
TELECOMMUNICATION SECTOR TRANSFORMATION IN NIGERIAN

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ABSTRACT

The purpose of this paper is to construct a vision of Nigeria telecommunication sector for the year 2030 that is about two decades from now. Development being a continuous process, the choice of the year 2030 is just an arbitrary division of time, a pre-defined time horizon to take stock of what is likely to be achieved. Process of change is often volatile and responsive to intervention and global circumstances impacting it. In such an inherently dynamic situation, it is convenient to assume that cross-country experiences incubate the most recent seeds of change. This is because countries at various stages of development encapsulate developmental experiences that occur with the passage of time. The agents of change, as observed from international perspective, have been broadly categorized into economic structure, competition policy and technology. Economic reforms and liberalization have driven telecommunication sector through several transmission channels of which these three categories are of major significance.

INTRODUCTION

Nigeria - officially the Federal Republic of Nigeria - is a country in West Africa and the most populous country on the African continent. Nigeria shares land borders with the Republic of Benin in the west, Chad and Cameroon in the east, Niger in the north, and borders the Gulf of Guinea in the south. Since 1991, its capital has been the centrally-located city of Abuja; previously, the Nigerian government was headquartered in Lagos. The transformation of Nigeria's telecommunications landscape since the licensing of three Global System for Mobile communication (GSM) networks in 2001 and a fourth one in 2002 has been nothing short of astounding. The country continues to be one of the fastest growing markets in Africa with triple-digit growth rates almost every single year since 2001. It passed Egypt and Morocco in 2006 to become the continent's second largest mobile market after South Africa. However in 2011, it became the continent largest mobile market. And yet it has only reached about one quarter of its estimated ultimate market potential. Declining ARPU levels, however, are weighing heavy on the sector, as is the new unified licensing regime introduced in 2006, designed to increase competition between fixed and mobile network operators.

Telecoms Reforms and Performance

Nigeria, like many other countries of the world, have adopted a gradual approach to telecommunication sector reform through selective privatization and managed competition in different segments of the telecommunication market. Nigeria is one of the biggest and fastest growing telecom markets in Africa, attracting huge amounts of foreign investment, and is yet standing at very low levels of market penetration. The telemobile sector, shared by four main operators namely Globacom, MTN, Airtel and Etisalat has seen triple-digit growth rates every year since competition has been introduced. A national long-distance operators

have been licensed as well as over 50 other companies providing virtually all kinds of telecommunication and value-added services. Major events in 2006 include the conclusion of the twice stalled privatization of Nitel, the incumbent telecommunication company and a new unified licensing regime designed to increase competition between fixed and mobile network operators. Despite asymmetry initial market endowments between public sector incumbents and private operators, the act of opening up of the market unleashed dynamism that was hitherto latent in the sector. This is evident from a number of performances as indicated in terms of overall size of mobile telephone subscribers.

Table 1: **Some Countries in the world in terms of number of mobile telephone subscribers**

Country	2001	2006	2011
Argentina	6,741,791	31,510,390	55,000,000
Brazil	28,745,769	99,918,621	242,231,503
Bulgaria	1,550,000	8,253,416	10,475,083
Burkina Faso	76,186	1,016,605	7,682,100
Cameroon	417,295	3,135,946	10,486,614
Canada	10,649,000	18,749,100	25,858,318
Côte d'Ivoire	728,545	4,065,421	17,416,379
Croatia	1,755,000	4,395,200	5,115,140
Denmark	3,960,165	5,828,157	7,047,000
Egypt	2,793,800	18,001,106	83,425,145
France	36,997,400	51,662,000	66,300,000
Gabon	150,000	897,987	1,800,000
Gambia	55,085	404,345	1,581,000
Germany	56,126,000	85,652,000	108,700,000
Ghana	243,797	5,207,242	21,165,843
Iceland	248,131	301,922	344,085
India	6,540,000	166,050,000	893,862,478
Indonesia	6,520,947	63,803,015	236,799,493
Israel	5,500,621	8,403,765	9,200,000
Italy	51,246,000	80,418,000	92,300,000
Jamaica	597,826	2,274,650	2,974,715
Japan	74,819,158	99,826,000	129,868,418
Kenya	600,000	7,340,317	26,980,771
Malaysia	7,385,000	19,463,722	36,661,261
Mali	23,997	1,512,948	10,821,930
Mexico	21,757,559	55,395,461	94,565,305
Morocco	4,771,739	16,004,731	36,553,943
Niger	2,126	483,000	4,339,867

