

The Revolutionary Years: Nigeria's Telecommunication Industry 2001 – 2011

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Abstract

What happened to Nigeria's telecommunication industry between 2001 and 2011 was indeed a revolution. In terms of geographical coverage, access, quality of service, investments and accruing revenue, the events of the period remains unprecedented. Within a space of ten years, Nigeria was catapulted from a telecom backwater to a leading market in global Information and Communications Technology (ICT). But how did this happen? What triggered it off? Who were the dramatic personas? And what implications did it have on the socio-economic life of the people? The paper attempts to provide answers to these and lots more.

Key Words: Revolution; Telecommunication; Infrastructure; Nigeria; GSM

Introduction

Telecommunication is the transmission of signals over long distances for the purpose of sharing information. It is a vital engine of economic growth and an essential infrastructure that promotes the development of other sectors such as agriculture, education, industry, health, banking, defence, transportation and tourism (Hassan et al 2009). Communication technology as a matter of fact is evidently a major component of the new era of globalization. This is given that knowledge of economic success elsewhere in the world could be a powerful incentive for positive change. Furthermore, telecommunication networks not only promote global information exchange, but also put citizens in touch with each other, their media and their government institutions. They also provide valuable feedback where it is needed (Thompson and Garbacz 2007). Advancement in telecommunications technology is indeed one of the driving forces of globalization and the rapid growth of the world's economy. Evidently, developments in Satellite, optical fibre, mobile technology, the Internet and the World Wide Web have greatly improved global communications and facilitated the exchange of information between different peoples of the world. Technological innovations especially in telecommunication have also reduced communications costs and facilitated the globalization of production and markets (Pun-Lee and Shiu 2010).

It is self-evident that over the past few decades, ICT has succeeded in transforming the world. Its' potential for reducing poverty and fostering growth especially in developing countries have also increased rapidly. Whereas mobile telephones provide market links for farmers and entrepreneurs, the Internet delivers vital knowledge to schools and hospitals, even as computers improve public and private services while increasing

productivity and participation. In fact, by connecting people and places, ICT has played a vital role in national, regional and global development. It also holds enormous promise for the future (The World Bank 2006).

In spite of the foregoing, there is every indication that sub-Saharan Africa has some of the lowest levels of infrastructure investment in the world. And this is against the backdrop of the relevance of infrastructural amenities to economic development and wealth creation. For instance, it is possible that only about 29% of the roads in sub-Saharan Africa are presently paved; barely a quarter of the population has access to electricity, while on the average there may be fewer than three landlines available per 100 people (Aker and Mbiti 2010). The case of telecommunication is even worse. Africa has continued to lag behind in terms of economic development largely due to the absence of reliable telecommunication infrastructure. It is evident that the exploitation of technology, which ushered in the information age, has become the basis for defining power in the modern world. To say the least, no economy can thrive presently without an integral information technology and telecommunication infrastructure. Put differently, access to telecommunication is critical to the development of all aspects of a nation's economy (Ndukwe 2003b).

At the same time, Africa is beginning to show some promise especially in the area of telecommunication infrastructure. A country like South Africa obviously stands out for mention. South Africa evidently has the most developed telecommunication system on the continent with a teledensity of 1 telephone to 2.5 people. With a population of about 43million people, the country has over 5million main telephone lines and more than 11.5million mobile phones in use (Okafor 2007). Recent developments in Nigeria's telecommunication industry also show that sooner than later, the country would equally attain the status of full information driven economy.

Telecommunication became a national development priority in Africa, Asia and Latin America in the 1980s when global attention turned to the growing disparity between the first and third world. In 1984, the International Telecommunication Union (ITU) released its influential *Maitland Commission Report*, condemning the extreme irregularities of telephone access between rich and poor nations. In drawing attention to the fact that two-thirds of the world's population had no access to telephone services, the report offered a new recipe for modernization: an urgent reform of inefficient public monopolies and the transfer of technologies from advanced to developing nations (Chakravartty 2004). The ITU Report argued that telecom should no longer be seen as a luxury for elites, but rather as an essential service that directly leads to economic growth. The World Bank in particular began to promote the liberalization of infrastructure and the privatization and commercialization of services through a series of conferences on telecom reform as well as through direct intervention in national policy formulation and implementation (Chakravartty 2004).

