satisfaction that is, the feeling that a product or service has met customer's expectation. Customer's service varies by product, industry and customer with the service industry assuming important dimension. Dutta and Roy (2006) observed that the service industry have no inventory of finished goods to buffer production from random demand variability; the demand for corporate survival, profitability and growth forced the service firm to hold their own in competition. The Nigerian telecommunications industry for once, has witnessed significant rise in competition in recent years due largely to the deregulation policy of government and the advent of mobile telecommunications companies. Another complex dimension to the competitive trend in the Nigerian telecommunications industry is the ease and rate at which products and services are duplicated in the industry and multi-dimension nature of communication. This trend fosters a scenario of continuous fight for customers share (Menzela, 1999; NCC, 2012) and increasing the need to build loyal customers through effective customer's service activities. Reicheld and Kenny (1990) opined that loyal customers from cost perspective tend to stay longer with the preferred providers, buy more and generate favourable word-of-mouth effect that may further benefit the preferred provider.

Furthermore, Long term customers tend to take less of company time and are less sensitive to price. Gan *et al.* (2006) indicates that retaining customer becomes a priority for most enterprises and there are compelling arguments for manager to carefully consider the factor that might increase customer's retention rate. In any case, the cost of creating a new customer has been estimated to be five times the cost of retaining an existing customer. This explained the reason that accounted for continuous advertisement and promotion offers by GSM services providers in Nigeria. This is important to build satisfaction of existing customers and attract new one. The consequence is that most of these GSM

providers were engaged in unhealthy competition for new customers which has attracted the regulation of NCC.

The explanation of customer satisfaction may not be separated from technology innovation, adoption and diffusion. Rogers (2007) argued that four variables collectively influence diffusion process: innovation, time, nature of social system and how information about the innovation is communicated. Building on Individual Innovativeness theory, one of the subset of the Meta theory of diffusion, Surry (1997) and Norman (1998) proposed the Technology Adoption Life Cycle Model (TALCM) a model which argued that success in marketing technology products entails applying appropriate marketing strategies to different categories of adopters. Hence, unless technology vendors match stages/customers with appropriate marketing strategies, customers' satisfaction, market share and sustainable profit are compromised. This theoretical premise encourage Aminu and Hartini (2008) to examine 85 extensive literatures in marketing technology-enabled services with special interest in telecommunications/mobile phone business in order to customize the model since most innovation studies concentrates on tangible technology.

Gronroos (1994) points to the need to perform tasks other than traditional marketing mix when dealing with products that require repairs, maintenance, delivery, installation, interactivity, long-term relationship among others. As a result he encourages the inclusion of customer support as an integral part of marketing effort. Obviously GSM services share at least some of the aforementioned features. Also, Meldrum (1995) observed that technology vendors need to invest in both technology infrastructures such as efficient offering, design capabilities, compatibility as well as marketing infrastructure to ensure efficient sale, distribution, support and promotion in order to excel in the challenging high-tech environment. In a nutshell, it is crystal clear that the traditional marketing mix variable requires fine turning to be effective in marketing technology products (Gronhaug and Moller, 2005). According to Clancy and Peter (2000) to create an effective, cost-efficient Marketing management strategy, firms must possess a detailed, objective understanding of their own business and the market in which they operate. Extensive review of literature and focus group analysis revealed nine marketing mix variables. These are product (service), pricing, promotion, information, transaction,

distribution, reliability, customer service and personalization that influence client's satisfaction.

Promotion is an important mix because the consumers are informed about the new products and their attributes before they develop positive attitudes toward them. It is a way to persuade and informing the target market about the product existence and hence like the product. This is frequently used in the telecommunications sector by mobile services providers. Sivadass and Baker-Prewitt (2000) stated that a satisfied customer will send word-of-mouth to the others thereby increasing the demand of the product. A good promotion involves product, distribution and price components of marketing. A business' total marketing communications programme is called the "promotional mix" and consists of a blend of advertising, personal selling, sales promotion, brand management, product placement and public relations tools. It has been established that many companies apply these promotion mix elements in order to increase sales revenue. Shimp (2003) viewed sales promotion as any incentive used by a manufacturer to induce the trade or consumers to buy a brand and to encourage the sales force to aggressively sell it. Retailers also use promotional incentives to encourage desired behaviours from consumers. Sales promotion is more short-term oriented and capable of influencing behaviour.

Totten and Block (1994) stated that the term sales promotion refers to many kinds of selling incentives and techniques intended to produce immediate or short-term sales effects. Typical sales promotion includes coupons, samples, in-pack premiums and price-offs, displays. Coupons have been used to produce trial (Robinson and Carmack 1997). According to Ndubisi and Chew (2006), in term of coupon promotions, those consumers obtained coupon are entitled to get discount of the products at its original price. Gilbert and Jackaria (2002) concurring to the popularity of coupon reported that coupon is ranked last as the promotional least widely used by consumers and least influence on product trial. Peter and Olson (1996) view trial ability as the degree to which a product can be tried on a limited basis or divided into small quantities for an inexpensive trial. Brands have a chance to quickly affect consumer choice and behaviour by adding value through an on-pack offer, by achieving incremental display or by encouraging trial via sampling and/ or couponing. According to Schindler (1998), a price promotion that is designed to evoke attributions of

responsibility could be expected to appeal to consumers more than one that does not evoke such attributions, and thus have a greater ability to create product trial among consumers.

Chandon, Wansink and Laurent, (2000) indicated that sales promotion may be attractive to highly promotion prone consumers for reasons beyond price savings. These highly promotion prone consumers may switch brands to receive "special" deals that reflect and reinforce their smart shopper self-perception. They concluded that highly promotion prone consumers might try a new product that has promotion and the magnitude of planned distribution and promotion expenditures (advertising, sales promotions, sales force, and so on) could affect initial trial of the brand. The characteristic of Nigerian telecommunications sector is that GSM services providers have adopted the mechanism of promotions as viable tool of amassing customers to their products. This is because Nigerian GSM subscribers are promotion prone. So, service providers often strive to jostle for increased numbers of consumers through promotional services. This has led to provision of poor networks, poor call set-up and incessant call drops.

2.2.14 Challenges in the Privatisation of the Nigeria Telecommunications (NITEL)

Globalization affects virtually all facets of government activities such as political, economic, social and cultural, among others. The contemporary globalization process according to Dhanapala (2001), demands that states must play strategic roles for the world to be effectively integrated. In this way, such roles are understandable through a critical examination of public policy decision-making process of government. In Nigeria, the body charged with the responsibility of privatizing public enterprises is the Bureau of Public Enterprises. This body also carried out the deregulation of the telecommunications industry that ushered in foreign and indigenous companies like Mobile Telecommunications Network (MTN), former ECONET, V-mobile, Vodacom, Zain (now Airtel) Global Communication (GLO), Etisalat, Visafone, Starcomm and other telecommunications firms currently operating in Nigeria. Subsequently, the Bureau of Public Enterprises (BPE) further sold federal Governments 51% equity shares in NITEL to Transnational Corporation (Transcorp). According to the BPE, Transnational Corporation (Transcorp) was selected through a bidding process that was transparently conducted (Nwagboso and Ajebon, 2012).

Thus, following the issuance of operating license by Federal government, Transcorp embarked on massive public offer so as to generate sufficient revenue for its operations. In 2006, many Nigerians bought Transcorp shares. As President Umaru Musa Yar'Adua assumed office in 2007, several allegations were leveled against the committee that handled the bidding process that resulted in the selection of Transcorp as the highest bidder and core investor in the communication industry, NITEL. The allegation centered on the alleged fraud and corrupt practices that characterized the exercise. It was further alleged that former President Obasanjo led administration masterminded the selection of Transcorp as the core investor in NITEL (Aluko, 2010). This was largely due to the vested interests of that administration in Nigerian's telecommunications industry (Chiedozie, 2009). Consequently, the Yar'Adua administration ordered the immediate reversal of the exercise and further revoked the license issued to Transcorp. Nigerians, who keenly followed the process of the bidding that led to the selection of Transcorp, applauded President Yar'Adua for reversing the sale of NITEL. The arguments were largely based on the fact that it was contrary to public interest (Nwagboso and Ajebon, 2012).

As a result of this institutional challenge, the government opened up a fresh bidding for the sale of NITEL. Hence, many foreign and local investors expressed their interests. At the end of the bidding process, the New Generation Telecommunications Limited (a Spanish consortium), was selected with a total bid of N2.5 billion (Edukugho, 2009). According to the Bureau of Public Enterprises (BPE), the New Generation Telecommunications Limited made the highest bid for the purchase of NITEL. The Federal Government issued operating license to the company. As the company was striving to settle down for the take-off of its operations, Nigeria lost her President Umaru Yar' Adua. This led to the assumption of office by President Goodluck Ebele Jonathan as Nigeria's President. Similarly, President Goodluck Jonathan administration in May, 2010, revoked the operating license issued to New Generation Telecommunications Limited by the federal government under the leadership of the former President Umaru Yar'Adua. This company has been sent packing and the purchase of NITEL – 51% federal government's equity shares in the telecommunications industry (NITEL), now awaits new bidders. Generally, it must be acknowledged that in spite of the mounting difficulties of public

enterprises in Nigeria, pressures for their privatisation were not felt until the mid-1980s with the onset of Structural Adjustment Programme (SAP).

Thus, in the enterprise restructuring and operational efficiency that characterized the privatisation drive in Nigeria, the proponents of privatisation have argued that the poor performances of NITEL made the organization a target for reform. As if privatisation would address the perennial problems confronting NITEL, the current challenges in the sale of 51% federal government's equity shares in the industry has shown the entire world that Nigerian government did not consider the pros and cons of privatisation as a policy before its adoption and implementation. Therefore, government ought to have stopped at the stage of deregulation of the industry which has merely made many Nigerians to at least, possess mobile phones/handsets, even though the MTN, GLO, Airtel, Etisalat, Starcom are currently exploiting the Nigerian Masses through high tariff charges and poor network services.

Against the backdrop of the dramatic political and socio-economic changes and upheaval, worsened by external pressures occasioned by globalization process, supporters of privatisation programme in Nigeria have argued that NITEL accomplished a most impressive and extraordinary performance after the deregulation of telecommunications industry in Nigeria (Edukugho, 2009). Critics have argued that the industry as it is currently organized has abysmally failed Nigerians. The systemic and institutional crises bedeviling governments' efforts in the privatisation of NITEL in the recent years is an indication that privatisation of NITEL and its attendant problems as well as revocation of operating licenses from investors, are purely against public interest (Nwagboso and Ajebon, 2012).

The perceived challenges and abysmal failure of the Bureau of Public Enterprises in ensuring transparency in the exercise should inform the federal Government of Nigeria to retrace its footsteps in the penchant to privatize this industry. This is clear because, in spite of the exploitation of the masses through high tariff hitherto charged by operators like MTN, GLO, Etisalat, Airtel, Visafone, Nigerians are more comfortable with the situation than government selling out rightly this critical sector of the National economy. It may be stated that this exercise may only benefit the elites on the long run, while its effects and burden would be felt by already impoverished masses in Nigeria. Therefore, a country

yearning for development must not allow itself to be coerced and influenced by external forces; otherwise the sovereignty of such a country is jeopardized.

The leaders in Nigeria must show commitment in the management of the country's resources and avoid the emulation and adoption of alien policies and programmes that have failed to address political and economic problems even in countries where they originated (Igbuzor, 2003). If policies such as privatisation, Commercialisation, liberalisation, deregulation are holy and fault-free as claimed by their originators, why then did the countries that professed them recently witness economic recession or meltdown, particularly in America and Europe? During this economic crisis in the Western World, why did their governments come to rescue those sectors, industries and companies that nearly collapsed? Also, why did their governments refuse to fold hands and allow these enterprises rot away and become comatose?

The dominant roles played by the western capitalist countries during the economic meltdown left no doubt in the minds of Marxist scholars that capitalism and its last stages such as imperialism and globalization have woefully failed to address the political and economic challenges in the contemporary world. This is largely because capitalism engenders the division of the world into colonial, semi-colonial and informal spheres of exploitation (Nabudere, 1977). This is further given impetus by the policy prescriptions Nigeria and other Third World social countries were advised to adopt and most times coerced to adopt and implement in their respective states as conditions to receive foreign aids from Bretton Wood institution-- IMF and World Bank.

On the whole, the policies of liberalisation, deregulation and privatisation may not be condemned in its entirety given the landmark achievement recorded in most developed nations and some developing ones. The point of emphasis is that a nation cannot afford to sell its heritage to private individuals and the wealthy elites who may manipulate the scarce resource at the expense of the masses. Now, telecommunications sector in Nigeria has been deregulated more than ten years ago. The sector has contributed massively to the Nigerian economy in revenue, investment and GDP. Indeed the tele-density has soared exponentially. The best bet for government is to consolidate the growth in the sector by creating smooth and save atmosphere for mobile telecommunications industries to thrive.

Privatisation of NITEL may be tantamount to widening the gap between the poor and rich in Nigeria.

2.2.15 The Decade of Global System for Mobile Telecommunications (GSM) in Nigeria: the Gains, the Pains and what lies ahead

The control of Nigeria's telecommunications sector as at independence, was vested in the Department of Post and Telegraph (P and T) owned by the Federal Government. In the early 1980s, the Nigerian External Telecommunications (NET) was formed to provide external communications services. Following increased demand for the commercialisation of telecommunications services, the Federal Government initiated the merger of NET with the telecommunications arm of P and T to form the Nigerian Telecommunications Limited (NITEL) in 1985 (NCC, 2009). Following the merger, NITEL was saddled with the sole responsibility of meeting the telecommunications needs of Nigeria. However, the telecommunications organisation was unable to meet the growing demand for telecommunications services by Nigerians. At independence, in 1960, the country had only 18,724 telephone lines. Up till 2001 when the sector was deregulated, NITEL could not expand the installed capacity beyond 700,000 lines, thus limiting access to information and communications technology (ICT) in Nigeria. During this period, ICT was at its infancy in Nigeria. Knowledge and use of computers was available to only a few people and they were either in multinational oil companies or a few government agencies e.g. NITEL (Ndukwe, 2009).

The telephone subscriber base for telecommunications from 1985 when NITEL was established to 2001 when the industry was liberalised grew at an average rate of 10,000 lines yearly (NCC, 2009). The record was dismal for a country with huge population, abundant human and natural resources and huge prospect at independence. The situation was worsened with only 400,000 lines actually connected to subscribers as at 1999. To address the impediments to telecom growth, the government introduced '090' analogue mobile post-paid telephony run by NITEL. Yet the development was confronted with hefty unpaid bills as several of its customers could not pay up. Subscription to the NITEL analogue system cost as much as N200,000 naira to get a line and handset with the monthly post paid bills running into tens of thousands of naira (Tella, 2007). A number of

subscribers abandoned the lines after accumulating bills in hundreds of thousands and some of them with the connivance of some staff in NITEL's mobile arm were issued new lines with different names after dumping the former lines due to unpaid bills.

This analogue project was later abandoned due to high level of corruption which has eroded the vision of the policy setting it up. To ensure that more players were allowed to operate telephony services, the government established the Nigerian Communications Commission (NCC) backed by Decree 75 of 1992 to regulate the telecom industry. This allowed Private Telephony Operators (PTOs) to operate alongside NITEL. The PTOs licensed from 1996 to 2000 include companies such as Multi-Links, Mobitel, Intercellular and EMIS. These PTOs introduced mobile telephony using Time Division Multiple Access (TDMA) and Code Division Multiple Access (CDMA) technologies to drive cellular subscription to 100,000 lines (Soyinka, 2010). However, NITEL was still impeding fast growth by withholding the *E1* links which would have allowed the PTOs to connect to the national trunk and also interconnect to each other. Also the inability of the PTOs to expand beyond few cities forced the government to go into full deregulation (Osotimehin, Akinkoye and Olasanmi, 2010).

Prior to 2001 GSM auction, the former government of late General Sani Abacha had issued about 30 licenses to companies to carry out GSM services in the country. The licenses were issued by the Abacha government by fiat without recourse to any market study and the licenses were mainly given to proxies and cronies of those in government during this period (Osotimehin, Akinkoye and Olasanmi, 2010). Moreover, none of the recipients of the licenses had launched any network anywhere in the country. However, in 1999 when Nigeria transited to democratic rule under Olusegun Obasanjo, the government appointed and inaugurated a new board of commissioners for the Nigerian Communications Commission. This cancelled the previous questionable GSM licenses and gave way for transparent process while asking the former recipient to apply afresh and participate in the new auction process (NCC, 2003).

Hence, between 1993 and 2001, the NCC granted licenses to private companies to provide services such as fixed wireless telephony, mobile services and fixed satellite, paging, payphone, internet and other value added services (VAS). There were some misgivings expressed by certain global operators in year 2000 when the Nigerian

Communications Commission (NCC) announced to the world that Nigerian would auction some spectrums for GSM service. No operator from outside showed interest. NCC went ahead with the sale in January 2001. Before the auction, the NCC had carried out advertisements in the international media encouraging global players to come and open up the Nigerian telecom space. As far as the Nigerian regulator was concerned, the country was a bundle of opportunity, being the largest black nation deprived of mobile teleconnection for several decades. It was an untapped market. But this was met with a barrage of cynicism from operators like Vodacom which said it would never touch the Nigerian market even with a 10-metre pole (Ndukwe, 2009).

Many international mobile operating companies were afraid to invest in Nigeria despite the return to full democracy and establishment of transparent institutions the NCC and other agencies to fight corruption. International mobile operators were afraid to come to Nigeria. This was due mainly to reports credited to telecom research agencies and the global financial institutions like the World Bank and the International Monetary Fund (IMF). They forecasted that in the Nigerian telecom sector, the average Nigerian cannot afford to own a mobile phone as the per capita income of the citizens was below the internationally recognized average and the daily income was below \$100 mark (NCC, 2002).

Based on this reports, the telecom research agencies had forecasted that it would take 12 months for any operator to reach 100,000 subscribers, 3 years to connect 300,000 lines and 5 years to hit the half a million mark subscription. This conservative report peddled to mobile operators about the market in Nigeria and other emerging markets put off many operators that would have entered the GSM auction. The course of Nigeria's telecom sector however changed in January 2001 with the auction for Global System for Mobile communications (GSM). This move liberalised the sector bringing in mobile operators like MTN Nigeria, Econet Wireless Nigeria (Now Aitel), the comatose MTEL, Globacom and Etisalat to operate digital mobile service. The GSM licensees paid \$285 million each to obtain the Digital Mobile License (DML). This telecom auction which led to the revolution brought in a liberalised sector, striping NITEL of its monopoly and making the private telephone operators to sit up. The success of the licensing process attracted international praise from as far as the International Telecommunications Union

(ITU) and Commonwealth Telecommunications Union (CTO) (Okereocha, 2008; Okafor and Imhonopi, 2012). The discussion on the decade of GSM services in Nigeria is subdivided into the following points.

Challenges of Building Telecom Infrastructure from Scratch

Right from the time the operators were issued with Digital Mobile License (DML) to operate GSM network service in the country, they were confronted with the challenge of building their own individual networks as NITEL at that time did not have backbone network that can carry traffic for other operators. The GSM operators such as MTN and Econet Wireless Nigeria (Airtel), set out to construct their own network starting by deploying Base Transceiver Stations (BTS), Mobile Switching Centres (MSCs), Network Operating Centre (NOC) and these were connected through Very Small Aperture Terminal (VSAT), microwave radio and wireless backhaul (Ndukwe, 2009). NITEL, the first national operator had not made sufficient investment into its business in anticipation of the entry of mobile services in the country. The company was still run like a government parastatal and its top management was not allowed to make any contract award that was in excess of N50 million (NCC, 2005). The decision for any higher contract award had to be taken by the supervising ministry, the ministry of communications, The Bureau of Public Enterprises (BPE) and the Presidency through the National Council on Privatisation (NCP) (Manuaka, 2008). The country only had NITEL offices spread over several parts of the country with satellite dishes dotting their offices used for local trunk and international telephone calls and sometimes to relay satellite television broadcasts especially football matches and any other events of national or international importance.

The GSM operators had no choice but to start building out their networks starting with one city after another city and connecting the cities. It was an expensive project and still is as the cost is staggering. At that time, it cost about \$150,000 to install a single base station together with its tower, special antennas, and two generators to power the station (NCC, 2001). The cost of renting or outright land acquisition, fees to the local, state governments, Right of Ways fees, hiring security men to secure the base station and buying diesel to power the generators with one generator on standby is on the increase. The generator was running on 24 hours daily. The cost of building individual base stations

was mouth watering and each GSM operator had no choice but to invest in these in order to meet up the deadline of six months given them by the telecom regulator, NCC to roll out network after the acquisition of licenses. Going to suburban and rural areas was another challenge the operators faced. Good quality of service (QoS) was hard to come by as high incidences of dropped calls were the order of the day due to absence of a telecom backbone (Ndukwe, 2009). Whenever it rained, it was as if the GSM networks went to sleep. The microwave radio and VSAT had a hard time coping with the torrential rains in the country.

Apart from building their own networks, the GSM operators also had to grapple with the challenge of getting *EIs* from NITEL in order to interconnect each other and with the private telephone operators (PTOs) and some fixed line operators. NITEL which also had a GSM license for its mobile arm, MTEL played hard to get, and it took several interventions from the NCC following criticism from ICT media before NITEL's top brass could concede (Fanawopo, 2007). Another major challenge GSM operators had to face was the lingering issue of interconnect rate determination. Right before the commercial launch of GSM in Nigeria on August 7, 2001, the telephone operators were in dispute with NITEL over the interconnection rate at that time. With GSM service about to take off, another interconnect rate had to be put in place. With NITEL, PTOs and GSM operators, NCC had a tough time arriving at an interconnect rate. Even at that, PTOs were of the opinion that the interconnect rate was tilted in favour of GSM operators. Till today, PTOs still believe that GSM operators make more money through every interconnect rate in operation (NCC, 2011).

Grappling with Physical Infrastructure Inadequacy

Nigeria, no doubt, has made remarkable progress in GSM telephony over the last 10 years. Unfortunately, the increasing investment in the sector is being confronted with serious infrastructure challenge, which remains the albatross for all the operators. Ironically, one of the major promises of the Federal Government to the GSM operators while licenses were being issued was to provide uninterrupted power supply to power their networks. Not only this, the government also claimed then, that the money realised from the sale of the GSM licenses (\$285m each), would be invested in providing transmission infrastructure through the National Carrier, NITEL, as it were. Today, these promises

remain in the pipeline. For the GSM operators, power generation has become a nightmare. Indeed, it was gathered that more than 60 per cent of their operating cost is basically spent on power generation (Opara, 2010; Bakare and Gold, 2011). Despite this, the operators are struggling to expand their businesses, building more base stations in order to get networks across to the nooks and crannies of the country. This means that their current expenditure on power generation would continue to go up.

Consequently, the GSM operators, instead of focusing on their core business, are compelled by circumstance to focus on how to generate their own power apart from building networks. It was also gathered that the four major operators in this space, MTN, Globacom, Airtel and Etisalat are powering their over 22,000 base transceiver stations with 44,000 generators (Opara, 2010). They are also providing security for their equipment which has not deterred unscrupulous Nigerians from stealing the generators and diesel. The recent challenge has been the terrorist attack on base stations by the dreaded Islamic group *boko haram* from Northern Nigeria. Operators are losing an average of two generators daily and over a million litres of diesel to theft (Edukugho, 2009). This is a huge loss to bear by the operators. Again, lack of a national backbone to connect the operators has subjected the operators to extraordinary spending in building their own infrastructure. This, not only inhibits the rate of network expansion in the country, but also adds to the huge cost of operation. Besides, the deplorable condition of most Nigerian roads has not made it easy for the operators. Moving telecom equipment to many areas for installations have become a herculean task the operators have to live with. Yet, there is the pressing need to take services to the rural areas and provide stable network. Conveying equipment to riverine areas has to be done using boats, which in most cases poses a lot of risk.

Although Nigerians today can ascribe many successes to the 10 years of GSM operations in the country, the fact remains that the journey has not been a rosy one for the operators. Except the government fulfils its initial promise of uninterrupted power supply, which was part of the assurances given the operators at the initial stage, it may not be totally free to enforce compliance to service quality. This is because the government has also failed to provide needed infrastructure. Of course, the much heralded poor quality of services has been attributed to weak infrastructure base, a development which makes the Nigeria operating environment a peculiar one for the operators.

Launching GSM in a Tough Operation Environment

On August 7 and 8, 2001, Econet Wireless Nigeria and MTN Nigeria launched their GSM services respectively. The nation anxiously awaited the much anticipated commercial take off of the first full digital mobile telecommunications service. MTN and Econet had for several weeks inundated the airwaves and newspapers with news of their telecom services that would change the face of communication in the country. They had said that digital mobile communication would usher in speedy communication, change the way people live, relate and communicate with friends, family and business associates as well as eliminate the distance barrier (NCC, 2002). Econet Wireless Nigeria launched its first GSM network two days before the deadline for the start of mobile services by three licensed operators (NCC, 2002). On the eve of Econet's launch, its chief executive officer, Zachary Wazara said:

It was not just about putting together a network. This is about building a nation. At midnight tonight we will be ready to take customers" (Ajayi, 2008).

Econet's network had a 100,000-line capacity, covering most of Lagos, the commercial capital. The inland political capital Abuja was connected by the end of that week and the oil city of Port Harcourt, the following week, according to the network's schedule. By the first week of September, the operator expanded capacity to 200,000 lines to accommodate the huge demand for its pre-paid packages. Within the first six months Econet had planned to have coverage in Nigeria's eight largest cities and adding 15 more within the first year and covering most of the country in the first two years (Ndukwe, 2008). With these announcements, MTN and Econet offered GSM phones to Africa's largest, and perhaps most neglected telecoms market.

Nigeria with a population of 110 million then had less than one connected phone line for every 250 people (National Bureau of Statistics, 2005). For the few with a telephone, only one in three calls went through. Industry officials and analysts at that time were optimistic that the launch of digital mobile phone services in Nigeria would spur the biggest telecoms revolution in Africa. With days before the August 9 deadline set by regulator, the Nigerian Communications Commission (NCC), many Nigerians were still

skeptical that they would ever see the second-generation mobile phones (Ndukwe, 2009). MTN Nigeria launched its network. NITEL, the state telephone company whose subsidiary MTEL was the third operator, did not announce its plans as discussion on its privatisation was still ongoing at higher quarters in government. Econet was a subsidiary of Zimbabwe's Econet when it won one of Nigeria's four GSM licenses in January 2001 for \$285 million. However, it later became 95 percent Nigerian-owned with Strive Masiyiwa led Econet International retaining five percent (Adegboyegba, 2008).

According to then Econet Nigeria's Business Development Manager Mr. Bolaji Balogun, the operator raised \$277 million in equity and took on \$140 million in debt (Adegboyegba, 2008). Econet begun a second round of financing and raised an additional \$400 million, with which it hopes to expand its network to 1.25 million lines by June 2002. At this time, Wazara said Econet would float an Initial Public Offering (IPO) on the Lagos-based Nigerian Stock Exchange (NSE) in order to increase the financial base of the new operator. It is said that competition between Econet and their rivals MTN was just beginning. According to Engeer Jide Awe, CEO of Jidaw Systems describing the impact of the new mobile services to Nigeria, "GSM stands for Global System of Mobile Communications. In Nigeria, GSM means telecom explosion. The GSM revolution began in August 2001 and changed the face of Information and Communications Technology in Nigeria" (Awe, 2008)

Following the launch of GSM networks in Nigeria by MTN and Econet in August 2001, the third license holder, Nitel said that it was test running its network to 1,000 lines ready in the capital city, Abuja. The company indicated that it will be several months before it could launch any services due to delays caused by its imminent privatisation. NITEL had said that its current priority was to provide sufficient land-line capacity for the two operating GSM networks (Awe, 2008). For new GSM operators in Nigeria, it was never easy from day one. The operators started with on-net voice call followed by calls across both network. Short message service (SMS) was added followed by other features which came along. MTN passed a major technological challenge when it successfully interconnected its network to an international call via the NITEL land-line service, and Econet did the same by the end of that week (Idonor, 2009). Also, calls between the two GSM networks became possible by that weekend.

Since the launch of GSM services in Nigeria 10 years ago, the market has grown from strength to strength. With coverage in almost every part of the country, the telecoms sector has proven to be the much needed catalyst to Nigeria's economy (Ndukwe, 2009). It has been a long road for the operators as they have gone through different stages of metamorphoses. With SIM cards selling between N70000 and N50000 naira at launch (and it was still a scarce commodity as there were no guarantees you could get one), the price gradually reduced so much that an intending subscriber can get a SIM card for as low as N100 today. GSM phones were sold from N20,000 naira for the lowest on sale by operators to the high-end of N60,000 naira (Manuaka, 2008). MTN prepaid was christened *Pay As You Go* (PAYG), its postpaid was *Business Time*. Econet had postpaid variants included *Business Partna*, *Libertie Platinum*, *Libertie Gold*, *libertie bronze* and its prepaid was called *Buddie* (Ndukwe, 2010). MTN launched its GSM network in Nigeria for postpaid subscribers on August 8, while pre-paid subscribers joined the network in August 25. "We really do mean business and we are ready to launch." Brian Gouldie, the first chief operating officer of MTN Nigeria told reporters at a news briefing (Manuaka, 2008). MTN raced its rival, Zimbabwe's Econet, to launch its network before the August 9 deadline set by the Nigerian Communications Commission (NCC). MTN's 100,000 line capacity network was first launched in Lagos, Abuja and Port Harcourt. NITEL was only able to provide GSM licensees MTN and Econet with 5,000 voice channels each when the mobile phone system was launched (Ndukwe, 2010).

How Nigerians Welcome GSM

The period August 2001 to date, the broadcast space, newsprint and social circles has never been the same. The arrival of GSM services brought a new trend to the society. People could be seen walking on the road and clutching mobile phones on their ears, some talking, others pretending as if they were on call. Holstering GSM handset to trousers became a fashion trend for many. Another social class was created with the entry of this new mobile communication tool (Ndukwe, 2009). *If you were not mobile, you were not yet in the league*. On the funny side, some people devised a means of belonging by procuring calculators that looked exactly like mobile phones while some visited markets like Ikeja Computer Village and Alaba International Market, both in Lagos, where they picked up

dummy phones and used handsets and pretended as well that they had joined the vogue. Others bombarded their relatives abroad to send them used handsets which they carried about awaiting the time GSM operators would crash the cost of Subscriber Identification Module (SIM) card through sales promotions, which eventually happened (Opara, 2010).

Due to the minimal capacity of the GSM networks, MTN and Econet at the beginning had a capacity for just 100,000 subscribers each. This was informed by the projections of their business plans that it would take five years for each network to connect half a million subscribers. Sales promotions which were intended to increase marketing gradually became the order of the day. The GSM operators' sale promos last sometimes several months. Despite the high cost of SIM cards and mobile handsets, Nigerians thirsty for mobile communication on daily basis thronged the service centres established for sales and servicing of GSM products by the mobile operators. Some intending subscribers parted with N40000 naira for both SIM and handset while some paid higher or lower depending on the model of handset and preferred package whether postpaid or prepaid (Ndukwe, 2009).

