

Significance of Information and Communication Technologies (ICTs) in providing Good Information Services to the Society in Nigeria

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Abstract

The International Telecommunication Union (ITU) estimates the worldwide ICT market in 2002 to be almost \$2.1trilion, which they segmented as Telecon Services (39%), Software services (31%), and Hardware(30%). This comes to nearly 6.6% of the gross World Product. Surprisingly, in developing countries. ICTs share in GDP is not low. ICT can be considered to be built on the 4Cs: Computing, Communication, Content and (human) Capacity. The recent World Summit on the Information Society(WSIS) focussed extensively on 3C's: Communication, Content and Capacity building and less so, on Computers. They concluded that when considering the use of ICT for development, conventional wisdom is that even if the hardware is free (e.g donated), Communication, software and training make ICT expensive. Finally, this paper explores into ICT situation in Nigeria. It highlights the various activities of the government in relation to ICT development and progress recorded so far.

Keyword: Computer, Information Communication Technology(ICT),Internet, E-mail, Mobile phone.

Introduction

There is wide spread research interest in Information and Communication Technologies (ICTs). According to Crede & Mansell (1998), ICTs are crucially important for sustainable development in developing countries. Thiuone (2003) notes that for the past two decades most developed countries have witnessed significant changes that can be traced to ICTs. These multi-dimensional changes have been observed in almost all aspect of life: economic, education, communication, and transportation. In a technology-driven society, getting information quickly is important for both the sender and receiver. ICTs have made it possible to quickly find and distribute information. Thoiune (2003) indicates that many initiatives have taken at the international level to support Africa's efforts to develop a communication infrastructure and, these efforts are designed to enable African countries, including Nigeria , to find faster ways to achieve durable and sustainable development.

Helmut (1998), cited by Akpore (1999), states that of the technological changes that have influenced our lives in recent years, Information Technology (IT) has had the greatest impact. This will continue at least until the end of the first half of the century, when other major technological breakthroughs in the area of new materials, biotechnology, or energy, may provide entirely new ways of living.

An information society is one that makes the best possible use of ICTs. Martin (1995) supports this view by describing it as a society in which the quality of life, as well as prospects for

social change and economic development, depends increasingly upon information and its exploitation. In such a society, living standards, patterns of work and leisure, the education system, and marketplace are all influenced by advances in information and knowledge. This is evidenced by an increasing array of information-intensive products and services (Martin, 1988).

Annan (2002) notes that the information society is a way human capacity can be expanded, built up, nourished, and liberated by giving people access to tools and technologies, with the education and training to use them effectively. There is a unique opportunity to connect and assist those living in the poorest and most isolated regions of the world. The information society or information age is a phenomenon that began after 1950, which brings challenges as the researchers seek to integrate and expand the universe of print and multimedia sources. The two terms are often used to describe a cybernetic society in which there is a great dependence on the use of computers and data transmission linkages to generate and transmit information.

The African Information Society (AIS) document (2005) argues that Africa should build, by the year 2010, an Information Society in which every man, woman, child, village, public and private sector has secured access to the use of computers and telecommunication media. The objective is to provide every African with the possibility of using the communication and data processing services available everywhere else, just like any other citizens of the world.

Roles of Information Communication Technology

One of the identified agents through which the world will constantly experience change is technology. In the business of trying to make information available in the right form to the right user both at the personal and organization levels, and at the right time, the bid to cope with great flood of information has led to the need for a more sophisticated way of handling information faster and better.

According to Ayankoha (1991), Information Technology is "the use of man-made tools for the generation, collection, communication, recording, re-management and exploitation of information. It includes those applications and commodities, by which information is transferred, recorded, edited, stored, manipulated or disseminated". Hawkrige (1883), describes Information Technology as a revolution which has penetrated almost all fields of human activity, thus transforming economy and social life. UNDP (2001) asserts that even if sustainable economic growth facilitates the creation and diffusion of useful innovations, technology is not only the result of growth but can be used to support growth and development. ICTs are credited with the ability to transform, and deep and significant changes are expected from their spread used in Africa. From this stand point, Africans can take maximum advantage of the new technologies even if major challenges remain. These challenges include adapting ICTs to local conditions and uses in developing countries, and allowing each country understands those innovations and adjust them to their own development needs.