Theoretical Framework

The paper agrees with the general framework of Neoliberalism, an ideology based on the primacy of individualism, market liberalism, entrepreneurship and state contraction, with the central assumption being that competitive, unregulated markets represent the optimal mechanism for economic development. The original argument was in favour of

government taking a leading role in the allocation of investment, thus controlling the commanding heights of the economy and intervening to compensate for market failures. But by the 1970s and early 1980s, several governments in most developing countries were mired down in economic policies that were manifestly unworkable (Krueger 1990). Gradually state interference with market mechanism was considered ineffective, counterproductive and basically inconsistent.

Neoliberals thus argue that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade (Harvey 2005). Hence, the role of the state is to create and preserve an institutional framework appropriate to such practices. It must set up those military, defence, police and legal structures and functions required to secure private property rights and to guarantee by force if need be, the proper functioning of markets (Harvey 2005). As former American President Ronald Regan said to the Annual Meeting of the World Bank in 1983, 'societies that achieved the most spectacular, broad-based economic progress in the shortest period of time have not been the biggest in size, nor the richest in resources and certainly not the most rigidly controlled. What has united them all was their belief in the magic of the market place. Millions making their own decisions in the market place will always allocate resources better than any centralized government planning process' (Peet 2003).

From the early 1980s therefore the views of Neoliberals increasingly favoured limiting the role of the state, creating a liberal economy and instituting a strict monetary policy according to the guidelines of the International Monetary Fund (IMF) and the World Bank as the major policy options especially for the several third world countries that were already enmeshed in deep financial crisis. It was against this background that several of these countries including Nigeria embraced policies, which favoured deregulation and privatization of state enterprises.

Nigeria's Telecommunication Infrastructure at the Beginning of the 21st Century (2000)

Most of Africa, as we earlier highlighted could be termed backward, perhaps with the little exception of South Africa, in terms of telecommunication infrastructure up till the end of the 1990s. For instance, as late as 1999, only 10% of Africa's population had mobile phone coverage, primarily in North Africa (Algeria, Egypt, Libya, Morocco and Tunisia) and South Africa (Aker and Mbiti 2010).

Nonetheless, the development of telecommunication facilities in Nigeria began in 1886, when a cable connection was established between Lagos and London by the colonial administration. Subsequently, from 1893 government offices in Lagos were provided with telephone service, which were later extended to Ilorin and Jebba in the hinterland (Bakare 2011). Following from this, 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. This was later extended to Oshogbo, Kaduna, Kano, Benin and Enugu, thus connecting the colonial office in London with the commercial centres in Nigeria (Bakare 2011). It must be noted however, that the establishment of telecommunication services in Nigeria was mainly to facilitate

colonial administration. For instance, the introduction of public telegraph services linking Lagos by submarine cable along the west coast of Africa to Ghana, Sierra Leone, and Gambia and on to England was a greater priority than a local robust telecommunication network (Ijewere and Gbandi 2012).

In any case, services were initially primitive and uncoordinated, even as the pegboard switching system was principally used. Later, manual switch boards of different sizes, shapes and capacities were adopted until stronger exchanges were installed into the national network at Lagos Island, Ikeja, Ebutte Meta, Apapa and Port Harcourt between 1955 and 1960 (Bakare 2011). At independence in 1960, the colonial government bequeathed about 18, 724 telephone lines. The population of Nigeria then was estimated to be 42.7million people translating to a teledensity of 0.044% (Ndukwe 2011). The telephone network also consisted of 121 exchanges of which 116 were of the manual (magneto) type and only 5 were automatic (Bakare 2011).