GSM Operators and Overbearing Taxations

Nigerian GSM operators have always been at loggerheads with the government over what the operators call multiple taxations of their operations. The operators have often complained of various levels of taxations, levies and duties imposed on them by different levels of government including local, state and federal governments, ministries, departments and agencies. Since the boom of the telecom sector, several government agencies have seen it as opportunity to enrich themselves from mobile operators especially GSM operators (Fanawopo, 2007). Nigeria's telecoms industry has experienced exceptional growth rates. It grew by 23 per cent in dollar value in 2008 and generated \$8.4bn in overall telecoms service revenue, which is expected to increase at a 5.7 per cent rate, from \$8.42bn in 2008 to \$11.14bn in 2013. Telecom investments on the other hand, as at 2010 stood at over US\$18 billion on account of predictive regulatory environment and supportive government for a deregulated telecom industry (Pyramid Research, 2010).

Despite this bright outlook, the industry has been confronted by a number of problems, including erratic power supply, acts of vandalism, and security. More disturbingly, multiple taxations have been considered as a bane of growth in the telecoms sector. Heavy taxes imposed on telecoms companies at the federal, state and local government levels, according to experts have been a major obstacle, which retards economic growth, limits profits, compromises quality of service and slows network expansion (Pyramid, 2010). Nigeria's telecom operators have consistently decried the enforcement of multiple taxations by government, saying it inhibits the growth of the telecommunications sector and affects their operations. It has become a common practice for any government agency, federal or state to solicit for one levy or the other from operators. Some government officials seek that operators secure approval from them which comes with a fee before they can build infrastructure.

The Chief Operating Officer, Globacom, claimed that the problem of multiple taxations was one of the major impediments to tariff reduction (Jameel, 2010). The telecom operator listed some of the problems confronting the company to include erratic power supply, vandalism of existing infrastructure, security and lengthy processes at all levels of government. The problem of multiplicity of taxes from the various tiers of government is particularly worrisome. The operators urged government to be specific on the type of taxes stipulated by laws for companies to pay. GSM operators were unhappy about persistent attempts by certain states and local government authorities to impose multiple and unjustifiable taxes and levies (Juwah, 2012).

This development threatens the laudable efforts of mobile operators to make further substantial investments on their respective networks and provide world class telecommunications services in Nigeria. They seek the intervention of the Joint Tax Board in addressing the incidences of multiple taxations. Operators have complained that when they refused to pay these levies, the affected states and local authorities resorted to closure of their facilities. This scenario has impact on network availability, quality of service and the finances of the companies. According to an International Report, in a Nigeria Telecommunications Law Newsletter article, titled, 'Nigerian Telecommunications Sector and the Tax Regime', there is an emerging school of thought that the huge opportunities that abound in Information and Communications Technologies in Nigeria are being

retarded by multiple taxations from governments (Juwah, 2012). Indeed, while tremendous progress and growth has been recorded in the ICT and telecoms sectors, multiple taxations and the attendant ripple effects on pricing for telecoms services may result in poor service provisioning and relatively high tariff in Nigeria.

2.2.16 GSM Operators and Massive Subscriber Growth

Since the GSM launch, mobile telephony has rapidly become the most popular method of voice communication in Nigeria. Growth has been so rapid that Nigeria has been rightly described in various fora as “one of the fastest growing GSM markets in the world”. Indeed these developments have been explosive. According to statistics from the Nigerian Communications Commission (NCC), compared with just about 450,000 working lines from NITEL in 2001, by August 2004, the GSM operators had recorded over seven million subscribers. Expectations were that the figure should rise to 95 million by the end of 2011, due to massive expansion programmes launched by the operators. Still retaining its status as one of the fastest growing in the world, the Nigerian telecommunications industry has continued to bring a lot of revolutions in the ways people live their lives. Nigeria now has a combined subscriber base of over 100 million as at the end of first quarter of 2012. Efforts by the operators to improve their various networks have continued to pay off as subscribers heave a sigh of relief from cases of dropped calls, inadequate coverage and so on which characterised the early stages of mobile communications.

This is evident in the strategic roll-out of telecoms infrastructure by GSM networks of Globacom, MTN, Airtel, Etisalat and Code Division Multiple Access (CDMA) operators in the country. According to the Nigerian Communications Commission (2012) the total number of telecom base stations installed by various network operators currently stand at over 25,000. Experts have projected that this will hit 30,000 mark by December 2013, thereby adding 5000 base stations to the existing ones in the country. This will further deepen telephony access to underserved and rural areas across the country. A study published by Technology Strategies International (2011) in partnership with Broad Group TMT Ventures predicted that the Nigerian ICT sector is poised for substantial growth, which will attract massive investment into the sector. The report says that even though Nigeria became the largest mobile market on the African continent in 2008, it still has a

mobile penetration level of less than 50 per cent. This suggested that there is ample room for expansion of the market.

Penetration in the fixed line segment is dismal and there is a vast opportunity to improve internet penetration (Ndukwe, 2009). One of the things fuelling the growth in the Nigerian ICT sector is the illumination of two undersea cables, which is increasing international bandwidth dramatically. The improvement in international connectivity is having a major impact on business in Nigeria. At the other end of the spectrum, there is huge latent demand for mobile phone services (NCC, 2012). Operators in Nigeria are experiencing similar challenges to operators in other emerging economies, with declining average revenue per use (ARPU) as the subscriber base broadens to include poorer segments (Ndukwe, 2009). The Nigerian Government's Vision 2020 initiative is creating an environment conducive to high growth. There is huge momentum behind the growth, and even the recent global financial crisis investors have managed to source funds for good investment opportunities in Nigeria (Central Bank of Nigeria, 2010).

Nigerian telecoms market in general is ranked the largest and fastest growing in Africa and among the ten fastest growing telecom markets in the world, an indication of its robustness to return on investments. From a private sector investment of about US\$50 Million in 1999 when the current democratic regime came in place, the telecom industry in Nigeria by end of 2009, attracted more than US\$18 billion in private sector investments, including Direct Foreign Investment. The Executive Vice Chairman (EVC) of the Nigerian Communications Commission (NCC), Eugene Juwah, stated in a publication that more than NGN300 billion has been contributed to the coffers of the Federal Government through Frequency Spectrum sales (NCC, 2011). The sector has currently attracted more than US\$25 billion in investment. This is a market where GSM users account for more than 90 per cent of the telecom subscribers. Based on the exponential growth in the mobile market, the percentage share of GDP from the telecom sector rose from 0.06 in 1999 to 3.66 by end of 2009 and 5.67 percent by 2011.

According to estimates by Pyramid Research in a 2010 report, the annual revenue from mobile services represents between 2 per cent and 7 per cent of African countries' Nominal GDP. In Nigeria this ratio is close to 4 per cent. Specifically, it was revealed recently that the four GSM operators in the country, MTN, Globacom, Airtel and Etisalat

remit in excess of N264 billion naira to government annually through Company Income Tax (CIT), annual operating levy, education tax and government agencies task. On the employment generation, the introduction of GSM has helped create over 15,000 direct jobs and millions of indirect jobs for people who are engaged in various services offered by GSM operators. It is now a common phenomenon in urban areas as well as rural areas where there is coverage to see young men and women sitting under an umbrella provided for them by GSM operators making calls for people at a token.

This umbrella call centre initiative is today providing food to greater percentage of unemployed Nigerians. Besides, there are others who are trading in recharge cards and other products of GSM operators. A former EVC of the NCC, Dr. Ernest Ndukwe also stated that with GSM, the nation's economy has been impacted positively through job creation, improved business performance, and timely information exchange (NCC, 2009). The wide-availability of digital mobile service has also led to improvement in efficiency and productivity, reduction in transaction cost, increased service innovation and better quality of life. It is worthy of note that the arrival of GSM in the country has increased internet penetration, with most subscribers now accessing internet through their mobile sets. According to a national statistics, 44 million Nigerians are now accessing the internet mostly through their mobile phones (National Bureau of Statistics, 2010). This has also increased IT literacy as many people now know how to browse the internet with their phones.

Today, there are mobile signals in all states of the Nigeria federation. A number of major highways are covered by mobile phone services, while law enforcement agents have the necessary tools to keep in touch with their base. In the banking sector, the GSM technology has availed customers the opportunity to monitor and carry out transactions on the move through their mobile phones. Automated teller machines (ATM) deployed by banks are working with the help of GSM General Package Radio Service (GPRS) deployed by operators (NCC, 2010). No doubt, GSM has contributed and still contributing immensely to the economy of Nigeria. The Nigerian mobile market is a comparatively young market by African standards, with the first mobile services only launched in 2001. However, the Nigerian mobile market has emerged as the fastest growing mobile market in Africa, registering triple-digit growth rates in subscriber numbers (NCC, 2012). The

Nigerian telecom regulator had since 2001 issued licenses to several telecom operating companies to provide different class of services to consumers. The licensees include Internet Service Providers (ISPs), Value Added Service (VAS) providers, data communications, long distance operators (LDOs), fixed wireless operators, Universal Access Service License (UASL) providers, GSM operators, second national operator, and international gateway operators.

However, the Nigerian government is making efforts to transform the country's economy into a knowledge-based economy. While the world awaits the Nigerian regulator and operators to implement mobile number portability (MNP) along with issuance of 4G licenses, it is expected that the two will also play important roles in driving the growth of telecom sector in the country. Nigeria's mobile market possesses tremendous growth potential given the fact that penetration rate was just 57.4 per cent at the end of 2010 including GSM, CDMA and landlines combined (Juwah, 2011). With the rapidly improving mobile infrastructure and intense competition among mobile operators, it is expected that the number of mobile subscribers will grow at a compound annual growth rate (CAGR) of around 15 per cent during 2009-2014, with a penetration rate exceeding 88 per cent by the end of 2014 (NCC, 2012).

On the other hand, as the number of services and subscribers of GSM in Nigeria increases, the demand for good Quality of Service (QoS) becomes a major concern in the country. The agitation is a national issue which had attracted the attention of House of Representative on July 18, 2007 and the Nigerian Communication Commission (NCC) (Adegoke, 2008). As a result, NCC indicated threshold levels of Key Performance Indicators (KPIs) to monitor QoS of all GSM/CDMA networks in the country. The KPIs on which mobile networks were tested include call set-up success rates (CSSR), call drop rate (CDR), call completion success rates (CCSR), handover success rates (HSR) and traffic channel congestion rate (TCHR).

2.2.17 Code Division Multiple Access (CDMA) Market in the Nigerian Telecommunications Sector

Nigerian CDMA operators in the past two years have carried out few expansions of their national coverage plans. Beyond their present locations, the operators have added few

new cities, towns and villages on their footprints as they battle to stay afloat in their business (Juwah, 2011). The GSM operators are working hard to erect new base transceiver stations (BTS) and towers in new locales, their counterparts in the CDMA business are crying foul of the harsh market conditions they face. They groan over taxation from all levels of government, delay in getting Right of Way permits from the ministries and parastatals of different governments, unfavourable interconnect exchange rates, unstable foreign exchange rate, high overhead costs for example the skyrocketing price of diesel to power base stations, incessant demands and harassments from local communities and area boys. All these drive up the cost of doing business in the sector. CDMA operators cannot compete on the same financial level with GSM operators. They don't have equal access to funds. Most of the operators do not have access to international financiers (Juwah, 2011).

Starcomms few years ago got some capital injection from International Joint Venture (IJV) capitalists. This financing energised the company. As a result, Starcomms was able to spread its footprints across several cities and towns in Nigeria (Juwah, 2012). Starcomms is presently focused on ensuring quality on its network and expanding its data communications market. It is one of the best internet service providers in Nigeria and with high quality internet service. The mobile company has not taken its footprint like before to new communities as it struggle to recover from the dip its share price took at the Nigerian Stock Exchange following the crash that occurred at the capital market in 2008-2009.

ZOOM mobile on the other hand is one of the second generation CDMA operators. In recent time, it has been trying to find its bearing. Since late 2010, the operator previously known as Reltel has been seeking new investors from abroad to acquire it. A number of due diligences has been conducted and acquisition talks keep resounding. ZOOM mobile after restructuring its debts with some banks; it changed its brand name. This helped to push up subscriber figures and increased its market hold of the internet data services challenging traditional players like Starcomms, MTN, and Multi-Links (Punch Newspaper, 2012). Visafone is currently the leading CDMA operator chart in the country. After the fiery pace with which Visafone entered the market in 2007 on the back of a \$200 million syndicated loan from Nigerian 12 banks, the CDMA operator has virtually covered all the states but yet to blanket all the rural communities in the country (NCC, 2011).

Visafone is one of the strongest internet services in the land. For Multi-Links Telkom, it has been riding in turbulent weather since it was acquired by Telkom of South Africa in 2007. Multi-Links was unable to spread due to cash-crunch.

However, the entry of Telkom energised it, leading to as much as 1.7 million subscribers in 2009. Currently, the mobile company has about 1.9 million subscribers (NCC, 2012). Multi-Links Telkom has waxed strong with its internet data segment but has found it tough to be profitable on the voice telephony segment. Loss making has been difficult to mitigate and a number of management changes with about four chief executive officers seconded from South Africa has not been able to reverse the situation. In November 2010, the owners of the Nigerian investment said they would divest from CDMA and concentrate on bandwidth market where it has over 400 kilometres of fibre optic cable broadband network spread across the country servicing big corporate and multinationals. The former acting Chief Executive Officer of Multi-Links Telkom, Vincent Raseroka, said the decision to exit the market was purely based on business realities. "It is strategically, financially and commercially challenging for us to continue to do business in this segment" (Raseroka, 2012).

Despite low tariffs aimed at enticing and keeping subscribers to CDMA networks, these operators have struggled with churn out on their networks and sometimes poor customer service as GSM operators thin out their customer base with irresistible offers and gifts. Inability to access free flowing funding from banks and international financial markets due to their small size and technology use has been CDMA greatest handicap. This can be seen in their share of Nigeria's mobile market where they only control 6.14 per cent of the market as at June 2012. The current share of the market declined to about 6.02 per cent by the end of 2012 (NCC, 2012).

However, a wind of change is currently blowing in the Nigerian telecom landscape and that wind has rekindled the hope in the CDMA segment of the industry with the injection of \$200 million into Starcomms by core investors. This leads to the emergence of a big and strong CDMA operator as Multi-Links and MTS are being merged with Starcomms to form one company (Tell Magazine, 2012). For years, it remains a great issue of concern to many stakeholders in the Nigerian telecommunications industry that the Code Division Multiple Access (CDMA) segment is not thriving as it should. Indeed,

many had predicted a probable extinction of the CDMA operators in the country considering the tough environment they are operating and their lack of financial muscle to strongly compete the market with the big GSM operators (ITU, 2011).

There is hope again. Thus, with the new transformation brought by a group of new core investors, the Nigerian CDMA segment may never be the same again. Although for now, the closely guarded deal is still being finalised by the parties involved before it would be made public, plans are at the conclusion stage for the acquisition of Starcomms Plc by a group of core investors (Punch Newspaper, 2012). But this is not just about Starcomms acquisition alone. It is about the formation of a new strong and financially buoyant CDMA operator in Nigeria. The acquisition of Starcomms is coming after a telecom conglomerate had acquired 100 per cent shares of Multi-Links and MTS. This means the group has the full ownership of the two embattled CDMA operators. Now with Starcomms acquisition, the group is set to merge the assets of Multi-Links and MTS with Starcomms to form a big and strong single CDMA operator. This will be known as CAPCOM Limited with focus on broadband delivery at its full capacity (Punch newspaper, 2012).

According to the deal document, Starcomms, the only listed telecom in Nigeria stock market is to be recapitalised with \$ 90 million in addition to the injection of \$110 million worth of assets. Three companies, Starcomms, Multi-Links and MTS will be consolidated to become one. Highlighting the strong competitive advantage of the new company to be formed, the investors noted in the document that “Post consolidation Starcomms will control 20Mhz of contiguous spectrum, the sweet-spot for mobile broadband services using 4G/LTE technology, which is the new global standard for 4G (Tell Magazine, 2012). The Government’s resolution on the allocation of new spectrum until 2015 will be a window of opportunity for Starcomms. With other competitors each constrained by having not more than 10Mhz of spectrum, currently congested with voice and SMS traffic, Starcomms is poised to become the market leader in mobile high speed broadband services. As part of the strategic growth plan post consolidation, the investors are looking at the positioning of Starcomms (Capcom) as the first pure-play national data network with emphasis on Quality of Service. The company will also enjoy a unique advantage of dense network-installed infrastructure of towers/sites. Besides, they will also be targeting Small and Medium Enterprises (SMEs), Small office, household office and

consumers segment of the market, while focusing on controlling 70 per cent of data market in Lagos (The Guardian, 2012).

2.2.18 Liberalising Telecommunications in Nigeria: A Democratic Model

The world today is rapidly becoming the global village. Numerous communication networks are making distance, and consequently, boundaries of ethnicity, cultural diversity, and indeed, national sovereignty, matters of reduced significance. This is a time of great importance for those who are concerned about the relationship between the emerging forces of liberalized telecommunications and the values of society (Essienubong and Nsikak, 2011). Around the world today, liberalisation has become the dominant trend in telecommunications policy. Liberalisation means the unleashing of the magic of the marketplace (Lenert, 1998: 3). The hallmark of a policy of liberalisation is a relatively easy-to-understand focus on achieving competition geared to moving information as quickly and inexpensively as possible. A programme of deregulation and laissez faire usually accompanies this. In Nigeria today, the telecommunications environment has been deregulated, allowing private companies like AIRTEL, MTN, GLOBALCOMM and ETISALAT among others to provide mobile telephone services to Nigerians through the Global System of Mobile Telecommunications (GSM). Where the Nigerian Telecommunications Limited (NITEL) held monopolistic sway, private enterprises are free to provide competitive services.

In broadcasting, this trend has been replicated in the licensing of private broadcast operators, both those operating terrestrial transmission states and those providing satellite-based broadcasting services. The goal of telecommunications liberalisation regimes all over the world is to harness maximum public good from free markets and global competition (Lenert 1998: 10). However, the ‘universal service’ provided by private telecommunications operators has been shown to reflect an imbalance in the allocation of communication resources, through the action of market mechanisms which are naturally skewed in favour of the higher income-earning classes of society. The question revolves around the extent to which economic exigencies must be balanced against social objectives

of inclusion and equality of opportunity (Dordick 1995). When this question is considered, democratization becomes an urgent alternative to the present liberalisation topic. As a process, UNESCO (1981: 166) operationalises democratization as the process whereby: (a) the individual becomes an active partner and not a mere object of communication, (b) the variety of messages exchanged increases, and (c) the extent to which the quality of social representation or participation in communication are augmented.

Therefore, from the preceding explanation, democratization as a concept recognizes that it would be unfair, for instance, to allow people from high-income levels access to the information resources of the internet while denying access to those in the low-income levels. It therefore follows that in the important area of universal telecommunications service, the emphasis is negotiating some mix of market forces and state coordination.

Theoretical Appraisal of Liberalisation

One significant way of answering Mueller's (1995) query is to harness the communication theory perspective embodied in the work of Carey (1989). This approach certainly leads in the direction suggested by Rowland (1993: 208), who sees telecommunications as part of the social theory of communications technology. Carey's conceptualization of communication as transmission and community, culture and ritual, can help to identify and classify the consequences of present-day liberalisation, and plot a roadmap, as it were, towards a more equitable re-arrangement of the status quo in favour of greater democratization of telecommunications infrastructure and resources in Nigeria.

Carey (1989) argues for recognition of the dual nature of communication. According to him, communication simultaneously has transmission or transportation, as well as community, cultural, and ritual (CCR) aspects. In other words, the definition of communication includes both (a) the movement of messages in space, and (b) the continuity of human existence in time. The first sense of communication, transportation, is the one with which most people are familiar (Carey, 1989). It would appear that this is the sense in which most advocates of present-day liberalisation understand the term. To them, when you create more diversity you create more access. With more access the entrepreneurs and economic elites smile and the demands of modern-day capitalism are satisfied. Under this paradigm, no regard seems to be given to the economically

disadvantaged sections of the society – the section, which has no economic power to acquire for itself the means of telecommunications.

Unwittingly, these become the communication have-nots of the society. Indeed for them there is little means of participation in society. In the second sense, communication is linked to the ideas of sharing, participation, association, and fellowship (Carey 1989: 18). It concerns the representation of shared beliefs, rather than the imparting of information, and is directed toward the maintenance of society in time as well as the extension of messages in space. In other words, to communicate does not only mean two or more people exchanging messages. The overall goal of communication is the creation and maintenance of bonds of community and inclusiveness. From the second perspective, one is able to recognize the need for the democratization of communication structures and resources. When applied to telecommunications, this idea makes possible the creation of a concept of communal involvement for most sections of the society.

Furthermore, it brings about the creation and maintenance of a public sphere, a discursive realm in which individuals and groups create the socio-psychological space of a common world having common meanings for those who inhabit it. The key element is a “dialogic flow of communication in a public sphere” (Habermas 1989: 23). Democracy, in the context of this discourse, is to be understood in Carey’s (1993: 3) sense. According to him, democratic arrangements are in place wherever people can “actively participate in the social, cultural and economic transactions that debilitate society”. In other words, democratic society goes far beyond the mere act of voting in elections. It is about communication in the context of social, economic, and political structures. From the perspective of communication theory, the central lesson for telecommunications policy concerns the linking of democratic theory with democratic communication practice to create a modern democratic nation. This is clear in the words of Abercombie and Longhurst (1998: 6) who stated that no nation can be termed democratic until its media of communication are free.

Nigeria today has been caught in the wake of the liberalisation fever that began in the United States in the 1960’s (Nicolaidis 1995). Altogether, the country seems to have woken up to the need to move away from previously held policies of centralized planning and strict state control over telecommunications. But as Venturelli (1997) observes, this

process all over the world is being influenced by new international regulatory regimes, such as the World Trade Organization (WTO), which emphasize the role of free markets and competition. In this emerging scenario, the new telecommunications environment has created a system of interconnectedness that is becoming, at least for the well-to-do sections of the society, a dominant day-to-day reality (Essienubong and Nsikak, 2011). But in these new circumstances, Greider (1997: 334) notes that the social question - How does society sustain equitable relations among its own people? – is “being brushed aside by the exigencies of the economic sphere”. In his view, there is an inherent imbalance in the so-called liberalisation policies that can only be addressed by reconnecting commerce with social consciousness and clarifying what we believe about human society.

Drucker (1990) who argues that liberalisation alone is not likely to produce equitable access to telecommunications facilities, has made a similar point. In an interview with *Wired Magazine*, Drucker asserts that the collapse of state control does not necessarily mean the triumph of democracy. According to Drucker, now that there is nothing to compare the democracies with, they will have to prove themselves on their own merits ... Above all, we are learning very fast that the belief that a free market is all that it takes to have a functioning society or even a functioning economy is pure delusion (Schwartz and Kelly 1996: 116). These are strong words indeed and it will prove instructive to examine further the relationship between liberalisation of telecommunications and a functioning (and inclusive) democratic society. As new technologies emerge and take their place alongside their traditional counterparts, those involved with telecommunications policy have struggled to answer difficult questions about the democratization of technologies under new political and technological circumstances. Such questions, according to Lenert (1998: 12) include the following: How will the new technologies relate to democratic practices? Will the new technologies increase or decrease access to the channels of communication? Who should have access to them? What economic interests will they serve?

In discussing the need for democratization of telecommunications, it is often erroneously assumed by advocates of liberalisation that deregulation and privatisation of telecommunications lead automatically to the democratization of telecommunications. The wisdom of such a laissez-faire telecommunications policy is however open to question.

Douglas (1997), in her history of early American broadcasting, suggests that it is typical for the advocates of a new telecommunications technology whether it be radio, cable television, or the Internet to say that a technology's social adoption means progress for all. The arguments for such a bland acceptance of the new telecommunications situation are usually two-fold. First, financially interested parties usually assert that there are no significant tensions between the ambitions of the private telecommunications providers and the desires of customers. Second, it is routinely argued that the diffusion of new technology is inevitable (Lenert, 1998).

Thus, it is assumed that resistance to the social force of new telecommunications practices is "irrational". Although some compelling arguments can be made that liberalisation leads to democratization, the conclusion is by no means certain. In general, it has been noted that much of the marketing of the information age is greatly overstated leading to difficulty of distinguishing fact from fiction and hope from hype. As Douglas (1997) and other communication scholars have shown, the history of communication suggests that the forces of liberalisation and democratization coexist in the context of a struggle for economic and political power, and their contradictory demands are not easily reconciled. Thus, when applied to telecommunications policy, the relationship of liberalism to democracy and freedom of access is problematic, and the scholarly literature all over the world reflects a historical continuity of concern (Essienubong, Ikpe and Nsikak, 2011).

The fundamental concerns are the same: the need to avoid the danger of domination by the few, avoid the excesses of unchecked competition, and realize the greater public interest. Various scholars such as Altschull (1984), Barnouw, (1978) and Kellner (1990) seem to agree that for much of the last one century, the telecommunications environment in most countries of the world has been dominated by a few well-financed conglomerates in alliance with the dominant commercial interests that function as their sponsors. Consequently, McChesney (1996) opines that, although we are promised that deregulated telecommunications will provide great benefits to all members of society, it may be stressed that capitalism tends to generate highly skewed and class-based divisions that permit a small section of society to have inordinate power. It may be concluded from McChesney's assertion that a central requirement of telecommunications policy-making is

to present options and evaluate the effects of a new technology before adopting it. Notwithstanding the criticism of deregulation, findings have shown that access to telecommunications services in Nigeria have doubled since the introduction of GSM services. This evidence demonstrates the tendency of liberalisation and deregulation policy to promote democratic model in communication given the preceding situation in the telecommunications sector in the 20th century. Nevertheless there is still problem of quality of services provided by operators. This tends to suggest apparent inequality created by forces of market while serving the interest of the capitalist and eroding customer satisfaction (in terms of the masses).

2.2.19 Deregulation and the Nigerian Economy: GSM Services in Perspective

The Nigerian economy has been undergoing fundamental structural changes over the years. There is evidence, however that the structural shifts in the economy have not resulted in any appreciable and sustainable economic growth and development. The economy which was largely at a rudimentary stage of development has been experiencing some structural transformation immediately after the country's independence since 1960. Unequivocally up to the early 1970s, agriculture was the core of the economic activities in Nigeria. During this period, manufacturing and mining activities were at a very low level of development. The country's participation in the external trade was based on the level of economic activities in agriculture. Thus, agricultural commodities dominated the country's export trade while manufactured items dominated imports (CBN, 1993).

However, the oil boom of 1973/74 brought a new dimension into the economic activities of the country. The sharp increases in oil revenue from N735 million in 1972 had a pervasive effect on the Nigerian economy (CBN, 1993). This was because the increase in revenue led to large increases in public spending designed to expand infrastructure, non-oil productive capacity, human capital and to heal the wounds of the civil war that ravaged the country between 1967 and 1970. The performance of Nigerian economic growth during 1975-1985 periods has its antecedent in the quadrupling of crude oil prices in 1973-1974. The resulting large windfall gain enabled the country not only to expand the public investment almost three fold over the subsequent years but also to build up its foreign reserves. But many of those investments were carried out without sufficient attention to

their economic viability. The rising wages and an appreciating domestic currency squeezed the profitability exports of non-oil exports, while cheap imports competed with domestic food production. As a result, the country's resources shifted from the production of non-oil traded goods mostly agricultural to art of non-traded goods mostly public services.

The emergence of the oil boom, relegated agriculture to the background and within a short period, Nigeria became a major food importer which cost the country N116.40 billion (1998), N119.87 billion (1999), N134.81 billion (2000) and N174.76 billion (2001) (Dappa and Daminabo, 2004). This trend has continued unabated. In addition, production of export crops declined substantially, making the country dependent on a volatile international oil market for almost all her export earnings and most of the Federal, State and Local government revenues (Shariff, 2004). Consequently, with the sharp fall in the international oil price in the early 1980s, early 1985 and late 1986, Nigeria's economy was almost at the verge of collapse. This led to the country's build up of large fiscal and external deficits and other macroeconomic imbalances which ensued. To address this problem, government introduced several policy measures which started with the Stabilization Act of 1982, budget-tightening measure of 1984 and finally the 'Structural Adjustment Programme (SAP) of late 1986.

SAP was aimed at laying the foundation for a self-reliant and dynamic economy. The corner stone of the SAP is the deregulation of the economy in other words called privatisation of the economy. Indeed, SAP was aimed through the combination of exchange rate and trade policy reforms, at revitalizing the non-oil sector of the economy with stabilization policies in order to restore the Balance of Payment equilibrium and price stability. SAP emphasized the downsizing of public sector and improving the efficiency of public asset management. Import license and agricultural marketing board were eliminated, price controls were lifted and liberalisation of the financial system was almost important instrument of stabilization (CBN, 1993). However, the problems of internal and external imbalances and the undue dependence on oil which brought about the adjustment problems still persist. This implies that there is relative insensitivity of the economy to the corrective policies.

In essence, the genesis of deregulation of the Nigerian economy could be hinged substantially on the economic crisis faced by the country. This economic crisis could be

traced to the lopsided character of the post-colonial developmental path followed by the country (Dappa and Daminabo, 2004). The foundation of this lopsidedness was laid from 1945 when the country was under colonialism. During the period, the country in alliance with foreign capital promoted import-substitution industrialization. This was carried out through the use of peasant surpluses to finance the importation of the inputs necessary for the growth and expansion of manufacturing activities. In explaining the causes of this economic crisis in Nigeria many reasons have been adduced. Some of these reasons emanated from the neo-capitalist Economist, the Nationalists and the neo-Marxist. The neo capitalists, toeing the Nigerian official line, submitted that it was the international oil market glut and the rescission in the world market rather than domestic reason that caused the economic crisis. The solution is for the world market to return to the path of economic expansion before Nigerian economy could improve. The Nationalists contended that it was the prevalence of fraud and mismanagement of Nigerian resources that caused the economic crisis. This school maintained that as far as such attitude continues definitely the economy would never be back on track.

The neo-Marxist stated that the economic crisis could be anchored on specific role of contractors, consultants and middlemen and their various ruinous activities. The way in which the patron client network operates contributed to the country's economic decline. It suffices to say that the Nigerian economy is characterized by lack of organic linkages between agriculture and industry, production and consumption an autochthonous capital base, development of indigenous manufacturing sector, balance of payment problem, heavy debt burden, low gross domestic product (GDP), labour inflexibility, high unemployment rate, inadequate provision of social services and poor maintenance of infrastructural facilities, the near collapse of the manufacturing sector (Dappa and Daminabo, 2004).

Deregulation of a Country's economy could be conceptualized as privatisation, divestiture, and marketisation of the economy. In essence relax government bureaucracy but private participation in the Country's specific economic sectors or activities. This is in order to ensure competitive economic system devoid of monopoly and allow price mechanism of demand and supply principle of economy to prevail. Ahmed (1993) stated that deregulation of an economy entrails greater weight to the private sector as the prime

mover of the economy. This is opposed to the emphasis on the dominance of public sector. To achieve this objective, greater role are assigned to market factors as against the use of pervasive administrative controls. This is aimed at stabilizing and fundamentally restructuring the economy and places it on a durable and suitable growth path. As a major solution to the economic crisis experienced in Nigeria, in 1986 Structural Adjustment Programme (SAP) was introduced with the central aim of deregulating the economy. The theoretical foundation of deregulation draws largely from the general equilibrium theory which among other things indicates the relevance of efficient pricing in ensuring optimal allocation of society's limited resources for efficient production of the various needs of society and efficient distribution of the commodities and services among various consumers (Dappa and Daminabo, 2004).