Nigeria	266,461	32,322,202	95,167,308
Saudi Arabia	2,528,640	19,700,000	53,705,808
Senegal	301,811	2,982,623	9,352,868
South Africa	10,787,000	39,662,000	64,000,000
Switzerland	5,275,791	7,436,157	10,017,000
Togo	95,000	708,000	3,104,839
United Kingdom	46,283,000	70,077,926	81,612,000
United States	128,500,000	229,600,000	331,600,000
Zambia	121,200	1,663,328	8,164,553
Zimbabwe	314,002	849,146	9,200,000

From world comprehensive chart in which Fig 1.0 is extracted, Nigeria rank 99th position in 2001, 22nd position in 2006 and 11th position in 2011 as the largest mobile telephone subscribers in the world. The equivalent tele-densities for various countries are computed in Table 2.0 using equation below.

$$T = \frac{\sum S}{\sum P} \times 100$$

where,

T = Tele-density

ΣS = Total country mobile subscribers per year.

Σp = Total country population per year.

Table 2: Number of mobile telephone subscribers per 100 inhabitants.

Country	Tele-densities		
	2001	2006	2011
Argentina	18.07	80.75	134.92
Brazil	16.25	53.16	123.18
Bulgaria	19.50	107.33	140.68
Burkina Faso	0.60	6.95	45.27
Cameroon	2.60	17.47	52.35
Canada	34.39	57.46	75.28
Côte d'Ivoire	4.31	22.18	86.42
Croatia	39.16	99.13	116.37
Denmark	73.94	107.08	126.46
Egypt	4.06	23.82	101.08
France	62.29	84.17	105.03
Gabon	11.87	64.27	117.32
Germany	68.13	103.78	132.30

Ghana	1.24	23.49	84.78
Iceland	87.37	100.30	106.08
India	0.61	14.35	72.00
Indonesia	3.02	27.75	97.72
Israel	89.71	124.41	121.66
Italy	89.59	136.11	151.84
Jamaica	22.96	84.36	108.12
Japan	59.43	78.94	102.67
Kenya	1.87	20.09	64.84
Malaysia	30.82	73.21	127.04
Mali	0.21	11.13	68.32
Mexico	21.47	51.37	82.38
Morocco	16.38	52.13	113.26
Niger	0.02	3.59	27.01
Nigeria	0.21	22.55	58.58
Saudi Arabia	12.23	79.44	191.24
Senegal	3.09	26.70	73.25
South Africa	23.77	82.06	126.83
Switzerland	73.19	99.57	130.06
Togo	1.93	12.80	50.45
United Arab Emirates	60.62	118.37	148.62
United Kingdom	78.32	115.76	130.75
United States	45.00	76.64	105.91
Zambia	1.16	14.16	60.59
Zimbabwe	2.50	6.78	72.13

]Table 2.0 indicates that despite phenomenal achievement in terms of network expansion, the size of the population is responsible for Nigeria's low tele-density. A comparison between Table 1 and Table 2 reveals that countries with smaller network sizes than Nigeria are having much higher tele-densities. However, in terms of total tele-density, that is the sum of fixed-lines and mobile subscribers per 100 inhabitants, Nigeria's comparative ranking in the world improved from 185th in 2001 to 147th in 2006 and 155th in 2011 and improvement by 38 positions between 2001 and 2006 while a decline by 8 position between 2006 and 2011. Nevertheless, closing the digital divide in terms of tele-density remains a daunting task. In order to attain the network size of USA in 2030, Nigeria, has to expand its number of operational telephone lines at a compound annual growth rate (CAGR) of 25.23 per cent between 2013 and 2030. The corresponding growth rates to reach United Kingdom and Japan's levels are 26.06 per cent and 17.63 per cent respectively. Even that is not going to mean much in terms of tele-densities in comparison to most of the countries cited in Table 2.

Assuming no change in Nigeria's size of population (i.e., assuming population size to remain at 2011 level of 162.47 billion), Nigeria's tele-density will be 67 lines per 100 people even if her network size reaches the level of USA. Understanding telecom growth prospect would require understanding of the sources of growth - what accounts for cross-country differences in growth experiences. Countries do differ among themselves in respect of their economic structure, sectoral policies and technological changes. Assuming these three are key factors of growth, it can be said that 'Vision 2030' of Nigerian telecom sector will be shaped in an important way by the evolving economic structure, sectoral reforms including competition policy and technology trend.

