

Toward a Nigerian Information Society: ICTs as tools for socio-economic development in Nigeria

A research report submitted to the IDRC

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August 22, 2002

ARCHIV.
004:338(669)
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Acknowledgements

The International Development and Research Council of Canada (IDRC) provided funding for this research through its Doctoral Research Award. Without the award, it would have been extremely difficult to complete the field research especially given that it involved spending several months in Nigeria. I am grateful to the Council and the evaluators of my proposal for believing in the project. I am particularly grateful to Dr. Rich Fuchs, my counsellor at the IDRC, who went out of his way on numerous occasions to provide intellectual support throughout the period of research. He always responded to the e-mail messages I sent from Nigeria and he offered useful suggestions on the conduct of the research at every point. And when it was completed, he continued to help me by reading and commenting on the first draft of this report. Also at IDRC, Dr. Rita Bowry and Mr. Jean-Claude Dumais, program and awards officers, respectively, provided moral support during the research. My sister, Dr. Mercy Ette, painstakingly edited the final version of the report. (Of course, I am responsible for all errors and mistakes.)

In Nigeria, I received enormous assistance from several people, starting from Dr. Edwin Madunagu, the director of CIINSTRID (my local affiliate) and his staff who provided me with office and administrative support. The staff of NYSC secretariats in Zone 1, Port Harcourt; Ikeja area office, Lagos; and the FCT headquarters in Abuja gave me access to NYSC members in their zones, as well as provided me with office space. I am particularly grateful to Messrs. Babatunde and Ben Ushie in Port Harcourt; Mrs. Egun Bamgbose and her staff in Ikeja; my research assistant in Lagos, Mr. Seun Ifekoya; and Messrs Kelechi Orji and Tony Ani in Abuja. Mr. Chris Mammah, personal assistant on media affairs to Nigeria's Vice President Abubakar Atiku, facilitated access to the bureaucratic corridors of Abuja through a letter of introduction. The Essien families in Lagos and Calabar (Mr and Mrs Nsikak and Naomi Essien in Lagos, and Mrs Mary Essien and her boys, Gideon and Daniel, in Calabar), and many others contributed in various ways to making the research trip to Nigeria a successful and productive one. I will forever be grateful to these people – and those others whose names do not appear here.

I also gratefully acknowledge the emotional and spiritual support of my husband, Timothy Obong, especially during the research and while writing this report.

Finally, I give God all the glory.

Toward a Nigerian Information Society: ICTs as tools for socio-economic development in Nigeria – a research report

By Patience Akpan

Introduction

The research was undertaken in partial fulfillment of the requirements for the award of the PhD in Political Science at the University of Alberta. It was preceded, initially, by a bibliographic research, as well as a preliminary field research in Nigeria for seven weeks in the summer of 2000. Findings during this initial field trip contributed immensely to a chapter in a book on policy and agenda-setting in Africa to be published in the summer of 2002.¹ But beyond the book chapter, the research raised awareness of issues in the field and helped in the restructuring of the initial research questions. Last year, with funding from an IDRC Dissertation Research Award, I was able to return to Nigeria for the main research. I spent nearly six months researching the level of diffusion, use and awareness of information and communication technologies in Nigeria. The research was conducted in three major Nigerian cities, Port Harcourt in the East, Lagos in the South and Abuja (the federal capital territory). A fourth city, Kano in the North, was excluded because of the violent religious (anti-American) crises in the predominantly Muslim city following the bombing of Taliban Afghanistan by the United States during the period of the research. Kano was not replaced because though Abuja is centrally located, it is largely

¹ Akpan, Patience Idaraesit, "From the margins to the centre: ICTs as tools for development" in Kalu, Kelechi, ed., 2002, *Agenda-Setting and Public Policy in Africa*, forthcoming.

“Northern” in its ethnic identity.²

Research Objectives

This research is a critical examination of the status of ICTs in Nigeria and the conditions under which they can be harnessed for socio-economic development. It comes on the threshold of Nigeria's current focus on information and communication technologies as tools for socio-economic development. Government's stress on ICTs has raised expectations in the country about their capacities in the development efforts. Given the hype that surrounds the subject in the Nigerian media and in statements by public officials, there is a rising assumption (among many Nigerians) that these technologies can, on their own, create socio-economic development. This research therefore goes beyond a mere description of the status of ICTs in Nigeria to critically analyse the process through which they can translate into socio-economic development. It is hoped that the research findings and analysis will guide policymaking and action in Nigeria as the government and people develop and diffuse ICTs in pursuit of national and individual socio-economic goals.

The research is also aimed at making a modest contribution to the body of knowledge in a field currently filled with optimism about the inherent capacities of ICTs to promote the development efforts of poor countries. Much of the current literature stress the problem-solving capacities of these technologies without reference to existing structural and institutional framework that may significantly affect the outcome of their diffusion, especially in an infrastructurally underdeveloped country such as Nigeria. The acquisition and use of ICTs for development are

² While there are Christians and people of diverse ethnicities in Northern Nigeria, the region is predominantly Muslim and Hausa-Fulani with Hausa being the common language.

still in their infancy, and one cannot at this time argue conclusively that the technologies can or cannot help a country move from the status of underdevelopment to industrialization (or post-industrialization). But one can look at existing conditions in a country that are likely to facilitate or constrain the capacity of ICTs as instruments of development, and draw tentative conclusions regarding the outcomes of the prevailing theoretical and policy assumptions about the technologies.

The two-fold objective of this research is therefore a provision of policy guidelines (based on empirical research) for Nigeria and many countries in development, and a contribution to the body of data on ICTs and development to facilitate future research in the field.

Research Questions

The debate on the use of ICTs as tools for socio-economic development in developing countries raises a number of questions, some of which frame this work. One of these questions, as addressed by this research is: How is Nigeria acquiring and utilizing ICTs as tools for socio-economic development? These in turn raise subsidiary questions regarding current policies on ICTs, their applications as strategies of development in the country and the societal response.

- a) What is Nigeria's policy on information and communication technologies, and what factors drive this policy? Are policymakers' conceptions of ICTs integrated into the country's overall economic goals?
- b) What is the status – or level of penetration – of ICTs in Nigeria?

c) How does government perceive its role in the acquisition and use of ICTs, and consequently their application as strategies for socio-economic development? Who are investing in ICTs?

What is the role of the private sector?

d) Can ICTs help Nigeria to transcend the conditions that have traditionally acted as impediments to previous development efforts?

Research design and methodology

To answer the research questions, it was necessary to examine issues across the different sectors – public, private and civil society. Three major areas were therefore considered: the policy framework, the role of the private sector and its capacity to indigenously develop information and communication technologies, and awareness of and response of the civil society to ICT issues.

The policy framework: This area was crucial to any understanding of the links between government objectives and strategies for harnessing ICTs for development. In March 2001, the Nigerian government announced the formulation of its first-ever Information Technology Policy (ITP) aimed at giving policy coverage to the ICT sector. But six months later, the document was yet to be released to the public and only a few people in the country knew about it. Before the ITP, the National Telecommunications Policy (NTP) was the known document for the ICT sector. And with major overlaps in coverage with the ITP, it may continue to be the document of reference in any analysis of Nigeria's ICT sector. For instance, the NTP interprets "telecommunications" broadly to include information and communication technologies. It also

gives an expansive mandate to the National Communications Commission (NCC) which implements the policy and oversees the licensing of purely “IT activities” such as the provision of Internet service and allocation of radio frequencies. Incidentally, while the ITP is given oversight by the Ministry of Science and Technology and implemented by the Nigerian Information Technology Development Agency (NITDA), the NTP is a document of the Ministry of Communications under which is the NCC. Does assigning the documents and the implementing agencies to different ministries indicate policymakers’ understanding of ICTs as separate technologies?

Nevertheless, at the beginning of the research, the two policy documents provided information on what public-sector individuals, agencies and ministries one needed to interview or focus on during the research. The significant departments are The Presidency, the Ministries of Communication, Education, Information and Science and Technology, the NCC and NITDA. Different questions were addressed to the different departments depending on their roles, but generally the questions were designed to assess the level of ICT usage in the various government departments. For the Ministry of Education, I further sought to find out if the national education policy had anything about ICT education in schools.

The role of the private sector and its capacity for developing ICTs: The Manufacturer’s Association of Nigeria keeps a list of all manufacturing companies in the country. I had set out to survey a cross section of these manufacturers, as well as interview specific key individuals, to assess the level of ICT use and diffusion in this sector. I also proposed to interview members of the Computer Owners’ Association of Nigeria, the trade organization in Nigeria’s emerging

information technology industry to determine their capacity for indigenously developing ICTs. But in the field, this did not quite work out. The major hindrance was unwillingness on the part of many individuals to speak with a researcher. One chief executive of an IT company bluntly asked me what was in it for him and his company. Many people were not interested in a scholarly project unless they could see an immediate benefit accruable in material terms to themselves or their organizations.

A second major impediment was communication. When I was in Calabar – my research base – communication was not a problem because I had access to the telephone and fax facilities at the local organization I was affiliated to. Even then, people were unwilling to call back. Also, I was constantly on the move and it became even more difficult to reach people. I eventually acquired a cellular phone, but this did not solve the problem. The country had just “rolled out” its GSM telephone services. Three companies had been licensed to provide the service but only two were ready on launch date, August 9, 2001. And their services were only in three cities, Lagos, Abuja and Port Harcourt. The media-generated expectations about the technology had been so high that within a month of operation, two of the three companies had subscribed 60,000 lines. By December, there were over 125, 000 GSM phone users in the country and the number was growing fast. (To put it in context, before the GSM service, there were less than 400,000 functional telephone lines in all of Nigeria’s telephone history.)

This rapid diffusion of the technology did not lead to improved telephone services. The system got so choked up that it was difficult to reach anyone even within the same network, and almost impossible outside the network. Also, the operators had yet to solve the problem of

interconnectivity. This meant that one could not use a GSM phone issued by Econet in a city where MTN (the other company) had access unless one had an MTN phone. (This situation has been developed further in, Akpan, 2002.³)

With communication such a major handicap, one was ready to do it the traditional way – traveling to places and meeting sources in person – but this also had its own challenges. For one, many of the companies and individuals in the ICT industry are based in Lagos. Lagos is one of the smallest states in the country and much of it is covered by water. And yet, with an estimated 10 million people, it is the most populated and congested state. This creates a constant traffic problem leading to what is known locally as “go-slow” which is almost synonymous with life in Lagos. Sometimes it takes hours to make a journey that would, in a city such as Abuja, take about 20 minutes. In Lagos, I usually hired taxicabs on hourly basis. Most times, I would pay for eight hours just to go to one place, spending most of that time in traffic. As a result, it was not always prudent to make a trip without prior appointments. Even then, in a number of cases, I showed up for previously scheduled appointments to be told the people had gone out of town or were stuck in “go-slow” on the other side of town.⁴ Despite these challenges, I was able to meet with and interview enough people in the private sector to adequately answer my research questions. My best strategy for meeting people was to attend ICT-related conferences and workshops.

3 Akpan, Patience, “From the margins to the centre: ICTs as tools for development” in Kalu, ed., 2002, *Agenda-Setting and Public Policy in Africa*, forthcoming. Also, Akpan, “Things GSM operators won’t tell you,” *The Nigerian Guardian*, Nov. 7, 2001, p. 67.

4 The six months in Nigeria would be remarkable for (among other things) the number of hours I spent just waiting for people.

Awareness of and response of the civil society to ICT issues: It would have been practically impossible to interview all Nigerians about their ICT use and awareness. I instead set out to interview a sample of college educated Nigerians under the age of 30 in each of the cities of Lagos, Port Harcourt and Abuja. The level of ICT use in these cities is demonstrably high. At the basic level, this can be determined by the cost of Internet access. In Lagos, where cyber cafés dot major streets, accessing the Internet costs five Naira per minute, or less. In Abuja, the country's capital, it costs between ten Naira and 15 Naira. In Port Harcourt, the range is between 15 and 20 Naira. And not incidentally, the lower the cost of access in the different cities, the higher the level of use by the respondents in the research. Thus the Lagos respondents were more aware of ICT issues, and used the technologies more frequently than those in Abuja and Port Harcourt, and those in Abuja more than respondents in Port Harcourt.

Perhaps some background on the cities would be necessary at this time. The first contact between the earliest European explorers, merchants and missionaries and the people of present-day Nigeria occurred in the southeastern city of Calabar (where the first telegraph communication from London was completed in 1866, following shortly after with a transmission between Calabar and Lagos). However, for reasons, beyond the scope of this report, regular and sustained contacts with the Europeans happened in the coastal-city of Lagos, on the southwestern tip of Nigeria. Lagos gradually became the centre of commerce and government, and with the emergence of the Nigerian colonial state in 1914, it also became the centre of colonial administration. After political independence was regained in 1960, Lagos continued to be the political capital until 1992 when it lost the position to the newly created Federal Capital City of Abuja. Infrastructurally, Lagos is therefore the most developed city in the country, and while it is

no longer the political capital, it remains the commercial hub of the country. For example, Nigeria's major industries such as banking and insurance are based in Lagos. Also, the headquarters of many of the major companies – from oil to manufacturing – are in Lagos. While many have established presence in Abuja, Lagos remains the home of the embassies and high commissions. Lagos is also the hub of the airline industry, and it is the only city in Nigeria from where one can fly directly to all parts of the country, and to more countries than any of the other international airports in Kano, Abuja and Port Harcourt.

It is not by accident therefore that Lagos is a major high-tech city – owning the only “computer village” in the country. The earliest use of the Internet in Nigeria was mostly in Lagos-based embassies/high commissions and in the multinational oil companies. In fact, the first known public e-mail activity (sending and receiving) in Nigeria (circa 1994) occurred in Lagos. Lagos also records a high use of Very Small Aperture Terminals among the banks in the city, with this technology now becoming popular with Internet Service Providers, the majority of which are located in Lagos.⁵ This reduces the cost of Internet access in Lagos, as well as facilitating Internet telephony (or Voice Over Internet Protocol).

Port Harcourt is the capital city of Rivers State – the unofficial headquarters of the oil industry.