Therefore, development in Nigeria depends on the country's capacity to create wealth to significantly reduce poverty and to raise its capacity to create wealth at a sustainable level. In June 1996, the United Nations Commission on Science and Technology Development (UNCSTD) was in collaboration education, health, income, governance, and technology (Crede and Mansell, 1998). If we consider these five as key indicators of development for Nigeria, ICTs can be socially beneficial only if they contribute to poverty eradication (higher income), improved health and education, better use and more equitable sharing of resources, and raising participation in the decision-making processes (and in this regard, access to information is crucial).

ICTs have been the basis for human existence from time immemorial and this has driven man to continuously seek ways to improve the processing of information and communicating such

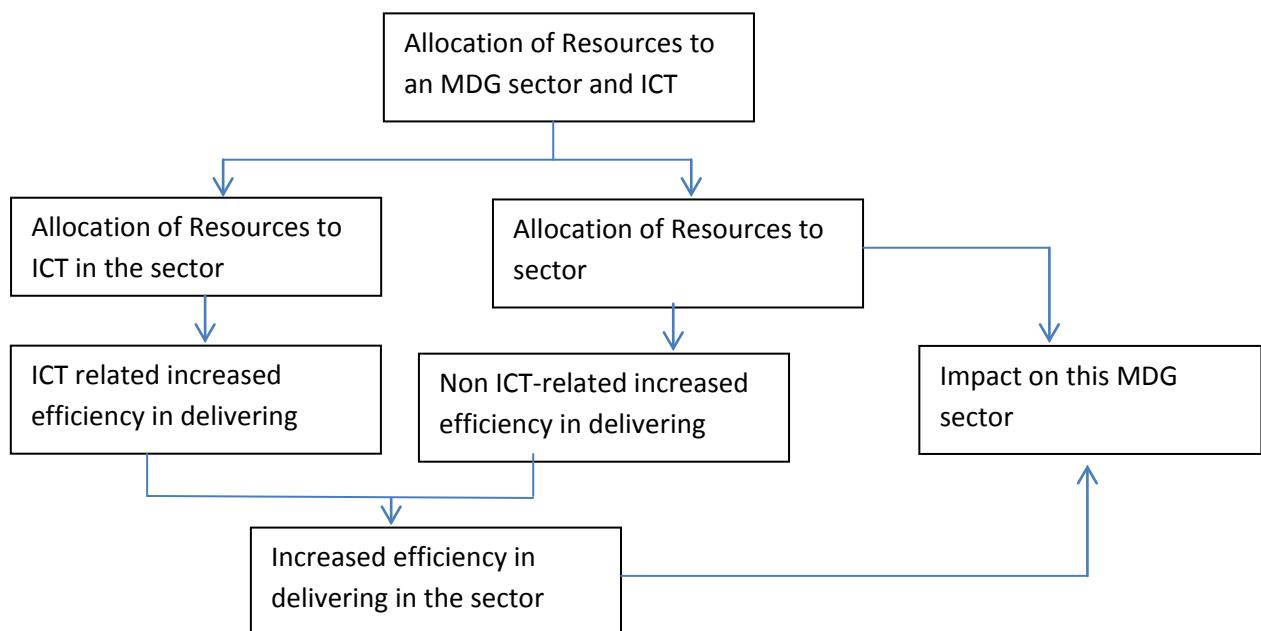
information to one another irrespective of distance and on a real-time basis (Ndukw, 2002). Surviving in the information age depends on access to national and global information networks. ICTs are the bedrock for the survival and development of any nation in a rapidly changing global environment, and it challenges us to devise initiatives to address a host of issues such as reliable infrastructure, skilled human resources, open government, and other essential issues of capacity building (Federal Republic of Nigeria, 2001).