Between 1960 and 1985, telecommunication services became commercialized. Thus, the old Department of the Post and Telegraph (P&T) under the Ministry of Communication became separated and the Nigeria External Telecommunications (NET) was created to take care of external telecommunication services, while the old P&T handled internal network. It is equally on record that the early telecommunication development policies of the country were largely influenced by political, administrative and military actions. A major attainment in the development of telecommunication services in Nigeria at this period came with the 3rd National Development Plan (1975 – 1980), which specifically targeted significant improvements in capacity and infrastructure in telecommunications. In fact, arising from the extra income accruing from the country's 'Oil Boom' caused by the rise in world oil prices following the middle East crisis, heavy investments were to be made into the industry. Specifically, government allocated about \$5.5billion for telecommunication infrastructure. The goal was to provide services to all cities and increase the number of telephone lines to about 750, 000 lines, before the end of the 1970s. Unfortunately, this target was never met owing to lack of manpower, interoperability of different technologies adopted and large scale corruption, which saw a lot of the funds, allocated being misappropriated (Ajibola 2005: 31).

By January 1985, the erstwhile P&T divisions merged with NET to form the Nigeria External Telecommunications Limited (NITEL), a government owned Limited Liability Company. The objective for establishing NITEL was to harmonize the planning and coordination of the internal and external communication services, rationalize investments in telecommunications development and provide accessible efficient and affordable services (Ajibola 2005). Also by this period (1985), the installed switching capacity was about 200, 000 lines as against the planned target of about 460, 000. Moreover, all the exchanges were analogue even as the quality of service was unsatisfactory. To say the least, the entire telecommunication system was unreliable, congested, expensive and customer unfriendly (Ijewere and Gbandi 2012). Up to 1987, the installed capacity of Nigeria's telecommunication industry was 400, 000 lines. There were 205, 000 connected lines, while the range of services included fixed telephone, telegraph, telex (and gentex) and payphone (Ndukwe 2003a).

However the 1990s recorded some positive developments in the industry in various parts of Africa and Nigeria in particular. These changes were the result of two main reasons. First, technology got progressively more powerful, mainly due to increasing convergence of telephone, computer, cellular phone network and the Internet; and secondly, these technical innovations coincided with far reaching transitions towards democracy and free market economy, with the latter putting new emphasis on competition and private sector participation. Thus, state-centred development strategies were gradually being replaced by open market systems, partly due to poor performances of the former, and partly as a result of external pressure from the donor community (Nielinger 2004). Major fallout of these developments was the commercialization in 1992 of Nigeria's NITEL, preparatory to its full privatization. Also in October 1992, analogue mobile phones were introduced in the country.

Furthermore, government through Decree Number 75 of November 24, 1992 established the Nigerian Communication Commission (NCC) charged with the responsibility of regulating the supply of telecommunications services, promoting competition and setting performance standards for telephone services in the country. The Decree also liberalised the industry, thus opening it up for private sector participation. The Commission by the Decree was empowered to create and regulate the environment for the supply of telecommunication equipment and facilities; facilitate entry into the market by private entrepreneurs; and, promote fair competition and efficient market conduct among players in the industry. It is important to note that Decree 75 of 1992 specifically separated the policy making body of the sector from the industry regulator and network operators/service providers. The new NCC according to the Decree was to be headed by a Board of nine Commissioners, comprising a Chairman, an Executive Vice Chairman/Chief Executive Officer, two Executive Officers and five non-executive Commissioners.

Following from this, licensing of network operators/service providers began in 1996 although NITEL still retained monopoly over voice telephony in National Long Distance; International Long Distance; and, Mobile Telephony. In spite of these developments, private investment in the sector as at 1999 amounted to about USD50million with huge unmet demand. For instance, there was an average of 1 telephone line to 250 inhabitants; about half of the functional connected lines were held by government organizations and corporate bodies; with an estimated 4million lines in suppressed demand (Ndukwe 2003a). Moreover, telephone lines in this period were concentrated in select urban centres even as Nigeria's teledensity ranked better than only those of Afghanistan and Mongolia. There was also a weak infrastructure base and poor quality of service characterised by: low call completion rates ('all trunks are busy, please try again later'); billing inaccuracy – usually overstated with two common alternatives, pay or forfeit the line (Ndukwe 2003a). In fact, prior to commercialization, NITEL operated as a very inefficient monopoly grappling with lack of clear policy direction, counter-productive bureaucratic red tape and a myriad of other problems. These problems led to suboptimal performance in all spheres of its operations; from inadequate infrastructure to very low quality of customer service (Afeikhena 2002: 5).