A significant percentage of oil drilling activities in Nigeria occurs in Rivers State, home of the famous Ogonis. One of the two oil refineries in Nigeria is also located in Port Harcourt. As a

⁵ In satellite communication, signals are sent from Earth to a satellite launched in space. When the signals hit the satellite, they are reflected back to earth and can be received through the appropriate technologies. According to one of my sources, Titi Omo-Ettu, an electrical/electronics engineer, satellite transmitters usually have large apertures but in recent years, it was found that very small aperture terminals could do the same job on a smaller scale but at relatively cheaper costs. In Nigeria, companies such as banks and some very wealthy individuals can now afford them. The Nigerian Communications Commission allocates the frequencies and VSAT licenses to end-users.

result, there is a lot of multinational presence in the city. For instance, some of the earliest people to have Internet access in Nigeria were employees of Schlumberger, a multinational oil corporation. Other oil companies such as Shell Petroleum were also among the earliest to connect to the Internet from Nigeria. There is therefore a high level of Internet activity in Port Harcourt, with the presence of several cyber cafés now popularizing this means of communication and access to information. Port Harcourt is also one of the few cities (about four) outside Lagos where there is an Internet service provider, with many of them providing connections to the Internet through VSAT.

Abuja was included in the survey, not just because it is the federal capital city, but also because there is a higher level of Internet activity there than in many other cities – perhaps because it is the national capital. Incidentally, when the GSM operators in Nigeria launched their services in August 2001, it was in the three cities of Lagos, Port Harcourt and Abuja where they first began operation.

The choice of the target group of fresh college graduates below the age of 30 was more or less arbitrary, but with acknowledgement of the fact that in many developed countries, particularly the United States and Canada, the many dot-com chief executives belong to this demographic group.⁶ It was also in recognition of the fact that in a country such as Nigeria with an adult literacy rate of 62.9 percent⁷ and even lower computer literacy rate, interviewing non-college

⁶ While many of the dot-com companies crashed in 2000, their role in increasing usage and awareness of the economic potentials of the Internet cannot be overlooked. They may not have “invented” the Internet, but they were pivotal in raising it to its current status if only by drawing attention to the vast potentials of the technology beyond e-mailing, newsgroups and chat rooms.

⁷ UNDP *Human Development Report*, 1999

educated people might not yield productive results. As well, not much would have been gained from interviewing people who might not be aware of issues related to ICTs – the assumption (and borne out by findings in the field) being that both the rural and urban poor and illiterates are generally oblivious to developments in the field of ICT. Finally, the NYSC group allowed for geographical and religious diversity – important factors in Nigeria. It also facilitated efforts at gender balance, as many of the respondents in the public-sector and industry-based sample frames were overwhelmingly male.

Members of the NYSC (also referred to as corps members or corporers) are fresh college graduates (having completed at least four years of study at the post-secondary level) who are mandated by law to serve the country for 12 months in places outside their “states of origin” and college or university location. Current President Olusegun Obasanjo started the NYSC scheme in 1973, when he was head of state first time around, to create national unity in a country that was still recovering from a bloody ethnic-generated civil war. It was primarily aimed at offering young Nigerians the opportunity to learn about the cultures of other ethnic and religious groups in the country. Corps members are required to show up once a week at the state or zonal office or directorate of the NYSC for their “community development service.” This created the opportunity for my contacts with them.

Research Techniques

The research involved several techniques. One of these was the questionnaire, administered to 306 participants. It was a major part of the research, not for its results, but because it was the

most structured, detailed and time consuming of the research techniques. I also used personal interviews – interviewing key individuals in the ICT industry. As well, I attended ICT-related conferences and workshops. Participant-observation and anecdotal evidence about ICT usage and diffusion in the country were also some of the means by which data was gathered during the research. Finally, the research techniques included a content analysis of the two policy documents on ICT.

The Questionnaire: Only one structured questionnaire was administered during the research. Its major purpose was to assess the level of awareness of and response of a section of the civil society to ICT issues. The questionnaire built on the work of Ehikhamenor (1998) who did a similar study of 116 graduate students newly admitted into "information-related" programs in Nigerian universities to "(test) for their familiarity with and understanding of concepts and terminologies in information and communication technology."⁸ The questions were deliberately constructed to achieve the objective of the survey. The questionnaire consisted of three sections and started off with questions relating to respondents' knowledge and usage of ICTs in the 12 months, and one month prior to their participation in the survey. There was a matrix section aimed at getting information about respondents' expectations of ICTs. The analysis of the responses in this section shows the connections between ICTs and socio-economic growth – at least, according to respondents' understanding of these connections. An open-ended section was also included and respondents were asked questions concerning the roles of the private and

8 Ehikhamenor, Fabian A, "Cognitive information foundation of university students: Index of information and communication technology in Nigeria" in *Information Technology for Development*, 1998/1999, Vol. 8 Issue 3, p139

public sectors in the development and diffusion of ICTs, as well as what they perceived were or would be the constraints to the achievement of policymakers' goals of making Nigeria an IT-capable country and globally competitive by 2005. A demographic section completed the 16-page questionnaire.

The questionnaire was administered using the face-to-face method. This involved the researcher reading the questions to each respondent and recording the answers. It is an expensive method of administration in terms of energy, time and cost. This segment of the research was the most-time consuming especially because my insistence on interviewing only the 306 randomly selected prior to the beginning of the questionnaire administration meant that I had to return to the interview city several times in order to meet with respondent(s) unavailable in previous visit(s). However, the advantages of this method of questionnaire administration are many and include a high completion and response rate, as well as high degree of accuracy as the researcher can read the questions clearly in the way she or he intended and correctly record the responses. This method also has other advantages. For instance,

if necessary, interviews can be carried out in different languages ... Interviews can be carried out with illiterate persons or persons who feel uneasy in writing down their answers, especially to open-ended questions. Interviewers can also take account of difficulties that were not foreseen, and gain insights that may help in interpreting the data.⁹

This last part was really beneficial as many of the respondents (especially the females) vocalized their responses. Watching the process through which they arrived at their responses gave

⁹ Del Balso, Michael and Alan D. Lewis, *A Guide to Social Research*. (Scarborough, Ontario: ITP Nelson, 1997), p.157

invaluable insights into respondents' understanding of ICT issues in ways that a mere completion of the questionnaire would not have revealed.

Respondents were randomly selected (using the stratified random sampling method) from lists of corps members in each of the interview cities. While the method of random selection was uniform, in each of the cities I had to vary slightly because of the numbers. For instance, in Port Harcourt, I picked every fifth name on the list, each for male and female, while in Lagos – with a higher number of youth corps members – I picked every tenth name. In Abuja, I picked every fourth name on the list. Occasionally it would turn out that a selected name had been re-deployed outside the city; in which case I would choose the next name of the same gender, and the fifth (or tenth or fourth) name after that.¹⁰ I had intended to interview 100 respondents (50 male and 50 female) in each of the cities. I ended up with 99 in Port Harcourt (49 female and 50 male), 107 in Lagos (53 female, 53 male, and one incomplete), and 101 in Abuja (47 female and 54 male). The female participants accounted for more refusals and non-availability than the male, hence the higher number (by eight) of male respondents in the questionnaire portion of the research.

Personal Interviews: I also conducted one-on-one interviews with key personnel in the public and private sector, especially to answer the secondary research questions about the role of the different sectors in developing and diffusing ICTs for socio-economic growth in the country.

Questions were also asked about the level of ICT usage in the different sectors, and interviewees were asked to make the connections between ICT usage in Nigeria and socio-economic growth,

¹⁰ The master list was generated by NYSC registration numbers and therefore state of origin was random by default. The list also indicated gender so it was easy to achieve gender balance before resumption of administration of the questionnaire.

as well as the links between government's national goals and its strategies for harnessing ICTs for development. One also sought to know the capacity of the private sector to indigenously develop ICTs in the country. This was based on the fact that in the developing countries, while the state sets the policies, developments in ICTs have been spearheaded by the private sector, with higher spending on research and development.¹¹ Different sets of questions were asked the different people depending on their role/mandate in the ICT industry. For instance, the questions to the Ministry of Education centred mostly on computer literacy in secondary schools while questions to the Ministry of Information focused on public awareness about ICTs. In the Ministry of Communication, I dealt with more technical issues such as Nigeria's capacity to be competitive in the ICT sector given the level of communication infrastructure in the country.

Content Analysis: Two major policy documents have set the tone for Nigeria's journey to the global information society. The documents, as they stand, clearly spell out their objectives and strategies for achieving them. One may not gain further insight from doing a content analysis of these documents since they are self-explanatory. However, it is necessary to analyze these documents – qualitatively – to see how the objectives and strategies fit into the current realities of the Nigerian ICT landscape to enable tentative predictions about the future. Also, the policies are clearly market-driven (or in the words of the policy on information technology, “private-sector driven”) but there are assumptions in the media about popular participation and human capacity building through these technologies – assumptions that seem to contradict the logic of a market-centered policy. It will be useful to see how these themes resonate in the policy documents.

¹¹ In the West, the private sector leads in the creation of technology, according to the UNDP 2001 Human Development Report, p.37

Other Sources of Data (conferences, observations and anecdotes): During the research, I attended conferences and seminars where major actors in Nigeria's IT industry presented papers. Many of these papers form the chunk of my database. Also, my need to communicate with the "outside world" took me to places where research data was obtained through the method of participant-observation. I spent a lot of time in cyber cafés in the three cities of research, as well as in other Nigerian cities. I observed first hand the various ways that Nigerians (especially the younger generations) are dealing with the challenges and opportunities offered by the new ICTs. In some of the cyber cafés, I played a more active role. For instance, in one center, located opposite the gates of the only university in the state (Cross River on the southeastern part of the country), the place was so busy one evening that there was a long line of people – mostly students waiting to be attended to. I found myself offering to help out by typing a term paper for a third-year business student. After that, I was typing e-mail messages for several customers. At the end of the evening, I wondered how the issue of privacy plays into this new way of communication. This is an area that might make for interesting research in the future. I also became a regular customer in many of the cyber cafés, and through conversations with the staff or owners, I obtained a lot of information crucial to an understanding of the diffusion and use of ICTs in Nigeria. Finally, through usage of some of the technologies, such as cellular phone, while in Nigeria, I also accumulated enough experiences to guide (but not influence) the analysis of the research.

Preliminary findings and analysis

For purposes of coherence and clarity, this section will be organized around the secondary research questions, the totality of which answers the key research question: How is Nigeria acquiring and utilizing ICTs as tools for socio-economic development?

Secondary Research Question 1: What is Nigeria's policy on information and communication technologies, and what factors drive this policy? Are policymakers' conceptions of ICTs integrated into the country's overall economic goals?

1. Decree No.75, the NCC and the National Telecommunications Policy: For many developing countries, the 1980s were indeed the "lost decade." This was especially so for Nigeria, which beside the debt crisis and the subsequent structural adjustment programs, was also in the grip of military rule, in varying degrees of dictatorship, from 1983 to 1999. Many sectors of the economy such as banking collapsed during the period with things getting worse during the government of General Sani Abacha, 1994 to 1998. A key casualty of those years was the communication sector, even though there were several attempts at revamping it. One of these was the promulgation of Decree No. 75 in 1992 by the Babangida Administration, to legally enable the establishment of the Nigerian Communications Commission (NCC). But it was not until July 1993, that the federal government inaugurated the first board of the NCC. The commission's main mandates included the:

- (a) (Creation of) a regulatory environment for the supply of telecommunication services and facilities;
- (b) (Facilitation of) entry of private entrepreneurs into the market; and

(c) (Promotion of a) fair competition and efficient market conduct among all players in the industry.¹²

Decree No. 75 and the subsequent creation of the NCC were attempts to re-structure a telecommunications sector that had remained largely untouched since the colonial era. By early 2000, the NCC had moved toward the achievement of some of its objectives. Its major accomplishment was the privatization of the communication sector (defined broadly to include broadcast communication and telephony). For the first time in Nigeria's history, private electronic media (radio and television) were established through enabling licenses issued by the NCC. Also, the commission set in motion the process that resulted in the formulation of the National Telecommunications Policy (NTP).

In October 1999, the then Communications Minister Mohammed Arzika announced, amidst media fanfare, the release of the NTP. He said the policy would help the country to "achieve a modernization and rapid expansion of the telecommunication networks and services to enhance national economic and social development (as) a major means of integrating Nigeria into the globalized telecommunication environment."¹³ The policy targeted four areas of ICT development: mobile cellular communication, appointment of carrier organizations, Internet and web-based services, equipment manufacture and software development. It had, "as its short-term objective, the attainment of 1.2 million cellular lines (and 2 million land lines) within two years from the date of the document's release. The medium-term objective was the provision of 5

¹² Federal Republic of Nigeria, *National Telecommunications Policy*, 1999

¹³ Aragba-Akpore, Sonny, "NITEL, MTS may be favored for mobile phone permits" in The Guardian Online – <http://www.nguardiannews.com> Accessed Feb. 22, 2000.

million (additional land lines and 4 million cellular lines) in the first five years of the document."¹⁴

The NTP has been revised at least three times since the first announcement. The revisions were mainly in response to the protests of stakeholders in the industry (especially the private sector) who wanted a policy framework that was more favourable to their investments – actual or potential. In the meantime, the NCC went ahead with the process of total privatization of the telecommunications sector. In 2001, after many failed attempts, the commission successfully sold licenses for the provision of mobile telephony using the global system of mobile communications (GSM) technology in Nigeria to four operators who each paid US\$285 million. One of the operators missed the deadline to pay the license fee. By the launch date, August 9, 2001, only two of the operators, Econet and MTN, were able to start services. The third operator was the Nigerian Telecommunications Ltd., the national carrier, which was not able to start services until October 15, 2001.

The following month, Nitel was itself put on the auctioneer's block. Fifty-one percent of the company was sold off to a consortium of private investors as part of government's effort to get out of the communication business.¹⁵ As Ernest Ndukwe, chief executive of the NCC explained, "the government has no business running telephone companies."¹⁶ Meanwhile, the government continues to expand the mandate of the NCC. For instance, in response to accusations of poor record keeping and management, the federal government in November shifted the responsibility of frequency allocation

14 Federal Republic of Nigeria, National Policy on Telecommunications. 1999.

15 Reports coming out of Nigeria indicate that the deal did not go through, as the consortium could not raise the money to pay for the shares. Nitel is back on the market.

