

Bridging the Digital Divide – The Social and Cultural Impact of VoIP in Developing Countries: Nigeria as a Case Study

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Abstract

This study on the social and cultural impact of Voice over Internet Protocol (VoIP) in developing countries shows that the percentage of traditional telephony systems in developing countries currently migrating to VoIP is negligible and the combination of obstacles of natural and inevitable elements can continue to impede migration, make transition slow and negligible.

According to this study, the use of the Internet in Nigeria for business, correspondence, banking, governance, instant messaging and gaming in the past five years has increased rapidly and people especially the educated are depending more on the Internet as a major source of communication. However, pertinent issues like network security, privacy, content management, incessant power outages and synchronized application delivery must be addressed in order to engender an effective and efficient system.

Another factor to consider in the transition to IP-based communications and media services in developing countries is the monopoly of the traditional telecommunication industry by the government and the difficulty in implementing change in the society. The consumption shift and consumer demands in the developing world have engineered the need for a convergence of technology solutions to telecommunication in the developing countries, for instance in Nigeria the rate at which Internet telephony is impacting on the call pattern of people for International calls is intriguing and progressively captivating. The quantum leap in this area compared to what used to be a mere 5 years ago is nothing short of a 'leap-frogging' by this nation from obsolete communication technology to cutting edge technology without a transition.

This study has been able to identify that the transition to full Internet Protocol (IP) in telephony in developing countries can only be achieved if major players like policy makers and regulators work in unison with service providers and vendors to ensure a probable solution to IP-based converged services. The salutary role of the private sector in such an initiative will remain crucial for expected results to be achieved. It also identified that today's world is shaped by availability of information and ability to communicate, both of which are enabled through the advancement of the computer as a hub of our everyday existence.

1. Introduction

Digital Divide occurs basically when advances in modern technologies in information and communications, like the Internet, are not reflected in the lives of a people on at least two identifiable sides of a divide; usually between a privileged and a less privileged group and specifically, for this study, people in developing regions who albeit are considered fundamental components of human interaction in today's world.

The objective of this paper is to unravel the impact new technologies like VoIP have socially and culturally in developing countries. It addressed the transition to IP in telephony as a veritable tool to bridge the 'digital divide' between the advanced economies and developing countries. Information and communications technology (ICT) was noted by Peters (2003) as a key weapon in the war against world poverty. When used effectively, it empowers people in developing countries and disadvantaged communities to overcome hindrances in development; address important social problems and strengthen communities which will result in democratic institutions, a free press, and local economies.

Telecommunications development in Nigeria so far is wholly dependent on foreign technologies. The emerging technologies such as broadband satellite, VSAT and wireless telephony was noted by Olorunda and Oyelude (2003) to provide wonderful opportunities for Nigeria to leapfrog to the information age. They stated that these technologies have been exploited in order to accelerate IT development in Nigeria.

The study was in two parts - internet users which include (VoIP and potential users) and Internet Service Providers (ISP). The methods utilized in collecting data were (i) interviews and (ii) self administered questionnaires. These methods were adopted so that all classes of the respondents would be accommodated. There were a total of ninety-six (96) respondents, randomly chosen, who were constant internet users and four major ISPs who participated in the study.

2. The Digital Divide

Carlos Fortin, stated, "the digital divide between the information-rich and the information-poor is of increasing concern. A major challenge for policy-makers at the national and international level, therefore, lies in addressing the issue of digital divide between rich and poor countries, rural and urban areas, men and women, skilled and unskilled citizens, and large and small enterprises" (UNCTAD, 2004, p. iv).

Digital divide between countries is basically calculated by the number of telephones, computers, and Internet users and measured in terms of race, gender, age, disability, location and income between groups of people within countries (Peters, 2003). It was defined as the unequal access to Information and Communication Technologies (ICTs) during the first World Summit on the Information Society (WSIS) held in Geneva in December 2003, (Wimax, 2005). It was observed that unequal access is not only peculiar to differences between developed and developing countries, it could also apply

within countries (the domestic digital divide) and significantly between the rural and urban sectors.

Access to information opens doors to wider economic and social development opportunities. Olorunda, (2004) affirm that the significance of information to enhance economic development cannot be overemphasized considering the fact that information is power. The ability to have accurate and timely information will enable efficiency and increase skill. Wimax (2005) noted that the lack of telecommunication infrastructure in developing countries impedes economic growth, but limited to access to telephones, not today's wider concept of Information and Communications Technologies (ICTs) access and usage. The International Telecommunications Union (ITU) initiated a United Nations project for the Right to Communicate in 1996, focused on providing access to basic ICTs for all, in order to reduce information poverty for developing countries.

ITU published a press release on June 16th 2005, favoring .partnership as the key to connecting communities. The initiative, a global multi-stakeholder effort established within the context of the WSIS and named *connect the world* is meant to encourage partnerships to bridge the digital divide.

3. Telecommunication in Nigeria

The main telecommunication agency in Nigeria is the Nigerian Telecommunication Limited (NITEL) which is a governmental organization. National Communication Commission (NCC) is the regulatory body for telecommunication, while the Association of Telecommunication Companies in Nigeria (ATCON) is the umbrella association of multinationals and indigenous private telecommunications firms in Nigeria.