Thus, the concept of perfect competition and free market imply that the general equilibrium analysis will tend to yield an optimal allocation of resources since competitive equilibrium prices ensures that supply and demand are equal and in the long-run, all firms which can produce profitably will enter the industry to ensure long-run stable and sustainable growth (CBN, 1993). It is obvious that such optimality results cannot be achieved under centralized planning or command economies which depend on elaborate control. This is because such system is hardly able to arrive at a set of efficient prices which will ensure that all firms maximize their profits by covering their costs and earning reasonable margins, while consumers maximize their utility. In recent times, there has been some ferment of intellectual debates about the role of the State in economic life (Killick, 1989). Traditionally, the state's economic role has been defined in terms of a reasonability to correct or eliminate various market failures which place serious limitations on the allocative efficiency of the free market and justify the need for government intervention. Foremost among these are failures of competition, existence of externalities, incomplete markets, information failures, public/merit goods, macro economic instability, creative failures and poverty/inequality.

Development economists no longer assume that the existence of market failures constitutes adequate cause for state interventions. This is because, experience, especially in the peculiar circumstances of developing countries, has taught that government has a duty to rectify these failures through the use of taxation and subsidies to moderate if not remove

the observed distortions arising from the market failures (Dappa and Daminabo, 2004). Even among the Socialist Economists (Social Democrats), the case of market globalization is widely accepted. Importantly, there is indeed a symbiosis among capitalism, colonialism and imperialism as theoretical milieu underlying deregulation. Colonialism which implies the policy and practiced of a strong power extending its control territorially over a weaker nation or people has a long history but commonly regarded as an attribute of the late 19th century imperialists who conquered large tracts of the globe to find themselves ruling area. Indeed, colonialism of that latter period had been usually used pejoratively to denote an unwarranted sense of racial superiority and the set of attributes, beliefs and practices that sprang from it (Rodney, 1985).

This is the contradiction in capitalism in terms of the transplanting reduced the rate of profit and arrests the capitalization of surplus blue in the western world in the 19th century. In addition to this development was the sole aim of profit maximisation by capitalism both of which culminated in the need for a new environment in which the process of accumulation could continue. Therefore, the capitalists turned to foreign lands, attacked and subjugated them and integrated their economies to those of Western Europe through colonizing imperialism. To date that experience of western imperialism, particularly colonialism cum capitalism remain the most decisive phenomena in the history of Nigeria like any other colonized countries of the world (Dappa and Daminabo, 2004).

Unequivocally, colonialism severally de-captialised the Third World Countries, distorted and dislocated their economies and social systems. Their economics were disarticulated and specialized unconsciously in the production of raw materials to the metropolis in an international market with unequal exchange. Thus, the colonized periphery countries were made to depend on the metropolis (the developed countries) for almost everything. Based on this premise, it could be concluded that the deregulation of Nigerian economy is an idea packaged and sold by the metropolis thorough their agencies such as World Bank and International Monetary Fund (IMF) (Rodney, 1985). Moreover, the classical political economy which is capitalist was more concerned with the best way to engage in the production, distribution, exchange and consumption of goods and services with no role for government but the market in such growth and development. The aim was to remove encumbrances placed by ambitious governments and bureaucrats on the free

operation of a market economy and therefore in favour of the market economy with its vaunted claim to efficiency. In the bid of classical political economy to preach and promote capitalism and liberalism, it argued essentially, that a nation's true economic wealth is derived from the industry and the economic right of the people to choice. That the state should therefore only engage in the provision of internal and external security. It further argued against the various restrictions in international trade.

Based on this premise, the current deregulation of the Nigerian economy could be said to have its root in the contest of the classical political economy and should be situated therein (Momoh and Hundeyin, 1999). Furthermore, the world economic system that is essentially capitalist promotes an international division of labour in which the Industrialized Capitalist Countries (ICCs) produced the manufactured goods while the third World Countries were forcefully made to produce raw material needs of the ICCs whose price are determined by the latter. This unjust and unbalanced international division of labour began through the process and logic of colonialism driven by imperialism and currently propelled through the political legislation of the Bretton Woods system as represented by the World Bank and IMF which hegemonised the Euro-Dollar as an international currency of convertibility and a gold reserve (Onimode, 1988).

The effort to sustain this world economic system, an international capitalist financial system was established made up of multilateral institutions comprising General Agreement on Tariffs and Trade (GATT), the International Monetary Fund (IMF), the World Bank Group; International Reconstruction and Development (IBRD), International Development Agency (IDA) and the International Financial Corporation (IFC). The World Bank and IMF were established to help give aid to European countries to enable them come out from ruins of the First and Second World Wars in order to reconstruct their economies (Dappa and Daminabo, 2004). Unfortunately, their orientation and policy objective changed with time. As put by Onimode (1988:278):

Since 1979, IMF has been offering more assistance to third world countries under its stands-by arrangements of Extended and Facility, with preconditions. Similarly, IMF gives "letter of intent" (clean bill of health) to member states that are in need of World Bank loans with harsh conditionality among which is the deregulation of the economy among others. And even a look at this conditionality reveals their pernicious effect on the countries such as Nigeria which is caught in a "debt trap" has to take the bitter pills.

The adoption of the policy measures and initiatives couched in economic liberalism or deregulation of the economy has further pauperized the third World Countries and made their economic crisis assume a tragic proportion. In a nutshell, the activities of the World Bank and the IMF have in recent times further contributed to the underdevelopment of the Third World Countries such as Nigeria and have made them to be more dependent on and subservient to the West. The basis of the World Bank and IMF conditionality is the deregulation of the economy which has also been added to the democratization of the polity. Thus, this IMF conditionality such as trade liberalisation, monetary anti-inflationary measures, fiscal anti-inflationary programmes, anti-inflation control, wage increase, anti-inflationary dismantling of price controls and minimum wages door policy on foreign investment and Multinational Corporation, reduction of spending on social services and privatisation of public Enterprises are part of the deregulation of economic process.

At any rate, Nigeria has deregulated the telecommunications sector more than a decade now. Access to telecommunications services has improved tremendously. Utilisation of services is diversified and users can now connect family and friends at will without boundary of limitation. The revenue accruing to government coffers has also doubled through frequency spectrum of sale in licenses and taxes. Deregulation has changed the face of telecommunications in Nigeria in comparison to what obtained in the days of NITEL monopoly and bureaucratic control. Despite the transformation in the sector, there is growing concern about equality of benefits offered by the policy. This is especially in the area of low quality of GSM services offered to subscribers. The social vices associated with GSM, is another point to suggest the inadequacies of deregulation.

In the Nigerian context for instance, there have been instances where GSM was used to commit clandestine activities such as kidnapping, murder, cheating in school examinations, secret dating by married husbands and wives, and erection of Transmission Base Station Mast (TBSM) very close to residential buildings. This constituted major threat and health challenges to safety environment. Therefore, it appeared that to maximize the benefit of deregulation, there is need for combined effort by the government and private capitalist to address the challenges inherent in the sector. Indeed, the role of government becomes more pronounced in the market regime to balance benefit to the masses and multinational investors.

2.3 THEORETICAL FRAMEWORK

The central role of social theory is to explain social phenomena. Two theories guided this study. They are *neoliberal approach* and *rational choice theory*. The researcher's intention to utilise both theories is to synthesize them so as to achieve a complementary approach.

2.3.1 Neo-Liberal Theory

The central argument of neoliberalism is absolute free market economy by means of privatisation and deregulation. The concept of neoliberalism derives from the ideas of early liberal theorist such as Adam Smith, David Ricardo (Robert, 1999). The central thrust of neoliberalism is the belief in the market forces as the basis for allocation of goods and service. The idea is that this will not only transform the nations' economy but also the world economy.

A general characteristic of neoliberalism is the desire to intensify and expand the market, by increasing the number, frequency, repeatability, and formalisation of transactions. The ultimate (unreachable) goal of neoliberalism is a universe where every action of every being is a market transaction, conducted in competition with every other being and influencing every other transaction, with transactions occurring in an infinitely short time, and repeated at an infinitely fast rate. It is no surprise that extreme forms of neoliberalism, especially cyber liberalism, overlap with semi-religious beliefs in the interconnectedness of the cosmos (Robert, 1999). The central assumptions of neoliberalism are:

- i. A new expansion in time and space of the market: This is based on marketisation that is reinforced by forces of demand and supply (Polanyi, 1999).
- ii. Contract maximisation sustained by competition (Robert, 2000): This refers to participation of private individuals in the domestic economy attracting both local and foreign investors.
- iii. Market forces are intensified to ensure efficiency and high productivity. This is a development that is very visible in the labour market (Kenneth, 1998).
- iv. New transaction-intensive markets are created on the model of the stock exchanges, electricity exchanges, and telephone-minute exchanges and so on.

Thus, neoliberalism posits that economic growth is consequent upon free trade, liberalisation, deregulation, and privatisation. That is for an economy to develop, there must be open system, which allows for international relations and cross-border trade. Free trade and economic liberalisation is not enough, domestic economies should eradicate any perceived barriers to market forces. This is referred to as deregulation that nurtures privatisation. Ultimately, a globalised economy that sustains capital flight and investment constitutes the vision and mission of the neoliberals. This sustains the reason for the operation of multinational telecommunications corporations (such as MTN, AIRTEL and ETISALAT, etc) in Nigeria.

Furthermore, neoliberal theory argues that the state should not interfere in the allocation of resources for the production of goods and services but should be left to the market forces to determine. However, the role of the state should be to provide enabling environment such as provision of infrastructure, maintenance of law and order so that investors and their investment will thrive. Hence, telecommunications sector has been deregulated for more than a decade with widespread utilisation of GSM services among Nigerian subscribers. It becomes important to know the real benefit and contribution of deregulation to telecommunications services both in social and economic value.

2.3.2 Rational Choice Theory (RCT)

The central explanation of this theory is a focus on individual rational action that helps to explain the aggregate behaviour in the society. According to the main proponent of this theory, Coleman (1990), the main task of sociologists is to focus on social system, but that such macro phenomena must be explained by examining the factors internal to them, which centres on behaviour of individuals at the micro level. He identified reasons for this argument. First, he argued that data are usually gathered at the individual level and aggregated or composed to yield the system level. Second, that the individual level is the point where interventions are ordinarily made to create social change in the society. Hence, in this study the behaviour of individual GSM subscriber serves to explain the utility or otherwise of deregulation of telecommunications sector in Nigeria.

Further, Coleman's rational choice orientation posits that a person acts purposively towards a goal, with the goal and the actions shaped by values or preferences. In other

words, every consumer takes the best course of action to derive maximum satisfaction. The collection of the aggregate rational action helps to explain the macro social system. For example, every subscriber wishes to communicate at affordable tariff and with clear signals. It then follows that the success or failure in the realisation of this goal/value helps to define the choice of one network over the other as well as the wide range of activities such network may be utilised for.

Coleman's Rational Choice Theory is derived from economics, where actors are assumed to be choosing actions that will maximise utility, or the satisfaction of their need and wants. There are two key elements in rational choice, that is, actors and resources. Resources are those things over which actors have control and in which they have some interests (Ritzer, 1996). Base on these two elements, Coleman explains how their interaction can lead to the system level.

He argued:

A minimal basis for a social system of action is two actors, each having control over resources of interest to the other. It is each one's interest in resources under the other's control that leads the two, as purposive actors, to engage in actions that involve each other, a system of action. It is this structure, together with the fact that the actors are purposive, each having the goal of maximising the rationalization of his interests that gives the interdependence, or systematic character, to their action (Coleman, 1990:805).

Although Rational Choice theory recognises that in the real world, people do not always behave rationally, but this makes little difference in the position of the theory. According to Coleman (1990) the implicit assumption is that the theoretical predictions will be substantively the same whether the actors act precisely according to rationality as conceived or deviate in the way that have been observed. Hence, given the theoretical orientation, it follows that the focus in terms of the micro-macro issue is the micro to micro linkage, or how the combination of individual actions bring about the behaviour of the system (Ritzer, 2008). While the theory is interested in micro-macro analysis, it is also interested in the macro-micro linkages, or how the system constrains the orientations of actors. In the final analysis, the theory evinces an interest in the micro-micro aspect of the relationship, or the impact of individual actions on others. For example the concept of interaction between the subscriber and telecom operators mediated through regulatory

body like the NCC help to shape the actions, goals and expectations of the actors in the telecommunications sector in Nigeria.

On the whole, the argument of rational choice theory is the rational construction of social system from the lowest level of individual. That is knowledge of macro level is best understood from primacy of micro level. In other words, to gain adequate understanding of the current state of telecom deregulation in Nigeria, focus should be on the aggregate of subscriber's perceptions which gives telecommunications sector in Nigeria its true character. That is subscribers' perceptions and reactions to the quality of services they receive from telecom operators will determine whether or not the sector will be adjudged to be efficient. Furthermore, rational theory also attempts to explain why a subscriber could obtain services of two or more networks as well as the mode of utilisation of each network. From the perception of an external observer this may seem irrational, but the subscriber is rational by calculating the cost and benefits of each network.

However, this study is further understood within the theoretical perspectives, modernisation and dependency theory. The ideological explanation of modernisation prescribed the prerequisites of development and social change that will lead to rapid socio-economic transformation of society especially the Third World World nations (Ritzer, 2008). This theory summarised that Third World must follow the path of Western nations in their rationality to development. This refers to external intervention from countries like America, Britain, France and German and other developed Western nations that will lead poor African nations, especially Nigeria to experience rapid social change. Reflecting on the telecommunications sector, the services were only available to few middle class prior to operations of GSM services. Now, deregulation which is one of the Neo Liberal dictates from Western nations ensured that access and utilisation of GSM services were revolutionised. It is common to see telecommunications services in every household in Ibadan and by extension Nigeria as a whole. The utilisation of the services have also been expanded to connecting families and friends, browsing internet for social and academic information, reducing traveling cost and source of employment in the formal and informal sector (Micah and Okafor, 2013).

At the same time, dependency theory attempted to design a checkmate that will lead to maximisation of the benefits of social change to Third World countries. The theory

asserted that economies of Third World countries are conditioned and predetermined by the expansion and growth of the Western nations. This is because the path and prerequisites to development dictated by Powerful economic nations produced dependent relations and disadvantage to Third World (Ritzer, 2008). In the real sense, GSM technology is the material culture of Western Developed nations, the technology was prescribed to Nigeria as ultimate solution to epileptic NITEL in the year 2000. Now the technology is widespread among users in Ibadan and by extension Nigeria. Yet GSM has been utilised to commit clandestine activities that ranged from examination malpractice to marital infidelity, fraud, murder, unregulated uses in worship centres and public nuisance. Study also showed that GSM must now constituted threat to people in the residential area. There is continuous problem of poor quality services and terrorist attacks well coordinated by uses of GSM services (Micah and Okafor, 2013). Despite enormous benefits associated with GSM services, Nigerians have continued to grapple with the challenges of the new technology.

2.4 Conceptual Framework

Evaluating the two approaches, it is obvious that rational choice theory provides the clear picture of the neoliberalism in terms of micro analysis of the macro level of deregulation. For example, the ideology to deregulate and privatise is informed by the need to ensure efficiency, productivity, and ultimately national development. This is carried out through public enterprise reform by private ownership in which resource allocation is wholly dependent on the forces of demand and supply.

Consumer and market forces are two dependent agents or actors in the market economy. In this wise, the interrelationship between the two forces help to define the market economy. The observable equilibrium is perceived as a balanced system, while disequilibrium helps to explain the disadvantage associated with the system. Thus, the system in this case is labeled 'deregulation' that is the whole idea of macro level. Consumer/subscribers and service providers whose action and behaviour are considered rational at micro level help to explain the entire system of deregulated telecommunications sector at the macro level. In other words, deregulation of the telecommunications sector

may not be described as transformatory and having significant impact until considerable satisfaction is evident at the level of subscribers.

It follows that the theoretical explanation of neoliberalism in this thesis is incomplete until there is another framework that provides insight into its explanation. For example, neoliberalism states that for a developing and emerging economies to be fully transformed into economically self sufficiency, government must deregulate and privatise its economy for more efficiency. Therefore, rational choice theory serves to complement neoliberalism at micro level but more importantly serves as a check list on the basis of which utility or otherwise of deregulation of telecommunications sector in Nigeria could be assessed or evaluated.

The conceptual framework indicated in this study links literature review, theoretical explanation and research objectives. Hence, the knowledge portrays the basis for deregulation, attributed to inefficiency and budgetary deficit resulting from public enterprises and corporation such as NITEL. This means public sector reform was necessitated to ensure economic efficiency, competition and high productivity of state own enterprises, which underlies deregulation thesis. Therefore, in order to attain the goal of the reform, neoliberal ideology becomes the viable option. The result was the deregulation and privatisation of public corporation that encapsulates telecom industry.

However, the rational choice(s) of individual subscribers in the deregulated economy is vital in the explanation of the market system. In other words, the aggregation of consumption pattern at the individual micro level helps to sustain explanation at the macro level that is market economy. Put simply, the outcomes produced at the level of subscribers help to describe the achievement of the present reform. Thus, the emphasis of the outcome represents the task of the study built in the research objective.

2.5 Relationship between Variables

This study investigated the relationships between some selected variables in the following sub sections.

2.5.1 There is association between location and perception of quality of GSM services

2.5.2 There is association between age and perception of quality of GSM services

- 2.5.3** There is association between income and perceived level of utilization of GSM services
- 2.5.4** There is association between area of residence and the level of utilisation of GSM services.
- 2.5.5** There is association between level of utilisation of GSM services and building of social networks by subscribers
- 2.5.6** There is association between perception of deregulation of telecommunications sector and the level of access to GSM services by subscribers
- 2.5.7** There is association between perception of deregulation of telecommunications sector and the level of utilisation of GSM services by subscribers

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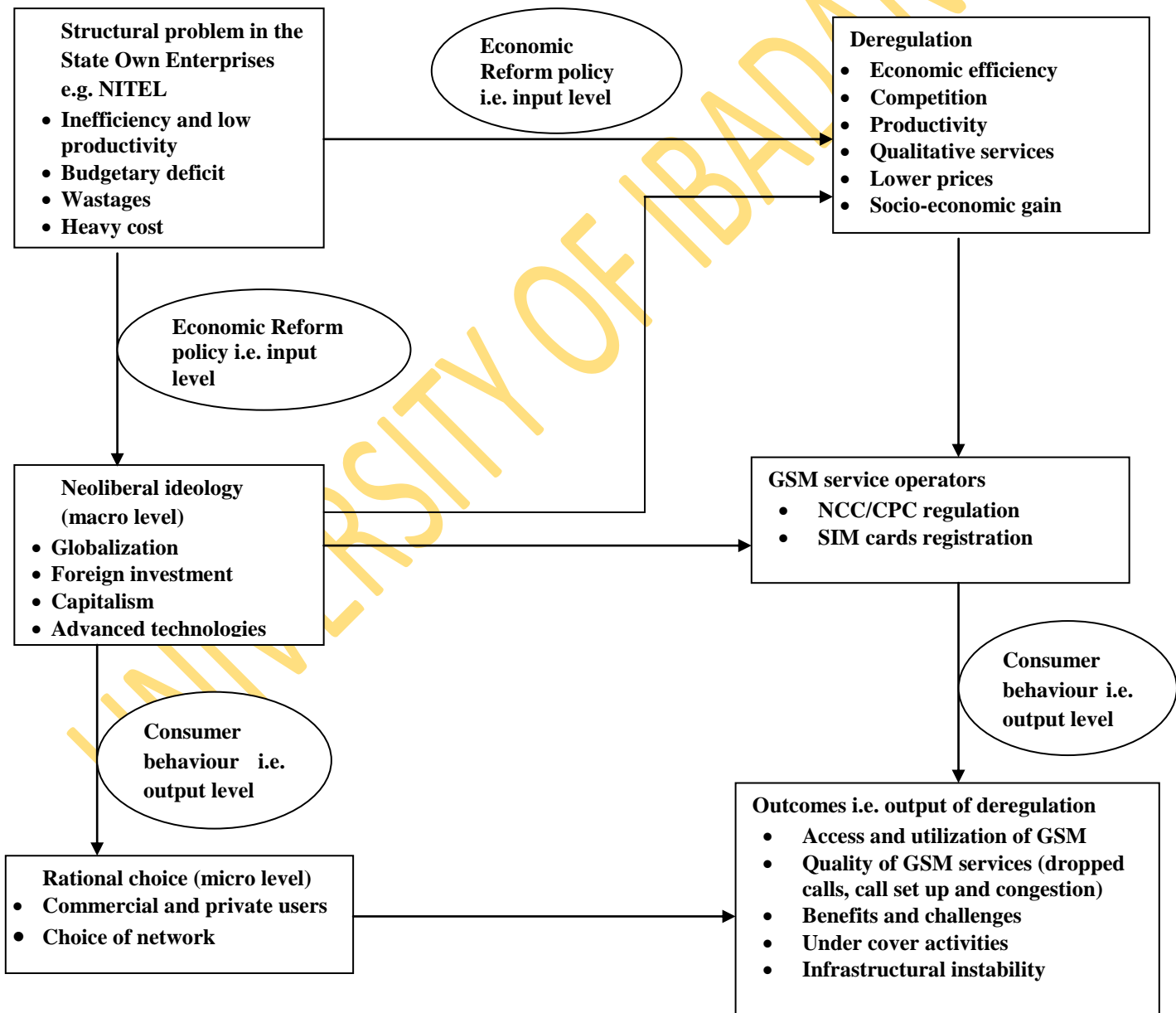


FIGURE 2.1: Conceptual Framework of Access to, and Utilisation of GSM Services among Subscribers

Source: Field Survey, 2012

CHAPTER THREE METHODOLOGY

3.1 Introduction

This section draws upon the systematic science of the study. It outlines the practical effort taken by the researcher to identify research objects (respondents), collect data and design the most appropriate method of analysing the data. Issues addressed in this chapter are outlined.

3.2 Research Design

Research design is the plan, structure and strategy of investigation conceived so as to attain answers to research questions and to control variables (Ogunbameru, 2005). This study adopted descriptive design. It combined survey quantitative and qualitative methods. The study was largely a cross sectional study, hence the need to survey the views and opinions of GSM subscribers in Ibadan. Furthermore, the study enabled the researcher to describe subscribers' perception towards GSM services in the study areas.

3.2 The Study Area

The study was located in Ibadan metropolis, South Western Nigeria. A former capital of old Western region, Ibadan is like many cities in Nigeria that have been swelling with migration. The core population of Ibadan is Yoruba, but its population has always been ethnically mixed and is becoming increasingly so. Although industry is less developed than those in Lagos or Kano, it services the city with many of its needs and there are large numbers of traders, civil servants, professionals, artisans and so on. Ibadan

also houses one of Africa's first and premier Universities that is University of Ibadan, which lends its economy a significant intellectual, professional and artistic profile. By virtue of the University presence, there are notable ethnic and class variations. In a nutshell, Ibadan encapsulates so many characteristics of modern Nigeria (Guyer, Denzer and Agbaje, 2002).

There are eleven local councils that make up Ibadan metropolis, which are classified into Ibadan main city and less city areas. The main city areas are Ibadan North Local Government (LG), Ibadan North West LG, Ibadan North-East LG, Ibadan South East LG, and Ibadan South West LG. The less city areas comprise, Akinyele LG, Oluyole LG, Egbeda LG, Ido LG, Lagelu LG as well as Ona-Ara LG. Aside from being one of the largest cities in West Africa, its population is considerably significant. The current population is over 2.7 million, out of which approximately 1.2 million people have access to telecommunications services (Federal Republic of Nigeria Official Gazette, 2009; NCC, 2010). Therefore, empirical study from such instance can be valid for scientific generalization.

3.3 The Study Population and Sample Size

The population chosen to provide answers to research questions in the study comprised GSM subscribers (both private and commercial users called GSM hawkers), network service providers, and officials of NCC and CPC. The GSM operators selected consisted of Globacom telecommunications, Mobile Telephone Networks (MTN) Nigeria, Airtel, Starcomm telecommunications and Etisalat. The selection of these networks was purposive. The MTN, Airtel and Glo, besides being the pioneer licensed networks, also have the largest subscriber base (NCC, 2012). On the other hand, Starcomm was the first network to offer internet phone services, and Etisalat being the latest entrant in GSM services has a lot of subscribers within the few years it has existed because of its lower tariff charges and uniformity of tariff across networks.

However, there are 1,200,000 telecommunications subscribers (GSM, CDMA and Fixed wireless combined) in Ibadan as at 2011 (NCC, 2011). Thus, the sample size was limited to 1600 respondents. This was drawn from GSM subscribers across the designated study locations. These locations are divided into Main City (MC) and Less City (LC). The

MC/urban locations selected were Ibadan North LG (Mokola-Bodija axis), Ibadan North West LG (Eleyele-Onireke axis), Ibadan South East LG (Molete-Mapo axis) and Ibadan South West LG (Ring road-Challenge axis). The LC locations selected were Ido LG (Apete-Akufo axis), Akinyele LGA (Ajibode- Moniya axis), Egbeda LG (Alakia- Egbeda town axis), and Lagelu LG (Igbo Elerin- Lalupon axis). The above local governments were selected through the use of simple random sampling (ballot), while study locations within each of the local governments were based on purposive. Thus, 800 subscribers were each selected from the MC and LC locations. Also, sample of 200 respondents were selected from each sub location/community that made up the MC and LC areas.

Furthermore, ten (10) telecom officials were purposively selected for in-depth interviews from the five GSM companies. Moreover, 24 telecom hawkers were selected for interviews from MC and LC locations. Similarly, two (2) staffers of the Nigerian Communications Commission (NCC) and two (2) staffers of the Consumer Protection Council (CPC) served as key informants (i.e. KII) in the study. The table 3.3.1 summarises sample distribution for qualitative and quantitative data collection.

Table 3.3.1: Sample Size for Qualitative and Quantitative Data Collection

Location	Qualitative		Quantitative
	IDIs	KII	Questionnaire
MTN	2	--	--
GLO	2	--	--
STARCOMM	2	--	--
ETISALAT	2	--	--
AIRTEL	2	--	--
NCC	--	2	--
CPC	--	2	--
Mokola-Bodija axis	3	--	200
Molete-Mapo axis	3	--	200
Eleyele-Onireke axis	3	--	200
Ring road-Challenge axis	3	--	200
Apete-Akufo axis	3	--	200
Orogun-Moniya axis	3	--	200
Alakia- Egbeda town axis	3	--	200
Igbo Elerin-Lalupon axis	3	--	200
TOTAL	34	4	1600

Cochran's (2004) sample size determination was used.

$$n = \frac{z^2 p (1-p)}{e^2}$$

n= sample size; z= level of confidence; p= proportion of target population;

e= permitted error

e= 0.02 constant; z= 1.96 at 95% confidence interval or 1.64 at 90% confidence interval; p= Target population of GSM users in Ibadan

Total population resident in Ibadan

= 1200000

2700000 = 0.4

Hence, calculating at 90% confidence level: $\frac{1.64^2 * 0.4 (1-0.4)}{0.02^2} = 1614$.

The approximate sample size used for the study is 1600. The distribution of the sample size is based on the proportion of GSM subscribers in each of the selected LG areas. According to NCC (2011) data for Ibadan, each of the 8 LGs had an approximate proportion 9.3% of the GSM subscribers in Ibadan. Hence, the distribution gave 200 sample in each of the LG areas.

3.4 Sampling Procedure

The sampling technique for this study was multi stage sampling. This comprised purposive, simple random, cluster, convenience and quota sampling techniques. Purposive sampling served as basis for selecting the study area (Ibadan). The city of Ibadan was purposively selected because Ibadan is the third largest and main city in Nigeria after Lagos and Kano. In the real sense telecom sector was deregulated in order to make services available and affordable to large mass of people. Therefore, assessing deregulation policy required a densely populated area such as Ibadan. Simple random was used to select the local government areas in the MC and LC in Ibadan. Also, cluster sampling was used to select strategic locations (i.e. Market, Secretariat and Motor Park) for the study.

Furthermore, convenience sampling, a non probability method, was used to select subscribers in the study locations. The use of convenience sampling is largely due to the absence of sampling frame in the designated study locations. The number of sample selected for survey in each of the study areas was based on quota distribution. This

technique was also used to select population categories such as students, farmers, civil servants, market traders, and teachers and so on. Furthermore, purposive sampling was used to select respondents for IDIs and KIIs. In all, triangulation of sampling techniques was utilised in selecting the sample size for this study. For purpose of clarity, table 3.4.1 summarized the process.

TABLE 3.4.1: Distribution of Sample Size for Quantitative and Qualitative Data Collection

Locations	Study Areas (SAs)						Total
	SA 1		SA 2		SA 3		
Alakia-Egbeda	Central market: 67 IDI→1	67	LG Secretariat: 67 IDI→1	67	Central motor park: 66 IDI→1	66	200
Apete-Akufo	Central market: 67 IDI→1	67	LG Secretariat: 67 IDI→1	67	Central motor park: 66 IDI→1	66	200
Orogun-Moniya	Central market: 67 IDI→1	67	LG Secretariat: 67 IDI→1	67	Central motor park: 66 IDI→1	66	200
Igbo Elerin-Lalupon	Central market: 67 IDI→1	67	LG Secretariat: 67 IDI→1	67	Central motor park: 66 IDI→1	66	200
Bodija-Mokola	Central market: 67 IDI→1	67	State Secretariat: 67 IDI→1	67	Central motor park: 66 IDI→1	66	200
Eleyele-Onireke	Central market: 67 IDI→1	67	LG Secretariat: 67 IDI→1	67	Central motor park: 66 IDI→1	66	200
Ring road- Challenge	Central market: 67 IDI→1	67	LG Secretariat: 67 IDI→1	67	Central motor park: 66 IDI→1	66	200
Molete-Mapo	Central market: 67 IDI→1	67	LG Secretariat: 67 IDI→1	67	Central motor park: 66 IDI→1	66	200
							1600

3.5 Method and Instrument of Data Collection

The method of data collection for this study comprised quantitative and qualitative methods. The former was used to collect quantitative data, while the latter was used to collect qualitative data. Quantitative data were generated in numerical form. On the other hand, qualitative data were generated in text or word form. Furthermore, the study utilised both primary and secondary sources of data collection. Primary sources involved field

work and secondary sources involved journal records, official gazette and other documented records.

The instruments for data collection comprised questionnaire, in-depth interviews (IDIs), and Key Informant Interviews (KIIs). Questionnaire was applied on the GSM subscribers, while IDIs was used for Telecom officials and GSM hawkers. Furthermore, KII was used for the officials of NCC and CPC¹.

3.5.1 Questionnaire

The questionnaire for this study which generated quantitative data was divided into six sections and each section addressed a particular objective. Section A deals with Socio-demographic characteristics of the subscribers. There were nine (9) variables measured in this section. Section B dealt with Perception of GSM subscribers. This investigated subscriber's knowledge and attitude to deregulation policy of the telecommunication sector. Five items were investigated in this part. Section C investigated level of access and utilisation of GSM services. Eleven items were examined under the subject matter of access to GSM services. Also, 11 items were indicated to examine level of utilization of GSM services.