16 Personal interview in Abuja, November 2001.

from the Ministry of Communications to the NCC.¹⁷ The Commission is also in charge of issuing operating licenses for Very Small Aperture Terminals (VSATs). Also, operation of a cyber café requires a licence from the NCC. At a seminar organized by the Nigerian Internet Group, many participants complained about the multitude of regulations and licensing regimes that investors have to pass through, and argued that these will hinder the growth of ICTs in the country.

Even so, NCC has frequently been accused of running the country's communication sector in trust for private investors. For instance, the Commission, contrary to its mandate as a national regulatory body, took out full-page newspaper adverts to defend GSM operators and their tariff regimes when Nigerians complained that they were too high. During our interview, Ndukwe said it was a wrong perception that the NCC protects the GSM operators.

We protect everyone (but) there is a need to create the atmosphere that will promote private sector investment in the country. Also we need to promote and encourage big companies ... we need to encourage big investments in the country. We protect both the big guys and the small guys (but) when a big company has problems, they affect the economy of the country more drastically. But while they are doing that, we don't want them to cheat people.¹⁸

Informally, a public official told me that it had been necessary to keep the tariffs high to discourage Nigerians from scrambling for GSM phones before all the problems had been sorted out. Whoever made that decision obviously did not anticipate the price war that would ensue two months later to drive down the cost of the services, even as the glitches in the system were yet to be sorted out.

¹⁷ And the announcement came in military-governance style through the media. I had only days before interviewed the man in charge of frequency allocation in the ministry. He obviously had no idea about what was coming as much of our interview was about his department's plan to re-organize the frequency allocation regime.

¹⁸ Personal interview in Abuja, November 2001.

2. The National Information Technology Policy: The National Policy on Telecommunications (NTP) had been widely criticized particularly for its narrow conception of telecommunications as telephone communication. This raised the need for a national policy that would specifically provide coverage for the information and communication sector. And so the ITP was announced in March 2001. The policy, specifically focusing on information technology (namely, the Internet and computers – including the related hard/software aspect of the technologies), was aimed at addressing some of the shortcomings of the NTP particularly in acknowledging the comprehensive nature of information and communication technologies. The document was a result of consultations among interest groups in the industry culminating in a three-day national workshop on National Information and Communication Initiatives – Options, Policy and Plans in Abuja in March 2000. The workshop was held under the auspices of the Cooperative Information Network (COPINET) and sponsored by various organizations including the Nigerian government and Ford Foundation. The papers and comments presented at the workshop laid the framework for the ITP. Relevant professional associations such as the Computer Association of Nigeria (COAN), Information Technology Association of Nigeria (ITAN) and the Institute of Software Practitioners of Nigeria (ISPN) later submitted proposals to the policy drafting committee chaired by Professor Gabriel Ajayi, a key figure in Nigeria's IT industry. He was subsequently appointed in June 2001 as the director-general of the NITDA, a creation of the IT policy. According to Ajayi, the need for a national policy on information technology became imperative after the “the participation of the Nigerian delegation in the first African Development Forum on the Challenge to Africa of Globalization in the Information Age held in Addis Abba in October 1999.”¹⁹

¹⁹ Personal interview in Abuja, November 2001.

Unlike the NPT, the ITP was been well received by the various interest groups in the industry. As Ajayi states: “the response from the private sector has been overwhelming.”²⁰ This is not surprising. For one thing, the policy is clearly a market-oriented document and essentially the product of all the contributions generated from the private sector. In fact, it was interesting how many of the people interviewed in the course of this research were using the same words as those contained in the ITP when speaking about Nigeria’s IT industry and visions for the future – even when the document was yet to be made public, and many of the public officials interviewed had no knowledge of the content. Secondly, the policy document clearly states that the development of ICTs in Nigeria must be private-sector driven, as the role of government will be simply:

- To provide an enabling environment so that private ventures can flourish.
- To use favourable fiscal policies to make Nigerian IT products and services globally competitive.
- To ensure that NITDA in collaboration with the private sector develops a large pool of IT professionals with wide range of state of-the-art IT skills for internal and international redress of shortages.
- To establish joint government/private sector institutional framework for developing advisory standards and quality control.
- To encourage local capacity building by providing guaranteed markets in specialized and strategic IT sectors.²¹

According to the vision statement, the ITP is aimed at making “Nigeria an IT capable country in Africa and a key player in the Information Society by the year 2005, using IT as the engine for sustainable development and global competitiveness.”²² This statement is further broken down

²⁰ Ibid.

²¹ Federal Republic of Nigeria, *National Information Technology Policy*, p.24.

²² Ibid., p. iii

as a “mission statement” to show the specific ways in which the country intends to “Use IT”. These are for: education, creation of wealth, poverty eradication, job creation and global competitiveness. It sets out 31 general objectives, and strategies for actualizing the policy’s vision statement and they include: the development of a national, state and local information infrastructure backbone by

using emerging technologies such as very small aperture terminals (VSAT), fibre-optic networks, high-speed gateways and broad band/multimedia technologies; provision of adequate connectivity to the global information infrastructure ... establishment of IT parks as incubating centers for the development of software applications at national, state and local levels; and the establishment of the National Information Technology Development (NITDA) to implement short-to-medium term objectives of the policy.²³

This agency, which was established three months after the policy was announced, will “regulate, monitor, evaluate and verify progress on an on-going basis under the supervision and coordination of the Federal Ministry of Science and Technology. Its operations will be funded with a start-up grant of at least US\$10 million.”(Ibid) Five months after its creation, NITDA had set up shop in Abuja, and begun the implementation of some of its assignments. It embarked on a multi-phase public service information network with the hub at its Area 11, Abuja headquarters, and accesses the Internet through a VSAT. Part of the first phase of NITDA’s assignment involved the setting up of a “smart room” with 30 computers in the agency’s office for the training of key government functionaries starting with President Olusegun Obasanjo and his ministers. As at November 2001, it was already consulting for the Federal Civil Service Commission and some ministries in their IT development programs. Through alliances with some international organizations, NITDA helped to set up a telecentre at the International Women’s Centre in Abuja. At the time of this research, the agency was trying to help Kwale, a

²³ Ibid., p.38

rural settlement outside Abuja, to link up the community with a local area network (LAN) and a future plan for an external connection to the Internet through VSAT.

NITDA was also mandated to create IT departments in selected educational institutions. To start off, the agency was to provide 5,700 computer systems to 185 tertiary, secondary and primary institutions within the first three years. The agency, according to Ajayi (its director-general), also plans to set up training centers in Abuja and in each of the six geo-political zones in the country. Target trainees at these centers will include fresh university graduates who will be taught either in the area of IT application or software/hardware development. The objective is to re-structure the country's education curriculum from primary to tertiary levels with a view to training half a million IT professionals by 2004.

Ajayi acknowledged two major challenges in the process of moving Nigeria to the global information society. These are: awareness and access. On awareness, he said his agency, as well as other state organizations such as the Ministry of Information and National Orientation, are embarking on projects to publicize the benefits of ICTs. The message is that IT can be used to "leverage our development" as well as assist in achieving President Obasanjo's overall national goals. Ajayi noted that the years of military dictatorship in Nigeria coincided with the revolution going on (in information technology) "but we couldn't participate. We realize that Nigeria is starting late."²⁴ He however added that the country could still use IT to meet its overall objectives especially in the area of education (long-distance learning, research and bio-technology). In raising awareness, the agency plans to hold IT forums in various parts of the country, as well as take out television and radio advertisements on the

²⁴ Personal interview in Abuja, November 2001.

benefits of IT. The forums will include one with local government chairpersons and IT commissioners in each state to raise IT awareness among government officials at the grassroots. Reaching chairs of the 774 local government councils is considered crucial in raising IT awareness and use in Nigeria because as vice president of the Nigerian Internet Group, Emmanuel Ekuwem pointed out, as soon as one local government is on the web, others will want to score political points by also going online. In the process, the technology spreads and both usage and access expand. His Nigerian Internet Group planned to meet with local government executives who come together under the umbrella of Association of Local Government of Nigeria (ALGON).

They are having a meeting in December (2001) and we are going there. ... We are going to address them on the power of the Internet, the benefits to be derived from being connected to the information superhighway. All LGs (local governments) in this country can afford a VSAT or BBB node, only that they didn't know. I told some recently and one asked, "Emmanuel, how much?" He couldn't believe how cheap it was. LGs have a lot of money ... I can tell you this that because politicians want to go to the street or a small building and cut a ribbon to commission something, or a plaque on the wall (as soon as one starts, they will all want to do it). We want to ride on that Nigerian mentality and give them their scissors to cut the ribbon to commission their BBB/VSAT node with full Internet service in their local government (headquarters) with a plaque saying it was done in their time.²⁵

Now to more directly answer the questions with which this section began. Nigeria does have two policy documents on the ICT sector. These are the National Telecommunications Policy and the National Policy on Information Technology. While there are clear overlaps and duplication of coverage areas, both policies, together, seem to provide enough guidelines for a successful development of the ICT sector in Nigeria. These policies are clearly driven by private-sector interests. This is observable not only in the tone of the documents themselves but also in the rush by government to get out of the ICT sector. For instance, the sale of Nitel and various statements made by public officials clearly show that government sees its role as that of regulator and facilitator of an

²⁵ Personal interview, Lagos, November 2001.

environment favourable to private investment. While this move might be welcome by Nigerians given the inefficiency of state-run services, the concern from several quarters is that government regulators are not protecting the interests of consumers especially against foreign investors.²⁶ There is also concern about government's capacity to faithfully implement the policies. As Ekuwem notes, the general concern "is the faithful implementation by government. It's not the content of the policies. These are superb policies. We have seen them and digested the contents. ... In Nigeria, the problem has always been not with policy formulation but with policy implementation." He particularly worries that a new government or leadership will come in and scrap the policies because they are no longer politically convenient or appoint people to positions on the basis of political patronage rather than competence. Corruption, according to him, will also hinder the faithful implementation of the policies to achieve the stated goals. As well, "undue reliance" on foreign companies will adversely affect the goal of creating an IT-capable country. Ekuwem agrees that "this is a globalized world" but "the fact is that some jobs should be done by Nigerians" in the areas where they have competence.

After all, we are not making routers and switches and Ethernet cards and microprocessor chips and motherboards. So those ones can be imported, but when it comes to assembling, systems integration, turnkey projects implementation, we have sufficient local manpower to handle such projects. ... (Finally) another area that will have a negative impact on this revolution is energy. It's energy that drives the telecom industry. NEPA is not reliable and many companies have come to rely on generators. They even have two as back up to back up. ... ISPs have NEPA, one generator as back up and a second generator as back up to back up. They also have DC to AC inverters from the back-up batteries to change to DC when the batteries have low charge by NEPA or generator. So you can see, three levels of power back-ups because NEPA is not performing well.²⁷

26 While a telecom operator must have a certain percentage of Nigerian ownership, Econet and MTN are still perceived by Nigerians as Zimbabwean and South African companies, respectively. Hence in newspaper columns and letters to the editor, one reads things such as "they wouldn't do this in their countries" or "they just want to get in, make huge profits and return to their countries."

27 Personal interview, Lagos, November 2001. National Electric Power Authority (NEPA) is the national (and only) electricity supply company in the country.

While many people such as Ekuwem express concerns about the things that are likely to go wrong with the implementation of the NTP and ITP, interviews with policy makers indicate that to some extent, their conceptions and understandings of ICTs have been integrated into overall economic goals. At the level of practice, however, there are gaps between awareness of need and availability of the technologies. For instance, in the Ministry of Communications, about nine middle-level staff have attended various IT trainings. But only few of them have access to basic ICTs such as computers. For this staff, the training is a good way to spend one month in Lagos at the expense of the government, at the end of which they return to their offices in Abuja. Among some, however, there is a sense of frustration at the inability to utilize their newly acquired skills in their routine official tasks so that work-place productivity can be increased. While a few staff in the Ministry of Education had attended one form of IT training or the other, and frequent IT-related conferences in and out of the country, very few actually have access to ICTs beyond computers. The case of this ministry is unique in other ways: staffs lack physical space such that two or more officers share the same desk, and take turns with the workspace. At the time of research, there were only two functional telephone lines in the Abuja national headquarters of the Ministry of Education – one in the office of the Minister and a general line that is constantly busy. This means that only very few senior staff had access to the telephone, and none had access to the Internet at work.

While the Ministries of Communications and Science and Technology have a much higher level of ICT use than many of the other departments, the most extensive usage of ICTs among the ministries was observed in the Ministry of Information and National Orientation. Its senior officials had their own official laptops and many lower-level employees had access to computers

and other forms of ICTs. It was the only ministry with a cyber café on its premises and staff and members of the public could use it for free (limited to 30 minutes). The computers at the centre are connected to the Internet through a 256kps VSAT and therefore relatively fast. The problem though was that the line up was usually so long that those who could afford it would prefer to go to a fee-based cyber café in the city. For staff, it was still a positive development as they would go early in the morning, sign in, take a number, and go back later in the day to use the system.

Also in the Ministry of Information itself, on the insistence of the head of the IT unit, Mrs. Ibukun Odusote, that all important communication would be sent by e-mail, senior staff who all have direct access to the Internet check their e-mail at least twice a day while at work. Odusote had also organized an IT training for the senior-level staff including the top civil servant in the ministry, the permanent secretary. As at the time of this research, she said all the senior staff (usually from assistant directors up) had basic IT literacy.

All the directors and deputy directors are on the Internet. Eventually everybody, including cleaners and drivers, will have access (to the Internet) but not everyone will have computers. All computers will be networked. Work on the networking has started already, we are now re-cabling the building.²⁸

Secondary Research Question 2: What is the status – or level of penetration – of ICTs in Nigeria?