In discussing the telecommunication sector, Adeyinka, (2001) opines that it is among the world's fastest growing sectors. "What marks out the sector are the phenomenal ways in which it has radically changed hitherto, "traditional" sectors, altered cost structures of production, and redefined quality and productivity standards" (p. 4).

Telecommunication has existed in Nigeria since 1851, functioning like a postal unit before metamorphosing into NITEL with the merger of Nigerian External Telecommunication (NET) and the Postal and Telegraph (P&T) in 1984. Some of its main objective was to provide efficient and reliable telecommunication services to all parts of the Federation and to link Nigeria with all parts of the world with emphasis on those countries maintaining strong economic and political relations with Nigeria (Alabi, 1996) and increase the number of telecommunication lines and even produce some of the telecommunication components locally, (Adeyinka, 2001).

The telecommunication industry was mainly a governmental monopoly until 1992, when the Ministry of Communications issued a license to a private firm EMIS to operate a wireless telecommunication network in Nigeria.

NCC was also established the same year with specific objectives to set the ground rules and enforce compliance in the deregulated environment of telecommunication in Nigeria. The licensing of three Global Systems for Mobile Communications (GSM)

operators in August 2001 was a significant moment in the history of telecommunication in Nigeria and this brought about a revolution that caused great changes that have impacted greatly on the lives of most Nigerians. Currently, telecommunication penetration is in excess of 12 percent of population with about 17.5 million active telephone lines in the currently. (Punch, 2005)

3.1 Electronic Communication in Nigeria

Electronic Communication is the process by which messages (voice, data, fax or multimedia) are sent from one point to the other or across the globe in digital form through the use of the computer, telephone line and a modem. It involves any of several forms of information exchange between two or more computers through any of several methods of interconnection such as telephone line, optical fibre, satellite or radio. This communication mode is rapidly spreading throughout the world as a fast, reliable and in most applications, an inexpensive form of communication. It is fast and inexpensive because it can use existing public and private telephone lines and infrastructure, a dedicated (leased) line or via microwave radio frequency.

Even though Nigeria is a developing country still on the threshold of industrialization, the Federal Government of Nigeria has accorded IT a national priority. This is evident by the approval of the National Information Technology Policies (NITP) and the subsequent establishment of the National Information Technology Development Agency (NITDA) as the implementation agency.

While the existence of information does not necessarily ensure its use, the real value of an information system lies in the servicing of specific user needs. In order to solve this problem, and elevate the country technologically, with socio-economic development and also create a new lease of life for the population, a planned increase in penetration of telecommunications services has been seen as a welcome development for national growth. (Adeyinka, 2001)

With the advent of these form of communication and the expansion of GSM mobile phones, Short Messaging Systems (SMS) quickly gained recognition. This is what translated into the fast acceptance of Instant Messaging (IM) of Internet email Companies. In no time the possibilities of world wide chats made even emailing seem too slow and the need for faster access to people arose. This trend has significantly impacted the need for instant telephone contact across the globe. Thus, VoIP is quickly becoming attractive to people wishing to avoid costly telephone service.

VoIP technology uses the Internet's packet-switching capabilities to provide phone service. VoIP has several advantages over circuit switching. For example, packet switching allows several telephone calls to occupy the amount of space occupied by only one in a circuit-switched network making it a viable, cheaper and more appropriate alternative.

VoIP use in Nigeria is more prominent in Cybercafes (internet cafes). It is basically used to make international call by patrons, because the rates are lower than traditional phone calls. The quality is sometimes poor because of small bandwidth available to such Internet cafes. International calling cards are also routed through VoIP, with the inclusion of most of the Private Telephone Operators (PTO's) who actually terminate their international calls over VoIP.

3.2 Implementing VoIP in Nigeria

The definition of social problems and their categorization in a hierarchy of priorities comprises a vital task for groups involved in the policy process: non-profit, profit, and governmental. (Luyt, 2004). "Could the vast information resources available on the Internet be useful to economically depressed communities? Could the Internet help people share development information?" asked Hall (2002, p. 3). He opines that the barriers to this are twofold; economic, and the lack of localization.

At the economic level, acquisition of computers and internet connections could be a hindrance to utilizing VoIP in developing countries because of relatively low income in contrast to developed countries where a few weeks income can be used to buy a computer. This has however encouraged the emergence of Internet Cafes (Cybercafes) and Telecentres of various kinds are being installed all over the developing world and in central business districts of some capitals in developed countries also to provide services to commuters and tourists without access.

In this study, the major Internet Service Providers (ISP) declared that the response rate to the VoIP services they provide has been in the range of 65 to 70% over the past one year. The importance of bridging the Digital Divide makes it worthwhile in spite of the expensive infrastructure because of the commercial success of running such a business. The providers claim that the rate of calls is cheaper than using mobile phones and landlines for international calls making up for a better patron turnover.