Access and utilisation were measured in terms of high, moderate and low. Section D was designed to address the problem of quality of GSM services. Fourteen items were contained in this section. Quality of GSM was measured in terms of high, moderate, and low. Section E focused on benefits and challenges of GSM services. On the benefits of GSM services, there were 9 research questions investigated. On the other hand, the problem of challenges was measured using 11 items of research questions. Section F was concerned with subscribers' perception of government policies of GSM services. There were 15 research questions itemised to investigate this problem.

3.5.2 In-Depth Interviews (IDIs)

¹ Data from NCC and CPC were collected in Abuja, the head quarter office. This is due to bureaucratic factor that limited the capacity of regional offices of those agencies to supply the needed information

The IDIs generated qualitative data. They captured those areas of the objectives where it was not possible to use questionnaire to capture the views and perception of the respondents. In other words the instrument generated qualitative data that complemented data generated through quantitative method. Specifically, the instrument was used to address the issues of problems confronting the GSM providers as well as the perception of GSM stakeholders on government policies of telecommunications in Nigeria. To be more precise, the IDIs were used to generate data from GSM and CDMA services providers. This instrument was designed to capture the socio-economic characteristics of respondents. It also engaged 10 items of research questions that captured benefits and challenges of deregulation of the telecommunications sector. Similarly, the IDIs captured the views of the GSM services hawkers. The structure consisted of the socio-economic characteristics of the respondents. Ten items of research questions were identified and engaged in discussion.

3.5.3 Key Informant Interviews (KIIs)

KIIs were used to generate primary data from the officials of NCC and CPC. The structure of this instrument was classified into two parts. The first section captured information on the socio-economic characteristics of the respondents. The second section related to the mode of operation of the telecommunications agencies. The instrument was designed to capture the activities of NCC and CPC in the regulation of the market and protection of consumers. There were 11 research questions captured in this instrument.

Table 3.5.1 summarised how the instruments were distributed among the various respondents for the study.

Table 3.5.1: Instruments for Data Collection

Instrument	Subscribers	Telecom hawkers	Telecom operators	NCC officials	CPC officials
Questionnaire	1,600	--	--	--	--
In-depth interviews	--	24	10	--	--
KII	--	--	--	2	2

3.6 Method of Data Analysis

The method of data analysis in this study involved quantitative and qualitative methods. Quantitative method utilised univariate and bivariate analyses. The univariate

analysis which was purely descriptive utilised frequency counts and percentages for presentation of data. Also, bivariate analysis involved the use of inferential statistics such as cross tabulation, chi-square test and correlation to establish association between variables. Cross tabulation was presented to analyse and relate variables to variables. The study presented 7 cross tabulation tables that showed the association between variables. Chi square test was used in this study to determine and know the type of association (positive or negative) between variables stated in the cross tabulation tables. Chi square test of association was accepted at $p \leq 0.05$. Chi square was used in this study because it shows at glance association between two variables. The relationship between variables in this study is that the study attempted to compare variables of two categories (independent and dependent) in each case. Similarly, the study utilised correlation analysis. There were seven correlation analyses identified for each of the seven cross tabulation tables. Correlation was used in this study to know the strength of the association between variables. This provided complementary information. It also verified and gave validity to the test in chi square.

The primary quantitative data for this study were processed through software Statistical Package for Social Sciences (SPSS) (17.0 Version). For qualitative data, raw data from in-depth interviews and KIIs were transcribed, sorted and labeled according to research objectives. Verbatim quotations, ethnographic summaries and content analysis were used for analysis and also to highlight the subject matter under discussion. In all, both quantitative and qualitative analysis complemented each other.

As regards data from secondary and archival sources, these were used to complement both quantitative and qualitative data obtained through primary sources in the course of analysis described above. Table 3.6.1 summarises the method of data analysis.

Table 3.6.1: The Framework for Data Collection, Analysis, and Interpretation

S/N	Objectives	Method of Data Collection		Method of Data Analysis	
		Quantitative	Qualitative	Quantitative	Qualitative
1	Perception of GSM subscribers on deregulation of telecommunications sector	Questionnaire	In-depth interviews	Frequency, percentage, cross tabulation, chi square, correlation	Manual coding/ content analysis, ethnographic summaries

2	Access and utilisation of GSM technology	Questionnaire	In-depth interviews/KII	Frequency, percentage, cross tabulation, chi square, correlation	Manual coding/ content analysis, ethnographic summaries
3	Quality of GSM services	Questionnaire	In-depth interview/KII	Frequency, percentage, cross tabulation, chi square, correlation	Manual coding/ content analysis, ethnographic summaries
4	Benefits and challenges of GSM technology	Questionnaire	In-depth interviews/KII	Frequency, percentage, cross tabulation, chi square, correlation	Manual coding/ content analysis, ethnographic summaries
5	Problems facing GSM operators in Nigeria	-----	In-depth interviews/KII		Manual coding/ content analysis, analysis
6	Perceptions of GSM subscribers and service operators on government policies on GSM	Questionnaire	Interviews/KII	Frequency, percentage, cross tabulation, chi square, correlation	Manual coding/ content analysis, analysis

3.7 Ethical Consideration

According to Babbie (1998), ethical principle comprises the consideration for voluntary participation, anonymity, and confidentiality. These principles were strictly observed in the course of this study. Consent of the prospective respondents was sought and obtained before the study instruments were applied on them including recording their voices on electronic devices. Every respondent was made to know the intent and value of the study in order to sustain their confidence. Furthermore, they were made to know that they had freedom to back out of the study at any point in time. As a result, some respondents openly rejected to answer the questionnaire or recording their voices. Hence, the empirical observation in the study was overt.

In addition, as regards GSM providers in the study areas, authorization was sought from the top management so that information obtained is valid in line with the objectives of this study. Consequently, approval for data collection was issued from the head quarter office in Lagos. Prior to field work, approval for data collection was issued from the Department of Sociology. In all, information obtained from the respondents as well as their identities are kept anonymous and strictly confidential.

3.8 Field Work Experience

The period of data collection for this thesis lasted for 8 months (between October 2011 and May 2012). Data were collected in two stages. The researcher started with the

collection of quantitative data. This was followed by the collection of qualitative data. Prior to the collection of quantitative, the researcher employed four research assistants. The researcher together with the assistants started with the collection of data from Less City areas. This period lasted for three months. Respondents from Study Areas (SAs) such as local government secretariat, market zones and motor parks showed positive attitude and interest to the topic of the research. This made collection of quantitative data very easy and convenient. Prior to application of questionnaire, the researcher and his co-research assistants sought the consent of the respondents. This means that data were collected on the approval of the research respondents.

In the Main City (MC) areas, collection of quantitative data lasted for a period of four months. There was little delay and difficulties in penetrating research respondents in this zone. The reason was that the respondents complained about availability of time and the volume of the questionnaire. Those that cited inconveniences because of time said that their job demands do not grant them the conveniences to fill the questionnaire. Others complained that there were too many items contained in the questionnaire. It took persistence and patience to get respondents from MC areas to fill the questionnaire. Similarly, the researcher had translated version (Yoruba language) of the questionnaire which was applied to non literate respondents. This ensured that respondents that could not read and communicate in English language were accommodated in the study. For translated version of questionnaire, please refer to appendix six.

Furthermore, qualitative data were collected immediately after the completion of the collection of quantitative data. This period of data collection lasted for four weeks. The collection of the data started with GSM hawkers. This was followed by GSM services providers and regulatory bodies of the telecommunications. There were no difficulties of data collection at this level. However, when the researcher approached NCC and CPC offices for data collection, the zonal offices directed that approved information can only be supplied from Abuja, the official headquarters of the commission and the council. The researchers traveled to Abuja and solicited approval for data collection. This was approved. Vital information about the activities of NCC and CPC was therefore made available to the researcher. The data collection was financially demanding especially payment of stipends to research assistants and trips to Abuja. Apart from this, the volume of data collected was

substantial. This means that in the analysis of data especially quantitative data, the researcher incurred heavy cost.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

This section presents and discusses the analysis of quantitative and qualitative data collected in the course of fieldwork. The chapter is classified into sub sections. Section one explains the socio-economic and demographic variables of GSM subscribers; section two focuses on the perception of GSM subscribers on deregulation of telecommunications sector; and section three discusses access to and utilisation of GSM services. Section four deals with assessment of quality of GSM network services; section five is based on benefits and challenges of GSM utilisation; and section six examined structural challenges that confronted GSM service providers in the study area. In addition, section seven addresses perception of subscribers on the regulatory policies of government on GSM services, while section eight focused on test of relationships between variables (the bivariate analysis). Also, section nine deals with the discussion of findings. The quantitative data is presented and analysed based on 1600 copies of valid questionnaire.

4.1 Socio-Economic and Demographic Characteristics

Results of socio-economic and demographic characteristics of the respondents as presented on the table 4.1.1 showed that male respondents represented 45.6%, while female constituted 54.4%. Although there were differences in the proportion of male and female, both sexes were utilizing GSM mobile services. This finding supports the preceding position stated in the work of Johnsen (2003); Ajala (2005); Park (2005). The writers observed that deregulation of public utility services provide efficiency and widespread access to service delivery. They were quick to mention that such widespread access is attainable in the long run. However, the number of males and females with access to GSM varied across locations in the study area. The proportion was higher for female (6.9%) in Egbeda Local Government (LG), higher for male (7.4%) in Ibadan North LG. Similarly, the proportion was higher for male (6.9%) in Ibadan North West LG and higher for female (7.4%) in Ibadan South East LG. The findings revealed that both male and female had access to GSM technology in the main city area as well as in the less city area. This implies that GSM technology was widespread and widely accepted in the study area.

Also, 36.4% of the respondents fell within 16 to 20 years, while 5.3% were aged 51 years and above. An inference that could be drawn here is that GSM appears to be very popular with the youths who may be inclined to experiment with new technology. The explanation of Park (2005) was relevant in the analysis of modern technology. The writer argued that technology innovation such as Information Technology (IT), especially the discovery of GSM has remarkably improved quality of life for youth population. This is connected to the level of access to modern technology among young people in the 21st century. The above writer did not state the factor which led to technology revolution and diffusion among the young population; it is however clear in the context of this study that deregulation was the driving force for the revolution. The view of a thirty five year old mechanic was clear on this fact when he said:

When I was younger some ten years ago, I don't know how a telephone communication looks like let alone utilizing the technology. I used to see the picture in books. Thanks to our democracy which has made me have access to GSM and even communicating my friends and family (IDI/GSM Subscriber/Ibadan North LG/2011).

The implication of the above view showed that deregulation of the telecommunications sector has expanded access and utilisation of GSM services across age groups. Moreover, findings showed that respondents with ages 16-20 and 21-25 years utilised GSM services in every location of the study. On the other hand, access or utilisation of the mobile communication was not widespread among higher age groups such as 41-45 years, 46-50 years and 51 years and above. For instance in Ibadan North LG, there were 0% of respondents aged 51 and above connected to GSM services. This was also replicated in Ibadan South East LG which had 0% of respondents aged 41-45 years connected to mobile communication. In Akinyele LG, 0% of respondents aged 36-40 years were connected to GSM services. This means the utilisation or acceptance of modern technology tends to vary with age.

The marital status of respondents showed that 65.1% were single, 31.6% were married and 6.1% divorced. This goes to reinforce the fact that most people who participated in this study were young people who may not have much of family responsibilities. Furthermore, the educational status of the respondents showed that most respondents were very literate having one form of *educational* qualification or the other (96.4%), while only 0.4% had no formal education. This is not surprising as the study was conducted in Ibadan where literate rate is high (Agbaje, 2002) and also operating GSM requires minimal level of formal education. Moreover, the religious affiliation of the respondents showed that those that professed to be Christian constituted 76.0%, Muslims constituted 23.8% and Traditional Worshippers constituted only 0.3%. Sociologically speaking, religion is very important because it shapes people's attitude and behaviour towards certain innovations. However, the existence of individuals who worshipped traditional religion pointed to vital fact. It has been argued by some writers e.g. Torimiro and Lawal (2001); May (2002) that traditional religion is in extinction in the modern industrial societies. This means traditional deity no longer holds significant importance in the life of modern man. It refers to the indication of *modernisation* thesis in the analysis of social development. The antithesis position as shown in the study is that traditional religion remains vital and functional particularly in the lives of the worshippers. Perhaps this explains the reason for its continuous existence. Although traditional religion continued to exist, findings showed that it was not however widespread in the study areas. For instance,

there were 0% of the respondents affiliated with traditional belief in Ibadan South West LG, Lagelu LG, Ibadan South East LG, and Akinyele LG. Christianity and Islam have remained the mainstream religions in the study locations.

The *income* distribution of the respondents shows that most of them (45.7%) were living on less than an income of NGN10,000 per month, while only 3.7% were earning NGN90000 and above and 3.3% had no source of income. It could be inferred from the income distribution above that most respondents that participated in this study were people of limited means of income and some had no source of income at all. It is expected that this will impact on how they utilise and maintain their GSM services (Waverman and Fuss, 2005; National Bureau of Statistics, 2011). A respondent with very little income said:

Since I bought my GSM phone two years ago, I buy credit card once or twice in a month. I use to buy NGN100 recharge cards twice a month. I don't use to call on my personal GSM phone because of the high tariff. I used commercial centres. I don't have a stable income. Sometimes I do not even have hope of feeding on two meals per day. I am seriously looking for job that pays regular income. But I must use this phone to remain in contact if I must get a good job because most employers nowadays will expect you to have a functional phone number and e-mail address for easy contact (IDI/GSM Subscriber/Lagelu LG/2011).

From the above assertion, it is evident that some respondents are using GSM services not out of buoyancy but out of necessity of remaining in contact with others, hoping that doing so will yield positive results (Kareem, Olaewe and Odeniyi, 2008). In this regard, the benefits of deregulation may not be equally distributed.

Table 4.1.1: Distribution of Respondents by Socio-Economic and Demographic Characteristics

Characteristics	Main City (MC)		Less City (LC)		MC and LC Total	
	Frequency MC=800	%	Frequency LC= 800	%	Frequency MC and LC= 1600	% 100
Sex						
Male	419	26.2	311	19.4	730	45.6
Female	381	23.8	489	30.6	870	54.4
Age range						
16-20	320	20.0	257	16.4	345	36.4
21-25	101	6.4	71	4.4	124	10.8
26-30	159	9.9	186	11.7	112	21.6
31-35	69	4.4	55	3.4	81	7.8
36-40	48	3.0	64	4.0	100	7.0
41-45	21	1.4	60	3.8	84	5.1
46-50	54	3.4	46	2.9	100	6.3
51 and above	28	1.8	61	3.8	84	5.3
Marital status						
Single	598	37.4	476	27.7	1042	65.1
Married	197	12.3	309	19.3	506	31.6
Separated	5	0.3	0	0.0	5	0.3
Divorced	0	0.0	14	0.9	14	0.9
Widowed	0	0.0	1	0.1	1	0.1

Educational qualification						
No education	3	0.1	4	0.3	7	0.4
Primary school	34	2.1	51	3.2	85	5.3
Post primary	339	21.2	245	15.3	584	36.5
OND/NCE	198	12.3	199	12.5	397	24.8
HND	99	6.2	93	5.8	192	12.0
B.Sc	34	2.1	116	7.3	150	9.4
Masters	55	3.4	90	5.6	146	9.1
PhD	38	2.4	1	0.1	36	2.3
Religious affiliation						
African traditional religion	2	0.1	3	0.2	4	0.3
Islam	217	13.6	163	10.2	380	23.8
Christianity	581	36.3	635	39.7	1216	76.0
No religious affiliation	0	0.0	0	0.0	0	0.0
Monthly income (in ₦)						
No source of income	31	1.9	21	1.4	52	3.3
Less than 10,000	380	23.8	351	21.9	731	45.7
10001-30000	176	11.0	210	13.1	386	24.1
30001-50000	107	6.7	63	3.9	170	10.6
50001-70000	44	2.8	68	4.3	112	7.0
70001-90000	46	2.8	45	2.8	91	5.7
90001-110000	7	0.5	21	1.3	28	1.8
110001 and above	21	1.3	9	0.6	30	1.9
Occupation						
Government ministries employees	71	4.4	86	5.4	157	9.8
Corporate service employees	76	4.8	149	9.3	225	14.1
Self employed	69	4.3	130	8.1	199	12.4
Teachers	100	6.2	110	6.9	210	13.1
Lecturers	17	1.1	13	1.0	30	1.9
House wife	2	0.1	6	0.4	8	0.5
Unemployed	9	1.0	25	1.5	34	2.1
Students	202	12.7	98	6.1	300	18.8
Other occupations	254	15.9	183	11.4	437	27.3
Ethnic origin						
Yoruba	651	40.7	642	40.1	1293	80.8
Hausa	33	2.1	15	1.0	48	3.0
Igbo	72	4.5	98	6.1	170	10.6
Other ethnic group	44	2.8	45	2.9	89	5.6

This is a major reason the classical Marxists have strongly argued that deregulation may breed sharp inequality when private capital is allowed to dominate mainstream economy.

The distribution of *occupation* shows that respondents were engaged in various occupational activities such as *corporate* employees (14.1%), *civil* service (9.8%), *self* employed (12.4%), *teaching* and *lecturing* (15.0%), other occupations (such as *farmers*, *artisans*, *business* men and women) (27.3%). Also, *housewives*, *students* and *unemployed* constituted 21.4%. Although these in the real sense do not constitute occupations, however, this category of people usually earn allowances and could not be excluded from this important study because their utilisation or non utilisation of GSM services has sociological significance. Findings also showed that most respondents who participated in the study were *Yoruba* (80.8%), others included *Igbo* (10.6%) and *Hausa* (3.0%), and other ethnic groups such as *Itshekiri*, *Ijaw*, *Urhobo*, *Ibira*, and *Tiv* collectively constituted (5.6%). The predominance of those respondents from Yoruba ethnic group is based on the

fact the study was conducted in Yoruba speaking area. Also, the presence of other ethnic groups indicates the cosmopolitan nature of Ibadan city (Agbaje, 2002).

4.2 Respondents' Perception of Deregulation of Telecommunications Sector

In 2001, the monopoly of Nigerian telecommunications (NITEL) was broken when Federal government decided to deregulate the telecommunications sector. Initially, the Nigerian Communications Commission (NCC) licensed three companies namely, MTN, ECONET and MTEL. In the years to come, GLOBACOM, STARCOMMS, MULTILINKS, VISAFONE, and host of others were also licensed. For over a decade now following the deregulation of the sector, a wide range of changes have occurred in the telecommunications industry as well as in the lives, attitude, and behaviour of various subscribers of these networks. Against this background, table 4.2.1 attempts to capture the perception of respondents towards the deregulation of telecommunications sector in Nigeria and particularly in the study areas.

Gary and Izak (2001); Hausmann-Muela (2003); Yuji (2009), argued that the measurement of *perception* encompasses three basic variables. These are knowledge, attitude, and practice [KAP]. From table 4.2.1 it is evident that 50.6% of the respondents agreed that they had *knowledge* of deregulation of the telecommunications sector, while 49.4% indicated they lacked the knowledge. This is disturbing considering the large number of respondents who did not know about the deregulation of the telecommunications sector. This may be attributed to lack of enlightenment by the appropriate bodies or agencies saddled with such responsibility.

On the other hand, *attitude* is operationalised in terms of access to GSM services which is product of deregulation. Most often, attitude cannot be formed without external stimuli (in this case deregulation policy). It then follows that access to GSM services sheds light on the respondents' dimension of attitude. From the table 4.2.1, 64.3% of the respondents indicated that deregulation of telecommunications sector has improved their access to mobile telephone in the study area, while only 35.8% disputed this. *Practice* has to do with putting into use certain object or knowledge acquired to determine its desirability for continued utilisation or otherwise. In this study, practice is measured in the

benefits associated with the utilisation of GSM services as a result of deregulation of telecommunications sector.

Table 4.2.1: Distribution of Respondents' Perception of the Deregulation of Telecommunications Sector

Questionnaire items	Main City (MC)		Less City (LC)		MC and LC Total	
	Frequency MC=800	%	Frequency LC=800	%	Frequency MC and LC= 1600	% 100
I have the Knowledge of deregulation of telecommunications sector						
No	166	10.4	624	39.0	790	49.4
Yes	634	39.0	176	11.0	810	50.6
Deregulation has improved my access to telecommunications services						
No	169	10.6	403	25.2	572	35.8
Yes	631	39.5	397	24.8	1028	64.3
I have benefitted from deregulation of telecommunications sector						
No	275	17.2	369	23.1	644	40.3
Yes	525	32.9	431	26.9	956	59.8
Subscribers' perception of deregulation of telecommunications sector						
Indifferent						
Wasteful	318	19.9	264	16.5	582	36.4
Beneficial	46	2.9	56	3.5	102	6.4
	436	27.3	480	30.1	916	57.3

Hence, 59.8% of the respondents claimed to have benefitted from the deregulation of the sector, while 40.3% were critical about the benefits associated with the GSM services. For instance, a thirty-one year old male GSM accessory hawker who claimed to have benefitted from the deregulation of the sector said:

Deregulation brought the existence of GSM technology and services in Nigeria. The technology is good for communication. Everybody wants to use it. It replaces and eases the need for travelling. It does not only reduce cost of living, it is beneficial. It facilitates business without delay across locations (IDI/GSM subscriber/Akinyele LG/Ibadan/2011).

Also, another beneficiary, a forty year old male respondent said:

Deregulation of telecommunications sector is a good decision by government. GSM cannot be compared to NITEL of the past. When MTN and ECONET (now Airtel) came, their prices were high. Now everybody can afford to buy GSM line and phone at cheaper and affordable prices. However, GSM tariff is high across networks. The tariff should be reduced. Government should check the service providers on high tariffs (IDI/GSM subscriber/Ibadan North West LG/Ibadan/2011).

Conversely, a sixty-nine year old female respondent, a retiree of NITEL subtly expressed some reservations about the deregulation of the sector and said:

Although the use of GSM in Nigeria is good, the havoc of deregulation policy which brought it into being is enormous. I am a retired staff of NITEL. It is painful to say that the welfare of employees in the corporation was badly handled by government. Till today there is no hope for improvement. This is due to deregulation policy which diverted government attention in the sector. Many staff officials were sacked because of deregulation (IDI/GSM subscriber/Ibadan North West LG/2011).

Also, another respondent provided additional dimension of shortcomings of deregulation of telecommunications sector and said:

Most GSM operators have not given customer and complain adequate attention. They provide what they think is good for their businesses at the expense of their numerous customers. The market is not yet competitive. It is lopsided in favour of the providers while the subscribers are shut out with little or no input on what kind of services they required. There are no alternatives in the telecommunications sector for now. If it were there, GSM providers would have been more competitive to respond rapidly to the need for good services (IDI/GSM subscriber/Ibadan North LG/2011).

From the responses above, it is evident that the deregulation of telecommunications sector in Nigeria has produced a wide range of mixed reactions from the respondents depending on the knowledge and the experience the subscribers had. No doubt the deregulation of the sector has some positive and negative effects on the lives of individuals as adduced by various scholars and confirmed by the respondents used in this study (Ahmad, 2007; Bakare and Gold, 2011). For instance, 57.3% of the respondents *believed* that the deregulation of the sector was *beneficial*, while 36.4% were indifferent and 6.4% believed that it was *wasteful*. This may not be unconnected with various problems and challenges associated with the use of GSM phones and services.

4.3 Access and Utilisation of Global System for Mobile Telecommunications (GSM) Services

The entrant of GSM in the telecommunications sector in Nigeria provided alternatives to the people as regards telecommunications. Since the deregulation of the sector, the number of GSM subscribers has been on the increase (NCC, 2011); however, the level of the access and utilisation may not be ascertained without empirical findings.

4.3.1 Access to GSM Services

Access in this study is defined as ownership of telecommunication services acquired by individual. It identifies people who have purchased GSM phones for the purpose of telecommunication. Findings on access are shown in the table below.

Results on table 4.3.1 revealed that 94.2% of the respondents *owned* personal GSM phone, while 5.8% had no GSM phones for personal use. A twenty-nine year old male automobile mechanic who fell into this category said:

I don't have mobile phone for personal use neither for business purpose. Whenever I wish to reach out to my family, I call at business centres. It is good for me (IDI/GSM subscriber/Ibadan North LG/2011).

The statement above attested to wide accessibility of GSM services in the study area. This means that access to GSM services is not exclusively dependent on the ownership of personal phone but is based on the ease and availability of service providers to provide necessary services at the affordable cost to the consumers or clients. At any rate, most respondents used in this study claimed that they had personal phones. This is not surprising because over the years the prices of phones have crashed on the basis of demand and supply of the handset. This was unlike about ten years ago when deregulation of the sector started and the prices of handsets were very exorbitant.

For those who had personal phones, it was found that most respondents (35.6%) got connected to GSM services between 4 and 6 years ago. Also, those that got *connected* between 7 and 9 years ago constituted 21.7% and those that got connected over 10 years ago constituted 11.3%. From this, one can deduce that more and more Nigerians had access to GSM services. This may not be unconnected with the competitive nature of GSM operators in Nigeria who perpetually and perennially engaged in one promotion or the other in order to swell their subscriber base. Through this effort, most young people are patronizing the service of GSM operators in the study area.

Table 4.3.1: Distribution of Respondents by Access to GSM Services

Questionnaire items	Main City		Less City (LC)		MC and LC Total	
	Frequency MC= 800	%	Frequency LC= 800	%	Frequency MC and LC= 1600	%
I have ownership of GSM phone						
No	24	1.5	69	4.3	93	5.8
Yes	776	48.5	731	45.7	1507	94.2
Years of connection to telecommunication e.g. GSM services						
Not applicable	32	2.0	61	3.8	93	5.8
Less than one year	69	4.3	97	6.1	166	10.4
1-3 years	175	11.0	69	4.3	244	15.3
4-6 years	312	19.5	257	16.1	569	35.6
7-9 years	56	3.5	291	18.2	347	21.7
10 years and above	156	9.8	25	1.6	181	11.3

Locations subscribers purchased SIM cards						
Not applicable	12	0.8	81	5.1	93	5.8
Telecommunications centre	192	12.0	161	10.1	353	22.1
Hawkers on the street	120	7.5	37	2.3	157	9.8
Mobile telecom bus	8	0.5	85	5.3	93	5.8
Market	61	3.8	144	9.0	205	12.8
Telecom dealers	400	25.0	277	17.3	677	42.3
Other locations	7	0.4	15	1.0	22	1.4
Numbers of GSM line(s) possessed						
Not applicable	19	1.2	74	4.6	93	5.8
One	201	12.5	230	14.4	431	26.9
Two	378	23.6	300	18.8	678	42.4
Three	129	8.1	177	11.1	306	19.1
Four	69	4.3	18	1.1	87	5.4
> four	4	0.2	1	0.1	5	0.3
Level of access to telecommunication before GSM services						
Low	121	7.6	227	14.2	348	21.8
Moderate	252	15.8	490	30.2	742	46.4
High	427	26.7	83	5.2	510	31.9
Level of access to telecommunication after GSM services						
Low	54	3.4	104	6.5	158	9.9
Moderate	437	27.3	459	28.7	896	56.0
High	309	19.3	237	14.8	546	34.1

A female respondent who was formerly connected to NITEL before the deregulation of the telecommunications sector relived her experience:

The access to GSM is very encouraging. Now, people have opportunities for stable communication. In the days of NITEL, we used to queue up at the phone booths in the NITEL centres or other designated areas. You have to cover long distances before you could access those call centres. It used to be very tasking and time consuming. Sometimes if you were lucky your calls may be successful. Most often there would be call disruptions despite covering long distances to access those places. And if you were to connect someone outside the country, that is another story entirely. But today people can call any part of the world from the comfort of their bedrooms. This is as a result of access people have towards GSM services (IDI/GSM Subscriber/Egbeda LG/Ibadan/2011).

From the above responses, it is evident that most people have access to GSM services as a result of deregulation of the sector. However, the Nigerian experience may not be as that of countries like Japan, Britain, America, South Africa, and Botswana and so on that adopted deregulation of telecommunications several years before that of Nigeria (Li and Lixin, 2001; Van, Inklaar and McGuckin, 2002). The mentioned countries above have enjoyed stable quality services and relatively low tariffs.

Also, findings revealed that there are numerous *locations* from where respondents could acquire GSM services in the study area. This ranged from telecommunications centres (22.1%) to street hawkers (9.8%), telecom buses (5.8%), market centres (12.8%),

and telecommunications dealers (42.3%). The implication here is that there is no one source of access rather there are multiple sources of accessing GSM services and products in the study areas. No doubt this must have aided people's access to GSM services and products. A staff of telecommunications service provider said:

Currently, we have coverage in every nooks and crannies of Nigeria provided people are residing in the area. We have coverage along major roads that is the dual carriage roads to make sure there is proper communication in the case of challenge and emergencies (IDI/MTN Official/Ibadan/2011).

Similarly, another respondent from another network said:

We have over 5400 base stations which are fully operational today. About 1000 base stations are also under construction. So on monthly average we commission about 200 base stations in addition, both to enhance capacity and to ensure adequate coverage (IDI/GLO Official/Ibadan/2011).

It follows that the introduction of GSM services in Nigeria has witnessed significant growth (10.2% GDP growth) in the last ten years of its existence (NCC, 2012). On the *number* of lines owned by the respondents, it was found that 26.9% of the respondents had only one GSM line, while 42.4% had two lines. Also, 24.5% had between three and four lines and 0.3% had more than four lines. Several reasons could be adduced for this. First, it could be that acquiring GSM lines is not only very easy but also very cheap. Second, it could be that each network offers unique services which the subscribers would not want to miss and so acquiring multiple lines may be the only way of benefitting from these unique services. Third, it could mean that each network has some shortcomings which could only be remedied by having access to other networks. Fourth, it could be that the interconnectivity charges were high and most respondents would prefer having all the GSM lines in order to reduce tariff charges. A respondent alluded very much to this when he argued:

I have more than three GSM lines. This is not because I want to show off or that I am rich in my income. But I am just sick of poor network and arbitrary charges when you try to connect other GSM services from your main network. For instance, my main network is MTN. Very often I don't derive satisfaction when I call other networks. So for me to remain in constant link with my people that use other networks, I

decided to acquire different GSM networks (IDI/GSM subscriber/Ido LG/Ibadan/2011).

In addition, findings in this study revealed evidence about stealing and loss of ownership of personal GSM phones. This point is crucial because previous studies have drawn attention to spate of stealing and dispossession associated with GSM market in Nigeria (Johnsen, 2003; Adomi, 2006). Thus, when respondents were asked to relive their experiences, 60.9% said they had lost their GSM phones to stealing and 39.1% were indifferent. About 21.8% of the GSM service subscribers reported that retrieving a lost GSM line was very easy, while 35.5% maintained that it was difficult. Although GSM professionals and experts have consistently maintained that the incidence of lost mobile phone has drastically reduced in Nigeria and subscribers now find it easy to retrieve lost lines, the subscribers' experience was however different. A fifty two year old civil servant was emotional when she said:

Just in two months, I lost four different mobile phones meant for my personal use. I am sure the phones were stolen from my office. I think there should be way every stolen phones can be made useless for illegal users once formal report is lodged to service providers (IDI/GSM subscriber/Akinyele LG/2011).