Nigeria is not famous for its record-keeping. When asked this question (in regards to specific ICTs) different people offered different responses. Also, due to the nature of the field, the statistics are in flux. To answer this question as accurately as possible, one must look at official

28 Personal interview, Abuja, November 2001. One notes that Mrs. Odusote is usually referred to as the “Mother of the Internet” in Nigeria, for pioneering the first public-use of the Internet in 1994 when she was the head of the Computer Science department in Yaba College of Technology, Lagos.

externally generated data, such as from the World Bank, International Telecommunications Union (ITU), the UNDP Human Development Index and the recently released *Global Competitiveness Report 2001-2002*. Personal interviews and anecdotal comments gathered during the research also give an insight into the level of ICT penetration in Nigeria. Finally, while it is by no means accurate, the responses from the 306 respondents to the structured questionnaire offer an idea about access to and patterns of use of the technologies, both of which provide some insights into the quantitative level of penetration.

According to the ITU, Nigeria in 2001 had a telephone density of 0.43 (using the population of 116.929 million), and 2.22 main lines per 100 households (2000 figure). It puts the number of mobile phones per 100 inhabitants at 0.28, and with a total subscriber base of 330,000. And from its estimates, there are 750,000 personal computers in the country, which translates into 0.66 per 100 people. The recently released *Global Competitiveness Report, 2001-2002* has similar statistics, especially since its authors use the ITU data, though for earlier years than 2001. (For instance, its teledensity for Nigeria in 2000 was 0.4 and if the numbers are accurate, it means

Table 1: Level of ICT penetration in Nigeria

	Ph. lines (total)	Ph. lines/ 100 inhab'	Mobile phone subscribers (total)	Mobile phone / 100 inhab'	Internet hosts (total)	Internet hosts / 10,000 inhab' (2000)	Internet users (total -- 2000)	Internet users / 10,000 (2000)	Est.PCs (total)	Est. PCs / 100 inhab'
Nig.	500,000	0.43	330,000	0.28	842	0.07	200,000	17.57	750,000	0.66
Africa	20,918,300	2.62	23,545,200	2.95	215,221	2.76	4,600,900	59.09	6,692,000	0.96

Source: International Telecommunications Union, 2001

there was a slight increase in 2001.) Similarly, the World Bank relies on data from the ITU,

which appears to be the most authoritative source on the global level of ICT penetration and usage.

In Nigeria, industry state holders use a slightly different set of data, with some convergences with externally generated data. According to official sources (such as Mr. Tayo Ekundayo, Nitel's public relations manager), Nitel has installed capacity of 700,000 main telephone lines, but as at October 2001, only 400,000 of these were functional. The private telecommunications operators in total had a subscriber base of 100,000 phone lines, which would bring the number of actually working phone lines in the country to 500,000 (same as the ITU data). Before the GSM operators rolled out their services in August 2001, there were about 31,000 mobile (analogue and digital) phone subscribers. Between August 2001 and June 2002, 600,000 subscribers had been added to the number of cellular phone users in the country. This is the figure announced by the GSM operators and has not been independently verified, though it might be accurate as the ITU figure for 2001 is 330,000. Given the rapid spread (geographically and socially) of mobile phone usage, one can estimate that the numbers will triple by the end of 2002. Again, there is no official figure for the number of personal computers available in the country, but 500,000 has often been used (with the ITU figure considerably higher at 750,000). The total number of computers in the country is expected to rise considerably for three reasons.

First, the federal government has embarked on a "computerize Nigeria project" as part of its implementation of the national policy on information technology. Thus, computers are being purchased in large numbers for key public organizations and secondary schools. For instance, according to a Ministry of Education source in Abuja, 515 computers were being purchased for

98 unity (federal-government owned and run) secondary schools and federal technical colleges in the country. As at December 2001, some of these computers had already been sent out to the schools. Second, in October 2001, the first made-in-Nigeria computer, Zinox, was launched in the country. According to its chairman and managing director, Chief Leo Stan-Ekeh, Zinox has two major objectives: to create an information technology identity for Nigeria and to “computerize Nigeria.” To achieve the first objective, the company wants to make locally available, affordable and tropicalized computers for domestic use and for export to neighbouring countries. To achieve the second objective, the company started a tour of the country to publicize, not just its products, but computer usage. “We want to start with building a PC culture first ... start with creating interest,” Stan-Ekeh said.²⁹ This will then build interest in Zinox so that users “will feel special for having a Zinox computer.” (Ibid.) The company is also encouraging training in computer technology through the funding of a N10M computer lab in one of the universities in the eastern part of the country with the condition that all students must take a computer course regardless of their fields of study. At a smaller scale, Zinox has donated computers to schools in Lagos (its area of operations) and is lobbying the business community to follow suit. Stan-Ekeh’s sale pitch is: rather than donate rice to people for Christmas, give them computers because that way you empower them to help themselves. He hopes that awareness in computers will lead to demand and his company has the capacity to meet that demand.

There is a third reason why the number of computers in Nigeria is expected to rise – and the reality may already exceed official figures. This is the process of “cloning” of computers such that the prices of the technologies are falling rapidly. In the past, Nigerians in the Diaspora and

²⁹ Personal interview, Lagos, December 2001.

charitable agencies dumped used and mostly technologically obsolete computers in the country. But now, the cost of shipping these old computers is outstripping the cost of buying locally “assembled” computers of the highest grade and capacity in Nigeria such that more people can now afford to purchase computers than in the past. In fact, according to Esther Gunda, an engineer and deputy director of the Technical Services Division of the Ministry of Communications in Abuja, the problem for many middle class families living in the cities is not affordability but awareness of the use of computers. For instance, many senior-level women in the various ministries in Abuja spoke casually about pieces of cloth (such as lace, a common fabric for many Nigerian fashions) costing as “low” as ₦80, 000 a piece (a piece is usually five yards). But when asked about why they had no computers, they complained that the costs – of acquiring the training and the technologies – were too high. A larger percentage of my female respondents called for government’s intervention in the costs of computers without realizing that the cost of a piece of lace – which many of them wear only once or twice before new designs outmode them – was not that much lower than a computer and printer. During the time of this research, one could buy a high-capacity computer and printer for about ₦120, 000.

There is not much verifiable information on the levels of ICT penetration for other ICTs. The NCC, which should have such statistics, does not. In fact, on its website (www.ncc.gov.ng), it has a link called “Industry Statistics” that has been “under construction” for more than a year now. Titi Omo-Ettu, the managing director of Executive Cyberschool, estimates that there are 70,000 Internet account holders and 350,000 Internet address holders. It is easy to calculate the number of Internet account holders from the records of the 24 Internet Service Providers in the country, but determining the number of e-mail address holders is rather tricky. For one thing,

many people have more than one address through the “free” Web-based Internet hosts such as Yahoo! and Hotmail. Secondly, neither the numbers of Internet account holders nor e-mail address holders gives an insight into the level of Internet use in the country. The presence of cyber cafés and multiple users of even private accounts conceal the level of use in the country.

For the former, cyber cafés are springing up in major cities all over the country, particularly in some parts of Lagos such as Ikeja where it appears that there are at least two cyber cafés on every block. At one centre on Toyin Street, Ikeja, called Webcom, there are at least 90-networked computer terminals hooked to the Internet through wireless connection –which makes for very fast connections. The centre stays open 24 hours, and is constantly busy. It also operates Internet telephone services. Within 50 metres on either side of Webcom are four other such facilities. Many of these places do not keep track of users (not ostensibly though), but Webcom does keep a log of all phone calls made by customers from the centre. Many patrons of cyber cafés, especially those in Lagos with a relatively higher level of computer literacy, pay a per-minute “browsing” fee. They buy time (similar to the way one buys a pre-paid telephone card) to access the Internet on their own. Most of these people have their own e-mail addresses on Yahoo! Hotmail, etc. But there are other patrons with no computer/Internet skills who pay a flat fee to send or receive e-mail messages through the cyber café’s own e-mail address. For these reasons, it is difficult to determine the level of usage in any quantitative way by looking at e-mail addresses alone.

To use the analytical framework developed by Wolcott, et al (1998) to determine pervasiveness, a dimension of the level of Internet diffusion and penetration, one argues that, from the available

quantitative data, Nigeria is clearly on Level Two of the pervasiveness continuum, and the level of penetration and diffusion is therefore “established.” A country reaches this level when “The ratio of Internet users per capita is on the order of magnitude of at least one in a thousand. There are fewer than 1,700 hosts per 10 million people.”³⁰ Nigeria is therefore a long way from arriving at the global information society in terms of the penetration of the technologies that enable this process. From the preliminary analysis of the qualitative data collected during the research, one concludes, with a caveat, that the various ICTs have been “established” in Nigeria. The cautionary note comes from the observable fact that ICT-generated activities are prevalent in Lagos, Port Harcourt and Abuja and tapers off as one moves to other cities and states. And in this sense, the level of geographic dispersion (following the Wolcott framework), Nigeria is again on Level 2: Internet diffusion in the country is “moderately dispersed” because “Internet points-of-presence are located in at least half of the first-tier political sub-divisions of the country.”³¹ In Nigeria, the 36 state capitals would constitute this first tier of political sub-divisions.

The use of ICTs (as secondary technologies) follows the pattern of the pre-existing technologies – such as telecommunications and electricity – in the country. For instance, given the state of telephony in the country – with a significant portion of the country not connected to the national telephone network, a greater percentage of Nigerians have no access to ICTs that are integrated through the telephone. Also, as observed during the research, many of those involved in ICT usage are predominantly male and in the 20-45 age group and most often college educated. The

30 Peter Wolcott developed the framework for Peter Wolcott, Seymour E. Goodman and Grey E. Burkhart, *The Information Capability of Nations: A Framework for Analysis*, Mosaic Group Report (January 1997). But the above reference was taken from Goodman, et al, *The Global Diffusion of the Internet Project: An Initial Inductive Study*, a Mosaic Group Report (December 1998), p.4

31 Ibid., p.6

interesting thing however is that many of those working in the cyber cafés are females (whose jobs are generally clerical) and young non-college-educated males (who went into computer training because they did not or could not get into the university). But many of the owners of these places are college-educated males who left their jobs (mostly IT-related) to start their own business. (An example is the owner of Ikeja-based Webcom, simply known as “Oga Paul.”) These micro venture capitalists are indeed the immediate beneficiaries of the assumptions about how ICTs can reduce poverty – given the high demand for these services, especially in Lagos, Port Harcourt and Abuja, where the availability of wireless connections greatly reduces overhead costs and allow scale networking, and therefore optimal returns on investments.

Only very few of the 306 respondents of the structured questionnaire had not used the Internet in the month leading up to the interview, and these were mostly female. Of course, there was a problem of understanding what technologies constituted ICTs. For instance, some of those who said they had not used the Internet for the past one month said they had sent or received e-mail and or used an Internet search engine. Also, some of those who said they hadn’t used the computer in the past one month would later on say they had retrieved or sent their e-mail by themselves. Many therefore did not seem to understand the integrated nature of ICTs – for instance, that in most cases one needs a computer to access the Internet (besides the use of PDAs, cell phones and other web-enabled mobile gadgets). One can tentatively conclude that in the areas studied, access, awareness and usage of ICTs are high, but this is – like many things – mediated by geography, occupation, age, sex, level of education and income, and access to the technologies.

Secondary Research Question 3: How does government perceive its role in the acquisition and use of ICTs, and consequently their application as strategies of development? Who are investing in ICTs? What is the role of the private sector?

The first part of this question is easily answered with references to the two policy documents on telecommunications and information technology. The government in Nigeria clearly considers its role in the acquisition and use of ICTs as a facilitator and regulator. The latter needs a qualification however. As noted earlier, because of public officials' belief that the state has no business in delivering communication services, even a regulatory body such as the NCC sometimes perceives its role as that of the protector of private interests. As Ndukwe said in an earlier reference, the investors (in this case the GSM operators) committed so much money into the project that the government has to protect their investments. Also, government wants to encourage potential investors with the message that it would guarantee the safety of their investments. The problem in this is that the consumer is left unprotected – as expressed in numerous opinion articles and Letters to the Editor in newspapers and in the communiqué of a workshop on IT held in Abuja in October 2001.

In the section on government-private sector partnership, the ITP recognizes that “IT should be private sector driven (and therefore) government shall engage joint venture investment with the private sector, in addition to the provision of an enabling environment for investment.”³² The strategies include: the establishment of “IT Parks” as tax-free zones to attract investment. It is expected that the IT Parks would “greatly enhance the ease of doing business by providing favourable access to the Nigerian domestic markets by providing incentive for export

32 Federal Republic of Nigeria, *National Policy on Information Technology*, 10:1.

production.” (Ibid.) The government will also develop research and development partnerships with the private sector “through equitable facilities sharing and by establishment of pilot schemes in software and hardware development within/outside designated IT Parks.” (Ibid.)

Other strategies are:

- Establishing and supporting the National IT Development Trust Fund (NITDEF), which amongst its other activities, will provide venture capital finance to the start up of SMEs in the IT sector. The National Information Technology Development Agency (NITDA) will manage this fund.
- Promoting equity participation with IT investors both locally and internationally.
- Establishing an export promotion drive to sponsor participation of Nigerian IT solutions and service providers in national and international IT exhibitions.
- Setting up ‘power corridors’ to the IT Parks to ensure consistent and reliable power supply.
- Removing all bureaucratic bottlenecks to the development of local capacity building.³³

This section of the ITP also provides insight into who will be (or are) investing in ICTs in Nigeria. But while the government actively encourages private-sector participation, it will lay the framework through projects such as the IT Parks. At the outset, the government, through NITDA will establish IT Parks in the six geopolitical zones of the country and in Abuja the Federal Capital Territory. Private investors would be invited to take advantage of the fiscal incentives and tax breaks to set up production sites in the parks. Details on the operation of the parks were sketchy as at December 2001, but the following table shows where these parks will be located and how much has been estimated for their establishments.