Records also show that between 1996 and 1999, about 23 digital mobile licenses were issued out to various companies to provide services, but none of them succeeded in

rolling out service. Some had problems having operating licenses without frequencies, while others were mere hustlers, who got their licenses due to closeness to government officials at the time, but lacked the finance and the wherewithal to actualize the licenses they were awarded (Ndukwe 2011). In all, by 1999, Nigeria had only 400, 000 connected telephone lines and just 25, 000 analogue mobile lines. The country's total teledensity also stood at a paltry 0.4 lines per 100 inhabitants. Connection costs were prohibitively high (as much as N60, 000 for an analogue mobile line), while waiting time could run into years (Ndukwe 2003b). It was also estimated that there were over 10million people on the waiting list of NITEL, who had applied for telephone lines. Nigeria's case was indeed peculiar in the sense that given its population and resources, it should have performed better.

Compare Nigeria for instance with South Africa. Although analogue cellular service was introduced almost simultaneously in the mid 1980s in South Africa and Nigeria, while Nigeria had just about 25, 000 analogue cellular mobile lines by the beginning of year 2000, with services covering less than 20% of the country's geographical area, South Africa already had two GSM (Digital Mobile) operators with total installed base of about 3million digital mobile lines covering over 80% of the country. In fact, South Africa was at the time home to 90% of the continents cellular subscribers (Ndukwe 2011). But this may not be surprising given that government policy up till this period seemed to have regarded communication and in particular telephone as luxury. Little wonder, it was mainly a status symbol, indeed something for the rich and affluent in society. Many will easily allude to a statement by a former Nigerian Communication Minister at this period that 'telephone is not for the poor'.

The Years of Reform

Considering the transformation witnessed in Nigeria's telecommunication sector between 2000 and 2011 and given that a revolution could be described as a radical and abrupt change of circumstances or system, perhaps no better word than revolution could best describe what happened in Nigeria's telecommunication industry in the period 2001 - 2011. From the position of a backbencher, the telecommunication industry in Nigeria was suddenly catapulted to national and international limelight. Within a space of ten years, Nigeria became the largest and fastest growing telecoms market in Africa and among the ten fastest telecoms growth markets in the world, an indication of its robustness to return on investments. From a private sector investment of about \$50million in 1999, when the reform process started, the telecoms industry in Nigeria had by the end of 2009 attracted more than \$18billion in private sector investments, including foreign direct investments (FDI). More than N300billion had been injected into the coffers of the federal government through frequency spectrum sales, thus enabling government to plough back revenues earned from the sector for provision of development infrastructure at other levels of government (Juwah 2012).

TABLE 1: MOBILE-CELLULAR TELEPHONES PER 100 INHABITANTS, 2001 – 2011

COUNTRY	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
COTE D'IVOIRE	4.31	5.98	7.34	9.44	13.04	22.18	40.05	55.03	68.14	79.03	86.42
EGYPT	4.06	6.41	8.11	10.49	18.37	23.82	39.11	52.71	69.44	87.11	101.08
GHANA	1.24	1.92	3.86	8.03	13.28	23.49	33.48	49.73	63.42	71.49	84.78

NIGERIA	0.21	1.21	2.37	6.71	13.29	22.55	27.49	41.81	48.24	55.10	58.58
SOUTH AFRICA	23.77	29.78	36.16	44.13	71.06	82.06	86.60	91.24	93.34	100.48	126.83
INDONESIA	3.02	5.34	8.34	13.51	20.64	27.05	40.17	59.83	68.94	88.08	97.72
MALAYSIA	30.82	36.93	44.39	57.10	74.88	73.21	86.31	100.77	107.85	119.22	127.04
THAILAND	11.82	15.73	33.39	41.44	46.68	60.53	78.14	90.58	95.99	103.62	113.16
PHILIPPINES	15.40	19.08	27.35	39.24	40.66	49.21	64.68	75.54	82.43	85.67	91.99
VIETNAM	1.57	2.36	3.37	6.03	11.54	22.47	52.96	87.11	113.03	127.00	143.39