Another respondent who utilised GSM services for commercial purpose said:

I have lost more than six GSM lines. It took me time to retrieve my lost lines. Though little money is required to retrieve lost lines, yet the delay one is subjected is unfair. There is loads of information you need to provide. If you cannot supply such information, it means the line may not be retrieved except you buy new one. This means your friends may lose contact with you due to the new number (IDI/GSM subscriber/Lagelu LG/2011).

The inference from the above is that it may not be true to conclude that the incidence of stolen phones is drastically reducing. Yet retrieving a lost GSM line is still largely associated with difficulties. Nevertheless, 41.6% of the respondents said the cost of retrieving lost GSM line was cheap. In this wise, a typical respondent put forth a rather contrary opinion to show that the cost of retrieving lost GSM lines remained expensive when he said:

The last time I retrieved my lost GSM line was quite financially burdensome. I paid as much as NGN2500. This is expensive compared to when buying a new line. Since many people are familiar with the line, I

don't have any option than to retrieve it (IDI/GSM subscriber/Ibadan South West LG/2011).

In essence, the amount indicated above may be considered relatively cheap, however the income status of the respondent had significant impact in shaping the responses. A male respondent described his income status:

I am unemployed. I have no stable job even as a University Graduate. My income is less than NGN6500 per month. Though GSM creates jobs both direct and indirect employment, I am yet to benefit from either source (IDI/GSM subscriber/Lagelu LG/2011).

It follows that the cost of maintaining GSM communication remains relatively high, particularly when it is viewed in terms of the study area which was characterized by low income earners. Findings further showed that 84.6% of the respondents said every member of their families had been connected to GSM services. Only 15.4% of the respondents pointed that mobile communication services was not widespread among their family members. Notwithstanding it may be argued that increasing numbers of people are getting connected to mobile telecommunications.

Finally, in this section respondents were asked to rate their *level* of access to telecommunications services before the deregulation of the sector. The results, as presented on the table 4.3.1 showed that 46.4% said they had moderate access to telecommunications services, 31.9% rated their access as high and 21.8% rated it as low. Further, when the respondents were asked to rate their access to telecommunications services after the deregulation of the sector, results showed that 56.0% had moderate access, 34.1% rated their access as high while 9.9% rated their access as low. From all indications, it is evident that most respondents who claimed to have low access to telecommunications services before deregulation of the sector (21.8%) had dropped to 9.9% after the deregulation. This is significant considering the fact that more and more people in the study area are having access to GSM services and product.

4.3.2 Utilisation of GSM Services

The results presented on the table 4.3.2 showed different *patterns* of utilisation GSM subscribers engaged their phones in the study areas. On this basis, 3.9% of the respondents said they only made calls with their phones, 2.4% only received calls with

their phones and 16.8% utilised their phones to make and receive call. About 4.7% utilised their GSM services to send and receive text messages, 0.4% used it to browse the internet, 0.3% played computer games on their phones and 71.6% utilised their phones for various services such as videos, radio, making and receiving calls and internet services. The indication from the above views is that GSM phone services provided value added services in addition to making and receiving calls. This may be a significant factor in explaining high accessibility of GSM phones and services among people in the study areas.

As a follow up to the above issue, respondents were asked to indicate what they *mostly* utilised their GSM services for. The result showed that 14.3% of the respondents mostly utilised their GSM services to conduct businesses, 76.3% said they mostly used it to remain in touch with their families and friends, 0.8% mostly used their phones to make new friends, and 2.3% mostly used their phone services to browse the internet.

Only 6.4% of the respondents mostly utilised their GSM phones to access various services (such as internet connection, text messages, making and receiving calls, and connecting new friends on facebook and social networks, radio, music and playing game etc).

To give credence to this finding, a respondent said in the course of IDI:

GSM phone has kept me to remain in touch with my family on regular basis. I was transferred from Abuja to Ibadan some few months ago. My major concern was how I was going to cope with the job that kept me away from my family. However, my happiness was restored with the utilisation of GSM phone because it has helped me manage the affairs of my family even while I am away from home. Very often I chat on facebook with my wife and children through my blackberry GSM phone. I am indeed happy (IDI/GSM subscriber/Ibadan North LG/Civil servant/2011).

Table 4.3.2: Distribution of Respondents by Utilisation of GSM Services

Questionnaire items	Main City (MC)		Less City (LC)		MC and LC Total	
	Frequency MC=800	%	Frequency LC=800	%	Frequency MC and LC= 1600	% 100
Patterns of utilization of GSM services						
Make call only	23	1.4	39	2.5	62	3.9
Receive call only	16	1.0	23	1.4	39	2.4
Make and receive call	123	7.7	145	9.1	268	16.8
Send and receive message	49	3.1	26	1.6	75	4.7
Browse internet	2	0.1	4	0.3	6	0.4
Listen to radio and game	3	0.2	2	0.1	5	0.3
All of the above	584	36.5	561	35.1	1145	71.6
Services of GSM mostly utilised						
Conduct business	139	8.7	90	5.6	229	14.3
Be in touch with families and friends	615	38.5	605	37.8	1220	76.3
Make new friends	8	0.5	4	0.3	12	0.8

Browse internet	15	1.0	22	1.4	37	2.3
All of above	20	1.2	7	0.5	27	1.7
Others	3	0.2	72	4.5	75	4.7
GSM is affordable in terms of recharge cards						
No	120	7.5	198	12.4	318	19.9
Yes	680	42.5	602	37.6	1282	80.1
The frequency of recharging GSM services						
Daily	400	25.0	136	8.5	536	33.5
Weekly	270	16.9	523	32.7	793	49.6
Every two weeks	70	4.4	59	3.7	129	8.1
Monthly	58	3.6	77	4.8	135	8.4
Never	2	0.1	5	0.3	7	0.4
Weekly expenditure on recharge cards						
Not applicable	2	0.1	5	0.3	7	0.4
Less than NGN 500	489	30.6	504	31.5	993	62.1
NGN501-1000	225	14.0	241	15.1	466	29.1
NGN1001-1500	47	2.9	35	2.1	82	5.1
NGN1501-2000	17	1.1	3	0.2	20	1.3
NGN2001 and above	20	1.2	12	0.8	32	2.0
Numbers of phone calls received daily						
Less than five	217	13.6	274	17.1	491	30.7
Five and ten	393	24.6	412	25.8	805	50.3
Eleven and sixteen	100	6.3	76	4.8	176	11.0
Seventeen and above	90	5.6	38	2.4	128	8.0
Numbers of phone calls initiated daily						
Less than five	279	17.4	343	21.5	622	38.9
Five and ten	325	20.3	398	24.9	723	45.2
Eleven and sixteen	100	6.3	44	2.8	144	9.0
Seventeen and above	96	6.0	15	0.9	111	6.9
I occasionally switched off my GSM phone						
No	397	24.8	83	5.2	480	30.0
Yes	403	25.2	717	44.8	1120	70.0
Level of utilization of GSM services						
Low	19	1.2	37	3.0	56	4.2
Moderate	219	13.7	230	14.4	449	28.1
High	552	34.5	533	33.4	1085	67.9

The deduction that could be made from the above results and comments is that most respondents were utilizing their GSM services for multiple purposes. This is very significant in sociology since man is a creation of communication that considers communication and interaction with both *significant* and *generalized others* as the basis for establishing and maintaining social relationships (Cooley, 1928; Mead, 1934; Blumer, 1985).

Furthermore, when the respondents were asked to indicate the *average* numbers of phone calls they made on daily basis, 38.9% said they initiated less than five calls daily, 45.2% indicated between five and ten calls daily, 9.0% between eleven and sixteen calls, and 6.9% made at least seventeen calls daily. The implication here is that most of these respondents may be spending a lot of money in making calls; however this may not be unrelated to their various needs which required that they must call in order to remain in contact. Furthermore, it is not unusual to see some respondents who may be very prudent

when it comes to making calls considering the amount usually spent on making calls. For instance a respondent from a less city said:

I don't make calls until there is urgent need to do it. I am poor. I can't compare myself with people who earn fat salaries as government employees. The little income from the farming is just to keep my family alive. Many times, I don't even bother calling friends and families (IDI/GSM subscriber/Akinyele LG/Farmer/2011).

The inferences that could be drawn here is that based on international stipulated standard of minimum of fifteen calls per day² (ITU, 2011b), only very few respondents met this requirement. This may not be unrelated to high cost of GSM tariffs considering the fact that Nigeria is one of the countries in sub Sahara Africa where inflation is very high and people's income is very low (UNDP 2009; National Bureau of Statistics, 2011; Central Bank of Nigeria, 2011). Furthermore, results showed that 70.0% of the respondents said they *occasionally* switched off their phones, while 30.0% said they *always* switched on their phones. In this context a subscriber said:

It is not just reasonable to switch off. I love to stay tune all the time for information. I don't turn off my phone even when the battery is low. It is interesting to be on line always. I don't like missing emergency calls (IDI/GSM Subscriber/Lagelu LG/Ibadan/2011).

The central point lies with decision to switch on phone round the clock. Although no empirical findings have ascertained the effect of such habit, the social and psychological problems associated are significantly bordering. Some social commentators have pointed out distraction and shock GSM ringing tones could pose in the public domain (Taylor and Harper, 2001; Wei, 2001; Park, 2005). This is particularly in the social gatherings such as worship centres and academic environment. The distraction of GSM phone is by extension a factor in road mishap (Ogunbodede, 2010).

When respondents were asked to rate their level of utilisation of GSM services, 4.2% of the respondents described their utilisation as *low*, 28.1% rated it *moderate* and 67.9% rated it as *high*. An inference that could be drawn from the statistical presentation above is that there is high level of utilisation of GSM services in the study areas. This may

² According to International Telecommunication Union stipulated standard, the minimum of fifteen calls a day is an effective measure to ensure cheap telecommunication services.

be as a result of the inevitability of the benefits they are deriving from the diverse use of this technology despite the high cost of tariffs. To buttress this point, one of the respondents posited:

People utilise GSM in diverse ways. People who are educated and those who are illiterate use phones this day. For instance, market women utilise GSM to enhance their businesses, students utilise GSM to source for reading materials, workers use GSM to read Newspapers, the unemployed utilise GSM to search for job and to remain in contact with their prospective employer, artisans used GSM to call their clients or customers, marketers utilise GSM to search for customers, the list is endless.... (IDI/GSM subscriber/Ibadan North West LG/Business man/2011).

A female respondent who utilised her GSM services for variety of purposes said:

Electronic banking facilities such as ATM services, online financial transactions, international credit and debit card facilities, air line ticketing and reservations, are some of the numerous ways in which I utilised my GSM services (IDI/GSM subscriber/Banker/Ibadan West LG/2011).

Similarly, a non-literate female respondent said:

GSM technology is good. It allows everybody to communicate with family members. I'm not educated. I don't know how to read and write, but my children taught me how to make and receive calls. Now I can utilise GSM phone effectively, though I can't send or receive text messages (IDI/GSM subscriber/Lagelu LG/Market woman/2011).

This shows that GSM utilisation cut across people in different social strata and backgrounds in the study areas. The findings however corroborated the argument of Okafor (2009) who stated that technological innovations as a product of development is not complete until it is accessed and utilised by various segments of human society. However, the point of concern has to do with satisfaction respondents derived from the money spent in telecommunications services. Essentially this has to do with tariff charges.

A subscriber explained:

Though the tariff is affordable, it is outrageous. The charges are exorbitant... too much, compared to other countries in the world. Citizens in this country are being exploited by government. Though there are infrastructural challenges, yet the charges are overburdened (IDI/GSM Subscriber/Ibadan South West LG/GSM hawker/2011).

The view above called to question the role of NCC as regulatory body to protect the interest of users. Conversely, stability of infrastructure plays vital role in the cost of tariff.

A senior staff in one of the mobile service providers revealed as follows:

We don't depend on government to provide security for our installed facilities. We cannot afford to depend on that. Electricity is a major problem in this country. Yet, 98% of our operations depend on electricity (IDI/MTN Staff Engineer/Ibadan/2011).

The statement expressed in the response above is vital to understand why GSM users may continue to be confronted with high tariff charges. However, the level of utilisation of GSM is better understood in the words of a fifty one year old male respondent:

GSM has not been optimally utilised. There is still average utilisation compared to global usage of the device. It has not been fully tapped both at the level of provider and users. Banking services, internet service, ICT, all these have not been optimized with GSM. GSM has only been moderately tapped in the area of calling and receiving calls. However, this is limited by high tariff charges (IDI/GSM Subscriber/Ibadan North LG/2011).

Therefore, it can be inferred that the level of utilisation of GSM technology remained largely moderate though ranked below international standard (ITU, 2011b). However, the utilisation seems to have vindicated the need for the deregulation of the telecommunications sector. Therefore, it can be argued despite the rapid transformation in the sector, tariff charges particularly in interconnectivity networks has continued to limit the consumers' desire to communicate on regular basis. On the whole, it is evident that the level of access and utilisation of telecommunications services in the study area has significantly improved and even doubled when viewed in terms of what was obtained in the dark days of NITEL.

4.4 Quality of GSM Services

The period NITEL dominated telecommunications sector in Nigeria was marked by poor service coverage; incessant disruption of network; abnormal billing rate; and low accessibility among several inhibiting factors (Ndukwe, 2003). As a way of correcting these anomalies, telecommunications sector was deregulated in 2000. As a result, by August 2001 GSM technology emerged to compete with NITEL. Despite the deregulation,

one major issue which has characterized the sector is the issue of quality of GSM services offered by the operators.

The result in the table 4.4.1 showed that when respondents were asked about the type of telecommunications services they were connected to, 18.5% said they utilised MTN, 2.9% indicated AIRTEL, 6.6% for GLOBACOM and 1.8% for MULTILINKS. Similarly, 2.2% utilised ETISALAT. About 68.0% of the respondents combined two or more telecommunications lines ranging from NITEL fixed line to GSM mobile such as MTN, GLO, STARCOMM, ZOOM, VISAFONE, ETISALAT and others. GSM mobile services continued to dominate Nigerian telecommunications market. The Code Division Multiple Access (CDMA) was relatively low in the market coverage of subscribers. However, telecommunications experts have stressed the importance of CDMA in effective communication and possibility of low tariff regime and stable network (Edukugho, 2009; Telecom Digest Magazine, 2011). This assertion was corroborated when a telecom engineer said:

The market is not competitive yet. It is lopsided and heavily dominated. There are no alternatives in the telecommunications. If the alternatives were there, GSM providers would have been more competitive to respond rapidly to needs for good services rendered. We need to develop our land lines services. CDMA technology should be developed. If all these alternatives were considered, it would have made GSM optimal. In the telecommunications, GSM is not the first line of option for anybody that wants to communicate. GSM should be the second line of option. If a caller could not reach out at a point that is when the option of GSM mobile may come in. Until CDMA is well developed, telecommunications may not be said to have attained full grown development. CDMA provides the support of both mobile and fixed line, which is relatively cheap. Setting up a base station for GSM itself is expensive (IDI/GSM Subscriber/Ibadan North West LG/2011).

Table 4.4.1: Distribution of Respondents by Quality and Stability of GSM Services

Questionnaire items	Main City (MC)		Less City		MC and LC Total	
	Frequency MC= 800	%	Frequency LC= 800		Frequency MC and LC= 1600	% 100
Type of GSM services utilised						
MTN	121	7.6	175	10.9	296	18.5
AIRTEL	30	1.9	17	1.0	47	2.9
MULTILINKS	24	1.5	5	0.3	29	1.8
ETISALAT	26	1.6	9	0.4	35	2.2
All of the above	40	2.5	8	0.5	48	3.0
Other network	712	44.5	328	20.5	1040	65.0

There is network coverage of GSM services in my resident area						
No	10	0.6	84	5.3	94	5.9
Yes	1200	75.0	306	19.1	1506	94.1
I have clear signal in my main GSM services						
Not sure	57	3.6	105	6.5	162	10.1
No	72	4.5	128	8.0	200	12.5
Yes	921	57.6	317	19.8	1238	77.4
Call drops in the main GSM service						
Nor sure	42	2.6	70	4.4	82	5.1
No	51	3.2	112	7.0	200	12.5
Yes	1008	63.0	310	19.4	1318	82.4
Network disruption in the main GSM services						
Not sure	20	1.3	113	7.0	133	8.3
No	29	1.8	176	11.0	205	12.8
Yes	970	60.6	292	18.3	1262	78.9
Wrong call destination						
Not sure	21	1.3	89	5.6	110	6.9
No	57	3.6	216	13.5	273	17.1
Yes	1010	63.1	207	13.0	1217	76.1
Ease of recharging GSM cards						
Very easy	197	12.3	171	10.7	368	23.0
Easy	493	30.8	406	25.4	899	56.2
Difficult	119	7.4	127	8.0	246	15.4
Very difficult	43	2.6	46	2.8	87	5.4
Connectivity within the same network						
Never easy	85	5.3	73	4.6	158	9.9
Easy	530	33.1	612	38.3	1142	71.4
Very easy	185	11.6	115	7.2	300	18.8
Connectivity to other network						
Never easy	345	21.6	308	19.2	653	40.8
Easy	411	25.7	392	24.5	803	50.2
Very easy	44	2.8	100	6.3	144	9.0
Quality of main GSM network						
Poor	496	31.0	574	35.9	107	66.9
Moderate	192	12.0	146	9.1	338	21.1
Good	102	6.4	90	5.6	192	12.0

It is vividly clear that CDMA plays vital part in effective communication. This means to attain a high level of utilisation of mobile communication technology, then CDMA technology must be developed and given priority. The fact here is (vehemently) supported in the words of a telecommunications employee when he said:

CDMA came into Nigeria in 1997. GSM came in 2001. GSM was given access to roam (transmit) everywhere, while CDMA was still subject to roaming restriction. CDMA was given approval to roam in 2006 when GSM has already spent five years increasingly spreading. This is the reason CDMA market is dying today (IDI/Starcomm official/Ibadan/2011).

It follows that the CDMA low coverage of telecommunications market in Nigeria is connected to policy issue. Despite success story of CDMA technology in America, Britain and Australia (Ling, 2004), it continued to witness slow pace in wide accessibility and subscribers' coverage.

The result presented on the table 4.4.1 further showed that when the respondents were asked about the GSM network coverage in their areas, 94.1% said they had network coverage in their locations, and 5.9% were not certain about network coverage. As a follow up to the above question, 77.4% of the respondents said GSM communication gives clear network signal in their locations and 10.1% stated otherwise. However, the question of call drops in GSM communication revealed that 82.4% of the respondents experienced call drops, 12.5% were indifferent and 5.1% were not sure. The problem of network disruption was dominant in the study area. As a result, 78.9% of the respondents experienced network disruption, 76.1% had wrong call destination in their main GSM line. The fact is that in GSM services, there are two categories of operators. One operates on SIM card and this includes companies like MTN, Globacom, Airtel and ETISALAT. For this category of operators, they have wider coverage area with exorbitant tariff charges. The second category of operators operates on Code Division Multiple Access (CDMA) and some companies found in this category include Starcomms, Multilinks, Visafone, Zoom etc. This second category has relatively low coverage area with cheaper tariffs. However, it is important to note that the former continues to dominate the market.

Intraconnectivity of network refers to connectivity within the same GSM networks, while interconnectivity is communication between GSM networks. Respondents were asked to give account of their experience on intraconnectivity, and the result shows that 71.4% said it was easy, while only 9.9% indicated it was not easy. On the aspect of interconnectivity, 40.8% of the respondents said it was never easy, while 50.2% said the connectivity was easy. Furthermore, the quality of main GSM network was rated by the respondents in the study areas. On this basis, 72.6% rated the quality as high, while 7.8% rated it as low. The deduction one can make here is that most of the operators may have invested in network expansion which involved building new base stations that improved the quality of services in the study areas unlike in the last ten years when only few base stations existed. The stability in the quality of GSM services was attested to by a twenty five year old male respondent when he asserted:

I use Globacom and MTN. The services vary. I prefer MTN because the network is relatively stable. Globacom has not been very stable for some times now. I use the two lines because the networks cannot be bad at the same time. If one is not good, you can use others. Network is very

unstable especially during the period of promos and bonanzas (IDI/GSM subscriber/civil servant/Lagelu LG/2011).

The response above shows that although there is relative stability in the quality of GSM services, evidently most subscribers continued to maintain two networks in order to avoid instability that may appear in the services with some cost implications. Furthermore, it can be inferred that the desire by the operators to have greater share of the market through promotions and other bonanzas usually lead to network congestions which affect the quality of services offered to the consumers. The role of NCC is central in understanding the problems associated with network services. A senior official of the Commission said:

The Commission has notified some GSM operators with poor quality of service of its intention to issue a direction that with effect from November 30, 2011, any of the operators that fail to meet the targets will be barred from further sale of its SIM Cards or add any new subscriber to its network. Any new SIM card sold, or additional subscriber added to the network in contravention of the direction, will attract a penalty of NGN1,000,000 per subscriber added. The Commission in a notice of intention to issue the directives to the operators also told three operators MTN, GLO, and AIRTEL, who are the main culprits that at the expiration of the 30-day deadline, it will strictly enforce the impending directive whose contravention will attract a penalty of NGN5,000,000 and additional NGN500,000 per day that such contravention persists. Apparently to ensure that the operators do not take its threat with levity, the commission said that failure of any of the operators to meet the quality of service targets from November 30, 2011 will attract a fine of NGN500,000 for every month of failure (KIIs/NCC/Abuja/2012).

The position of NCC is strong at correcting the poor services noticed in the sector, however the problem has persisted. It is important to note that several months after the expiration of ultimatum given to the operators to improve the quality of their services, most subscribers were still confronted with poor service delivery in the sector. Recently the NCC fined four GSM operators whose quality of services fell below the Commission's Key Performance Indicators (KPI). This is clearly stated in the Commission's website which reads:

The nation's telecoms regulator, which recently sanctioned four GSM network operators a total of N1.17billion in poor service quality fines had given the erring operators "gestation period" between when they

launched services in 2001 and now to grapple with various challenges they were facing. NCC had also consulted with operators on service quality benchmarks ahead of the January 2012 gazetting of regulations that gave the telecoms regulator adequate powers to begin imposition of sanctions for poor service quality (www.ncc/news.gov.ng/2012).

Evidently, the action of the Commission gives insight into the readiness of the regulatory agency to protect the interest of subscribers and enforce standard and quality in the sector. In a similar directive, the Commission's website further read that:

Almost three weeks after missing the deadline given the four GSM operators – MTN, Globacom, Airtel and Etisalat – to pay a N1.17 billion fine imposed by the Nigerian Communications Commission (NCC), the companies have agreed to pay the fine. The telecoms were fined for poor quality of services and failure to meet their key performance indicators (KPIs). However, the companies, whose representatives met with NCC officials in Abuja, demanded, as a precondition for the payment of the fines, a review of the present KPIs, which they argued did not take into consideration the peculiarity of the Nigerian business environment. KPIs are the parameters set by NCC to monitor quality of service, customer service and technical service, among others. But the operators have complained that the KPIs were unrealistic and unachievable, going by the present poor state of infrastructure in the country (www.ncc/new.gov.ng/2012).

It appears that the sanction imposed on the operators is proactive, however the contending issue bothers on the capacity and capability to sustain the action bearing in mind the infrastructural challenges faced by the operators.

4.5 Benefits and Challenges of GSM Services

The introduction of GSM services in the telecommunications sector has offered significant benefits to the users. Notwithstanding the benefits, there are challenges encountered by the users in their utilisation of GSM services.

4.5.1 The Benefits of GSM Services

The benefits of GSM services to subscribers were described in various forms. Some GSM services users described it as good sources of income and social network. The various dimensions of the benefits of GSM are given in the analysis below.

The results as presented on the table 4.5.1 provided the respondents' views on the benefits derived from utilizing GSM services in the study areas.

Table 4.5.1: Distribution of Respondents by the Benefits of GSM Services

Questionnaire items	Main City (MC)		Less City		MC and LC Total	
	Frequency MC= 800	%	Frequency LC= 800	%	Frequency MC and LC= 1600	% 100
GSM makes it possible to make and receive calls with ease						
Strongly disagree	5	0.3	4	0.3	9	0.6
Disagree	12	0.8	5	0.4	17	1.1
Undecided	15	0.9	18	1.2	33	2.1
Agree	298	18.6	482	30.2	780	48.8
Strongly agree	470	29.4	291	18.2	761	47.6
GSM has reduced travelling cost						
Strongly disagree	3	0.2	12	0.7	15	0.9
Disagree	27	1.7	60	3.7	87	5.4
Undecided	49	3.1	40	2.3	89	5.6
Agree	371	23.2	123	7.7	494	30.9
Strongly agree	353	22.1	562	35.1	915	57.2
GSM has made economic/social activities very convenient						
Strongly disagree	14	0.9	14	0.7	28	1.8
Disagree	32	2.0	39	3.7	71	4.4
Undecided	49	3.1	90	2.3	135	8.4
Agree	315	19.7	350	7.7	665	41.6
Strongly agree	394	24.6	307	35.1	701	43.8
GSM has improved information seeking behavior						
Strongly disagree	11	0.7	11	0.7	22	1.4
Disagree	41	2.6	42	2.6	83	5.2
Undecided	109	6.8	60	3.8	169	10.6
Agree	400	25.0	335	20.9	735	45.9
Strongly agree	239	14.9	352	22.0	591	36.9
GSM has improved knowledge of Information Technology						
Strongly disagree	11	0.7	11	0.7	22	1.4
Disagree	41	2.6	42	2.6	83	5.2
Undecided	109	6.8	60	3.8	169	10.6
Agree	400	25.0	335	20.9	735	45.9
Strongly agree	239	14.9	352	22.0	591	36.9
GSM keeps families and friends in touch						
Strongly disagree	4	0.3	7	0.4	11	0.7
Disagree	24	1.5	20	2.0	44	2.8
Undecided	21	1.3	21	1.3	42	2.6
Agree	317	19.8	249	15.6	566	35.4
Strongly agree	434	27.1	503	31.5	937	58.6
GSM is good source of job employment						
Strongly disagree	20	1.3	5	0.3	25	1.6
Disagree	33	2.1	32	2.0	65	4.1
Undecided	100	6.3	56	3.5	156	9.8
Agree	333	20.8	378	23.6	711	44.4
Strongly agree	314	19.6	329	20.6	643	40.2
GSM has reduced cost of living						
Strongly disagree	91	5.7	73	4.6	164	10.3
Disagree	219	13.7	198	12.4	417	26.1
Undecided	85	5.3	126	7.8	211	13.1
Agree	315	19.7	207	12.9	522	32.6
Strongly Agree	90	5.6	196	12.3	286	17.9

As regards reduction in travelling cost, most respondents (57.2%) strongly agreed that their travelling cost has reduced since the introduction of GSM services, 30.9% agreed while only 5.4% and 0.9% disagreed and strongly disagreed respectively.

Furthermore, the result shows that most of the respondents (43.3%) strongly agreed that GSM services had made their economic/social activities very convenient, while 41.6% agreed. Also, 4.4% and 1.8% disagreed and strongly disagreed respectively. Moreover, it is evident that GSM services has improved informational seeking behaviour of the respondents as 45.9% agreed to this, while 36.6% strongly agreed. On the other hand, 5.2% disagreed to this and 1.4% strongly disagreed.

The implication here is that with GSM services most users may have linked up to internet services, on line reading of Newspapers and Magazines, utilisation of the services to solve academic assignments and utilisation of other social media activities like *facebook, twitter, youtube* to make new friends without physical boundaries. This represents significant transition from traditional way of seeking information in the pre GSM era to modern way of seeking information as alluded *modernisation* scholars (Lener, 1958; Parsons, 1969).

The benefit of GSM services in enhancing social bonds between and among family members and friends shows that most respondents (58.6%) strongly agreed to this, while 35.4% agreed. Furthermore, 2.8% and 0.7% disagreed and strongly disagreed respectively. When respondents were asked to indicate their opinions on the utilisation of GSM services as a good source of information on employment, most respondents (44.4%) agreed and 40.2% strongly agreed. Also, 4.1% disagreed and 1.6% strongly disagreed.

Encapsulating the various benefits derived from GSM services, a forty-six year old male respondent asserted:

GSM has empowered most Nigerians, both adults and youths. We are making money from the utilisation of GSM services. For me personally it has benefitted me a lot. You may wish to know the areas in which it has benefitted me. First, before the introduction of GSM, I used to go village to see my aged parents to enquire about their health and welfare spending a lot of money on transportation and risking my life travelling on bad roads. Second, it has enhanced my economic activities as you can see I am a dealer in GSM line and accessories. All I need to do is to call my dealers and they will supply me with goods

without going there physically (IDI/GSM Subscriber/GSM Hawker/Akinyele LG/Ibadan/2011).

Also, another respondent, a twenty-one year old GSM hawker said:

You see I am a hawker and as well a part time student of Ibadan Polytechnic. This GSM business has sustained me. I sponsor myself in my education. I also use GSM to do my class assignments, remain in contact with family and friends. I am also on the facebook where I meet new people and friends. In fact GSM is very convenient to use especially for the students..... (IDI/GSM Subscriber/Akinyele LG/Ibadan/2011).

From the above responses, it could be inferred that the introduction of GSM services since deregulation of the sector has benefitted the users tremendously. For instance, it has improved social network of people (connecting people together), created employment opportunities for both adults and youths, and improved people's access to information. As a matter of fact, GSM services has brought about social change which is the alteration of social structure including consequences and manifestations embodied in norms, values, and cultural practices of individuals and groups. In a nut shell, it has altered people's way of life (Okafor, Imhonopi and Ugochukwu, 2011).

On the contrary, it is not certain that the benefit of GSM services meant the same for every typical user. In this way, a respondent was very emotional when she said:

I have never seen any benefit except the little profit I make from it. The expected benefit is yet to be realized. The GSM operators know the benefits customers should be entitled. They are not doing it. The real benefit is yet to be felt by people because of the imbalance in the distribution of gains of GSM between service providers and users (IDI/GSM Subscriber/Lagelu LG/Ibadan/2011).

Also, a thirty two year old female GSM subscriber explained that:

The problem in the GSM communication is network failure. There is problem of fraud perpetrated through text messages to deceive GSM users. I once received a text message that I won NGN1million from a GSM provider. I was very happy. Later I got to know it was deceit. I was asked to send my ATM PIN code number and account information to claim the money. This was fraud indeed. I did not report the case to GSM provider or government agency (IDI/GSM Subscriber/Ibadan North LG/2011).

It follows that despite the benefits associated with GSM services, people do not gain in equal proportion. Notwithstanding, GSM services may be regarded as a tool of social transformation in the life experience of some users. This assertion was confirmed when a forty five year old GSM subscriber said:

GSM communication reduced my transportation stress and saves more money. I can access somebody in far distance at any time. It has reduced cost of living for me (IDI/GSM Subscriber/Akinyele LG/Ibadan/2011).

Also, another respondent concluded this way:

GSM has empowered my family to a greater extent. At least we are able to fall on something at the end of the day. We buy recharge cards in bulk and people patronized our sales. Though there is little gain, there is still something to fall on for survival. It makes my business very convenient to run and cost effective (IDI/GSM Subscriber/Akinyele LG/Ibadan/2011).