These “IT and Science Parks (are expected to) provide a highly supportive environment where new ideas can be nurtured and brought to the market quickly. Government-backed venture capital and government-endorsed business incubators are designed to

³³ Ibid.

attract talent and help entrepreneurs develop their ideas into commercially viable business by providing a range of financial, legal and technical services. (Ibid., Appendix B3)

Table II: NITDA's IT Parks

State	Cost of 100 ha land (US\$ million)	Cost of utilities (US\$ million)	VSAT and IT services (US\$ million)	Offices and Warehouses (US\$ million)	Total (US\$ million)
Sokoto	1.5	3.0	2.0	6.0	12.5
Yola	1.5	3.0	2.0	6.0	12.5
Jos	1.5	3.0	2.0	6.0	12.5
Lagos	4.0	3.0	4.0	9.0	20.0
Yenagoa	4.0	3.0	2.0	6.0	15.0
Enugu	1.5	3.0	2.0	6.0	12.5
Abuja	S&T Park	3.0	3.0	8.0	14.0
Total:					99.0

Source: National Policy on Information Technology (Government Copy)

To further encourage private-sector participation, the government has a package of fiscal incentives to reward enterprises that make a "financial commitment" to building IT capacity through production or staff training. And to encourage local production, importation of IT components would attract 1.5 percent duties while the importation of completely finished IT products would attract 7.5 percent import duties. The government, through NITDA, will be more directly involved in some aspects of IT development through strategies such as the building of local, state and national information infrastructure. But beyond creating a conducive policy environment and raising an IT-sensitive bureaucracy, the government's major role will be in creating public awareness on the functions and benefits of ICTs, starting with its ministries and

agencies. So far, all the ministries included in this research have an IT unit – at varying degrees of intensity and practice.

Finally, the private sector perceives itself as being the main agent of ICT development and diffusion in Nigeria. In many countries, the private sector has no doubt led developments in this sector. In Nigeria, this is even more so. For instance, as noted earlier, the ITP gives a greater role to the private sector and government/private sector collaborations. And this is not by accident given the emergence of the policy from a workshop organized mostly by the private sector – even as it was funded by various groups (both governmental and nongovernmental). The conclusions of the workshop formed the first draft of what became a national policy on IT. The ITP was therefore a document put together by the private sector to address their needs and in many ways, it will be implemented by the private sector – secure in the knowledge that the government would protect its interests. Ekuwem confirmed this much when he said:

We want the implementation of the IT policy to be private-sector driven because the private sector is constant. They are investors. ... If the implementation of the policy is in the hands of private-sector organizations, then we are most sure ... of sustainability. The President has said that the new Nigerian economy should be market-oriented, private-sector-led and IT-driven. This is superb. This is the statement of Mr. President and we are all happy about that.³⁴

Secondary Research Question 4: Can ICTs help Nigeria to transcend the conditions that have traditionally acted as impediments to previous development efforts?

I had tentatively identified some of these conditions as: lack of basic infrastructure, institutional framework within which ICTs are expected to operate, ideological or cultural framework, ethnic divisiveness, and poverty and illiteracy.

³⁴ Personal interview, Lagos, November 2001

Lack of basic infrastructure:

A major hindrance to the use of ICTs in Nigeria has always been the poor state of telecommunications in the country. For one, the telephone density in the country is extremely low. Another problem has been the epileptic nature of power supply in the country. A third obstacle is the fact that until very recently, Nigeria did not produce any ICTs, many of which are imported as finished products. During the research, it was interesting to observe that Nigerians are getting around these infrastructural problems through three major ways: mobile phone telephony, alternative sources of power and local manufacturing and/or improvisation of ICTs.

Mobile telephony – The licensing of GSM as the mobile telephone technology of choice has dramatically increased the country's telephone density. On the surface, the technology does not depend on Nigeria's pre-existing telecommunications system. The pre-paid packages make it easy for even the homeless to afford a telephone – not in terms of the price, but because one does not need to hook up, show evidence of regular income or sign any contract. Also like many countries in Europe (and unlike North America), users do not pay for incoming calls. That way, they can manage their credits and tailor usage to meet their ability to buy the “re-charge” (pre-paid phone) cards. In the cities where the service providers have set up base stations, the sight of people on the street talking on their cell phones have become as regular as in places such as Ghana and South Africa.³⁵

³⁵ South Africa has the highest level of ICT penetration and use in Africa. Ghana, while not ahead of Nigeria in total numbers, records a higher level of per capita usage of many ICTs.

The problem however is that this technology is not entirely independent of the pre-existing telecommunications framework as its capacity to expand depends on the capacity of the country's public switched telecommunications network (PSTN). The launch of the GSM technology in Nigeria coincided with the preparations to sell Nitel, the country's public telecommunications operator. This stalled plans to expand the PSTN, a contract of which had been awarded to the German company, Siemens, since 2000. By the end of 2001, work had not started because Siemens would not commence until it was paid. Also, with the sale of Nitel, nobody wanted to take any risks in case the new owners were not interested in the project. The result was that the high demand for the relatively affordable GSM services led to congested networks in dire need of expansion such that it became difficult to reach other subscribers within the same network and extremely difficult to reach subscribers of other networks. Boye Olusanya, head of the customer services division of Econet – one of the GSM service providers – believed that this problem would be eliminated when more people subscribe to the GSM networks and there are therefore more mobile to mobile calls, thus reducing the dependency on Nitel and the necessity for GSM calls to go through the public switched network.³⁶ At the end of 2001, there were still more people on the PSTN than on the GSM networks.

Alternative sources of power –While the cost of the GSM mobile phone services was affordable – relative to North American rates – they were still very expensive in terms of the income of the average wage earner in the country. The GSM operators attributed this to the high overhead costs specifically as a result of the poor power situation in the country. They argued that in South Africa (where one of the companies also operates), they did not have to worry

³⁶ Personal interview, Lagos, December 2001

about power supply and so they could keep the cost of phone services marginally low. Whereas in Nigeria, for instance, Econet (the Zimbabwean firm), had to have at least two generating sets at each of the ten base stations it started off with. One generator was a back up for the public power supply and the second generator was a back up to the first set – all to ensure uninterrupted service. Again as Olusanya, of Econet said:

Infrastructure in the country has been a big (problem). In North America, when you talk of cell sites and things like that, you don't worry about generator. Here, you need a generator and a back-up generator and if you are not careful, you need a back up to back up generator.³⁷

Ekuwem of the Nigerian Internet Group expressed a similar concern: “Energy is an important factor in this revolution. If not probably taken care of, the (information and communication) revolution will fail. It's energy that drives the machines.”³⁸

For this reason, manufacturing and sale of generators, power back ups and uninterrupted power supply (UPS) systems are among the highest growing businesses in Lagos and some other big cities in the country. When someone says he (rarely she) wants to buy a computer system, what he means is that he wants to buy a computer, printer and UPS. In all the places I visited during the research, I did not see a “system” that did not include a UPS on the floor under the computer stand. The average would be two and in some places – depending on what the system is being used for – there might be three UPS units, with each providing back up for the others. At cyber cafés, all the computer terminals would have at least one UPS that might provide up to 20 minutes of power when the public power supply was gone. In every office (besides government

³⁷ Personal interview, Lagos, December 2001

³⁸ Personal interview, Lagos, November 2001

offices), there was at least one high-capacity generator, often with switches that automatically turn them on only seconds after the public power supply is gone. In many of the cyber cafés and business centres, customers are charged higher for services if a generator is being used. This is very common in cities where there is an absence of many service providers and therefore the customer has fewer choices.

Local manufacturing and/or improvisation of ICTs – With the launch of Zinox computers, Nigeria is officially a computer-producing country. Before then however, as noted earlier, there was a lot of “cloning” or local assembling of IT components in the country. This process has in the last two years drastically reduced the cost of acquiring computer systems in the country. But for many of the respondents of the research questionnaire, their lack of computers continues to be a factor of affordability. For instance, about 70.1 percent of the 149 female respondents in the study described themselves as computer-literate, but just 63.5 percent of these had used a computer in the month prior to the survey. And only 12.1 percent (or 16) of the computer-literate women either owned a computer or lived in homes where there was a computer. Of the 67.8 percent men (of 157) who said they were computer-literate and had acquired some form of computer training, only 11.6 percent (or 21) of them owned a computer or lived in a home where one was available.

Overcoming the hurdles – With cell phones that come with Web-Application Protocol (WAP) that allows one to send and receive e-mail without using the computer, power back-ups and local production of computers and computer accessories, many Nigerians have therefore found ways of dealing with obstacles to ICT diffusion posed by lack of certain infrastructures. But it is

obvious that the solutions are only temporary and geographically limiting. A large proportion of the country is not connected to the national electricity grid. The use of UPS presupposes an occasional presence of public power supply. Also, the use of generators is not sustainable for business purposes because of the cost of fuelling and maintaining them. Many affluent people in rural areas who have generators use them only at night or during important events – such as weddings and funerals. Secondly, for a lot of reasons, developing the fixed-line phone system may still be the best way of increasing teledensity in Nigeria. For one thing, the framework is already there – electricity power lines and railway lines – which can be extended and adapted for transmission of voice and data. Furthermore, while the GSM operators are required to deliver services in the rural areas (and also some number of land lines) within five years of operation, in the short term, they are likely to concentrate on recovering their investments by focusing on the provision of mobile telephone services in “profitable” parts of the country. And with a government that seems to protect their interests more than that of the consumers, it is not likely that the NCC, the regulatory body, will enforce the obligations to contribute to rural telephony.

The institutional framework within which ICTs are expected to operate: Van de Ven has argued that “innovations not only adapt to existing organizational and industrial arrangements, but they also transform the structure and practice of these environments.” (Cited in Montealegre, 1999³⁹) For this transformation to occur, there has to be an appropriate framework on which the innovations must build. The evidence would suggest that the two policy documents, despite their shortcomings, might provide the starting point for development of ICTs in Nigeria. For instance, the ITP comprehensively addresses the various sectors such as education and health. It clearly

39 Montealegre, Ramiro, “A case for more case study research in the implementation of Information Technology in less-developed countries,” in *Information Technology for Development*, 1999, Vol. 8, Issue 4, p199.

states that Nigeria wants to become “an IT capable country in Africa and a key player in the Information Society by the year 2005, using IT as the engine for sustainable development and global competitiveness.”⁴⁰ As policies go, it could not be any clearer than this. Of course one may argue that a policy is only a declaration of intentions and there are no guarantees that these intentions will be actualized. Also in Nigeria, with rapid turnover in government leadership, it is possible that a new administration will emerge with new priorities and the current emphasis on ICTs for economic development will shift elsewhere. In fact, this is the fear expressed by some of the IT enthusiasts in the private sector, many of whom contributed to what is now the ITP. (See Ekuwem’s comments above.)

For now, however, the institutional framework has been developed through the formulation of the policies and establishment of implementing agencies. The next three years will determine if it is solid enough to help the implementers of the documents to achieve the objective of making Nigeria an IT-capable country by 2005.

The ideological or cultural framework: It is widely argued that technology is not just the equipment, but comes bundled with certain sets of ideas. In feminist analysis of women and technology, the point is particularly made about the ideological context at the point of the invention of technology. For instance, in the context of new information and communication technologies, it has been argued that the computer was designed with a certain male notion of rationality and efficiency, and the Internet is specifically, a creation of an institution of male supremacy (the United States military) and therefore came appropriately bundled with male ideologies that particularly exclude women. For instance, the “histories of computer networking

40 Federal Republic of Nigeria, *National Information Technology Policy*.

document the evolution of electronic communication in a male-dominated environment; the first computer network, ARPANET, evolved in the 1960s out of the US military.”⁴¹ For this reason, men got in first, and according to Spender (1995), shut the door behind them and re-arranged the technology to suit their needs. The consequence is that in many cases where women have equal access to the technologies, they are held back by fear that they are stepping into male territory. While agreeing with the debate that “technology does not develop independently, but is part of a particular social-economic and cultural set up which circumscribes relevance and meaning,” Zoonen (1992: 14) presents a contrary and constructivist analysis which explains technology as a discursive practice. She argues that the “meaning and social significance of technology is not pre-given but established in ongoing historically and culturally specific discursive practices.” (p.12). Bush (1983:165, cited in Zoonen, 1992)) also argues that the meaning and relevance of technology for everyday life are constructed in four contexts: production, usage, environment and the cultural context.

These debates raised the need to ask the question: how do the ideologies of ICTs fit into the Nigerian culture? The research revealed two unexpected developments. First, ICTs can be used simply as “techniques,” stripped of their foreign “ideological contents” but in the process of usage and adaptation, new meanings and ideologies are created. In this sense, ICTs as used in Nigeria, constitute a set of discursive practices whose meanings and social significance are not pre-given. Secondly, ICTs – especially the Internet – are mostly used within the country to solve locally generated problems. This seemingly contradicts official conceptions of ICTs as tools that

41 Light, Jennifer S., “The Digital Landscape: New Space for Women?” in *Gender Place & Culture: A Journal of Feminist Geography*, Sept.95, Vol 2 Issue 2, p.134.

will help the country to be globally competitive – unless one is arguing that in a globalized era the local is global just as the global has become local.

ICTs as techniques and discursive practices – Neither the 306 people who responded to the questionnaire nor those interviewed personally considered ICTs as “foreign technologies.” For the former group, only few of them owned some of the technologies that constitute ICTs though a majority of them had used the different technologies in the one month preceding their participation in the survey. All of them aspired to own or have more access to the technologies in the next 12 months. In the open-ended sections of the questionnaire, many of them wanted more government involvement in facilitating access to the technologies. All the people interviewed without a questionnaire, had access to some of the ICTs (with some having access to all). They all were involved in varying degrees, either as public or private-sector functionaries, in the development of ICTs in the country. Thus they saw themselves as being the force behind, or primary agents of, the development and diffusion of ICTs in the country. This self-perception occurs outside the context of any articulation of ICTs as “foreign” technologies.