Source: International Telecommunication Union (ITU) Database

As Table 1 above shows by the end of 2011, Nigeria was already competing effectively with other developing nations in terms of mobile teledensity. In fact, the GSM handset was available in almost every Nigerian palm, pocket, handbag, office, party, school, beer palour, and news room, even as the average artisan, student, shopkeeper and mechanic had one securely tucked inside his breast pocket. Also, in a space of ten years, the sector recorded phenomenal growth both in terms of subscriber base and infrastructural development. Ownership of telephone lines equally became completely democratised. By the end of August 2011, the active subscriber base was 92.1million (65.8% teledensity). But this growth was also made possible through the injection of about \$18billion of private investment in license fees, building infrastructure, development of local manpower and empowerment of local companies that provide support services (Ndukwe 2011).

TABLE 2: FIXED TELEPHONE SUBSCRIPTIONS PER 100 INHABITANTS, 2001 – 2011

COUNTRY	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
COTE D'IVOIRE	1.74	1.89	1.36	1.45	1.43	1.48	1.33	1.88	1.46	1.44	1.33
EGYPT	9.72	11.11	12.22	13.09	14.12	14.41	14.59	15.13	12.94	11.86	10.56
GHANA	1.25	1.37	1.41	1.48	1.49	1.61	1.66	0.62	1.12	1.14	1.14
NIGERIA	0.47	0.54	0.67	0.75	0.87	1.18	1.07	0.87	0.96	0.66	0.44
SOUTH AFRICA	10.85	10.53	10.34	10.27	9.89	9.60	9.28	8.77	8.68	8.43	8.18
INDONESIA	3.34	3.54	3.63	4.62	5.94	6.45	8.40	12.93	14.66	17.06	15.94
MALAYSIA	19.65	19.05	18.24	17.37	16.73	16.33	16.08	16.41	16.19	16.10	14.70
THAILAND	9.47	10.14	10.15	10.31	10.55	10.51	10.36	10.83	10.49	10.02	9.67
PHILIPPINES	4.20	4.11	4.06	4.10	3.94	4.17	4.44	4.52	7.40	7.27	7.15
VIETNAM	3.83	4.88	5.41	12.31	-	10.19	13.13	17.18	20.05	16.36	11.46

Source: International Telecommunication Union (ITU) Database

Indeed the transformation was taking place both with the mobile and land lines as Table 2 above shows. From a paltry 0.47 lines per 100 inhabitants in 2001, the figure had risen to 0.66 in 2010 before going down to 0.44 in 2011. Again this was not surprising since many seemed to prefer the efficiency and convenience attached to the mobile lines.

Also by this period, majority of the country's major highways had already been covered by mobile signals, several rural communities had access to one form of telecom service or the other; the law enforcement communities had the necessary tools to keep in touch with their bases; medical practitioners had their work facilitated by telecom services; as both small and large scale businesses were empowered by vital information and communication technology (ICT) tools (Ndukwe 2011). Even more remarkable was the fact that, pre-2001, the cost of M-Tel (NITEL's Mobile Subsidiary) analogue mobile services was over N60, 000 per line. In 2001, the GSM subscription started with a price of N20, 000 per line but by 2011 the price had fallen to zero. Similarly, calls to GSM lines, which started in 2001 at N50 per minute had by 2011, fallen to as low as N12 per minute even to some international destinations.

Table 3: Annual Subscriber Data 2001 and 2011

Operator	2001	2011
Mobil (GSM)	266, 461	109, 822, 964
Mobile (CDMA)	N/A	12, 687, 645
Fixed Wired/Wireless	600, 321	2, 290, 409
Total	866, 782	124, 801, 018

Source: NCC Database

Of course, the growth figures as the data above indicates was tremendous. Growing the total telephone subscribers from 866, 782 in 2001 to 124, 801, 018 in 2011, cannot be considered an easy feat. But, how did this happen, what triggered this growth and who were those behind it? It is to these aspects that we will now focus.