In the same vein, a nineteen year male respondent said:

GSM is good. Everybody wants to use it. It is good for communicating. You can use it to text messages. It replaces the need for unnecessary travelling. It facilitates business without delay (IDI/GSM Subscriber/Ido LG/Ibadan/2011).

The conclusion from the above opinions attested to the fact that GSM services remain an important phenomenon in the human existence. Sociologically speaking, GSM services have become part of the norms and culture of people because many could no longer live without GSM as their companion and direct access to families and friends and the social world.

4.5.2 The Challenges of GSM Services

Despite the enormous benefits derived from the utilisation of GSM services, there are a number of handful challenges that tend to undermine the usefulness of the technology. The results on Table 4.5.2 show that most respondents (46.8%) strongly agreed that GSM services have become a source of social vices (such as cheating, stealing, snatching of handset, kidnapping, extortion and in some cases murder). Also, 42.7% agreed, while 5.1% disagreed. On the utilisation of GSM services and public nuisance, results showed that most respondents (51.9%) agreed that GSM was a source of public nuisance, while 38.4% strongly agreed to this and 3.6% disagreed. The deduction one can

make here is that GSM is increasingly becoming a source of public nuisance in places like worship centres, lecture rooms, public fora and in important events.

It is not uncommon to sight individuals making and receiving calls distracting other people and without regard to decorum and social etiquettes which sometimes impinge on other people's rights. On the indiscriminate erection of GSM masts in the residential areas, results show that most respondents (36.8%) agreed that the erection of mast in residential areas constituted health hazard to the people, while 28.9% strongly agreed, and 8.4% disagreed. The fact is that the health implication of electromagnetic emissions from GSM masts is still subject of controversy especially when recommended distance (2km to 5 km) is not observed in erecting the mast (ITU, 2011).

Table 4.5.2: Distribution of Respondents by the Challenges of GSM Services

Questionnaire items	Main city		Less city		MC and LC total	
	Frequency MC=800	%	Frequency LC=800	%	Frequency MC and LC= 1600	% 100
GSM encourages social vices						
Strongly disagree	2	0.1	8	0.5	10	0.6
Disagree	31	1.9	50	3.2	81	5.1
Undecided	29	1.8	48	3.0	77	4.8
Agree	467	29.2	216	13.5	683	42.7
Strongly agree	271	16.9	478	29.9	749	46.8
GSM is a source of nuisance in public places						
Strongly disagree	3	0.2	5	0.3	8	0.5
Disagree	21	1.3	36	2.3	57	3.6
Undecided	49	3.1	42	2.6	91	5.7
Agree	499	31.2	331	2.7	830	51.9
Strongly agree	228	14.3	386	24.2	614	38.4
Cost of GSM tariff is high						
Strongly disagree	39	2.4	6	0.4	45	2.8
Disagree	146	9.1	57	3.6	203	12.7
Undecided	112	7.0	140	18.8	252	15.8
Agree	300	18.8	402	25.1	702	43.9
Strongly agree	203	12.7	195	12.2	398	24.9
Substandard GSM accessories is widespread						
Strongly disagree	2	0.1	9	0.6	11	0.7
Disagree	12	0.8	22	1.4	34	2.1
Undecided	47	2.9	55	3.5	102	6.4
Agree	400	25.0	280	17.5	680	42.5
Strongly agree	339	21.2	434	27.1	773	48.3
GSM mast in resident areas is hazardous to human safety						
Strongly disagree	21	1.3	22	1.4	43	2.7
Disagree	172	4.5	63	3.9	135	8.4
Undecided	124	7.8	248	15.6	372	23.3
Agree	398	24.9	190	11.9	588	36.8
Strongly agree	185	11.6	277	17.3	462	28.9
Unsolicited text messages cause anxiety						
Strongly disagree	6	0.4	9	0.5	15	0.9
Disagree	30	1.9	61	3.8	91	5.7
Undecided	80	5.0	105	6.6	185	11.6
Agree	412	25.8	466	29.2	878	54.9
Strongly agree	272	17.0	159	9.9	431	26.9
GSM promotions are exploiting						
Strongly disagree	17	1.1	14	0.8	31	1.9
Disagree	49	3.1	90	5.6	139	8.7
Undecided	14	0.9	298	18.1	312	19.5
Agree	450	28.1	298	18.6	748	46.8

Strongly agree	270	16.9	100	6.2	370	23.1
Customer care services are ineffective						
Strongly disagree	4	0.3	8	0.5	12	0.8
Disagree	116	7.3	99	6.2	215	13.4
Undecided	102	6.4	55	3.4	157	9.8
Agree	467	29.2	272	17.0	739	46.2
Strongly agree	111	6.9	366	22.9	477	29.8

Literature has shown that erection of GSM mast close to residential building is capable of causing skin cancer, irritation, memory loss and other health challenges (ITU, 2004; Rogers, 2007; Shalangwa, Vasira, 2011). The findings showed that most residential areas in the study locations had a number of GSM masts sited very close to residential buildings.

The reason for these infractions was amplified in the views of a traditional chief who said:

Land owners are now competing to get contract of GSM mast to be erected on their lands. It is a lot of royalty paid by service providers to make use of your land for particular number of years. Sometimes, you may get as much as ten or twenty million naira for leasing a small portion of land to occupy GSM mast. People are now very desperate to allow GSM mast to be erected on their land even at their backyard without knowing the health implications. So it is poverty and greed that drive people to do this.... (IDI/GSM subscriber/village head/Lagelu LG/Ibadan/2011).

It follows from the above responses that the proliferation of erection of GSM mast in the residential areas may continue a while because of the pecuniary gain land owners derive despite the perceived health challenges associated with such practice on the long run.

Furthermore, the analysis of customer care services as provided by the GSM operators shows that most respondents (46.2%) agreed that it was difficult getting customer care services to attend to the subscribers complaints. About 29.8% strongly agreed and 13.4% disagreed. When respondents were asked to relive their experiences during promos and bonanzas offered by the GSM operators, 46.8% agreed that GSM promos were avenues for ripping off subscribers. About 23.1% agreed, while 8.7% and 1.9% disagreed and strongly agreed respectively. To buttress the foregoing discourse, a male respondent was very emphatic when he said:

There is a lot of dishonesty on the part of GSM operators as regards their treatment of subscribers. For instance, there are a lot of false emergency calls, unsolicited calls and text messages requesting you to

enter for one promo or the other. This is very common with Airtel and MTN. Sometimes there may be network disruption for instance hanging of calls. This affects businesses and income of GSM call hawkers. If one calls customer care, it takes longer time to get through, sometimes 2 or 3 hours to get response if you are lucky. Sometimes you don't get any response at all for a whole day except computer machine singing and advertising available promos. This can be very frustrating knowing full well that subscribers are not getting value for their money (IDI/GSM Subscriber/recharge card dealer/ Ibadan North LG/2011).

The deductions that may be drawn from the above views are multidimensional. First, GSM operators are more interested in making profits through dubious promos and bonanzas with little or no regard about the services they offer to members of the public. Second, the regulators, that is, NCC and CPC may have failed in the discharge of their statutory responsibilities which centre on enforcing standards and protecting the interest of the consumers.

However, as a way of checking dubious promos and bonanzas promoted by the GSM operators, the NCC in the recent time has collaborated with the National Lottery Regulatory Commission (NLRC) to deal with the irregularities in the promos and bonanzas. The information published on the Commission's website read thus:

The Nigerian Communications Commission (NCC) and the National Lottery Regulatory Commission (NLRC) inaugurated a joint committee to enforce new guidelines and stop frivolous lottery shows. There has been public outcry questioning the authenticity of most lottery shows run by telecoms services providers in the country. As competition becomes stiffer in the telecoms industry, service providers consistently device new ways of attracting new customers and retaining old ones within their networks. We have observed that promotions and lotteries have become prominent tools used by service providers to delight their teeming subscribers. In a bid to ensure sanity in the industry, NCC has published specific guidelines on advertisement and promotions of lottery activities. Part of the strategy for the co-operation by the two agencies is to form a synergy as well as guidelines that will ensure that consumers are never short changed while participating. It has become expedient to ensure that lottery in Nigeria is done creditably given the number of complaints trailing most lottery shows (www.ncc/new.gov.ng/2012).

The collaboration in this case may produce positive result provided there is sustainable will to protect the interest of GSM subscribers from the hands of fraudulent elements in the

sector. Furthermore, the utilisation of GSM services for clandestine practices revealed another dimension. A forty-six year old female respondent asserted:

I lost trust in my husband because of his dishonesty in the use of GSM. He hid a lot of secrets from me which was later revealed in the text messages on his phone. I have discovered so many things in my husband's handset that could have broken up our twenty-year old marriage. He has been very unfaithful in our marriage. GSM has offered him unfettered opportunities to make girl all over the places. I would have instituted a divorce case, but the pressure from my parents and the consideration of our children stopped me. Inasmuch as GSM has some tangible benefits, it has also destroyed some homes and families because of unfaithfulness and infidelity of marriage partners (IDI/GSM Subscriber/civil servant/Ido LG/2012).

The inference one can make from the views above is that the utilisation of GSM services may have promoted communication between and among family members and friends, but it also has the potential to undermine marriages and family life. Further on the challenges of utilizing GSM services, a twenty-seven year old undergraduate student asserted:

The common trend now is the use of GSM by students for examination malpractices. We now have GSM phones that can store information like computers. For example, there are phones with Microsoft Word, memory card, ear phone enhancement and ultra modern functions. This aided students to cheat in the examinations. I have witnessed the incidence. Now students record voice answers in their phones through the use of memory cards. Some GSM phones can record voice with capacity of more than 60 minutes (IDI/GSM Subscriber/University student/Ibadan North LG/2011).

From the above assertions, it is evident that the utilisation of GSM services among tertiary institution students though may enhance their access to academic materials and publications; however it can also lead to poor quality of graduates especially if those graduates use GSM to cheat in their examinations.

4.6 GSM Service Providers and the Challenges of Business Operations

Nigeria is a developing nation with many characteristics which hamper conducive environment for capital investment to flourish (World Bank, 2011). Against this backdrop, the study identified some inhibiting factors affecting the provision of GSM services in the study areas. Despite the giant stride on the one hand, the continuous instability witnessed

in GSM communication remained the bone of contention undermining the deregulation policy. Thus, when the GSM service operators were asked to describe their experiences of telecommunications business in Nigeria, a wide range of responses were given by the respondents. A senior officer in the engineering department of Globacom said:

The cost of doing business has increased in Nigeria. All our generators running the billing system and those at the sites have been changed because they have all worked for between six and seven years continuously because of lack of public power supply. This generators cost a lot to replace. And of course you know that when it comes to telecommunications, continuous power supply is very important otherwise you will not meet the expectations of your subscribers. Most subscribers are interested in quality services and they do not know that quality services is a function of a number of factors and which power supply is very cardinal (IDI/Globacom Staff/operation unit/Ibadan/2011).

Giving credence to the above assertion, an employee of another telecommunications firm, MTN, concurred when he asserted:

Instability of power generation has major impact on our tariff cost. If we have constant power supply, then we are likely to have less diesel consumption and spend less on generator fuelling and maintenance. We generate our own power in order to remain in business and do our best to give our subscribers quality service. This is one of the reasons for high tariff charges. If we have stable power supply, we will likely offer cheaper tariffs. Again, duties paid on importation of heavy duty equipments and spare parts are very exorbitant. There is problem of multiple taxations which we are consistently faced with (IDI/MTN Staff/Ibadan/2011).

Besides the issue of poor public power supply and the exorbitant import duties charged by the government, respondents from other telecommunications firms identified some other challenges affecting telecommunications business in the study area. On this basis, a regional manager in Starcomms explained:

Nigeria itself is facing serious security challenges. There are instances where armed robbers stormed our base stations and stole our generating plants. There are also cases of vandalism of our base station sites. Sometimes when a new base station is constructed, before it is commissioned, armed robbers would have stolen facilities worth millions of naira, vandalized major equipments. All these must be replaced. There are also cases of area boys who forcibly demanded monetary settlement before we could construct new base stations. All

these are unforeseen additional cost which makes business operation very challenging (IDI/Starcomm Official/Ibadan/2011).

To complement the above statement, an operational officer from Etisalat stated:

If there is safety of our generators and equipment at designated base stations, we don't need to spend unnecessarily. Usually we have our own private security outfit... but there is a limit to what they can do because they do not carry arms. So we have to depend on the security provided by the State. If there is good security by the State, vandalism of equipment of base stations would have been reduced. All these costs have to be borne by the subscriber because every business outfit wants to make profit in order to cover its operating cost. More importantly vandalism affects the quality of services subscribers receive. I wish most subscribers will understand the predicament most telecom operators pass through in this country.... (IDI/Etisalat Staff/Ibadan/2011).

A statement published by MTN in one of the National Newspapers read thus:

MTN Nigeria recorded more than 70 cuts on its fibre network nationwide on a monthly basis. The causes are attributed to poor road construction practices (about 42 percent), willful damage perpetrated by robbers and other criminal elements (about 25 percent) and other causes including sabotage (33 percent) (Guardian Newspaper, 2012).

From the assertion above, some inferences could be made. One, most GSM operators are confronted with acute shortage of electricity supply and therefore are running their base stations on generators, thus the cost of fuelling and maintaining these generators are unusually high. Second, the import duties charged to these operators whenever they imported heavy machine and equipment for their operation or maintain the existing ones are also high. Besides this other respondents mentioned security challenges and vandalism of equipment and base stations as part of the real challenges affecting the business operation of most telecommunications firms in the study areas and by extension in Nigeria as a whole. Predictably, the major challenges affecting telecommunications business in the study area are infrastructural and human challenges. This is in line with argument of Fanawopo (2007) who stated that infrastructural challenges and security issues have remained the major bane of most telecom operators in Nigeria. Consequently, the cost of doing business has remained very high and the quality of services offered to the subscribers has remained poor.

The reality explained in these views corroborated the findings of Adegoke, Babalola and Balogun (2008) that identified the problem of security challenges as a major threat to sustainable deregulation policy in the telecommunications sector. Notwithstanding the challenges in the provision of GSM services, the introduction of GSM technology has brought about positive changes in the lives of the users. A respondent was elated when he said:

Before I started the business of GSM vendor, it was very difficult to sustain body and soul. Although people complain about poor services and other things, but I believe it will get better. Some ten years ago, only few Nigerians had GSM phones and the tariff was very high. When Globacom started, the tariff crashed. So I believe it will always be getting better. Personally for me, now that I'm in the business, things have changed for better. I can finance myself and family members. There are lot of benefits of GSM, too numerous to mention (IDI/GSM Subscribers/Ibadan North West LG/2011).

The above assertion attest to the fact that despite the challenges confronting the GSM service providers, deregulation of the sector has brought about positive socio-economic changes in the lives of the subscribers.

4.7 Regulatory and Statutory Policies of GSM Service Provisions

The Nigerian Communications Commission is the Independent National Regulatory Authority for the telecommunications industry in Nigeria. The Commission is responsible for creating an enabling environment for competition among operators in the industry as well as ensuring the provision of qualitative and efficient telecommunications services throughout the country (www.ncc/news.gov.ng/2012).

The above position represents the mission and vision of the Nigerian Communications Commission. Although deregulation implies the removal of state bureaucratic bottleneck to enhance active participation of private firms in rendering some basic services to the members of the public, nevertheless to ensure that sanity and best international practices are entrenched there are regulatory bodies (e.g. NCC) put in place by government to achieve this. The investigation into the respondents' knowledge of the Nigerian Communications Commission (NCC) as a regulatory agency as presented on Table 4.7.1 shows that 87.3% had knowledge of the Commission as regulatory body, while 12.7% had no knowledge of the Commission. Also, most respondents (61.9%) knew about

the existence of Consumer Protection Council (CPC), while 38.1% had no knowledge about the existence of the consumer Council.

The implication of the findings above is that most subscribers in the study areas knew about the NCC more than the CPC. The difference noticed may be in terms of the operation of the body, their activities and the level of awareness they may have created in the media. This gap was notable in the Less City local government areas. At the time of conducting this study, 92.9% of the respondents claimed that they had registered their GSM lines, while 7.1% were yet to be registered. This high percentage of subscribers that had registered their lines is as a result of the importance these subscribers attached to the services they are deriving from the service providers as well as the aggressive and sustained media enlightenment embarked by the NCC.

Table 4.7.1: Distribution of Respondents by the Regulatory Policies of GSM Services

Questionnaire Items	Main City		Less City		MC and LC Total	
	Frequency MC=800	%	Frequency LC= 800	%	Frequency MC and LC= 1600	% 100
I have Knowledge of NCC as regulatory body						
No	74	4.6	129	8.1	203	12.7
Yes	726	45.4	671	41.9	1397	87.3
I have Knowledge of CPC as agency of consumer protection						
No	72	4.5	537	33.6	609	38.1
Yes	728	45.5	263	36.4	991	61.9
Complaint of GSM services to CPC						
No	600	37.5	712	44.5	1312	82.0
Yes	200	12.5	28	5.5	228	18.0
Method of solving dissatisfied GSM services						
Report to regulatory body	26	1.6	60	3.8	86	5.4
Keep quiet	36	8.5	160	10.0	296	18.5
Use alternative network	300	18.8	186	11.6	486	30.4
Call customer care	275	17.2	341	21.3	616	38.5
All of the above	48	3.0	51	3.2	99	6.2
Other alternatives	15	0.9	2	0.2	17	1.1
Knowledge of SIM card registration						
No	14	0.9	39	2.4	53	3.3
Yes	786	49.1	761	47.6	1547	96.7
Registered subscribers						
Not yet registered	29	1.8	85	5.3	114	7.1
I have registered	771	49.1	715	44.7	1486	92.9
CPC is effective in protecting subscribers						
No	605	37.8	470	47.0	1075	67.2
Yes	195	12.2	330	33.0	525	32.8
NCC is effective in regulating GSM services						
No	400	25.0	112	7.8	512	32.8
Yes	400	25.0	688	43.2	1088	67.2
Government has done well for deregulating NITEL						
No	125	7.8	215	13.5	240	21.3
Yes	675	42.2	585	36.6	1260	78.8
Deregulation of the NITEL is widely beneficial						
No	117	7.3	162	10.1	279	17.4
Yes	683	42.7	638	39.9	1321	82.6

Furthermore, when respondents were asked to comment on the effectiveness of NCC in carrying out its statutory roles, 68.0% said NCC was very effective in regulating the activities of GSM providers, while 32.0% said the Commission was not effective. Similarly, 32.8% of the respondents indicated that CPC was effective in protecting GSM subscribers, while 67.2% said the Council was not effective. As a follow up to the above question, a fifty-four year old male respondent who had been connected to GSM services for more than eight years and who was also dissatisfied with the activities of the regulatory agencies asserted:

NCC regulation is not effective. The body is not thoroughly checking the service providers on the need for qualitative service delivery. Network is still very bad and unstable. SIM card registration may not address the issue of fraud in the sector because people still utilise their GSM lines without registration. NCC must improve on its present regulation of GSM market and compel the service providers to reduce tariff charges instead of doing one promotion or the other. The poor services subscribers are getting do not commensurate with high tariffs charged by the operators (IDI/GSM Subscriber/civil servant/Ibadan North West LG/2011).

It can be deduced from the responses above that the incidences of high tariff charges, network failure, and unregulated uses of GSM to perpetrate frauds are some of the reasons why subscribers resent the roles played by NCC and CPC.

However, when NCC was consulted to investigate its statutory activities since the deregulation of the telecommunications sector, the comments made by the Director in the Commission were rather evasive and defensive. He said:

We are doing our best from this end and as you know it wasn't like this about ten years ago. It is getting better. It may interest you to know that one of the toughest decisions that can be taken by any mobile phone user in Nigeria today will be to discard a line because the user is not enjoying the best quality of service from the operator. It becomes more difficult if you have been using the line for more than five or six years and it is your officially recognised line by business associates, family and friends both at home and abroad. But is it possible to change your service provider and still retain your number for the new service? The common cliché goes: you cannot eat your cake and have it. But this definitely is not the case with Mobile Number Portability (MNP). Of course, with mobile number portability, you can eat your cake and still have it, which means that you can change your service provider

without changing your number. The above scenarios underscore the vitality and desirability of MNP to enhance service quality and promote healthy competition among telecom operators in Nigeria (KII/NCC Official/Abuja/2012).

From the responses above it is obvious that NCC may have initiated some policies to salvage and enhance the provision of GSM services in Nigeria, however for most subscribers this may not amount to much until they see real improvements in the quality of services provided by the operators as well as tariff charges slashed. This suggests that the level of effectiveness of the Commission in the perception of the subscribers is low in the study areas.

The recent events in the activities of NCC have shown that the agency is gradually living up to the expectation in the attempt to sanitise the sector. For instance, the Commission has impounded some pre-registered SIM cards sold to members of the public because of the dangers involved in it (NCC, 2012). This is to prevent the tendency of their users to use them to commit crime and other clandestine activities. To buttress the readiness of NCC to effectively regulate the provision of GSM services, a statement made available on the Commission's website read thus:

NCC has sanctioned MTN, Etisalat, Airtel and Globacom for poor Quality of Service (QoS) rendered in the months of March and April. Details of the penalties had been communicated to the different operators through letters. MTN and Etisalat are to pay N360m each, Airtel would pay N270m, while Globacom attracted a penalty of N180m. All the operators are to pay the penalties on or before May 21, 2012 or be liable to payment of additional N2.5 million per day for as long as the contravention persists. The penalties are as a result of the contravention of the provisions of QoS Regulation by the NCC. The operators failed to meet with the minimum standard of quality of service, including the key performance indicators. The commission has been monitoring the performance of the operators on the different parameters as provided. The result showed that the service providers contravened the provisions. Paragraph 13 and Schedule 3, Paragraph 2 of the Quality of Service Regulation 2012, provides that any company which contravenes this provision will be liable to pay fine. The company is liable to pay the sum of N15m for each parameter for a service contravened in the month of March, 2012. A further sum of N2.5m for each parameter for a service for each day the contravention continued throughout the month of April, 2012 will be paid by the operators. NCC noted that the performances in January and February

were below the specified thresholds but decided to take these periods as grace period (www.ncc/news.gov.ng/2012).

It can be inferred from the findings above that the Commission recognises the spate of incessant network failures in the provision of GSM services. Also, the Commission recognises the need to protect consumers who are users of GSM services. And finally, the Commission is concerned with the provision of satisfactory services to the consumers in order to ensure principle of equity. That is to ensure that subscribers get value for their money.

Furthermore, insight was provided into the role of CPC in the provision of GSM services. Hence, when an official of CPC was asked to comment on the activities of the Council to protect consumers, his views were expressed thus:

CPC is very relevant in the GSM market. Complaint lodge to the council is acted upon for result. There is no duplication in the duties and functions of CPC and NCC. CPC is on the consumption side, while NCC is on production. However, very few GSM subscribers have complained to the Council in the last five years (KII/CPC Official/Abuja/2012).

The implication from the responses above is that CPC has remained largely unknown to the subscribers and other consumers despite the rip off most subscribers are undergoing in the hand of telecom operators in Nigeria. This may be as a result of lack of enlightenment and awareness on the part of the body. On the whole, 82.6% of the respondents were satisfied with the deregulation of the Nigerian telecommunications sector. This may be connected to continue expansion in the teledensity. The current teledensity rate as at 2012 is 80%. This places Nigeria the fastest growing telecommunications infrastructure in Africa and one of the most expansive in the world (NCC, 2012).

4.8 Test of Relationship between Variables

The focus in this section is to test the relationship between some selected variables in the findings using cross tabulation analysis and chi square test. This helps to explain the link between independent and dependent variables. Chi square test (χ^2) analysis was at $p \leq 0.05$. Also, this was complemented by Pearson correlation analysis.

Table 4.8.1: Chi Square Test of Association between Perception of Deregulation of Telecommunications and Access to GSM Services

Perceived level of access to GSM services after deregulation	Perception of deregulation of telecommunications sector			
	Beneficial	Wasteful	Indifferent	Total
Low	94 (5.9%)	10 (0.6%)	54 (3.4%)	158 (9.9%)
Moderate	340 (21.3%)	46 (2.9%)	510 (31.9%)	896 (56.0%)
High	148 (9.3%)	46 (2.9%)	352 (22.0%)	546 (34.1%)
Total	582 (36.4%)	102 (6.4%)	916 (57.3%)	1600 (100.0%)
Calculated chi square: 62.16; df: 4; Probability value (p) : 0.00; correlation: 0.21, p value= 0.03				

The Chi square test of association presented on Table 4.8.1 shows that there is association between perception of deregulation of telecommunications sector and access to GSM services by the subscribers i.e. (χ^2 $p \leq 0.00$). The implication is that deregulation of telecommunications sector increased people's access to GSM services. This is evident in the fact that 9.9% of the respondents said their access to telecommunications services was low, while 34.1% had high access. The correlation analysis ($r=0.21$, $p \leq 0.03$) complemented the positive relationship between deregulation and access to telecommunications services. The association between deregulation of telecommunications and access to services is further understood in the opinions of a market trader when she said:

Prior to the introduction of GSM services by President Obasanjo's regime, I had never utilised phone either fixed or mobile in my life. I didn't even know how a telephone or cellular phone looked like. Thank God, now I have GSM phone after over 47 years of living on earth. Indeed I'm happy (IDI/GSM subscriber/Akinyele LG/Ibadan/2011).

It can be inferred from the above views that deregulation has significantly improved access to GSM services as more and more people are getting connected to reach out to families and friends.

Table 4.8.2: Chi Square Test of Association between Perception of Deregulation of Telecommunications and Utilisation of GSM Services by Subscribers

Perceived level of utilisation of GSM services	Impact of deregulation of telecommunications sector			
	Beneficial	Wasteful	Indifferent	Total
Low	26 (1.6%)	2 (0.1%)	38 (2.3%)	66 (4.2%)
Moderate	139 (8.7%)	26 (1.6%)	284 (17.8%)	449 (28.1%)
High	417 (26.1%)	74 (4.7%)	594 (37.2%)	1085 (67.9%)
Total	582 (36.4%)	102 (6.4%)	916 (57.3%)	1600 (100.0%)
Calculated chi square: 30.36; df: 4; Probability value (p): 0.000; correlation: $r=0.92$, p value= 0.04				

The Chi Square test of association presented on the table above shows that there is association between perception of deregulation of telecommunications sector and utilisation

of GSM services by subscribers i.e. ($\chi^2 p \leq 0.00$). The implication is that deregulation has expanded spectrum of telecommunications services which can be accessed by the subscribers. For instance, most respondents (67.9%) rated their level of utilisation as high. This means apart from making and receiving calls on GSM phones, there were numerous other value added services that GSM can be utilised for compared to what was obtained in the era of NITEL. At the level of correlation test, the association was positively significant ($r=0.95$, $p \leq 0.04$). Reacting to deregulation and utilisation of GSM services, a respondent was elated when he said:

My GSM phone can supply me with services such as internet browsing, reading news online, newspapers, magazines, twitting, facebook, and social networking. I got the job I'm doing presently through GSM services when I browsed internet on my phone. GSM services provide multi functions which were not available when NITEL dominated telecommunications. I can contact my family at any time I wished. GSM services has made live easy and convenient (IDI/GSM subscriber/Executive Marketer/Ibadan North West LG/2011).

Based on the above statement, one can infer that GSM services have made positive impact on the lives of subscribers especially in the areas of building social relationship, sourcing for job opportunities, information resources, companionship and reducing boredom. The fact that utilisation of GSM services reduces boredom among the users was explained by Bakare and Gold (2011) when they said:

The use of GSM services now makes it possible for subscribers to access television programmes, digital and cable networks such as DStv mobile. The introduction of GSM services in Nigeria has attracted assorted phones where it is possible for subscribers to replicate television reality on their phones. This has significantly reduced boredom both at work and at home as people now take out time to enjoy their leisure. This in part also contributed to companionship because subscribers make friends on facebook and youtube on their blackberry (Bakare and Gold, 2011)

Table 4.8.3: Chi Square Test of Association between Level of Utilisation of GSM Services and Building of Social Networks by Subscribers

Level of utilisation of GSM services	GSM has enabled me to remain in touch with my family members and friends					Total
	Strongly disagree	Disagree	Undecided High	Agree	Strongly disagree	
High	11(0.7%)	24 (1.5%)	9 (0.6%)	385 (24.1%)	656 (41%)	1085 (67.8%)
Moderate	0 (0.0%)	10 (0.6%)	26 (1.6%)	167 (10.4%)	246 (15.4%)	449 (28.1%)
Low	0 (0.0%)	10 (0.6%)	7 (0.4%)	14 (0.9%)	35 (2.2%)	66 (4.1%)

Total	11 (0.7%)	44 (2.7%)	42 (2.7%)	566 (35.4%)	937 (58.6%)	1600 (100.0%)
Calculated chi square: 16.24; df: 4; probability value (p): 0.00; correlation: r= 0.89, p value= 0.01						

The Chi square test of association presented in table 4.8.3 shows that there is association between the level of utilisation of GSM services and building of social networks ($\chi^2 p \leq 0.00$). The test of the association was positively significant at correlation analysis ($r=0.95$, $p \leq 0.01$). Findings showed that respondents that agreed or perceived their utilisation of GSM services high, had built more social networks (95.9%) than those of moderate (92.0%) and low level (74.2%) utilisation of GSM services. This finding is very significant because family is the foundation of every human society (Barnard, Burgess and Kirby, 2010) and GSM services has assisted in maintaining social relationship in the family. In this wise, a respondent stated:

GSM has really enabled me to contact my wife and children on regular basis. I work in Ibadan and my family stays in Abuja. But for GSM communication, I would have found it very difficult to cope with life when my organization transferred me to Ibadan some months ago. I feel as if I am living with them whenever I call on my mobile phone. Though not physically present, but it has helped to bridge communication gap, although the cost is high.... (IDI/GSM subscriber/Lagelu LG/2011).

Based on the above response, it can be argued that the utilisation of GSM services helps to build, maintain and sustain social relationship which is important to human existence. Also, GSM services have become vital in the sustenance of family unit.

Table 4.8.4: Chi Square Test of Association between Respondents' Income and their Level of Utilisation of GSM Services

Respondents' monthly income (in Naira)	Level of utilisation of GSM services by subscribers			
	Low	Moderate	High	Total
<10000	11 (0.7%)	209 (13.1%)	511(32.0%)	731 (45.7%)
10000-30000	37 (2.3%)	100 (6.3%)	249 (15.5%)	386 (24.1%)
30001-50000	1 (0.1%)	48 (3.0%)	121 (7.6%)	170 (10.6%)
50001-70000	11 (0.7%)	33 (2.1%)	68 (4.2%)	112 (7.0%)
70001-90000	6 (0.4%)	29 (1.8%)	56 (3.5%)	91 (5.7%)
90001-11000	0 (0.0%)	9 (0.6%)	19 (1.2%)	28 (1.8%)
110000 and above	0 (0.0%)	8 (0.5%)	22 (1.3%)	30 (1.9%)
No response	0 (0.0%)	31 (0.8%)	39 (1.0%)	52 (3.3%)
Total	158 (9.9%)	896 (56.0%)	546 (34.1%)	1600 (100%)
Calculated chi square: 184.77; df: 28; probability value (p): 0.000; r= 0.56, p value= 0.03				

The analysis of Chi square result as presented on the table above shows that there is association between respondents' monthly income and their real level of utilisation of GSM services i.e. ($\chi^2 P \leq 0.00$). The implication here is that a person's income determines access to vital services. For instance, from the table above most respondents who lived on low income (NGN10000-NGN50000)³, only 68.0% had high level of utilisation whereas those among the respondents who lived on high income (NGN90001 and above), 70.7% of them had high level of utilisation. Similarly, correlation analysis ($r=0.56$, $p \leq 0.03$) complemented the positive association between income and level of utilisation of GSM services.