The ease of installation is one of the key issues to lower deployment costs in developing countries or rural areas. In rural areas, the consequences of the long distances from the core network access point and the scattered location of villages, farms and settlements in the countryside makes any deployment of infrastructure very costly. In developing countries, the lack of main infrastructure (electricity, roads.), and environmental condition (temperature, humidity) adds to the difficulty. Wimax (2005).

All the providers interviewed responded that internet telephony and voicemail has helped greatly to narrow the information gap between the developed and developing countries. The main concern is economic, because of the high cost of softwares and hardwares. Thus operators and service providers tend to first serve the most populated areas and elite areas, where most of the potential customers are located instead of less populated areas such as remote and rural areas. Another concern identified is incessant power outages, which is a common phenomenon in developing countries.

4. Providing Access

Development is all about planning for change. Providing access to technology is critical, but it must be about more than just physical access. Computers and connections are insufficient if the technology is not used effectively because it is not affordable; people do not understand how to put it to use; people are discouraged from using it; or the local economy cannot sustain its use. ICT projects will only be widely successful in developing countries when all of the other components necessary for the effective integration of ICT into society are in place. (Peters, 2003).

Information has become one of the primary inputs in economic processes and ICT has gradually become more important for the ability of enterprises, communities and individuals to participate successfully in the global economy, (Hollifield and Donnermeyer, 2003). Ideally, Internet cafes in developing countries represent reasonably priced access points to sources of information for personal development, business start-up and growth, or political participation and the progress of civil society.

Luyt (2004) notes Internet technology is not evenly distributed around the world and as a result, the problem of the digital divide is an issue in international circle. Nigeria was named as one of the Sub-Saharan African countries dominating the lower rankings of ICT diffusion; with 161 in 2002, it indicates that Africa still has a considerable way to go in connectivity and ICT diffusion to hold its own with other regions. (UNCTAD, 2004).

4.1 Effects of Policy and Regulation

Policy-making is constrained by inherent limitations on the time and resources of its participants (Simon and March, 1958) and by the fact that it is a political process that requires decisions to be made that effect the material interests of various groups within society (Hawkesworth, 1988).

Mujahid, (2002) states the digital divide means more than just a lack of computers and connections. Technology means nothing if it is not used where the people who could benefit the most are not using information technologies to address the problems they face, not only because they lack the training, but also because government policies often hinder affordable and accessible technology implementation, he affirm.

ICT development in Africa is changing rapidly in infrastructure development, usage and institutional set-up. There has been rapid progress in certain sectors, notably mobile telephony, with greater emphasis on regulation, competition policy and universal access to ICTs using means such as Universal Access Funds (UAFs) and Community Access Centres. (UNCTAD, 2004). "Africa has the world's fastest growing mobile network (ITU, 2004) at around 75 per cent per annum [partly due to the low subscriber base]" (p. 28).

5. Social and Cultural Impact of VoIP in Nigeria

The discourse surrounding new forms of information technology, and the digital divide their absence creates, helps secure state legitimacy by once again revitalizing the notion of development as achievable within the parameters of the current global

economic system. This study reveals that most of the respondents who don't use any form of VoIP or voicemail have no landline or direct access to computers, thus this presupposes that non-access is a great hindrance to the use of VoIP. 63(%) of the respondents have used or have direct access to any type of internet telephony, while 33(%) does not.

VoIP is becoming a vital element in international communication and has impacted positively the trend of communication in Nigeria, as evident in this study where 61% of the respondents were willing to invest in hardware in order to ensure personal access to VoIP telephony. At present, most of them go to Cybercafes to make international phone calls.

It was observed that most people use internet telephony for international calls bi-weekly. 33% were in that category while 9% used it daily to transact businesses and call relatives and friends. More people, 41% of the respondent called family members, 57% indicated that they spoke mainly to friends, while 16% utilized internet telephony for business purposes. Businesses are conducted; deals sealed and new market understanding is achieved by individuals across the globe because of the immediate feedback that is generated through the use of internet telephony.

The ability to correspond immediately with family members, friends, business associates and acquaintances is of profound importance and was rated as an excellent phenomenon by 40% of the respondents and average by 30% of the respondents. It is interesting also to observe that 86(%) respondents believe that internet telephony has helped tremendously to bridge the digital divide.

6. Conclusion

VoIP penetration is just at its infancy in terms of penetration worldwide, companies like Vonage in the USA, Packet8 etc are still struggling to position themselves, thus it is reasonable to expect that the impact of VoIP will continue to escalate in years to come especially in the developing countries especially as it proffers a cheaper means of communication. Thus VoIP may be one of the technologies that can bridge the 'digital divide' between the developed and developing countries, if it is adequately implemented, managed, maintained and made cost-effective. There will be need for institutional policy support for this to materialize.

To cross the digital divide and put ICT to effective use to improve the standard of living of people, countries and communities must be "e-ready" in terms of infrastructure, access, training, and a legal and regulatory framework that will foster ICT use. If the digital divide is to be narrowed, these issues must be addressed in a coherent fashion, and achievable strategy for implementation that is tailored to meet local needs put in place. (Peters, 2003).

Communication is an indispensable aspect of our daily living and the emergence of VoIP in the developing countries like Nigeria will certainly bridge the 'digital divide'.

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