Common among the different groups of people interviewed was an understanding of ICT usage as a fact of life in Nigerian cities. This was especially so given the prevalence of “no-name” or generic locally assembled computers and other ICTs in the country. While in the computer market, there are the Compaqs, Dells, IBMs and Hewlett-Packards, there are enough brand-less systems to strip these technologies of most of their “foreign content.” Added to this is the fact that many of these computers become “tropicalized” when they arrive in Nigeria such that they

are somewhat different from what their manufacturers sent out.⁴² Also, many urban-dwelling Nigerians who have come to see the various ICTs as a way of life are mostly consumers of foreign products who have since become “blind” to the national origins of the products they consume.⁴³

Another explanation for the absence of ideological attachments to ICTs in Nigeria is that use of certain technologies such as the computer was often associated with low-level personnel (mostly female) in the work environment (and did not become items for home use until recently). On the other hand, use of other ICTs such as the cell phone is associated with a certain internal socio-economic class rather than a foreign class or group.⁴⁴ The spread of the Internet and the popularization of its usage have occurred mostly through the cyber cafés environment where people of all socio-economic classes have access – obtaining services according to their ability to pay. This has also stripped the technology of any ideological content in the sense that those who have reasons to stop by at a cyber café already can afford the service and will tailor their needs – mostly simple e-mailing – to meet their resources at any given point.

In such environments, people see their access to and use of these technologies as functions of either equality or entrance into a higher internally constituted socio-economic class. For instance, at one of the centres visited during the research, a middle-aged couple came in to send e-mail to their daughter in the United States. There was something about the comportment of the couple to

42 For instance, re-setting the way the technologies are powered to make them less vulnerable to the constant power fluctuations and outages.

43 In many homes in the cities, a majority of household products such as the common salt and cooking oil are imported from Europe and Southeast Asia.

44 As a result of the geographically bounded nature of earlier generations of cellular phones, it was not common to find foreign visitors using them.

indicate that they perceived the occasion as an important event. There was a sense of ceremony around them, starting with the clothes they wore (all dressed up) and spoke in hushed and reverential tone to the receptionist at the centre. They had written up the message on a lined paper, which they held like something of great value. It was not obvious that they considered their inability to use the technology as an obstacle (or something that made them less than other people at the centre). Rather, they appeared to perceive their ability to pay for the service, and more importantly, their being the parents of someone who lives in the United States and has Internet access (to facilitate their ability to stay connected with her) as setting them apart from the “ordinary” people on the streets. In fact, there is a sense in which this couple – and all other Nigerians (such as the cleaners or janitors in the Ministry of Information in Abuja who regularly send e-mail to their children abroad through Odusote’s “info-cyber centre”) – consider themselves as being above the level of the “e-mail operator” who “merely works” at a cyber café and definitely has no child living in a Western country.

Again, in all of these, while there is an obvious consciousness of class (either as belonging to or intimidated by a higher class), there is no connection between this new class of “e-mail people” with any ideologies that must have attended the technologies from the socio-political contexts of invention and production. In usage, the technologies have obviously acquired new locally generated ideologies. And these new ideologies might be in the process of forming a new upper class where access is not based on prior socio-economic status but determined by IT literacy, access, awareness or socio-economic connections that make usage a necessity. On the other hand, it could be (as has been argued by some information society theorists) that these technologies are reinforcing previous socio-economic class cleavages and will become tools for

new forms of oppression and exclusion. At this early state of ICT usage in Nigeria, it is difficult to determine which of these ideological directions in which the emergence and diffusion of the technologies will take the Nigerian society – in class terms.

While ICT use in Nigeria comes divested of any ideological elements or at least, is reconstituted in practice, the nature of the information society, which these technologies enable, clashes with a certain bureaucratic culture in Nigeria: lack of openness. The absence of information from official sources contradicts the idea of the information society with its assumptions about openness and transparency – or something Friedman (2001) might call the democratization of information. Old bureaucratic and colonial ideas about “Official Secrets” still dominate thinking about ICTs in Nigeria. Access to policy makers and documents in the ICT sector remains restricted and while many public agencies and departments have spent millions of Naira commissioning and launching websites, useful information is scarce and often contradictory. Responses to electronic queries are at best minimal.⁴⁵

ICTs as tools to solve locally generated problems – While none of the people in my survey or interviews associated ICTs with any foreign cultural or ideological content, many of them use the technologies to educate themselves about other cultures. Specifically, many of those who participated in the research use ICTs as communication tools to connect with people and organizations in other countries for personal and business purposes. They also see their use of ICTs as tools to enhance global competitiveness as individuals and as a country. It was interesting however to note that a larger percentage of electronic communication occurred within

⁴⁵ As at the time of writing this report (August 2002), I am still waiting for response to a query I sent to the NCC through their website 20 months ago!

the country. For instance, less than half (44 percent) of the last e-mail messages received before participation in the survey came from international sources, and only 43.7 per cent of e-mail messages sent were to international recipients. The rest were sent to or came from local addresses. And between 85 and 98 percent of these correspondences to or from international addresses were personal (though it was sometimes hard to determine what was personal as many respondents would classify anything outside their official duties as personal even if it was making job enquiries from a potential employer). This pattern was remarkably different when it came to Internet search, as almost all who had engaged in this activity in the one month prior to the survey were searching for information on job or educational opportunities outside the country – and this activity was classified as personal.

It was therefore not surprising that when asked how ICTs would personally affect their lives in the next five years, many spoke in terms of competitiveness and prospects for educational or job opportunities outside Nigeria. Also, they said that ICTs would help them to keep abreast of events in other parts of the world. About one third of the Port Harcourt respondents participated in the survey during the week of “September 11,” and many of those who had used a search engine during that period were seeking updates on the “terror against America” (or “attack on America” depending on if they were watching CNN or BBC). Others were sending e-mail to family members and friends in the United States to find out if they were all right. Many payphone booths were also packed with people making frantic calls to the US. Even then, of the last phone calls made before the survey, only 12 were international, with the highest number (nine) made by Lagos respondents. A larger percentage of the last phone calls were to local numbers, followed by calls to numbers outside the state.

Ethnic divisiveness: One of the features of the information society (or capacities of ICTs) is the compression of time and space. This may not necessarily be a positive development in a country where its unity is fragile and political actions are carefully managed (or manipulated in some cases) to avoid any hint of ethnic, regional or religious biases. In Nigeria, space is literally a contested terrain. There are constant ethnic and religious conflicts rooted in claims to space (or land). In the country, one comes from a specific, timeless and static “place of origin” regardless of place of birth or residence. For instance, a child born in Lagos to parents who were born in Owerri will never be a Lagosian (belonging to the Yoruba ethnic group) even if he or she spends the rest of his or her life in Lagos and has never lived in Owerri. This individual will forever remain an Owerri person (belonging to the Igbo ethnic group) and engages with the political and socio-economic life of Lagos as an Igbo – and therefore a “non-indigene.” Employment, university admissions, political appointments and other types of political patronage are made on the basis of “state of origin.”

Thus the current federal government in Nigeria has 36 members in the federal cabinet – each representing the 36 states of the federation, to reflect ethnic balance. Overarching these issues is the Federal Character principle – adopted as a national policy by the government of Obasanjo (during his first administration) in 1973, essentially to assuage feelings of marginalization in a country of many previously independent and distinct nations. The concept of the information society, with its inherent potential to integrate as well as fragment, contradicts this basic need to forge a unity in a country where the different ethnic groups would rather split and go their different ways than be together.

But Esther Gunda, deputy director and head of the technical services division in the Ministry of Communication, sees a way in which ICTs can forge understanding and unity in the country.

It's (all about) communication and if you are able to communicate effectively with each other, it will help you know what is happening. A lot of our problems comes from not knowing and a lot of suspicion we have of one another ... but if we are able to know what is happening ... For instance, I spoke with someone from Bauchi who comes from a rural community and they are trying to have a telecentre, and so on and one of the questions concerned was that in the last riot in Lagos, it was difficult for them to really know what was happening. They were just depending on rumours and you cannot depend on rumours to really know if your people are really being killed. So if there's free information flow, it will defuse some of these tensions that we have and we'll really know what is happening.⁴⁶

It is still too early to assess the possibility that building an information society in Nigeria may directly forge unity in the country. For one thing, the technologies have not been around long enough – and widely used by enough people – to know how they have affected (or not) the ethnic configuration in the country. One can only suggest – based on the evidence so far – that with the private sector playing such a major role in the diffusion of the technologies, economic factors, rather than ethnic, will shape outcomes. For instance, when the GSM service was rolled out in August 2001, two of the three operators launched their services simultaneously in Lagos, Abuja and Port Harcourt. Lagos, a city/state of more than ten million people, and one of the “high-tech cities” in the country was a natural first choice. Previously the country's capital city, it has always been the economic hub of the country. Port Harcourt, often referred to as the “oil capital of Nigeria,” was also an economic decision. All the oil companies in Nigeria (some of whom have their corporate headquarters in Lagos) operate from Port Harcourt, capital city of Rivers state in the Niger Delta region where most of Nigeria's oil comes from. The population of Port Harcourt is also considerable. The choice of Abuja was both an economic and political

46 Personal interview, Abuja, October 2001

decision: it is the federal capital. While its population is not significant, it is a very affluent one benefiting from the presence of the bureaucracy (and access or proximity to government has always translated into economic gains in Nigeria). Two months after the launch, Econet, one of the three companies opened up shop in Uyo, capital of Akwa Ibom state, one of the oil states in the South. While Uyo is fast becoming an affluent town, it was not for the money of the potential subscribers that attracted Econet. The state government had invested US\$60 million in the company and a major part of the deal was that Uyo would be one of the first places to offer mobile telephone services. Since the launch date, the GSM operators have expanded and set up base stations in other parts of the country. The choice has always been driven by their need to spend less on overhead costs while maximizing their returns.

Certainly, the GSM service is not the only indicator of the presence of ICTs in the country, though it is the newest entrant and spreading rapidly. Analogue fixed-line telephone service has not grown at all – if anything, it has dwindled. In the last few years, with the de-regulation and privatization of the telecommunication industry, many private telecommunication operators have sprung up, offering wireless fixed-line services. And not surprisingly, they are concentrated in Lagos. There are a few in Port Harcourt and fewer still in Ibadan (in the southwest) and other parts of the country. Again, economic interests drive the geographical location of these businesses. As secondary technologies, it is to be expected that the diffusion of ICTs in Nigeria will develop along the lines of primary technologies such as electricity.

In the survey and interviews, questions were not asked pertaining to ethnic origins of subjects – though for the questionnaires, the state of origin was asked just to ensure national spread. In the

open-ended section of the questionnaire, none of the respondents mentioned ethnicity as a factor in the development and diffusion of ICTs. While many of the services are in Lagos, Abuja and Port Harcourt, nobody ascribed the trend to ethnic bias. After all, these are the places where everyone goes to for the pursuit of happiness and the good life in Nigeria. Therefore, the presence of ICTs in these places in disproportion to other parts of the country is not considered an ethnic issue, but rather one of the reasons why every young man or woman dreams of growing up and travelling to these (perceived) land of opportunities.

At the level of policy, pursuance of the “federal character” in allocation of resources will mediate any potential areas of conflict. For instance, the country is divided into 774 local government areas, 36 states (and Abuja) and six geo-political zones. Each zone has its headquarters. Resources are allocated on the basis of local government area, state or zone depending on their abundance or scarcity. For example, NITDA, as mandated by the policy on information technology, will establish a local information infrastructure in the 774 local government areas, a state information infrastructure in the 36 states and Abuja, a national information infrastructure, and six science parks in the six geopolitical zones. Perhaps this arrangement will not completely eliminate areas of ethnic conflict when it comes to the appointment of personnel to the structures. Again, it is too early to draw conclusions. This is an area that one needs to revisit in the future to investigate if ethnicity in a country as multiethnic and often divided as Nigeria is a significant variable in the development and diffusion of ICTs.

Poverty and illiteracy: Ethnicity may or may not constitute any significant obstacle to the development and diffusion of ICTs in Nigeria. There is no doubt however that poverty and

illiteracy will determine the success or failure of Nigeria's desire to "Use IT for: education, creation of wealth, poverty eradication, job creation (and) global competitiveness." (ITP Mission Statement). With its 1999 adult literacy level at 62.6% (three percentage points above the average for sub-Saharan Africa (UNDP Human Development Report, 2001), Nigeria is not exactly the most illiterate region in the world. But the Obasanjo Administration seems to realize the need to raise the literacy level of Nigerians over the age of 15. One of the things he did on resumption of office was to declare a universal basic education (UBE), thus making primary education free and compulsory for all children. In theory, this sounds like a proactive way to tackle the problem of illiteracy in the country as lack of money for tuition fees has often caused parents to withdraw their children (especially daughters) from schools. In practice however, Obasanjo's UBE is not achieving its purpose. First, the quality of public education in the country is so low that only very poor parents send their children to these schools. The average Nigerian struggles to send her child to private schools which have over the years mushroomed all over the country. In the past, it was a social status symbol to send one's child to a "nursery school" (the privately owned and run kindergarten and primary schools where both the tuition and standards were very high). But now, there are several grades of "nursery schools" – from those that are just a little better than the public schools to those modelled after the British independent and fee-paying school system – very elitist and very expensive.

For some time now, private secondary schools have also become commonplace in Nigeria. Some are "international schools" such as the American school or the British school, initially set up so that children of diplomats and expatriates can receive the kind of quality education obtainable in their home countries without having to separate the family. These days, because of the

deplorable state of public education in Nigeria (including the previously high-standard “unity schools”) parents who are affluent but not quite enough to send their children to schools in Britain and the United States, send them to the expensive international schools (many of which are located in Lagos). During this research, one observed a new phenomenon among the upper middle class: they now send their children to universities in Ghana because the standard is better. There are many factors for the falling standard of education in Nigeria (previously one of the best in Africa), but discussing them is beyond the scope of this report. The point is that while the federal government is focusing on education there are many factors that hinder efforts to raise the country’s literacy level.

Related to the literacy level is the issue of poverty. As studies have shown, literacy is closely linked to the eradication of poverty in every society. Again, the Obasanjo administration, on assumption of office in 1999, unveiled a Poverty Alleviation Program. Incidentally, its acronym, PAP, is also the name of the corn meal that babies from poor homes are fed with before they are old enough to eat solid food. In 2000, the program was ensnared with a lot of scandal, and by 2001 when I went back to Nigeria, its presence was only observable on huge billboards in some of the cities.