However, to confirm that those who earned high, moderate or low monthly incomes had relatively high level of utilisation of GSM services, a respondent said:

During the time of NITEL I did not have access to telecommunications. I don't even know how a telephone looked like. I only see telephone on television and Newspapers. Now I am happy I have GSM telephone for communication. I connect friends and families any time I so wished, although the cost of tariff is still high and sometimes limit the extent to which one can reach out to families (IDI/GSM subscriber/Akinyele LG/Ibadan/2011).

The information in the above view attested to wide accessibility and utilisation of GSM services among respondents in the study areas which was not restricted to boundaries of income. Notwithstanding the level of utilisation of GSM communication in the findings, the role of income is still significant in the utilisation of GSM communication.

Table 4.8.5: Chi Square Test of Association between Respondents' Area of Residence and their Level of Utilisation of GSM Services

Area of residence	The level of utilisation of GSM services			
	High	Moderate	Low	Total
Ibadan Less City	533 (33.3%)	233 (14.3%)	34 (2.2%)	800 (50.0%)
Ibadan Main City	552 (34.5%)	216 (13.5%)	32 (2.0%)	800 (50.0%)
Total	1085 (67.8%)	449 (27.8%)	66 (4.0%)	1600 (100.0%)
Calculated chi square: 11.65, df: 4, probability value (p): 0.020: correlation $r=0.95$, $p \leq 0.05$				

³ The grouping of income in the study into Low, Moderate and High was derived from the classification of the Statistics Department, NISER (2012). This is based on the current inflation rate and cost of living index that applies in Ibadan. Ibadan is currently ranked 51 out of 780 places (rank 1 is most expensive: rank 780 is least expensive).

Results in table 4.8.6, show that when area of residence and level of utilisation of GSM services were cross tabulated in the chi square test, the association between the variables was significant. This is represented as ($\chi^2 p \leq 0.02$), i.e. the calculated value of chi square is greater than the critical table value. At the level of correlation ($r=0.95$, $p \leq 0.05$) the association was also positive and significant.

The indication from the above analysis is that the level of utilisation of GSM services tends to vary between the urban (MC) and rural (LC) areas. For instance, in the LC area, only 66.6% of the respondents said they had high level of utilisation of GSM services. In the MC location, about 69.0% had high level of utilisation of GSM services. This difference may be due to variation in the level of income which is usually high in the urban zone. Although the level of utilisation of GSM services may be higher in the MC than in the LC, it can be concluded that GSM services served varieties of purposes in both urban and rural areas. This might have accounted for the proportion recorded in both areas. The above statement is buttressed when a respondent in the main city said:

My GSM phone provides me with varieties of services which keep me fulfilled and happy on daily basis. Now I can listen to radio, browse internet to apply for jobs, read newspapers, and check my account balance. Good enough, I can now make bank transaction on my blackberry phone. Indeed GSM services have kept me happy every day (IDI/GSM subscriber/Ibadan North-West LG/2011).

The view above corroborated the opinions of a twenty six year old female respondent who resided in Less City area when she said:

I am always happy whenever I use my GSM phone. There are many uses which you can put GSM services. In my area here, I browse the internet any time, send text messages, listen to radio and call friends and family. The services in vogue are facebook, twitter, and youtube. All these are available on my phone (IDI/GSM subscriber/Akinyele LG/Ibadan/2011).

On the whole, it may be inferred that GSM services providers have gone beyond the provision of voices services. Data services, multimedia, banking and other innovative services have been introduced into the Nigerian telecommunications services within eleven years of GSM operation.

Table 4.8.6: Chi Square Test of Association between Respondents' Area of Residence and their Perception of Quality of GSM Services

Area of residence	Perception of quality of services			
	High	Moderate	Low	Total
Ibadan Less City	490 (30.6%)	233 (14.6%)	77 (4.8%)	800 (50.0%)
Ibadan Main City	552 (34.5%)	216 (13.5%)	32 (2.0%)	800 (50.0%)
Total	1042 (65.1%)	449 (28.1%)	109 (6.0%)	1600 (100.0%)
Calculated chi square: 15.65, df: 4, probability value (p): 0.040: correlation r= 0.69, p value= 0.04				

The result in table 4.8.7 provides that there is association between subscribers' area of residence and their perception of quality of GSM services. The chi square statistics is given as ($\chi^2 p \leq 0.04$), while correlation test was $r = 0.69$.

The interpretation of the above explanation is that quality of GSM services in the MC area was relatively stable than those services available in the LC area. This may not be unconnected with the fact that 61.3% of the respondents in LC described the quality of their GSM services as high. At least 69.0% in the MC area said they had high quality of GSM services. The views expressed by a forty-year old respondent who resided in the Less City were significant when he said:

GSM services in this area are not stable. Sometimes you may have to climb some mountains to locate networks. At times, the services available may not be strong enough to connect your calls. This could be very frustrating. Although GSM service providers are doing their best, we need better services in our area to boost economic activities (IDI/GSM subscriber/Lagelu LG/Ibadan/2011).

It is important to mention that quality of GSM services has remained major problem in the last eleven years of operation in Nigeria. This problem alone attracted the sanctions of GSM service providers by the regulatory body of NCC to enforce stable services in Nigeria. Findings have shown that GSM subscribers in Nigeria and Ibadan in particular have continued to face with unstable and intermittent quality of services in GSM telecommunications. However, subscribers in the rural were worse off in the structural problem.

Table 4.8.7: Chi Square Test of Association between Age of the Respondents and their Perception of Quality of Gsm Services

Ages of respondents	Perception of quality of services				Total
	Very low	Low	High	Very high	

16-20	1 (0.1%)	25 (1.6%)	428 (26.8%)	128 (8.0%)	582 (36.4%)
21-25	0 (0.0%)	17 (1.1%)	119 (7.4%)	36 (2.3%)	172 (10.8%)
26-30	0 (0.0%)	18 (1.1%)	284 (17.8%)	43 (2.7%)	345 (21.6%)
31-35	4 (0.3%)	11(0.7%)	99 (6.2%)	10 (0.6%)	124 (7.8%)
36-40	0 (0.0%)	20 (1.3%)	67 (4.2%)	25 (1.6%)	112 (7.0%)
41-45	0 (0.0%)	9 (0.6%)	53 (3.3%)	19 (1.2%)	81 (5.1%)
46-50	1 (0.1%)	14 (0.9%)	52 (3.3%)	33 (2.1%)	100 (6.3%)
51 and above	0 (0.0%)	4 (0.3%)	60 (3.8%)	20 (1.3%)	84 (5.3%)
Total	6 (0.4%)	118 (7.4%)	1162 (72.6%)	314 (19.6%)	1600 (100.0%)
Calculated chi square: 112.82, df:21, probability value (p): 0.00: correlation r= 0.46, p value= 0.01					

The Chi square test of hypothesis in Table 4.8.8 shows that there is significant association between respondents' age and their perception of quality of GSM services. This is because the calculated value of chi square (112.82) is greater than the critical table value, i.e. ($\chi^2_p \leq 0.00$). The correlation analysis ($r= 0.46$) was also significant.

The interpretation of the foregoing analysis is that the definition of quality of GSM services varied across age groups of respondents in the study area. This means what constituted high quality of GSM services in one age group was defined as either moderate or low quality services by another age group(s). In this wise, findings showed that about 52.0% of respondents whose ages ranged between 46 and 50 years said GSM telecommunications offered them high quality of services. Similarly, not less than 71.4% of the respondents who were aged 51 years and above rated the quality of their GSM services as high. On the contrary, 73.5%, 70.2% and 82.3% respectively of the respondents whose ages were 16-20, 21-25 and 26-30 said their GSM telecommunications offered them high quality of services. Further analysis of the quality of services is provided in the qualitative data.

In line with the above, a twenty-four year old respondent was emotional when he said:

I wish government of Nigeria can just put an end to the problem we are facing about network failure in GSM services. Many times the internet services are very bad despite huge amount of money you pay to get this service. The internet modems sold by GSM operators do not work well. When the modem is loaded and activated by subscriber, it is possible that you may not be connected to the internet. In the case you get connection to internet, the service may be very slow to give you desired satisfaction. In some cases, your modem may not connect at all. The most painful is that the unused

megabyte or gigabyte i.e. air time will be deactivated at expiration (IDI/GSM subscriber/Ibadan North LG/2011).

Another nineteen-year old female GSM subscriber succinctly put:

I am not satisfied with the type of GSM services offered in the last five years. I am a dual citizen of both Nigeria and America. Whenever I traveled to USA for summer and winter holidays, my blackberry used to work very well. I connect fast to internet services without delay or hitch. The services in America are very stable and reliable. However, the experience in Nigeria is never palatable. Internet services on blackberry are not stable. Sometimes you wonder if NCC is really enforcing standard in Nigeria. For God sake, something needs to be done to correct the anomaly of poor GSM services in the country (IDI/GSM subscriber/Ibadan South-West LG/2011).

Similarly, a sixty-four year old respondent was dissatisfied with the quality of GSM services when he said:

Indeed GSM services are not stable and reliable. The service is below expectation. I use three GSM lines of different networks. None of the services is reliable. It is a fact that GSM services have offered a lot of benefits in Nigeria. There is need for government to do something about incessant network failure. We deserve to be treated fairly (IDI/GSM subscriber/Ibadan South-West LG/2011).

It may be inferred from the above views that the quality of GSM services is still far from something desirable and satisfactory to subscribers. Although the description of quality of GSM services varied across age groups as shown in the quantitative data, findings showed that people below the ages of thirty five years frequently utilised GSM services for social and economic needs. Besides, they constituted majority of respondents that had access to GSM services. Therefore, it follows that until the population of the youths who utilised GSM services rated mobile telecommunications services as satisfactory, it may be difficult to conclude that there is stable provision of GSM services in the study area and by extension Nigeria as a whole.

4.9 Theoretical Discussion of Findings

The study adopted Neo-Liberal Theory (NLT) and Rational Choice Theory (RCT). Basically, NLT advocates the ever increasing strength of the market in which free trade, deregulation and privatisation drive and thrive the economy. The theory suggests that

economic and development is dependent upon market force of demand and supply. Therefore, deregulation and privatisation shape demand and supply. This allows for effective market competition and availability of services. Rational Choice Theory states the rationality of individual behaviour that determines the best course of action in the satisfaction of needs. The RCT maintained that the individual is rational and often examines actions that may yield cheapest cost. This theory further maintained that an individual tries as much as possible to interpret, understand and put meanings to their various social actions especially in the economic relations.

The theoretical position of Neo-liberalism and Rational Choice theory is understood in the context of the findings. Prior to deregulation of the telecommunications sector, more than two thirds of the respondents in the study area were dissatisfied with the operations of NITEL due to low accessibility and utilisation of telecommunications services. The deregulation of telecommunications sector produce a new kind of life experiences for the respondents as more than two third of the users reported that GSM has positive impact on them as a result of wide access and utilisation of GSM services. However, there were some respondents who continued to utilise the services of NITEL or both. In the same vein, most respondents in the study area perceived the deregulation policy as beneficial because of the enormous benefits associated with GSM services. For Neoliberal theorists, economic growth and social services are possible if hindrances and obstacles to market system are abolished. These theorists believed that until bureaucratic bottlenecks are removed to allow private capital to thrive, public utility services such as telecommunications may remain inadequate. The main argument of Neoliberals is that deregulation and privatisation can free resources and help to make basic services available to the masses. It is evident that deregulation of the telecommunications sector significantly transformed the provision of telecommunications services in the study area.

This evidence is based on the fact that most respondents agreed that GSM services have benefitted them a great deal because of wide range of services offered by the service providers. In essence, deregulation of telecommunications sector has significantly improved people's access and utilisation of GSM services. Furthermore, the deregulation of the sector has enabled the respondents to connect with families and friends on regular basis. Also, the technology has become a source of employment to some respondents, and

reduced their travelling expenses. The GSM services has also transformed the information seeking behaviour of the people as most respondents could browse the internet and access information resources at regular interval. This is most applicable to the youths in the study areas.

Prior to the advent of mobile telecommunications, only few respondents had access to telecommunications services provided by NITEL. Even at that time, telecommunications was seen as a status symbol as only the elites and corporate bodies could afford the access and utilisation of telecommunications services. Also, individuals who were fortunate to own mobile phones promoted by NITEL never had access to wide range of services such as text messaging, radio, videos, facebook, conference calls, and internet access among other several services that made telecommunications versatile (NCC, 2004, 2006, 2011, 2012). Despite the immense benefits resulting from deregulation of telecommunications sector as promoted by the Neo-liberalists, the tariffs charged by the various service providers under the current dispensation have become a burden on the shoulders of the subscribers. This idea is well articulated in this study which informed the use of Rational Choice theory to further explain the behaviour of the consumers.

The position of the Rational Choice theory is that the action of a consumer is directed towards the satisfaction of needs at the lowest cost possible. The assumption is that every individual is rational and purposive, motivated to pursue a meaningful course of action. Although the introduction of GSM yielded some positive changes in the study area, nevertheless there were several challenges and inadequacies which seemed to undermine the benefits of GSM communication. This is particularly concerned with problems inherent in the utilisation of GSM. Findings showed that GSM is a source of social vices such as theft, examinational malpractices, family disorganization and threat to human life caused by electronic tower mast. It is evident in the study that respondents experienced continuous failure in the services of GSM such as call drops, wrong call destination, network disruption, hang over problem, poor call set up, and poor customer service. There were cases of abnormal tariff billing and promos ripping off unsuspecting subscribers. The Rational Choice posited that every individual initiates action that prevents hindrance to satisfaction in the consumption of goods or services such as GSM services. Hence, the challenges identified in the opinions of the respondents helped to explain their

dissatisfaction with the GSM services. These challenges are not imaginary, but they are real to the subscribers.

It is pertinent to note that immediately after the deregulation of telecommunications services in 2001, only very few subscribers could afford it because SIM card was costing as much as NGN25000 naira and a minute call was put at NGN50 or more. However, as other competitors joined the market, the cost of SIM card and tariff charge started to drop as dictated by the market forces promoted by Neoliberal theorists. Within this context, more subscribers being rational beings started to join various GSM networks. As a matter of fact, the entry of GLOBACOM into the market broke the exploitative activities of other operators and started charging per *second* rather than per *minute*. This gave impetus for more subscribers to join. The fact is that subscribers are rational being consciously calculating the cost and benefits of each network and are always craving for the providers that will provide maximum satisfaction with least cost. Therefore, it is not uncommon to see a subscriber patronising more than one service provider as demonstrated by this study.

The Rational Choice theorists have maintained that analysis of structure must proceed from the micro base as it provides valid data to appreciate development in general terms of society (Ritzer, 2000, 2007). It follows that the challenges inherent in the utilisation of GSM gave insight to assess the policy of deregulation. Though GSM is a source of numerous benefits to respondents, nevertheless the continued problems facing subscribers tend to undervalue the gains of deregulation. This accounted for the need to intervene at the level of individual as argued by the Rational Choice Theorists (Coleman, 1990; Ritzer, 2008). Hence, intervention in the case of the finding will not only address dissatisfaction of users in the utilisation of GSM services. It will also be directed to tackle infrastructural failures in the area of electricity, vandalism, land dispute, poor road networks, and import duties to mention a few which constrained service providers to offer uninterrupted services in the study area and in Nigeria at large.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This section of the study deals with the summary of the findings, conclusion and some suggested recommendations. The summary of the study reviews main objectives of the study. The conclusion of this study is centred on the significance and benefits which the study offered. Recommendations of the study outlined suggestions and possible solutions by which the inherent challenges in the provision of GSM services can be tackled.

5.1 Summary of the Findings

The presentation and analysis of data in this study began with the socio-economic and demographic characteristics of the respondents. The study identified some socio-economic characteristics. These included sex, marital status, education, religion and income. Other factors are occupation and ethnicity. The findings revealed that there were more female respondents (54.4%) than male respondents (45.6%). Most of the respondents (36.4%) fell within the age range 16-20 years. There were 67.1% of the respondents that

were not married. Also, 99.6% of the respondents had formal education which ranged from primary school (5.3%) to post primary educational qualification (36.5%), OND/NCE (24.8%), graduate qualification (21.4%) and post graduate qualification (11.5%). Most respondents (76.0%) were Christians. Similarly, most respondents (45.7%) had monthly income less than NGN10,000. In fact, 3.3% of the respondents indicated that they had no source of income.

The findings highlighted the perception of people on the deregulation policy of the telecommunications sector. The study population was limited to GSM subscribers in the study area. Hence, perception was measured in terms of knowledge base, attitude, practice and belief. On the basis of knowledge, 65.6% of the respondents were aware that telecommunications sector was deregulated for more than ten years in the course of the findings. Consequently, the knowledge base strengthened the validity of data collected and the conclusion derived thereof. Attitude was measured in terms of acceptance of GSM technology among respondents in the study area. Findings provided that none of the respondents rejected GSM technology for communication, though there were few respondents (5.8%) that could not afford to own a mobile phone. In addition, the measure of practice was based on the utilisation of GSM technology and the benefit associated. Hence, most respondents (59.8%) benefitted from the utilisation of GSM that is consequent upon deregulation. The belief model was measured in terms of defining deregulation as beneficial or wasteful. Therefore, while some respondents (57.3%) were of the opinion that deregulation was beneficial, others (6.4%) passionately defined the policy as wasteful. The factors that informed such definition were connected with individual's experience and life situation in the regime of deregulation.

Prior to deregulation of the telecommunications sector, less than one quarter of the respondents (11.3%) had access to telecommunications. Ownership and utilisation of telephone were mark of honour and prestige that is social status. However, the advent of deregulation drastically transformed access as more than three quarters of the respondents (88.7%) now owned a GSM phone for communication. Unlike the days of NITEL when utilisation of telecommunications was limited to making and receiving calls, deregulation expanded the spectrum of utilisation. This means GSM subscribers in the study area could utilise their telephone to make calls and receive calls (16.8%), send text messages (4.7%),

listen to radio (0.3%), music, browse the internet (2.3%), videos and make new friends through social networking (76.3%) e.g. facebook.

Despite the lofty land mark achievement made in the telecommunications sector, network disruption (78.9%), call drop (82.4%), wrong call destination (76.1%) and network failure (77.4%) continued to fraught the provision of GSM services to subscribers. Finding proved that interconnectivity (71.5%) was a major problem in GSM services. Despite the effort of NCC to address the problem of instability in GSM network, the status quo remained unchanged. Although tariff billing in interconnectivity was expensive for most respondents (68.8%), the situation in intraconnectivity was little different. In other words most respondents (70.0%) were dissatisfied with the high cost of maintaining GSM communication. This is not unconnected with the fact that most respondents in the study area lived on low income base.

Furthermore, while GSM communication offered some benefits on the one hand, there were challenges associated with GSM technology on the other hand. For instance, findings documented that GSM was a potential source of employment (84.6%), reduced the risk of uncertainty associated with life such as traveling adventure (88.1%), reduced cost of living (50.5%), improved leisure time and social integration. However, GSM was a source of opportunity for dubious users or service providers ripping off unsuspecting subscribers through bogus promotions (80.9%). It was a source of nuisance in public places (90.3%), threat to social order (89.5%) through vices of cheating, stealing, snatching of handset and kidnapping. GSM was a threat to human health and safety through indiscriminate erection of mast (65.7%) in residential areas.

Although findings showed that there were contradictions such as high tariff and network instability inherent in GSM communication, nevertheless the infrastructural challenges were central to the consideration of these factors. In other words, GSM providers in the study area were confronted with structural problems ranging from power supply to land use, vandalism of equipment, court litigation, road network, cost of fuelling generating plant and youth restiveness. All these combined to increase cost of production and operation which reflected in the price of tariff and quality of stable network.

In addition, several policies existed to regulate GSM communication through the activities of NCC. There were policies for SIM card registration which was most recent. Findings provided that most GSM subscribers (92.9%) in the study area had registered their SIM card. The central goal for SIM card registration was stated in the provision of NCC. Thus, the most appealing of the goal is the need to checkmate the utilisation of GSM phones in fraudulent practices by which innocent and unsuspecting users were tripped off their hard earned resources. However, the extent to which the policies will achieve the stated goal remained unattainable in the views of some respondents. Nevertheless, findings documented that GSM SIM registration has brought sanity in the utilisation of GSM technology. This signaled a hopeful dream for positive utilisation of GSM technology that will sustain the social order.

5.2 Conclusion

The conclusion in this finding dwells on the significance of the study. Although deregulation of the telecommunications sector was a major source by which access to telecommunications was revolutionised, it will be erroneous to assume that the concept of deregulation is an independent factor in the explanation of access. The argument is clarified thus. Prior to the adoption of deregulation policy in the telecommunications sector, NCC had been in existence as an overseer of the sector that monitored NITEL services. However, deregulation came more than ten years now with the advent of GSM technology that operated wide accessibility both in Urban and Rural Areas. NCC continued the regulation of the sector to check and balance irregularities apparent in the market. As a result, access to and utilisation of GSM technology have soared among population of users in the study area. Therefore, it may be concluded based on the empirical findings that the forces of demand and supply canvassed by the Neoliberal cannot solely transform and revolutionise the mainstream economic sector like telecommunications.

The role of the state machinery apparatus like NCC holds sway in every deregulated economy. This is to ensure sustainability and protect the interest of consumers from arbitrary market forces. For example, NCC initiated the need for SIM card registration that is compulsory for all users of GSM both mobile and fixed. The exercise was consequent upon the need to address inadequacies associated with GSM utilisation. It

could have been expected that the market mechanism should be independently sufficient to regulate the problem naturally. However, because of the lingering crisis in the utilisation, NCC took an initiative to check the vices of GSM utilisation. More than 95% of the respondents had registered their SIM lines. The finding further attested to the need for continuous regulation of an economy despite deregulation.

Furthermore, conclusion in the findings is derived from the aspect of consumer behaviour. The Neoliberals have indirectly assumed that people in the market system are passive, always accepting the dictates of demand and supply. The explanation is obvious in the analysis of Wallsten (2001). The author defined deregulated market as an input-throughput-output system in which demand determines supply which is reflected in prices and consumption. However, findings showed that GSM subscribers were active consumers always ready to resist exploitation and protect themselves against unequal benefits. This was apparent in the strong dissatisfaction expressed on arbitrary tariff billing, bogus promos, erection of mast in residential areas, and use of GSM to constitute nuisance in public places. Therefore, it may be argued that rather than perceiving consumer as passive in the deregulated economy, every rational consumer is an active player that is motivated to satisfy their consumption.

5.3 Recommendations

Consequent upon the empirical findings of the study, the following recommendations are suggested.

1. Deregulation of the telecommunications in Nigeria is conceived as either beneficial or wasteful. This is strongly connected with mixed feelings expressed by people on the basis of satisfaction and dissatisfaction with the operation of mobile service providers. Therefore, it is strongly recommended that the role of regulatory agencies such as NCC and CPC is further strengthened to check and balance excesses in the deregulated economy.
2. Access and utilisation of telecommunications have doubled among subscribers since the introduction of deregulation ten years ago. While access was high among respondents, utilisation was at moderate level despite the multi-dimensional of uses

GSM can be engaged. The problem is associated with expensive cost of tariff. Hence, for utilisation of GSM to meet the ITU standard in Nigeria, it is recommended that government should mitigate the cost of production for consumption services like GSM. This can be attainable through the provision of stable infrastructure.

3. GSM services remained largely unstable and intermittent in the study area thereby limiting effective communication. Therefore in order to ensure uninterrupted quality service in GSM communication, there is urgent need for government to address instability in the supply of electricity. The solution is not only limited to power supply but also there is need to grant GSM providers concession to import up to date equipment that can withstand supply of stable network. The import duty should be relatively cheap to attract such hardware equipment.
4. It is documented that the utilisation of GSM technology is characteristically marked by enormous benefits, but there are several challenges that constrained the utilisation of GSM communication. Hence, in order to reduce the problem inherent in the utilisation to barest minimum, there is need for NCC to collaborate with media professional, security agents and federal road safety commission (FRSC) to educate consumers. The collaboration should also involve GSM mobile service providers and every stakeholder in the telecommunications sector.
5. GSM service providers were confronted with arrays of problems such as infrastructural inadequacies which limited their capacity to supply stable networks. The problem also limited the gains accruing to consumers in terms of tariff billing. Therefore, to ensure sustainable deregulation in the Nigeria context, government should be proactive to address infrastructural constraints. This will go a long way to reduce cost of production and transform into long run benefit for consumers and the society as a whole.
6. There are policies of government that had favoured the expansion of GSM at the expense of CDMA despite the enormous benefits associated with the latter. Thus, it is recommended that NCC should promote policies that integrate both GSM and CDMA in order to ensure balanced competition in the market. Investment should be encouraged to further entrench CDMA in the telecommunications system.

7. It is also recommended that NCC should address the inadequacies inherent in SIM card registration and the need to make the registration continuous on interval basis.

5.4 Contribution to Knowledge

The study made the following contributions to knowledge.

1. Deregulation is a very controversial and emotive issue especially in transitional economy like Nigeria where government is attempting to involve private operators in the provision of certain services to the masses. Usually, people often misconstrue deregulation as one monolithic economic entity. This study has shown that when deregulation is dissected sectorally, it will be obvious that it may work in one sector and not in another sector. This study has demonstrated that deregulation has worked in telecommunications sector as people now have access and utilised GSM services for various purposes, though still fraught with various challenges. This does not mean that deregulation that worked in telecommunications sector may work in power sector, maritime sector, or even aviation sector. The study has shown that each sector of the economy must be taken on its own as regards deregulation.
2. Deregulation as a policy is not autonomous variable in economic growth and development. Rather the role of the state regulatory apparatus e.g. NCC, mediates to complement deregulation in the attainment of social development. Hence, regulation becomes an intervening variable in the deregulation for social transformation.
3. Consumers are not largely passive in a deregulated market economy tending to accept every dictate of the market forces. Rather consumers are active and conscious ready to negotiate their consumption pattern for satisfaction and resist exploitation. This is evident in the formation of consumer bodies such as Nigerian Association of Telecommunications Subscribers (NATCOMS), Consumer Parliament of Nigeria (CPN) etc.
4. Deregulation cannot thrive in a developing economy in which social infrastructural facilities are unstable. In such cases, market competition may be grossly inadequate to offer relatively cheap prices for consumer satisfaction.

5. There is social dimension to telecommunications technology and its innovations. It has become an integral part of the family institution and social interaction. This is because GSM services connect families and friends and reduce boundaries of physical distances.

5.5 Limitation of the Study

This study is not without some limitations. The city of Ibadan in which the study was conducted is a composition of eleven local government areas. Only eight local governments were sampled despite the utilisation of GSM services that cut across all the eleven local governments. Therefore, it may be difficult to construct a statement of generalisation that applies to all locations. Further study may expand the scope to cover other location areas. Similarly, subsequent studies may combine two or more different States of South Western Nigeria and other geo political regions to identify differences in the utilisation of GSM communication. There is need for further scientific research to clarify the perceived health problem associated with GSM masts which are erected in residential areas.

Studies need to be conducted to evaluate the policies of Mobile Number Portability (MNP) now that it has been implemented in the telecommunications sector. There is need for further clarification on the utilisation of GSM as source of public nuisance especially in churches and mosques. Indeed GSM services were proposed by Central Bank of Nigeria (CBN) to power the cashless economy which has been in operation in the Nigerian economy for two years. It is pertinent that subsequent studies are focused in this area to assess the benefits and challenges. Further studies may also combine two or more sectors of the economy which have been deregulated to identify differences in benefits, challenges and breakthroughs.

5.6 Prospect for Further Study

The study identified the following areas for further study.

- i. Erection of GSM mast in the residential area was perceived as a problem. This study was not set out to investigate the effect of GSM mast in the residential areas. Yet respondents in the study areas expressed concern about public nuisance caused GSM masts.

- ii. GSM services have been used to power banking services to customers especially in the cashless policy of the Central Bank of Nigeria. Further study may investigate the benefits and challenges associated with the utilisation of GSM services in the cashless economic policy.
- iii. Mobile Number Portability (MNP) has just been introduced in the telecommunication sector. Precisely, MNP was introduced in May 2013 and with total of 173,000 ported subscribers. This means that subscribers have opportunity to swerve from one network they considered as rendering poor services to another network they perceived as having reliable network. Further study may investigate awareness to this technology, how the technology has improved competition among service providers in the area of reliable network, and how it may be sustained in the sector.
- iv. Code Division Multiple Access (CDMA), the operators of Multilinks, Starcomms, O'Net and Visa fone among others are dying in the telecommunication sector despite that they offered cheaper tariffs and relatively stable services. Findings showed that this sector of telecommunication was affected by the inconsistency in government policies. Further study may investigate the main challenges of this sector and how it may be revived to compete with GSM sector.
- v. This study showed that GSM phones were utilised to commit clandestine or secret activities like examination malpractices and secret dating by legally married couples. Indeed one of the respondents, married emotionally expressed that she was determined to divorce her spouse because of the marital infidelity she experienced through utilisation of GSM phones. Further study may investigate the contribution of GSM services to family cohesion and stability. Also, this study may be extended to examine the uses of GSM services among students in tertiary institution.

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APPENDICES

APPENDIX ONE

TABLE 1: MARKET SHARE BY TELECOMMUNICATIONS OPERATORS

Telecom operators	Market share (in %)
AIRTEL	21
ETISALAT	14
GLOBACOM	20
MTEL	0
MTN	45

Source: NCC, February 2014

TABLE 2: MARKET SHARE OF TELECOMMUNICATIONS BY TECHNOLOGY

Telecommunications services	Market share (in %)
Mobile (GSM)	97.86
Mobile (CDMA)	1.86
Fixed (wired/wireless)	0.28

Source: NCC, February 2014

TABLE 3: MOBILE PEAK PERIOD TARIFF (2007-2011)

Year	On-network (in Naira)	Off-network (in Naira)
2011	31.35	32.55
2010	28.35	29.10
2009	26.70	36.00
2008	36.48	42.00
2007	34.20	41.10

Source: NCC, February 2014

Note: Table 3 shows tariffs charges in the intraconnectivity (on-network) and interconnectivity (off-network) in the Nigerian telecommunications services.

TABLE 4: CONTRIBUTION OF TELECOMMUNICATIONS INDUSTRY TO GDP
(2001-SEPTEMBER 2013)

Year	GDP (in %)	Year	GDP (in %)
September 2013	7.76	2012	6.94
2011	5.67	2010	4.56
2009	3.66	2008	2.92
2007	2.31	2006	1.91
2005	1.53	2004	1.27
2003	1.06	2002	0.85
2001	0.62	--	--

Source: NCC, February 2014

TABLE 5: MONTHLY TREND OF SUBSCRIBER TELEDENSITY DATA

Month in year	Teledensity (in %)	Month in year	Teledensity (in %)
February 2014	92.14	January 2014	91.40
December 2013	91.15	November 2013	88.39
October 2013	87.06	September 2013	86.62
August 2013	80.47	July 2013	81.97
June 2013	85.97	May 2013	86.25
April 2013	85.25	March 2013	83.77
February 2013	83.29	January 2013	81.78
December 2012	80.85	November 2012	80.85
October 2012	78.21	September 2012	76.69
August 2012	75.17	July 2012	73.88
June 2012	73.12	May 2012	72.72

Source: NCC, February 2014

APPENDIX TWO

QUESTIONNAIRE

Department of Sociology
University of Ibadan
Ibadan Nigeria

Serial No.