Economic Structure

It has been observed that 'growth in the number of new telephone subscribers has far exceeded the growth in the global economy' in the last twenty years. This shows that aggregate growth alone does not determine telecom expansion and there may be need to look at composition of growth as well. However, influence of economic structure on telecom expansion (or for that matter on achievable level of tele-density) does not find explicit consideration in today's literature on telecom economics as much as the other two factors, i.e., competition and technology. One plausible reason could be because of the importance that has been attached to income gap as a factor explaining digital divide. Moreover, income gap, by itself subsumes differences in certain structural characteristics and therefore diverts the focus of attention from structural gap to income gap. Proponents of 'income determinism' may stop short of addressing structural factors because of their primary concern regarding income transfer between the developed to the developing countries as the only way to address the problems of digital divide. Structural issues, on the other hand, are more pertinent to the believers of 'leapfrogging' capabilities of the countries who are on the wrong side of the divide. It is for them that the present paper goes on to prove that the effectiveness of direct promotion of telecommunications as a complementary policy to overall macroeconomic reforms will be determined in an important way by how structural issues in the economy are addressed. In the first place, it is noteworthy that there are countries with per capita income less than that of Nigeria but with higher tele-density.

Competition with Privatization

World over, there is an observable trend of growing number of state owned telecom incumbents being privatized. In 2000, from among the member countries of the ITU, those with fully or partially privatized incumbents out numbered countries with fully state-owned operators. It has been observed that 'countries with a privately owned incumbent operator account for 85 per cent of the world market by revenue. Those with fully state-owned operators, in mobile as well as fixed lines, account for just two per cent. It has been suggested that privatization with competition works better than privatization without competition. For example, Chile started privatization in 1988 but did not limit competition through grant of exclusivity period or licensing obligations. Argentina, on the other hand, privatized in 1990, but granted seven-year exclusivity period, which was subsequently extended by three years. Moreover, Argentina imposed licensing obligation in terms of

stipulated growth rate of 6.5 per cent. In the decade following privatization, Chile far exceeded Argentina in terms of network growth. Moreover, starting with half of the tele-density, Chile surpassed Argentina in ten years' time. Telecom expansion was reportedly much more rapid in the United Kingdom (i) after the expiry of exclusivity period from 1982-90, that was granted to Mercury, the second operator and (ii) after cable TV operators were permitted to offer tele-services. Therefore, it was concluded that open competition was better than duopoly. Both USA and Canada lost in terms of their mobile tele-density-rankings in the world in the 90s. Growth of private mobile operators in Nigeria is a case in point. However, it is necessary for the regulatory authority to ensure that state incumbent does not inhibit growth of competition. Operationalization of these ideas is not without hazards. A conflict of common occurrence relates to interconnection issues. Interconnection between state-owned fixed line incumbent network and private mobile network has been a bone of contention in many countries. Incumbent telecommunication operator, which often holds a monopoly can set the price, typically at a high multiple of the actual cost.

Technology Trend

The technologies of mobile telecommunications and Internet are going to set the contours of further technological progress in the current decade and the next. The most recent initiative aims at convergence of voice and data received from multiple sources, both web based and real time video streams, in mobile handheld devices. Global satellite systems, mobile handsets and calling cards have made virtual presence possible almost everywhere and anywhere overcoming the barriers of distance, topography and remoteness. There has been phenomenal growth in mobile subscribers in the world in the twenties, increasing from 266 million in 2001 to 95 billion by the end of 2011. In 1991, less than one per cent of the world population had a mobile phone. The proportion has grown to the vicinity of one phone per every six people by the end of 2001. Similarly, about half of the total number of countries of the world had cellular network in 2011. It is interesting to observe that China has surpassed USA to become the largest mobile market of the world. In Africa, mobile subscribers outnumber fixed line subscribers in more than half the countries. Mobile telephony has emerged as the major growth driver in this sector. But for expansion in mobile network, there would have been hardly any growth in telecommunications in many countries. In developed countries, mobile phones have complemented fixed lines whereas in many developing countries with low-level fixed line penetration, mobile has already surpassed fixed lines filling up supply gaps created due to inadequate growth in the latter. It has been observed that 'the ability of a country to grow its mobile network to the point where it overtakes the fixed-line network is not a function of its wealth. There are three important economic implications of mobile explosion for the developing countries. First, by offering a viable techno-economic alternative to help in improving telecom penetration bypassing shortages of fixed lines. Consequently, it is bringing along with it all concomitant economic benefits of enhanced telecom accessibility. Second, it promote a better entrepreneurial culture and support employment generation through proliferation of kiosks. Third, there has been a shift in investment burden from state to private sector and the consumers. There are about half a billion Internet users in the world in 2011 with subscribers numbering an estimated 90 billion.