For majority of Nigerians, putting pap (or *ogi* or *akamu* in other Nigerian languages) on the table is a daily effort, and buying computers or other ICTs are not on their shopping lists. It is interesting to note that almost all the participants in the survey said poverty would hinder the spread and diffusion of ICTs in Nigeria. The solution, according to many, was government’s subsidy of the technologies to make them affordable by the “common man.” Meanwhile, very

few of the industry experts interviewed spoke in terms of affordability. Many saw the problem as lack of awareness. As the woman quoted earlier said, for many women, they do not own ICTs because of lack of money but because of lack of awareness. She rejected a suggestion that the government should subsidize the cost of acquiring these technologies. She said people will use the technologies to create wealth for themselves and therefore government has no business buying anything for them. Participants in the survey talked about the cost of acquiring basic computer literacy and again suggested that government could subsidize the training or set up training centres and charge lower fees than what the private training schools are charging. On an aside, one notes that another fast growing industry in Nigeria is computer training. In many cities, almost every street has a sign or several advertising "IT training." Many of these places have just one computer. But then there are the very big places such as NIIT with branches all over the country. As government, through NITDA, begins to integrate IT into many facets of public life, the level of general literacy as well as IT literacy is expected to rise in the next few years.

Expectations about ICTs: The point that illiteracy and poverty will affect how rapidly ICTs spread in Nigeria cannot be overstressed. In many parts of the developing world, college-educated youth are at the forefront of developments in the IT sector. Many of the dot-com millionaires in North America in the late 1990s were barely out of their teens. But in Nigeria, while there is a noticeable increase in IT activity among city youth, there is still a sense of awe and mystery around these technologies. For instance, among the 306 Nigerian men and women who completed the questionnaire, 69 percent of them would consider themselves to be computer literate. Of this number, 79.6 percent had used a computer at least once in the month preceding

the survey. Just about 37 of them owned a computer, and fewer still had a cell phone or direct access to the Internet. The level of ICT usage is low compared to what obtains in the developed world, but the expectations about the benefits of ICTs seem to be inversely proportional to the level of use. For instance, of the 91 participants in Lagos who had used the Internet during the month before participation in the survey, 46 strongly agreed that new ICTs would stimulate socio-economic growth in Nigeria (with 39 agreeing), while 45 strongly agreed that they would create employment (with 31 agreeing). However, there is no connection between socio-economic growth and employment with poverty alleviation as only 17 of the 91 agreed (and four strongly agreed) that new ICTs could help in eliminating hunger. Perhaps, the question was ambiguous as people might usually associate elimination of hunger with the provision of food without necessarily tying that to developments in the larger economic context, such as high levels of employment and lower inflation rates. I suppose it must have been difficult for the respondents to imagine how talking on the phone or sending/receiving e-mail would put food on the table.

A more detailed analysis of the expectations of the female participants in the survey (who collectively used fewer ICTs than men) was presented at a recent conference.⁴⁷ As Table III shows, more than half of the female respondents strongly agreed that the new ICTs would stimulate socio-economic growth in Nigeria, while 33.1 per cent simply agreed. Respondents also strongly agreed (by 40.2 per cent) that new ICTS would create employment. About the same percentage also agreed that ICTs would improve their standard of living. Many were ambivalent about the ability of the technologies to check corruption and inflation – two major issues

47 Akpan, Patience, "Nigerian Women go Online: Patterns of ICT Usage by Women in Nigeria" presented at the conference of the Canadian Association of African Studies held during the Congress of the Social Sciences in Toronto, May 25-June 1, 2002. The paper is being prepared for publication.

respondents identified as being the major socio-economic concerns in Nigeria. Some respondents wondered how ICTs could check corruption, with some suggesting that the technologies might actually open up new avenues for corruption in the country. In the open-ended section of the questionnaire, many of the respondents explained their beliefs concerning the capabilities of the technologies, with three major themes emerging: employment, information and communication.

TABLE III: Female respondents' expectations about ICTs

	SA	A	NA	D	SD
Stimulate socio-economic growth	52.1	33.1	8.4	3.8	0.0
Create employment	40.2	39.7	8.5	5.1	1.9
Facilitate health delivery	25.1	43.7	18.3	7.1	1.9
Raise literacy rates	44.4	33.8	9.0	7.6	3.8
Check corruption	5.9	26.0	31.8	24.7	7.1
Check inflation	4.7	22.0	36.7	25.8	7.2
Reduce crime rate	15.4	29.3	23.6	20.0	6.4
Eliminate hunger	4.5	15.2	21.9	40.1	13.7
Solve problem of bad leadership	7.9	17.4	27.8	28.7	14.3
Politically empower Nigerians	15.2	30.0	21.2	21.2	5.1
Improve my standard of living	41.1	36.3	11.6	6.9	2.0

SA – Strongly Agree; A – Agree, NA – Neither Agree nor Disagree, D – Disagree, SD – Strongly Disagree

The theme of *employment* was expected. As already explained, youth corpsers are recent college graduates who do a one-year national service after graduation. For most of them, the year of national service is the only guaranteed employment (and therefore source of income) in the foreseeable future given the high employment rate in the country. Unemployment is therefore a definite major concern for the respondents. This is why it showed up 52.6 percent of the time as

the top most important socio-economic concern in Nigeria.⁴⁸ For this reason, many respondents expected that new ICTs would create employment for them. There were responses such as:

New ICTs will affect my life in terms of creating job opportunities.

It will broaden my knowledge (through) getting to know more about other professions thus giving me an advantage of getting a better offer in terms of employment.

Positively, through ICTs, I can get employment instead of sitting at home. Wish that they would improve my standard of living.

There's development everywhere. As a civil engineer, I'll know about job opportunities.

I hope to acquire my system very soon. It will stimulate my economy. It will create job and employment for me. It will make me to be creative. Generally my standard of living will improve. It (will) give me awareness and (and make me) highly educative.

I believe from them I can get enlightenment and can improve on my knowledge so as to make myself marketable.

With ICTs being the current rave of the moment, a lot of opportunities, careers and employment are just within my reach.

The next most important expectation of ICTs for participants in the survey was *information*.

Respondents expected that ICTs would keep them informed about events at home and abroad.

(ICTs) will make communication easier ... Information is gotten easily and fresh (news) – that is on cable and Internet.

The ICTs will make the world a global village because there will be easy access to new information.

(ICTs) will increase communication efficiency... access to information ... possibly better job opportunities.

The new ICTs will personally affect my life in the next five years due to the fact that information required will be easily reached in terms of (movement, standard of living, employment, etc.)

⁴⁸ At the beginning of the questionnaire (actually the very first question), respondents were asked to choose from a list of ten issues what they considered to be the three most important socio-economic concerns in Nigeria.

It will enable me search and receive information from other jurisdictions that will help me increase in knowledge in my field of study.

I personally believe that ICTs will affect me positively in the next five years because a better-informed person is better guided.

The world is now a global village due to ICTs so it is going to affect my life in all aspects. I can learn about everything I want to and visit everywhere I want to without leaving my locality.

If I have the right knowledge as well as access to the new ICTs, it will get me exposed to so many ideas and practical ways of being a success and contributor to the society I find myself when I apply to my course of study - Animal Science.

Information makes the world go round. Personally new ICTs will enable me get informed faster and aid distance learning programs.

It will increase my general information base and help me keep in touch with people and places.

Will give us update of happenings around the world and would also reduce time spent at work in sourcing for data or information.

Communication was another common theme in the expectations of respondents of the new technologies. Ability to communicate may be taken for granted in some countries such as Guernsey (in Europe) with 87.50 main telephone lines per 100 inhabitants (in 2001).⁴⁹ But in Nigeria, with a teledensity of 0.43 per 100 inhabitants, communication is really important. As has been seen in the usage of specific ICTs, respondents use the telephone (mobile and fixed-line) mostly for communication within the country and e-mailing for international communication, though the rate of in-country e-mailing is rising. This also came through in the expectations of respondents about ICTs in the area of communication. There seemed to be a split

⁴⁹ This country had the highest teledensity in the world in 2001, followed closely by Bermuda (87.15 main lines per 100 inhabitants). Source: International Telecommunications Union, June 2002. Data available at the Union's website: www.itu.int.org

between domestic and international communication with some respondents expressing their communication needs as being local as well as international. Many who believed that ICTs would facilitate communication for them expressed the need to communicate with friends and family living outside the country. Similarly, many of those who did Internet search in the month prior to the survey were mostly looking for information about job and education opportunities abroad.

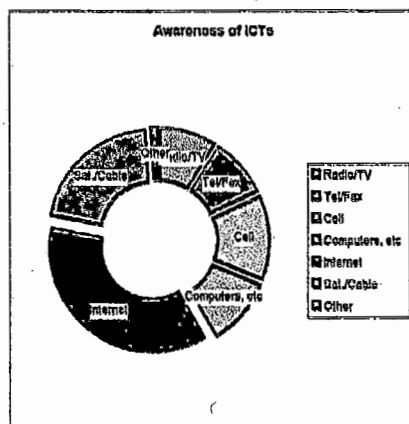
Emerging issues: Awareness, access, affordability and availability

In the open-ended section of the questionnaire, respondents were asked to list the factors that they considered would aid or hinder the rapid diffusion of ICTs in Nigeria. Four major themes – here referred to as the 4 As of ICTs in Nigeria – emerged. These themes – in varying degrees of intensity – were also the focal points of the researcher’s discussions/interviews with officials in the public and private sector. It was therefore obvious that awareness, access, affordability and availability remain major concerns in the diffusion of ICTs in Nigeria and their use as tools for socio-economic development.

Awareness: To measure the level of awareness, respondents were asked to choose from a list of six different technologies those that they considered constituted information and communication technologies. The list included: radio and television, telephone and fax machine, cellular phone, computer, printer and photocopier, Internet – e-mail, World Wide Web (WWW), and Other. In each of the cities, the “Internet – e-mail and World Wide Web” was routinely recognized as ICTs even as computers and telephones did not get similar attention. Nearly 89 percent of the 306

respondents in the study selected “Internet – e-mail, World Wide Web (WWW),” followed by “satellite and cable communication systems” 50.9 percent of the time. The third most recognized ICT was the cellular phone, at 32.3 percent, followed by “computer, printer and photocopier” at 25.8 percent. It was interesting to note that “radio and television” was selected almost as many times (22 percent) as “telephone and fax machine” (21.9 percent). There was a significant difference in the responses of women 28 percent of who selected “radio and television” more times than “telephone and fax machine” and “computer, printer and photocopier” (23.9 percent respectively). Respondents were allowed to choose more than one technology from the list. There was no emphasis on “new” and it was remarkable that radio and television were considered new ICTs more times by female respondents than were computers, printers and photocopier. Many of the respondents took “information and communication” as the operative

Chart I: Level of awareness by identification of ICTs



words. In this definition, it was not obvious how computer, printer and photocopier could be considered technologies of *information* and *communication*. Even in processing of the responses, many of the participants who verbalized their selections did not consider the

relationship between the computer and the Internet.⁵⁰ And this is not because respondents were aware of the new web application protocols that come with many cellular phones such that one does not necessarily have to use a computer to access the Internet. The only explanation given for the low rating of telephone and fax machine as new ICTs was that “they have always been around,” according to some respondents.

Many respondents expressed concern about the lack of awareness of the “benefits of ICTs” especially among women, arguing that awareness (as well as the other As) will determine how rapidly ICT usage spreads in the country. They offered suggestions on ways of raising public awareness. Some samplers:

(People should be made) aware of the fact that a lot of information can be passed and received both locally, internationally at minimal time.

Introduction of computer studies in secondary and primary schools and teaching people at subsidized rate.

Reduced price (cost), education through seminars such as "Educating people about how ICTs" will help people improve their business awareness, especially among students. If people are familiar with it in schools, they will use them in business.

Public enlightenment on the advantages of ICTs – and what people stand to gain from the "venture". Motivation on the part of government, availability of resources

By making more people to be involved in the new ICTs in Nigeria because some literates are still not ICTs literate.

ICTs can be rapidly promoted in Nigeria if the Primary Education Board can introduce it as a course at the primary, secondary and tertiary level. Also adult education program should be embarked upon to educate the masses on how to use the ICTs.

50 Since the questionnaire was interviewer-administered, I had the privilege of listening to respondents' rationalizations of their responses to the questions. Female respondents did more of the verbalizing than male respondents, with many of them internally processing their responses before expressing them. In the open-ended section of the questionnaire, the researcher probed for more complete responses and clarifications. However, there was no attempt to influence responses by offering suggestions or explanations.

Educate people on the use of the new ICTs. Make computer courses compulsory in schools. Provide more cyber cafés in towns and villages.

Its practical use or application should be emphasized at all levels of educational sector in the country.

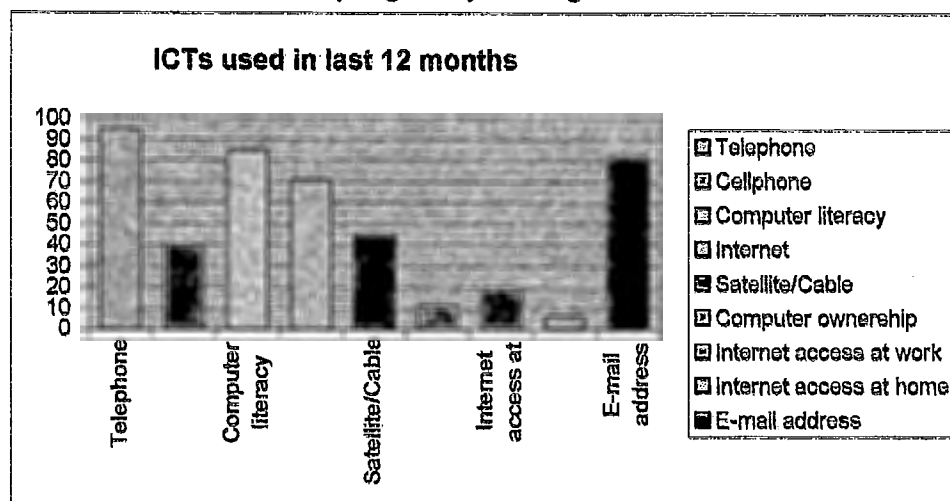
There must be legislation to promote it, increase in government spending on science and technologies, training of staffs (government and private) and re-orientation of the populace on the usefulness and benefits of ICTs.