Nigeria's new civilian administration, which assumed office on May 29, 1999, under the leadership of President Olusegun Obasanjo apparently convinced on the relevance of telecommunication as a vital tool for economic development and an essential infrastructural component that promotes the development of other sectors decided to accord the sector, the attention it truly deserved. Little wonder, why it immediately set up a committee to draw up a telecommunication policy for the country. The outcome of that effort was to be later reviewed by yet another Committee, the Telecommunication Sector Reform Implementation Committee (TSRIC). It was this second Committee that eventually produced an updated National Telecommunication Policy (NTP), which was then approved by the Federal Executive Council and subsequently released to the public in September 2000.

The highpoint of the policy was the blueprint for full liberalization of Nigeria's telecommunication industry. The NTP also empowered the Nigerian Communication Commission (NCC) as the independent regulator to issue licenses and perform other regulatory functions as may be consistent with its mandate to promote the development of Nigeria's communications industry as well as the protection of consumers. Subsequently, a new Board was appointed for the NCC in February 2000, with Alhaji Ahmed Joda, a seasoned administrator and retired federal permanent secretary as Chairman and Engr. Ernest Ndukwe as Executive Vice Chairman / Chief Executive Officer.

The first major assignment undertaken by the new Board was to grant Licenses for mobile communication for the industry. In cognizance of the prevailing political history of Nigeria at the time and in particular the scepticism of the international business community about issues relating to transparency and corruption, the government in March 2000 decided to adopt the auction process in issuing the new mobile licenses. Auctions were seen as the most efficient mechanism for assigning the licenses on the assumption that only the best bidders with the best business plans will value it most highly and hence will be more successful at the auction. It was against this background that the NCC in June of that year appointed Spectrum International (UK) as principal Consultants for the proposed GSM Auction (Ajibola 2005: 35).

Auction for the first three Digital Mobile Licenses (DML), took place early in 2001. Three operators, ECONET, a consortium of Zimbabwean and some Nigerian businessmen; MTN, a South African mobile company; and, Communications Investment Limited (CIL), a Nigerian company, emerged successful in the bidding process with the bid price of \$285million each, for a 15year operating license and a 5year exclusivity period. The fourth license was reserved for the incumbent operator NITEL and its mobile subsidiary M-TEL, which also paid \$285million for the license. Each licensee was required to achieve a subscriber base of at least 1.5million lines by the end of the 5year exclusivity period. CIL was to later forfeit its license after failing to pay the fee within the mandatory deadline (Ndukwe 2011).

The GSM Auction process was hailed as being a great success and the Nigerian government raised about \$855million from the process, an amount said to be unprecedented in Africa Telecommunication licensing history, and this finally opened the door for full private sector participation in the industry. It is noteworthy that the methodology of the NCC auction of the GSM licenses drew global applause because of its transparency, hence it was an added value particularly for a country just coming out of military rule. This singular action acclaimed both locally and internationally became a key to the communications revolution that paved the way for what has been attested as high level of transparency associated with the exercise. There is no doubt that it was this initial transparent manner exhibited by the NCC that laid the foundation for how the other licensing auctions were to follow, including that of the Second National Operator (SNO), which was granted to GLOBACOM; Fixed Wireless Access (FWA) licenses approved for 24 companies on regional basis; the Unified Access Services Licenses (UASL) awarded to over ten telephone companies; and, the third generation (3G) Licenses granted to four companies. The NCC on August 30, 2002 eventually awarded the Second National Operator (SNO) Licence to GLOBACOM limited, a wholly Nigerian company, at the bid price of \$200million. This particular license was a multiservice package made up of National Carrier, as well as Digital Mobile and International Gateway Licenses, essentially to enable competition at all levels of the telecommunication market.