Date

Dear Respondent,

I am a post graduate student of the department of Sociology University of Ibadan, carrying out a study on the topic **Access to, and Utilisation of the Global System for Telecommunications Services among Subscribers in Ibadan**. I solicit your assistance to answer questions contained in this questionnaire. All the information you will supply shall be treated with utmost confidentiality. You have been selected randomly for this study. Thus, your name is not required.

Thanks in anticipation of your cooperation.

Yours Sincerely,
Micah Damilola

SECTION A: Socio-economic and Demographic Characteristics

S/N	QUESTION	RESPONSES AND CODING CATEGORIES	
001	What is your sex?	Male Female	1 2
002	What is your age range (in years)?	16-20 21-25 26-30 31-35 36-40 41-45 46-50 51 and above	1 2 3 4 5 6 7 8
003	What is your marital status?	Married Single Divorced Separated	1 2 3 4
004	What is your highest educational qualification?	Primary school WASCE/GCE/NECO OND/NCE HND/First Degree	1 2 3 4

		Post graduate	5
005	What is your religious affiliation?	African traditional religion Islam Christianity	1 2 3
006	What is your monthly income?	<10000 10000-30000 30001-50000 50001-70000 70001-90000 90001-110000 110001 and above	1 2 3 4 5 6 7
007	What is your occupational status?	Civil servant Public servant Self employed Private sector employee Teachers Lecturers House wife Unemployed Student Others (pls specify)	1 2 3 4 5 6 7 8 9 10
008	What is your ethnic origin?	Yoruba Hausa Igbo Others (pls specify)	1 2 3 4
009	Where do you live?		

SECTION B: Perception on Deregulation Policy of the Telecommunications Sector

S/N	QUESTION	RESPONSES AND CODING CATEGORIES	
010	Have you ever heard of deregulation before?	Yes No	1 2
011	In your own understanding, what is deregulation?		
012	Are you aware that government has deregulated telecommunications sector in Nigeria for over ten years now?	Yes No	1 2
013	Will you say that deregulation has improved people's access to telecommunications in Nigeria?	Yes No	1 2

014	Have you benefitted from deregulation of telecommunications sector in Nigeria?	Yes No	1 2
015	How do you perceive deregulation of telecommunications sector in Nigeria?	Beneficial Wasteful Indifferent	1 2 3

SECTION B: Level of Access and Utilisation of GSM Technology

S/N	QUESTION	RESPONSES AND CODING CATEGORIES	
016	Do you have GSM phone?	Yes No	1 2
017	If yes, how long have you been connected on telephone GSM services?	<1 year 1-3 years 4-6 years 7-9 years 10 yrs and above	1 2 3 4 5
018	Where did you purchase your GSM line?	Telecom centre Hawkers on the street Mobile telecom bus Market Telecom dealers Others (pls specify)	1 2 3 4 5 6
019	How many GSM lines do you have?	One Two Three Four Others (pls specify)	1 2 3 4 5
020	Have you ever lost your GSM line?	Yes No	1 2
021	If yes, how easy is it to replace a lost line?	Very difficult Difficult Easy Very easy	1 2 3 4
022	When you purchased your GSM line, what will you say about the cost?	Very expensive Expensive Cheap Very cheap	1 2 3 4
023	What will you say about the cost of replacing a lost line?	Very expensive Expensive Cheap Very cheap	1 2 3 4
024	Does every member of your family have at least a GSM line?	Yes No	1 2

025	How would you rate your access to GSM services before deregulation?	High Moderate Low	1 2 3
026	How would you rate your access to GSM services after deregulation?	High Moderate Low	1 2 3
027	What services do you utilise your GSM line for?	To make calls only To receive calls only To make and receive calls To send and receive text message To listen to radio To browse internet To play games All of the above Others (pls specify)	1 2 3 4 5 6 7 8 9
028	Is your GSM phone(s) affordable to maintain in terms of purchasing credit cards?	Yes No	1 2
029	How often do you recharge your GSM line?	Always Sometimes Never	1 2 3
030	What is your weekly expenditure on recharge cards?	<NGN500 NGN500-1000 NGN1001- 1500 NGN1501- 2000 NGN2001 and above	1 2 3 4 5
031	What is the average number of calls you receive in a day?	Less than five Five and ten Eleven and sixteen Seventeen and above	1 2 3 4
032	What is the average number of calls you make in a day?	Less than five Five and ten Eleven and sixteen Seventeen and above	1 2 3 4 5
033	What do you utilise GSM services mostly for?	To conduct business To be in touch with friends and relatives To make new friends To browse internet Others (pls specify)	1 2 3 4 5
034	Are there times you switch off your hand set in a day (e.g. when sleeping, when praying, when	Yes No	1 2

	eating)		
035	If yes, why?		
036	If no, why?		
037	How would you rate level of utilisation of GSM services?	Very high High Moderate Low Very low	1 2 3 4 5

SECTION C: Evaluation of the Quality of GSM Services

S/N	Question	RESPONSES AND CODING CATEGORIES	
038	Which GSM network do you have? (You can choose more than one option)	MTN Airtel Globacom Multilinks Etisalat All of the above Others (pls specify)	1 2 3 4 5 6 7
039	Is there GSM network coverage in your area?	Yes No	1 2
040	Does your main GSM network give you clear signal whenever you make calls?	Yes No Not sure	1 2 3
041	Have you ever experienced call drops in your main GSM network?	Yes No Not sure	1 2 3
042	Have you ever experienced network disruption in your main GSM line?	Yes No Not sure	1 2 3
043	Have you ever experienced wrong call destination in your main GSM line?	Yes No Not sure	1 2 3
044	How easy is it to recharge your main GSM line?	Very difficult Difficult Easy Very easy	1 2 3 4

045	How reachable is your main GSM network's customer care?	Very reachable Reachable Never reachable	1 2 3
046	Have you ever contacted your main GSM line Customer Care to complain of anything?	Yes No	1 2
047	If yes, How often do you contact them?	Often Sometimes Rarely	1 2 3
048	How responsive is the customer care of your main GSM network to the complaints of the customers?	Very responsive Responsive Never responsive	1 2 3
049	How easy is it for you to connect to the same network (intra-connectivity)?	Very easy Easy Never easy	1 2 3
050	How easy is it for you to connect to other network (interconnectivity)?	Very easy Easy Never easy	1 2 3
051	How would you describe the quality of your main GSM network?	Very high quality High quality Low quality Very low quality	1 2 3 4

SECTION D: Benefits and Challenges of GSM Services

Please indicate the extent of your agreement with the following statement (kindly tick your answer)

S/N	STATEMENT	Strongly agree	Agree	undecided	Disagree	Strongly disagree
	BENEFITS					
052	With GSM technology, I can make and receive call with ease.					
053	GSM technology has reduced my travelling cost					
054	GSM telecom has made my work very convenient.					
045	GSM Telecom has considerably reduced my cost of living					
056	GSM has improved my knowledge on the use of internet and Information					

	technology					
057	With GSM technology, I can browse various websites to seek for information on wide range of subject.					
058	GSM technology has enabled me to remain in touch with my family members and friends					
059	GSM technology has created jobs for some unemployed youths					
060	Mention other benefits you enjoy from GSM technology					
	CHALLENGES	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
061	GSM technology has encouraged social vices such as cheating, stealing, snatching of handset, kidnapping, extortion etc.					
062	Unregulated use of GSM technology can be a source of nuisance in lecture halls, places of worship, and other public places.					
063	The cost of maintaining GSM technology especially tariff is very high.					
064	With GSM technology, there is widespread of fake accessories such as batteries, chargers, phones etc.					
065	Indiscriminate erection of mast in residential areas may cause health problems on the long run					
066	With GSM technology, unsolicited text messages and calls can cause anxiety on the subscribers					
067	Most often it is difficult to get customer care service to attend to subscriber's complaints.					
068	GSM providers are ripping off unsuspecting subscribers through bogus promos					
069	Call drops, network failure, and wrong call destination can be frustrating when using GSM technology					

070	NCC which came up as result of deregulation is discharging its statutory functions effectively					
071	Mention other challenges you face as a GSM subscriber.					

SECTION E: Government Policy on the use of GSM Services

S/N	QUESTION	RESPONSES AND CODING CATEGORIES	
072	Are you aware there is a body called National Communications Commission (NCC) that regulates the activities of GSM providers in Nigeria?	Yes No	1 2
073	Are you aware that there is a body called Consumer Protection Council (CPC) where a person can report any unsatisfactory services rendered by GSM providers?	Yes No	1 2
074	Have you ever approached CPC for any unsatisfactory services you received from GSM providers?	Yes No	1 2
075	If yes, how was it resolved?		
076	When you are dissatisfied with services from the GSM network you use, how do you react?	Report to appropriate government agencies Keep quiet Use another network Call customer care All of the above Others (pls specify)	1 2 3 4 5 6
077	Are you aware of the ongoing SIM cards registration?	Yes No	1 2
078	Have you registered your lines?	Yes No	1 2
079	If no, why?		
080	By deregulating telecommunications sector, do you think Federal government has done well?	Yes No	1 2
081	Do you think NCC as a government agency is playing its role very well in regulating the activities of GSM providers?	Yes No	1 2
082	If no, why?		
083	Do you think CPC as a government agency is playing its role very well in protecting GSM subscribers from the service providers?	Yes No	

084	Do you think government policy on deregulation of telecommunications sector in Nigeria has benefitted most Nigerians?	Yes No	1 2
085	If no, why?		
086	What do you think should be done by government to make GSM tariffs affordable to most Nigerian GSM subscribers?		

APPENDIX THREE

IN-DEPTH INTERVIEWS FOR GSM PROVIDERS

Age:
Sex:
Marital status:
Religion:
Education:
Position:
Organization:
Number of years of working experience:
Ethnic affiliation:

Introduction

My name is I am a post graduate student of the department of Sociology University of Ibadan, carrying out a study on the topic **Access to, and Utilisation of Global System for Mobile Telecommunications Services among Subscribers in Ibadan**. I solicit your assistance to answer questions contained in this interview series. All the information you will supply shall be treated with utmost confidentiality. You have been purposively selected for this interview. Thus, your name is not required. I will need your consent before I will proceed with the interview.

QUESTIONS

1. How would you describe the business of telecommunications in Nigeria? (**probe**)
2. How would you describe the level of interest shown by subscribers on the registration of SIM card? (**probe**)
3. What is your relationship with other operators in relation to tariff charges? (**probe**)

4. How would you describe the impact of Nigerian Communications Commission (NCC) on your operation? **(probe)**
5. What is the level of your network coverage and who determines its efficiency? **(probe)**
6. How secure are your installed facilities particularly the electronic mast for network coverage? **(probe)**
7. What infrastructural challenges are you facing in your operation? **(probe)**
8. What other services do your subscribers enjoy apart from making and receiving calls? **(probe)**
9. How will you describe government policies on telecommunications? **(probe)**
10. What is the business relationship with regulatory bodies or government agencies/ministry?
 - a. Probe for NCC
 - b. Probe for CPC
 - c. Probe for Ministry of Information and Communication

APPENDIX FOUR

IN-DEPTH INTERVIEWS GUIDE FOR GSM HAWKERS

<p>Age:</p> <p>Sex:</p> <p>Marital status:</p> <p>Religion:</p> <p>Education:</p> <p>Area of operation:</p> <p>Number of years in the business:</p> <p>Ethnic affiliation:</p> <p>Average income per month:</p>
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INTRODUCTION

My name is I am a post graduate student of the department of Sociology University of Ibadan, carrying out a study on the topic **Access to, and Utilisation of Global System for Mobile Telecommunications Services among Subscribers in Ibadan**. I solicit your assistance to answer questions contained in this interview series. All the information you will supply shall be treated with utmost confidentiality. You have been purposively selected for this interview. Thus, your name is not required. I will need your consent before I will proceed with the interview.

QUESTIONS

1. How did you get into this business? (**probe**)
2. How would you describe the business of telecom GSM and its utilisation? (**probe**)
3. What are your views on the quality of network service? (**probe**)
4. Can you describe your mode of operation? (**probe**)
5. Discuss the real benefits of this business? (**probe**)
6. Discuss are the real challenges of this business? (**probe**)
7. How will you describe the use of GSM services for fraudulent activities? (**probe**)
8. What is your view on SIM cards registration mandate by government? (**probe**)
9. What should be done to improve GSM retail business in Nigeria? (**probe**)
10. Based on the modest achievement made in telecommunications sector, do you think government should go ahead to deregulate all other sector?

Probe especially for Power sector

APPENDIX FIVE

KEY INFORMANT INTERVIEWS FOR NCC AND CPC OFFICIALS

<p>Age:</p> <p>Sex:</p> <p>Marital status:</p> <p>Religion:</p> <p>Education:</p> <p>Position:</p> <p>Organization:</p> <p>Number of years of working experience:</p> <p>Ethnic affiliation:</p>

Introduction

My name is I am a post graduate student of the department of Sociology University of Ibadan, carrying out a study on the topic **Access to, and Utilisation of Global System for Mobile Telecommunications Services among Subscribers in Ibadan**. I solicit your assistance to answer questions contained in this interview series. All the information you will supply shall be treated with utmost confidentiality. You have been purposively selected for this interview. Thus, your name is not required. I will need your consent before I will proceed with the interview.

QUESTIONS

1. Describe the mode of operation of your agency?
2. How would you describe your satisfaction with the number of GSM operators and wide accessibility in Nigeria? (**probe**)
3. How can you evaluate the quality of GSM services and its utilisation in the Nigerian economy? (**probe**)
4. Describe your relationship with GSM providers?
Probe for complaints by GSM subscribers
Probe for promos mounted by GSM operators
5. Describe the level of utilisation of this agency by GSM subscribers? (**probe**)
6. What dimensions of regulation has your agency taken to affect telecommunications? (**probe**)
7. How would you describe the ongoing SIM cards registration?
Probe for subscribers' attitude
Prober for GSM providers' attitude
8. Discuss the effort this agency has made in reducing high tariff charge by GSM operators. (**probe**)
9. Discuss the real benefits of GSM operation in Nigeria (**probe**)
10. Discuss the real challenges of GSM operation in Nigeria (**probe**)
11. How would you describe telecommunications sector in Nigeria in the next ten years from now?
Probe for sustainability
Probe for tariff charge
Probe for government intervention
Probe for provision of infrastructure

APPENDIX SIX

TRANSLATED INSTRUMENTS OF DATA COLLECTION (QUESTIONNAIRE AND IN-DEPTH INTERVIEWS)

ASEBERE

Department of Sociology
University of Ibadan
Ibadan Nigeria

Nonba.

Deeti.

Oludahun ibere mi owon,

Mo je akeke imo ijinle lati eka eko ibara eni gbe (sociology university of Ibadan). Mo n se akojopo ise iwadi ti o nii se pelu nini anfani si, ati sise amulo ero alagbeka laarin awon olubara ni agbegbe Ibadan. Mo ro yin lati dahun awon ibeere ti a se ninu iwe yi. Gbogbo idahun yi ni a o se ni bonkel laarin ara wa. Oludahun ibeere ko nilo lati ko oruko re sinu iwe yi. Adupe fun ifowosowopo yin

Emi ni ti yin

Micah Damilola

ABALA "A": Igbaye Gbadun/Oro Aje ati Itankale Re

S/N	IBERE	IDAHUN TI AMI	
001	Kini iseda re?	Ako Abo	1 2

002	Ojo ori (iye odun)?	16-20 21-25 26-30 31-35 36-40 41-45 46-50 51 and above	1 2 3 4 5 6 7 8
003	Ipo ti igbeyawo wa?	Gbeyawo Apon Ituka igbeyawo N da gbe	1 2 3 4
004	Iw kika?	Ile eko akobere Girama Gbogbonse Fasity	1 2 3 4
005	Kin ni esin re?	Esin ibile Musulumi Kirisiteni	1 2 3
006	Owo ti n wole sapo losu?	Din legberun mewa Egberun mewa- egberun ogbon Egberun ogbon ole- egberun Aadota Egberun aadota ole- egberun aadorin Egberun aadorin ole- egberun Aadorun Egberun aadorun ole- egberun aadofa Egberun aadofa soke	1 2 3 4 5 6 7
007	Ise sise?	Iladaani Agbanisise Oluko Oluka giga Iyawo ile Alainise Omo ile iwe Awon ise miran (salaye)	1 2 3 4 5 6 7 8
008	Orirun/Eya?	Yoruba Hausa Igbo Awon miran (salaye)	1 2 3 4
009	Nibo lo n gbe?		

**ABALA "B": IMOLARA ETO ATUNTO IJOBA LORI EKA ERO IBANISORO
ALAGBEEKA**

S/N	IBERE	IDAHUN ATI AMI
-----	--------------	-----------------------

010	N je o ti gbo nipa eto atuntoyi?	Beeni Rara	1 2
011	Lero tire kin ni o mo si eto atunto?		
012	N je o tile mo pe ijoba ti seto atunto yii o to odun mewaa?	Beeni Rara	1 2
013	Se o lee so pe eto atunto yi saafani fara ilu lati je gbadun ero ibanisoro?	Beeni Rara	1 2
014	N je o ti je igbadun eto atunto yi?	Beeni Rara	1 2
015	Oju wo lo fi wo eto atunto ero ibanisoro yi?	Owulo Ko wulo Kan-mi-da	1 2 3

ABALA "C": AMULO ATI BI A TI SE RI ERO IBANISORO ALAGBEKA LO SI

S/N	IBEERE	IDAHUN ATI AMI	
016	N je oni ero alagbeka?	Beeni Rara	1 2
017	Bi o ba je beeni, lati igbawo?	O din lodun kan Odun kan – si meta Odun merin- si mefa Odun meje- si mesan Odun mewa soke	1 2 3 4 5
018	Nibo lo ti r aero alagbekaa re?	Ibudo lie ise elero alagbeka Loju popo Nunu oja Lodo alagbata Lodo awon miran	1 2 3 4 5 6
019	Oju-opo ero alagbeka meloo lo ni?	Okan Meji Meta Merin Ju bee lo	1 2 3 4 5
020	N je o ti so oju-opo re nu ri?	Beeni Beeko	1 2
021	Bi o ba je beeni, n je o rorun lati gba omiran pada?	O nira gan an O nira O rorun O rorun gan an	1 2 3 4
022	Nigba ti o ra oju opo ero alagbeka re, kin ni o lee so nipa iye ti o na o?	O ti won ju O won Ko won Ko won rara	1 2 3 4

023	Kin ni o lee so nipa iye ti o na o lati ra oju opo ti o sonu pada?	O ti won ju O won Ko won Ko won rara	1 2 3 4
024	Se gbogbo awon molebi re lo ni oju opo kookan bi?	Beeni Rara	1 2
025	N je o lee so odiwon anfani ti e n ri lati lo ero alagbeka saaju eto atunto ijoba?	O ga O mo niwon O kere	1 2 3
026	N je o lee so odiwon anfani ti e n ri lati lo ero alagbeka leyin eto atunto ijoba?	O ga O mo niwon O kere	1 2 3
027	Oju se wo ni ero alagbeka e n se fun o?	Lati pe lasan Lati gbe ipe lasan Lati pe ati lati gbe ipe Lati te Leta ateranse, a ti lati gba La ti teti si radio Lati lo si ori ero ayelukara Lati ta ayo Gbogbo ohun ti a so soke yi Awon miran	1 2 3 4 5 6 7 8 9
028	N je o rorun fun o lati ma lo ero ibanisoro alagbeka re bi a ba wo rira kadi sori re?	Beeni Beeko	1 2
029	Bawo lo se maa n ra kaadi si?	Nigbagbogbo leekookan mi kii ra	1 2 3
030	Elo lo maaa n na lose lor kadi rira?	O din leedegbeta naira Eedegbeta- egberun Egberun o le- eedegbejo Eedegbejo o le- egbewa Egbewa o le soke	1 2 3 4 5
031	O n gba to ipe meelo lojo?	O din ni marun Marunun- mewaa Mokanla- meedogun Metadinlogun soke	1 2 3 4
032	O n pe ipe to meloo lojo?	O din ni marun Marunun- mewaa Mokanla- meedogun Metadinlogun soke	1 2 3 4 5
033	Kin ni o maa n lo ero alagbeka re fun ju?	Lati se karakata Lati fi kan so ore ati ojulumo Lati wa ore tuutun	1 2 3

		Lati lo si ori ero ayelujara	4
		Fun nnkan miran (salaye)	5
034	N je ari igba ti o n pe aro alagbeka re (yala lati sun, lati gbadura, nigba ti o n jeun)	Beeni	1
		Beeko	2
035	Bi o ba je beeni, kin ni idi?		
036	Bi o ba je rara, kin ni idi?		
037	So odiwon isowolo ero ibanisoro alagbeka?	Oga gan an ni	1
		Oga	2
		O mo ni won	3
		O lo ile	4
		O lo ile gan an ni	5

ABALA “D”: IGBELEWON BI A TI SERI OJU-OPO AWON ILE-ISE ERO ALAGBEKA LO SI

S/N	IBEERE	IDAHUN ATI AMI	
038	Oju-opo awon ero alagbeka wo lo ni? (o lee mu ju okan lo)	MTN	1
		Airtel	2
		Globacom	3
		Multilinks	4
		Etisalat	5
		Gbogbo won	6
		Awon miran (salaye)	7
039	N je afele oju opo awon ile ise ibanisoro ero alagbeka de adugbo re?	Beeni	1
		Rara	2
040	N je oju opo ero alagbeka re a maa dun ketekete bi o ba n lo o bi?	Beeni	1
		Rara	2
		Mi ko lo so	3
041	N je oju opo ero alagbeka re a deede maa se eemi bi o ba n gba ipe bi?	Beeni	1
		Rara	2
		Mi ko lo so	3
042	N je oju opo ero alagbeka re a deede ma jalura bi o ba n lo bi?	Beeni	1
		Rara	2
		Mi ko lo so	3
043	N je ipe re ti tattaposi oju opo miiran ri?	Beeni	1
		Rara	2
		Mi ko lo so	3
044	Se o rorun lati san owo sori ero alagbeka re?	O nira pupo	1
		O nira	2
		O rorun	3
		O rorun gan an	4

045	N je o rurun fun o lati ba eka olubara ile ise alagbeka re ni iforo-wero bi?	O nira pupo O nira O rorun O rorun gan an	1 2 3 4
046	N je o ti ni idi lati fedun okan re han si eka olubara ile ise ero alagbeka re bi?	Beeni Beeko	1 2
047	Bi o ba je beeni, se ni gbogbo igba ni?	Ni gbogbo igba leekookan kii saaba waye	1 2 3
048	Bawo ni idahun awon ehonu olubara se tete maa n je didahun si lati eka lubara ile ise ero alagbeka re?	Won maa n yara fesi Won n fesi Won kii fesi	1 2 3
049	Bawo lo se rorun fun o lati tete ja si oju opo ero alagbeka re?	O rorun gan an O rorun Ko rorun	1 2 3
050	Bawo lo se rorun fun o lati tete bo si oju opo ero alagbeka miiran?	O rorun gan an O rorun Ko rorun	1 2 3
051	Salaye kikun oju osuwon ile ise ero ibanisoro alagbeka re?	Won kunju osuwon gidi Won kunju osuwon Won ko kunju osuwon Won ko kunju osuwon rara	1 2 3 4

ABALA E: ANFANI ATI IPENIJA OJUSE AWON ILE ISE ERO ALAGBEKA

Jowo fi bi ifowosi re ti se dunle si han nipa awon alaye isale yi (bu owo lu idahun re)

S/N	ALAYE	Mo feremo gidi	Mo feremo	Mi ko le so	Mo takoo	Mo ta koo gidi
	ANFANI					
052	Pelu ero alagbekaa mi, o rorun fun mi lati pe ipe ati lati gba ipe pelu irorun					
053	Ero alagbeka mi ti din inawo irin ajo mi ku					
054	Ero alagbeka mi ti mu idera ba mi leni ise					
055	Ero alagbeka mi ti din inawo igbaye gbadun mi ku					

056	Ero alagbeka mi tit un je ki imo mi lori lilo ero ayelujara tubo tesiwaju					
057	Pelu ero alagbeka mi mo lee lo si ori oniruuru oju opo ero ayelukara					
058	Ero alagbeka mi tunbo je ki n ni ifera kinra po pelu awon iyekan ati ojulumo mi					
059	Imo ero alagbeka ti pese ise fun opo awon odo wa ti ko ni ise					
060	Menuba awon anfani miiran ti o n je mula re pelu imo ero alagbeka					
	IPENIJA	Mo feremo gidi	Mo feremo	Mi ko le so	Mo takoo	Mo ta koo gidi
061	Imo ero alagbeka ti dakun imu gboro awon iwa laabi, bi iyanje, ole jija, jija ero alagbeka gba, jijinigbe, iloni-lowogba.					
062	Ai mojuto ilo ero alagbeka lee je orison laabi ninu gbongan ikoni, ile ijosi, ati ibi igbafẹ ara-ilu					
063	Inawo lilo oju-opo ero alagbeka ti gaju					
064	Pelu imo ero alagbeka ti o gbode o ti faaye gba kiko ohun elo ayederu bii, batiri, saja, foonu, wo ilu					
065	Riri agbada ero alatagba si aarin ibi ti awon eniyan n gbe lee mu akude ba eto ilera awon eniyan bi o ja					
066	Pelu imo lilo ero alagbeka, awon lete ateranse abaadi lee ta atapo si oro ero eni eleni, eyi ti o le mu ifoya ba eni ti o n lo ero alagbeka bee					
067	Lopo igba a maa je inira fun eni ti o n lo ero alagbeka lati baa awon ti n be ni eka olubara ile ise naa soro					
068	Awon ti o ni ile ise ero alagbeka wonyi a maa re awon olubara won je pelu ikede tele oriire ti o fese mule					
069	Ki ipe ja, ki oju opo ise ki ipe ta atapo si ibi ti a ko ran, o lee fi ohun gbogbo su eeyan ti o ba n lo ero alagbeka					
070	Ajo ti n mojuto ile ise ero alagbeka (NCC) eyi tie to atunto ti o de ba ile naa					

	gbe kale n se ojuse won bi ofin ti laa kale					
071	Menuba awon ipenija miiran ti o n koju awon onibaara ile ise ero alagbeka					

ABALA "G": ERONGBA IJOBA LORI LILO ERO IBANISORO ALGBEKA

S/N	IBERE	IDAHUN ATI AMI RE	
072	N je o mo pe ajo kan be ti a n pe ni NCC tii n se kokaari gbogbo ojuse awon ile ise ero ibanisoro alagbeka ni orilede Naijiria yi bi?	Beeni Beeko	1 2
073	N je o mo pe ajo kan n be ti a n pe ni (CPC) ti n daabo bo awon olubara awon ile ise ero alagbeka ni bi ti eniyan ti le lo fi ejo awon isesi ti ko te eniyan lorun ti awon ile ise ero alagbeka n hu sun?	Beeni Beeko	1 2
074	N je o ti lo fi ejo isesi ti ko te o lorun ti awon ile ise alero alagbeka n hu, sun ile ise (CPC) ri bi?	Beeni Beeko	1 2
075	Bi o ba je beeni, se won yaju esun ti o mu lo sodo won?		
076	Bi isesi awon ile ise elero alagbeka ko ba te o lorun, bawo lo se maa n ri lara re?	Lo fejo sun awon ajo ti ijoba gbe kale Dake Lo oju opo miran Pe eka ti n ri si oro olubara ile naa Lo gbogbo ohun ti o wa loke yi Gbe igbese miran (salaye)	1 2 3 4 5 6
077	N je o mo pe akosile kaadi ero alagbeka n lo lowo?	Beeni Beeko	1 2
078	Se o ti se akosile oju opo ti o n lo bi?	Beeni Beeko	1 2
079	Bi o ka bi se be, kin ni idi?		
080	Pelu eto atunto ile ise ero alagbeka ti ijoba se, se ijoba gbe igbese ti o dara bi?	Beeni Beeko	1 2
081	Loju tire se ajo (NCC) gege bi erongba ijoba lati loo fun atunto ile ise yi, se o n se ise re bo ti se ye?	Beeni Beeko	1 2
082	Bi ko ba ri bee, kin ni o faa?		
083	Loju tire se ajo (CPC) gege bi ajo ijoba lati daabo boa awon olubara, se o n se ise re bo ti se ye?	Beeni Beeko	
084	Loju tire se o ro wipe erongba ijoba ti o se eto atunto si eka ile ise ero ibani soro ti mu anfani wa fun awon omo Naijiria?	Beeni Beeko	1 2

085	Bi ko ba ri bee, kin ni o faa?
086	Ki ni o mo ti ijoba lee se lati mu owo ori ipe ero alagbeka di irorun fun awon omo Naijiri?

ATONO IFOROWANILENUWO FUN AWON TI N SE KATAKARA ERO ALAGBEKA

OJO ORI:

AKO N BABO:

IPO TI IGBEYAWO WA:

IWE KIKA:

AAGBON TI O TI N SISE:

ODUN TI O TI LO NIDI ISE:

APA IBI TI O TI WA:

OWO TI N WOLE LOSU:

IFAARA:

Oruko mi ni mo je akekoo imo ijinle tie ka eto eko ni pa ibare-enigbe nile iwe yunifasiti Ibadan. Mo ne se iwadii lori koko yi, **Nini anfani si, ati sise amulo imo ero alagbeka laarin awon lubara ti o wa ni Ibadan.** Mo bebe fun atileyin nipa didahun awon ibeere ti o wa ninu iforo-wani-lenuwo yi. Gbogbo idahun ti e ba fun mi ni a o se ni bonkele laarin ara wa. A moomo yan yin fun eto yi ni, tori idi eyi a ko nilo oruko yin. Mo kan nilo gbigba iyonda lati odo yin, ki n to le tesiwaju ninu iforo-wani-lenu wo mi ni

1. Bawo ni o se de idi ise yi?
2. Bawo ni ose le salaye bi ise ile ise ero alagbeka se ri at amulo re?
3. Kin ni ero re nipa bi oju opo awon ile ise ero alagbeka se dan moran si?
4. N je o lee salaye ona ti o n gba se ise re yi?
5. Kin ni anfani ti ise yi n mu ba o?
6. Kin ni awon ipenija ti o n be ni idi ise yi?
7. Salaye awon ona ti awon eniyan n gba lo ero alagbeka fun ise jibiti lilo?
8. Kin ni ero re nipa eto ti ijoba gbe kale fun awon ti n lo ero alagbeka lati lo se akosile "SIM" kadi won?
9. Kin ni a le se lati je ki owo ero alagbeka tubo tesiwaju?
10. Pelu asejori ti o jeyo ninu eto atunto ile ise ibaraenisoro, n je o lero wipe ki ijoba tesiwaju lati se atunto awon eka ile ise miran bi? Ni Pataki eka ina monamona/amusagbara