It is also interesting to note that in 1995, Internet users in developed countries were seven times more than the number of Internet users in the developing countries. In 2011, this gap has narrowed down to less than four times. Initial stance of technology supporting expansion of Internet dictated revenue model based on convergence between telecom and Internet. Internet is accessed predominantly through dial up in old telephone lines. This has resulted in unequal distribution of benefits between the dotcom operators and the telecom operators. It has been observed that while dotcom operators 'are failing to make money on the Internet, telecom operators are. The reason is that they control the pipes over which Internet traffic runs'. 'Incumbent telecom operators tend to be among the largest Internet Service Providers (ISPs) in their countries'. There are three important implications of this development. First, it inhibits growth of content development as an independent specialized activity because revenue-share of the content developers depends on the first claim on revenue by the infrastructure providers. Second, technical capabilities of telephone lines constrain development of Internet infrastructure and conditions speed of download. Third, developing countries are faced with major bottlenecks in the spread of Internet due to shortage of telephone lines and high telephone charges. Technological answers to these problems have already emerged in the forms of Integrated Services Digital Networks (ISDN), wireless solutions and upgraded cable television networks enabling high-speed Internet access without clogging telephone lines. Use of VSAT technology for Internet connectivity can also greatly enhance the speed of data transmission.

In the present decade and the next, one would hope to see faster expansion and consolidation of these technologies ushering in Internet revolution. Broadband access technologies, which include Digital Subscriber Lines (DSL) and cable modem, permit faster download and graphic-intensive Internet applications. However, diffusion of this technology is so far minimal, particularly in the developing countries. Commercial exploitation of Internet crucially hinges on the spread of broadband technology. The issue that confronts developing world is how to create demand for broadband applications at the first instance. At the early stage, government can play an important role to promote broadband usage in e-education, e-governance, and e-medicine to stimulate its demand. Developing knowledge based industry to provide mobile applications would reduce uncertainties regarding return from private investment in 3G technologies. As a preparatory groundwork to usher in 3G, it is essential to demarcate areas where massive harmonization efforts would be needed. This would entail upgrading hardware and software for high bandwidth multimedia services. Harmonization would also be needed between the two emerging varieties of coded division multiple access (CDMAs). Since, it is likely that both these solutions would ultimately support fixed and mobile applications; a marriage of the two would prevent technological fragmentation of the market. There is need to develop deeper understanding of the evolution of new end-users in the market for the mobile multimedia services. Multimedia service providers will emerge as important shareholders in the network value chain. Countries should envision new partners, new entities, and new stakeholders in the business models. Multimedia portals will be important components of such business models. The revenue model in the telecommunications sector is going to change significantly in times to come.

CONCLUSION

Long distance carriers (LDCs) are experiencing fastest growth in telecom network. In the mid-2011s, growth in total telephone subscribers per 100 inhabitants of the LDCs surpassed that of the developed countries. The LDCs surpassed emerging countries achieving the distinction of fastest among the three. Given the relationship between telecom expansion and growth, there is hope for narrowing down of digital-divide, provided, LDCs are able to sustain growth momentum in the long run. The vision is no doubt optimistic. It has been cited that some twenty years ago Tokyo had more telephones than the whole of African continent whereas today Africa has more than twice the number of main telephone lines than that of Tokyo. It is but natural that markets in high-income countries saturate while expansion in developing countries continues unabated. One notable break with the past is that with opening up of the developing economies and widespread sectoral reforms, catching up process has become faster. Developing countries with liberal policies have much better opportunity to leapfrog than before. Mobile experience of the low-income countries bears testimony to this process. Nigeria is a participant in this global process. There is tremendous appetite to absorb new technology. At the higher end of the market, Nigeria will mimic the most sophisticated telecom technology of the world and face all types of uncertainties that are associated with any new technology anywhere in the world. It will take time for the market for new technologies to consolidate. 'Market maturing' will be a continuous process at some of the segments of telecom sector. However, the process of diffusion will continue unhindered in respect of established technology in the mass market. Future vision of telecom is a vision of IT. Telecom will be the springboard of future expansion of IT heralding in an information society. ICT will spread among the masses and will spur innovation, entrepreneurship and growth. An expanding domestic market will deepen the synergy between the domestic and the export market and strengthen Nigeria's presence in the high-value segment of the global trade and investment. ICT benefits will spread among all, the rich and the poor, the young and the old, the men and the women, the organized and the unorganized and the government and the governed.

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