Access and availability: It is one thing for Nigerians to be aware of the benefits of ICTs; and going by the current wave of publicity campaigns, a majority of them may very well be. But it is another thing to have access to the technologies after being fully aware of their benefits. Titi Omo-Ettu defines access as the “distance a citizen must travel to be able to use the telephone and at a price he (sic) can afford.”⁵¹ And in his opinion, one should not travel for more than half a kilometre to find a phone, and in Nigeria, a call (local or national) should not cost more than two Naira per minute. Omo-Ettu distinguishes his definition from teledensity, which he says is a measure that does not work for developing countries because a high teledensity does not necessarily mean that majority of the people can afford to use a telephone – in terms of the cost of calls.⁵² As noted earlier, there is no confirmed data about the quantitative level of penetration of the various ICTs in the country, and therefore no accurate way finding out the degree of access, though there is no doubt that the country is far from reaching Omo-Ettu’s access threshold. Though not a foolproof method, access in the research was measured by the number of ICTs that respondents had used in the 12 months and one month prior to their participation in the survey, and points of access.

⁵¹ Personal interview, Lagos, November 2001

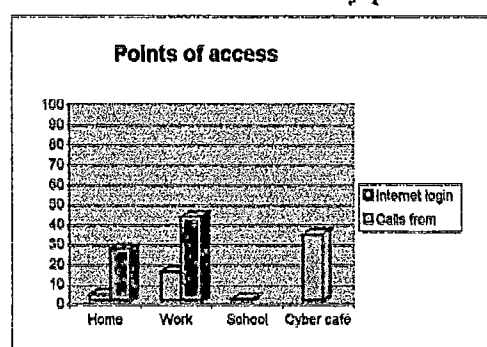
⁵² Ibid.

Chart II: Level of access by regularity of usage



In the absence of reliable data, there is a general assumption about how universal access is attainable even in Nigeria because as one interviewer put it “there are telecentres all over the place.” By telecentres, he was not thinking of the community-based Internet facilities available to people free of charge, in North America, the United Kingdom and Australia.⁵³ Telecentres, as

Chart III: Level of access by points of access



understood in Nigeria, are the commercial cyber cafés that are mushrooming particularly in the

⁵³ In Brisbane, Australia, these centres are provided mostly through public libraries. In the local community libraries, people are free to use the facilities without prior bookings. In the Queensland State Library in downtown Brisbane, anyone can use the Internet-connected computers for 15 minutes, as they are available, but more extensive use (from 30 minutes up) requires prior bookings. The facilities are free and available to anyone who walks in through the library doors. In the UK, there are similar public-access centres.

three hi-tech cities of the country. They are present in some other cities but are very few in numbers and not within the reach of many – both geographically and economically.

To increase access, the National Information Technology Development Agency (NITDA) plans to set up mobile Internet units (MIUs) that will travel from one local government area to another teaching people the benefits of the Internet and how to use them. There are also plans to provide points of access through the Local Information Infrastructure in the 774 local government areas.

While this project may diffuse Internet usage in the country, there is an assumption that one access centre is sufficient in places where there may be as many as one million people, most of who live in remote rural areas with inaccessible roads that are even more so during the rainy season. Certainly, a few people in the nooks and crannies of the local government areas will have pressing enough needs to travel to the local government headquarters to send e-mail. But the experience at Radio House in Abuja (headquarters of the Federal Ministry of Information), where the waiting period can range from 30 minutes to four hours may foreshadow a situation where “going to town to send an e-mail” would be a full-day’s activity for many rural dwellers.

Others have suggested that eventually, telecentres, as understood in the West will be put in every village. A touch-tone technology (as observed) in Cape Town, South Africa⁵⁴ will bypass the need for literacy, as symbols will be used to guide the user through the system. A less utopian scenario involves setting up centres in the villages and equipped with skeleton trained staff to assist users (as is the case in many of the cyber cafés in the cities). Accounts of the wonders of these technologies and the prospects for universal access always take it for granted that the rural

⁵⁴ During a visit to the city in May 2000.

woman's need for information that emanates from this medium will be very crucial to her life. A source spoke about how information on planting season and the best time to plant as well as prevention of malaria will be useful to the rural dweller. This information will be made available on the Internet and made accessible to rural dwellers. Again, there is an assumption here – and some may call it arrogance – that the “information from above” will be superior to the local knowledge systems. A village farmer is not likely to depend on information from “outside” – from people who are not familiar with his soil and its needs – to tell him when to plant his seeds. Some soils are better suited for the planting of certain seeds than for others, and the soil variation can be vast even within the same locality. To be able to deliver useful information, the experts must be part of the local community, and if they are, there are more immediate and trusted means of disseminating their knowledge (the town crier, village hall, etc.) than the Internet. This point is not to deny the utility of ICTs to local people. One is only questioning the utopianism that pervaded the responses of some of my interviewees, especially those from the private sector.

There are two primary options for accessing the Internet at cyber cafés: some customers choose to pay the per-minute browsing rate or simply pay a flat fee to send or receive e-mail. The first option works for people who have some level of computer and Internet literacy as the minutes begin to run as soon as they log in. For most people, the cheapest way of “browsing” is to type up e-mail messages elsewhere (at home or office) and bring them to the cyber café on a diskette. Also, rather than reading their messages online, they copy and paste in a word processor and save in their diskette and read and respond to offline elsewhere. For people who cannot do this, they end up paying for both the word processing and the cost of sending the e-mail, either through the cyber café's account or a customer's Yahoo! or Hotmail account.

Respondents suggested that the government could increase access by subsidizing the cost of acquiring ICT training and the technologies themselves. They also suggested that the government should get into the business of setting up cyber cafés where they will charge rates that are lower than what obtains in the commercial centres. Some of the interviewees also think that the Internet Service Providers should charge lower rates so that cyber cafés can offer their services to the end users at affordable rates. Said Dr. Ekuwem:

ISPs have to break even, I agree but it's not something that they will break even overnight by embarking on cutthroat prices. There should be no monopoly. We have to encourage as many ISPs as possible to go to each of the state capitals. Monopoly will eliminate competition and when there's no competition, it means there'll be a dictation to the people in terms of the price, the people are held to ransom by the solo ISP in the state concerned. There must be level playing field, competition, awareness, transparency and openness.⁵⁵

Engineer Omo-Ettu also suggested that the providers of the various ICT services in Nigeria should take advantage of the huge population by reducing their costs to make their services more affordable. His argument is that population is a strength that the Nigerian ICT industry can use. For instance, if five million people have access to the telephone and can talk to another five million people, "it is a lot of empowerment. You begin to look at the traffic ... if the investors provide these 10 million telephones, and we have to provide at affordable price to these people, then it is not going to take a long time for the returns to come."⁵⁶ And if this happens, then the providers can offer their services at two Naira per minute because that is "what Nigerians can afford." In the end, both the investors and Nigerians benefit and telephone usage spreads, said the self-styled "grassroots engineer."

⁵⁵ Personal interview, Lagos, November 2001

⁵⁶ Personal interview, Lagos, November 2001

The research, particularly the questionnaire component, shows that access will be a significant factor in the process of ICT diffusion in Nigeria. For instance, among 306 people who participated in the questionnaire, only 37 (or 11.3 percent) of them owned computers or lived in homes where at least one computer is available. While a large majority of the respondents (82.2 percent) did have e-mail addresses (through such “free” services as Yahoo! and Hotmail), only four percent of them had direct Internet access at work, and one percent at home. The bulk of their Internet activity was thus done at cyber cafés – 33.2 percent, followed by 14.5 percent at work. Only eight of the respondents (or 2.9 percent) logged in from home the last time they accessed the Internet.⁵⁷ The telephone remains the ICT with the highest level of usage (94.4 percent of respondents had used the telephone in the last 12 months) and access. Of those who had used the telephone one month prior to participation in the survey, 25.8 percent made the last phone calls from home while 41.9 did so from the office. The rest of the calls were made from public payphones or business centres.

Affordability: “Cost,” “price” and “affordability” appeared constantly as a response to the question: “In your opinion, what factors or conditions will promote the rapid diffusion and use of new ICTs in Nigeria?” While the cost of many ICTs has fallen drastically in the last 12 months, affordability remains a significant factor in the diffusion and use of ICTs in the country. For instance, as noted earlier, many of the respondents did their Internet activity in cyber cafés. For many of them, each time they accessed the Internet, they spent at least N100, and often, this

⁵⁷ The definition of “home” was general to include all residences, not necessarily the respondents’ home. This was to account for the fact that many would have logged in from the homes of friends or relations who had direct access to the Internet.

would translate to about five minutes of access – depending on the location. Considering the fact that NYSC members earn N2000 a month, with the lucky ones getting some accommodation and transport allowances from their primary employers, there is an obvious economic constraint to the intensity of usage of many ICTs.⁵⁸ Of the 306 respondents, 53.5 percent used the telephone up to four times in a month while 29.1 percent used the computer between four times and daily in a month. About 29.5 percent used the Internet over four times in a month and 26.6 sent e-mail over four times in a month. Of the Lagos respondents, 35.5 percent received e-mail over four times in a month while 16.2 percent of Port Harcourt respondents received this number of e-mail in a month. About 44.6 percent of Abuja respondents received an average of one e-mail in a month.

Conclusion

As do many researchers, I went into the field with a lot of assumptions about the state of ICTs in Nigeria. And like many before me, I was surprised at the difference between pre-research assumptions and the evidence on the ground. Nigeria may not yet be South Africa in terms of the level of penetration of ICTs, but it is moving fast in that direction. In only six months of rolling out the GSM services in Nigeria the three operators had subscribed 300,000 customers. This is in a country that had less than 500,000 functional phone lines in its 136 years of telecommunications history – starting when the first telegraph arrived in the coastal city of Calabar. In the months I was in the country, I saw the prices of ICTs falling – as it were, before

⁵⁸ During the NYSC year, it is the responsibility of the Federal Government to pay the corps members, and primary employers in the places of assignment/posting are not required to make any contributions. But in places with transportation difficulties (such as Lagos) or accommodation scarcity (such as Abuja), employers offer some stipends to corps members as an incentive to attract them, as they are considered cheap (but knowledgeable) labor.

my eyes. When I first arrived in Lagos on July 8, it took me three days to find a place to send out e-mail. The two cyber cafés in my neighborhood had no connection. And when I finally succeeded, it cost ₦20 per minute to use the system. Five months later, the problem of “no connection” had disappeared in many cyber cafés in Lagos as most of them were now subscribing to “wireless connections” through VSAT. This enables the end user to bypass the epileptic telephone line. And like North America’s “high-speed Internet” a wireless connection is fast and cost-efficient for both customers and owners of cyber cafés.

By the time I left Nigeria late December, one could access the Internet for ₦5 a minute or less in some neighborhoods where the competition was very stiff. Also the cost of making a phone call at these cyber cafés was also dropping. From ₦100 a minute to call North America, the cost had come down to ₦50 for three minutes. As the Internet connections improved, Internet telephony also improved and with scale services, it was good business to cut down cost of access. When the GSM operators rolled out in August 2001, the costs of acquiring the service were really high, but two companies soon began a price war and by December, many people could afford the services. However, only few cities had the service, and even in these cities, the coverage areas were very limited. For instance, as at December, the Asokoro district of Abuja (where the top government civil servants and politicians live) had no GSM coverage. To use a GSM phone, one had to drive out of the neighborhood. But this was not a major problem as many of the houses in the district have landline phones. (Abuja has number of per capita telephone lines in the country, though it is difficult to determine actual numbers.)

The above conclusion does not in any way reflect the whole picture in the country. The research was deliberately limited to the three high-tech cities. In other parts of the country – such as Calabar (my research base), the picture is not so clear when it comes to ICT use. Indeed, in Calabar, as at December 2001, there were just three cyber cafés continually struggling with “no connection.” In that city, there was no “wireless Internet” and everyone battled with dial-up connections, which depended on the local phone company, Nitel. Many times during this research the telephone system in the state (Cross River) would be down for upwards of one week. During this period one could not phone to or from Calabar (the state capital) or any of the few towns that have phone connections in the state. This meant that there was no Internet activity. Also while there were individuals in Lagos, Port Harcourt and Abuja who had personal and direct Internet service, there were seemingly none in Calabar. Many in the university community have access through the library of the University of Calabar (which also operates a commercial cyber café for the community). The closest to a personal Internet service is that of Girl Power Institute, a gender-awareness organization funded by Ford Foundation. Even then, the service, which also depends on the public telephone system, was down more often than it was functional. There were towns and cities (including my birth place, Abak) where there were no phone connections at all. Also in Abak, with the erratic power situation, business centers (mostly used for photocopying and word processing) were a rarity. In fact, I saw only one of such places, and it was locked up every time I drove by. (Abak is 20 minutes drive from Uyo, the capital of Akwa Ibom state in the southeastern part of the country.)

One suspects that the diffusion of ICTs in Nigeria will follow the same pattern as other aspects of development in the country. Several from the private sector (especially vendors of ICTs) have

suggested that VSAT (and recently, the satellite phone, Thuraya) holds the “solution” to the question of access as well as the poor telecommunications infrastructure in the country. Solar energy has also been suggested as replacement for the conventional source of electricity. But while those in Lagos, Abuja and Port Harcourt are holding seminars and workshops on the “state of the Internet in Nigeria” there are people in several parts of the country who have other concerns – such as where the next *pap* is coming from or if their child would survive the latest bout of malaria. The Obasanjo Administration has done well to suggest that the use of ICTs need to be integrated into every aspect of the Nigerian life. These technologies are not ends themselves but tools for doing other things – such as healthcare delivery – more efficiently. As Emmanuel Ekuwem has suggested, in response to criticisms that Nigeria is focusing too much on ICTs,

We are going to use computer and software to create food and to contribute to handling malaria better, at least in disseminating information. Imagine having a web page on malaria, on plasmodium, on how to flit, on how to buy mosquito net and how to make sure that there are no open drains, you seal your gutters and how to make sure there are no stagnant waters.⁵⁹

How these declarations are implemented will determine Nigeria’s journey to the global information society.

⁵⁹ Personal interview, Lagos, November 2001

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