In order to deepen mobile penetration and especially to ensure the simultaneous growth of both the mobile and fixed line segments, a number of private telecom operators (PTOs), were further licensed in 2002 to operate fixed telephony services in different parts of the country. This was done to broaden access and encourage competition in the industry (Ndukwe 2011). These activities increased and promoted competition in the industry, resulting in exponential growth in the number of telephone lines. In fact, whereas the number of connected lines grew at an average of 10, 000 new lines per annum in the four decades between independence in 1960 and the end of 2000, by 2003 an average growth of 1million lines per annum had been attained. And by September 2003, Nigeria had attained over 3million lines (2.3million of which were digital mobile lines). Total teledensity, which had been just 0.4lines per 100 inhabitants in 1999, had also risen to 2.6 per 100 inhabitants by September 2003. Along with this growth in lines also came a boom in private sector investments in the telecommunication sector. Investors pumped in US\$2.55billion into the sector by June 2003. This represented a phenomenal 5000% increase in investment from just \$50million at the end of 1999 (Ndukwe 2003b).

A major turning point in the revolutionary history of Nigeria's telecommunication industry came on July 8th 2003, when President Olusegun Obasanjo signed into law the Nigerian Communications Act, which further strengthened the capacity of the NCC to properly carry out its activities as the independent regulator of the industry. Many had observed that the enabling Decree 75 of 1992, which set up the Nigerian Communication Commission (NCC), had several inadequacies, which hindered its effective operation as an independent regulator. These include: denying the NCC the legal right to control the existing player, which at the time even had no valid operating license for its network; spelling out the role without stating how the NCC was to facilitate private sector participation in the industry; and, denying the NCC the power to resolve the problems of interconnectivity between various operators. These inadequacies became even more pronounced after the deregulation policy came into effect. It was because of these that the Telecommunications Act of 2003 was enacted, which now gave full regulatory powers to the NCC and thus addressed the observed inadequacies (Ajibola 2005: 34).

The Act among other things provided for the repeal of the NCC Decree of 1992; reform of the NCC as an independent regulatory body for the country's telecommunication industry; and, establishment of a National Frequency Management Council (NFMC) within the Federal Ministry of Communications with the responsibility for the planning, coordinating and bulk allocation of radio spectrum in the interest of efficiency, transparency and accountability (Ajibola 2005: 34).

However, as progress was being made, challenges also began to emerge especially for the operators. For instance, the continued deterioration of public power supply, now forced operators to primarily support each of their base stations with at least two power generators to ensure uninterrupted power supply. There were also security challenges, as telecommunication equipment was constantly vandalized. Others include theft of equipment; transmission cable cuts; delays in securing approvals for sites for new base stations; harassment by some government agencies especially at the state and local government levels etc.

Nevertheless, these challenges were not enough to retard the growth of telecommunication services in the period. In fact at the expiration of the five-year exclusivity period, several companies enthusiastically applied for and were issued with Unified Access Service Licenses (UASL). Apart from the wireless licenses for mobile and fixed services, several companies were also licensed for National and International Long Distance Transmission Services. This further facilitated the spread of telephone services across the country within the period. It is on record that by 2005, new telephone handsets were available in Nigeria for as little as N6, 000, depending on the brand, the model and the complexity of the features offered on the phone. The price of Sim-Cards had also declined dramatically with companies sometimes even offering them free as part of market promotions.

In 2007, some spectrum slots especially in the 900MHZ band were offered to the market, which was won by a new company, Visafone. Another major milestone achieved in the industry at this time was the launch of the first African Communication Satellite (NigComSat1) in April 2007. The State Accelerated Broadband Initiative (SABI) and the National Rural Telephony Programme (NRTP) were among the various government

efforts aimed at making ICT accessible to all Nigerians. It was expected that through the NigConSat1, the country would create jobs, save millions of dollars in foreign exchange annually, provide Internet access to remote areas and specifically help tele-education, which was designed to facilitate distant learning (Bubou 2011).

Also, to further increase competition especially following the end of the initial 5year exclusivity period granted to the earlier operators, NCC early in 2008 awarded a fifth Mobile License to Emerging Market Telecommunication Services Limited. This was followed in May 2009, by another spectrum auction for Slots in the 2.3GHZ band, which was won by two companies, Spectranet and Mobitel respectively (Ndukwe 2011). It is instructive that prior to the launch of GSM services in 2001, several companies had launched commercial services based on the CDMA technology. Thus, Nigeria's telecom revolution was characterised by the CDMA technology developing side by side with the GSM. And just as Nigeria currently has the largest number of GSM connections on the continent, it is also true that the country equally has the largest number of CDMA connections in Africa (Ndukwe 2011).

In fact, by 2011, Nigeria had progressed from a telecom dark age to a telecom revolution that had opened immense possibilities and frontiers across the business, political, social and economic landscape of the country. The GSM in particular has led to improvements in efficiency and productivity, reduction in transaction costs, increased service innovation and better quality of life. Also, several people had been directly employed by the GSM Operators, even as a greater number were benefitting from indirect employment generated by the operators. The revolution in particular, had also birthed a new class of entrepreneurs who might otherwise have never been employed. These include the nationwide network of dealers, vendors, accessory sellers and the ubiquitous 'umbrella-stand' call centres.

The revolution in Nigeria's telecommunication sector is obviously an example of the impact of investment in infrastructural development, brought about by government's liberalization of the sector, which enabled the opening up of the sector to private investment. The market reform particularly helped to accelerate investment flow into the sector resulting in the rapid roll out of multifarious communication services (Tooki 2011). Thus, in the ensuing eleven years from 2000, the NCC licensed several Digital Mobile Operators, Fixed Wireless Access Operators, Long Distance Operators, Internet Service Providers, a Second National Carrier and Unified License Operators. And these have had the collective effect of ensuring full competition in all segments of the telecoms market. They have also had the effect of promoting rapid development of telecom services, resulting in exponential growth in the number of telephone lines in Nigeria (Tooki 2011).

It is especially noteworthy that the sector has become the largest generator of foreign direct investment to Nigeria after the oil and gas industry. A few International Agencies and Institutions have also invested in companies operating in the industry. For example, the International Finance Corporation (IFC) is known to have loaned NGN61, 078million (USD\$395million) to MTN Nigeria. This has been the IFC's second largest investment in any African country thus far. Other international finance institutions that have invested in the Nigerian telecommunications sector include the Export-Import Bank of the United

States, the African Development Bank (AfDB) and the Development Bank of Southern Africa (www.africagoodnews.com).

In spite of the tremendous progress made within this period, there are still a number of flaws in the system. For instance, although the use of GSM and mobile phones has been widespread, there has not been corresponding development of landlines and its associated services such as faxes in the industry. Secondly, although NITEL was set up for privatisation in 1995, the company is yet to be fully privatised due to difficulties in securing a takeover, including non-clarity of takeover terms and general/poor management. The fate of NITEL as at now is still in limbo (www.africagoodnews.com). In addition, there is the shortage of trained and qualified manpower. The country still lacks the skills and competences to understand the complex linkages of wireless networks, fibre optics, satellite systems, computer to computer networks, Internet webs and host of other telecommunication technologies.

Conclusion

What happened in Nigeria's telecommunication industry in the years 2001 – 2011 remains unprecedented not only in the country's economic history but also that of Africa. Thanks to several factors including government sector reforms; enabling investment climate; strong and committed leadership; the worldwide trend of rapid economic development in Information and Communication Technology (ICT); and, the huge potential of the Nigerian market; the Nigerian telecommunication sector has been transformed within a short period of ten years into a leading destination for telecommunications infrastructure in the global telecommunication market.

But more importantly, the events of the period especially show the ingenuity of the emergent African entrepreneur, who once convinced in a cause, is ever ready to pursue it to its logical conclusion. No doubt, the leadership of the Nigerian Communication Commission (NCC) during the reform years showed exemplary leadership with high sense of transparency and accountability. This was the motivating factor for the success of the reform. But perhaps, greater commendation should also go to the civilian administration of the country at the time, for providing the necessary political will, devoid of the previously known interference and manipulations without which not much would have been achieved. Of course, the highest glory belongs to everybody who was part of this success story called Nigeria's telecommunication revolution.

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