At the heart of technology lies two main branches of technology: computing and telecommunication. The technologies covered are the computer system, Internet/electronics mail (e-mail), mobile phone, and fax machine.

ICT and Development

Information and Communication Technology (ICT) is viewed as both a means and an end for development. With roughly two-third of the world economy based on services and the rise of India, Philippines and other nations as global IT players, many developing countries such as Nigeria have accepted ICT as a national mission. Even within manufacturing and industry, ICT has an increasingly important role to play. During 1995- 2002 when the US economy posted impressive overall growth, nearly one-third of the growth in productivity was attributable to ICT. While the growth rate of ICT even in developing countries is impressive, the base upon which these apply is very low.

John Dely(2003) in a series of articles, discusses point by point how ICT can work to meet the eight goals identified with the 18 targets set by the MDGs. Similar options are indicated in World Bank publications such as the different estimates on the growth and role of ICT, both within ICT sectors and in ICT consuming sectors. These estimates are from the 2003 Economic report of the President and the growth of productivity after 1973-1995 after accounting for cyclical business effects and in the World Telecommunication Development Report 2003as shown in the chart below:



Sources: *ICT and Development Resource Allocation and Impact in MDG Sector*

As the above chart shows, ICT will not directly realize the Millennium Development Goals (MDGs). Rather, its role should be seen best as an enabler, primarily spanning several dimensions:

- Efficiency and competitiveness;

- New business model and opportunities; and
- Transparency and empowerment.

Moreover, ICT is not an effortless or inexpensive proposition, but its benefits typically far outweigh the costs, and the scale of investment required is often much lower than that of development (such as providing electricity or water and sanitation). "The issue is whether we accept that the poor should, in addition to the existing deprivation of income, food and health service etc, also be further deprived of new opportunities to improve their livelihood". (Weigel and Waldburger, 2004)

ICT's value towards the MDGs is in gathering, storing, and analysing information with greater and greater accuracy and granularity. This enables tailoring development efforts to suit specific social, economic, gender, age, and geographic conditions and requirements.

Hence, when considering the success of development project and initiatives, both ICT-based and otherwise, in addition to the obvious issue of financing, political economy issues (including legal framework/ rule of lava sanctity of contracts, labour and other regulations, etc) are equally or sometimes more important.

Here are some of the equipment's required when selecting the ICT infrastructure:

Computers

Computers were originally used by scientists for calculating numbers, and have since become useful in offices and industries. In recent times, simplified models that can be used by almost everybody have become common in schools and homes for accomplishing many varied task and applications (Madu 2000).

Fapohunda (1999) lists the uses that computers are now commonly put to: writing letters and reports, printing books, newspapers, and magazines, drawing pictures and diagrams, to solve problem in statistics, mathematics and handing financial records, controlling traffic lights, flying aeroplanes, making and playing music and video, sending messages e. t. c.

Internet

The Internet is a global collection of many types of computers and computer networks that are linked together. It is increasingly becoming the solution to much information problems, information exchange, and marketing (Adesanya, 2002). Eseyin (1997) describes the Internet as a mixture of many services with the two most commonly used being electronic mail (e-mail for short) and the World Wide Web (www). It plays a significant role in education, health, political processes, agriculture, economy, businesses and newsgroups. Woherem (2000) states that with Internet connectivity, one can do business all over the world without physical contact with the buyer or the need for a business intermediary.

E-mail

Electronic mail is the exchange of text message and computers files transmitted via communications networks such as the Internet (Nwosu, 2004). Fapohunda (1999) sees the e-mail system as the equivalent of postal mailing services, with the biggest difference being the time and cost involved. And not only written data, but all sorts of information in the form of video, audio, or photographys, can be sent via e-mail. Oketunji (2000) describes e-mail as an increasing popular method of communication, especially in the workplace.

Mobile phones

Bitner (1989) defines mobile phones as a telephone system that can move or be moved easily and quickly from place to place. Mobile phones were once gadgets that only the rich and busy executives could afford. Mobile phones are now the ICT that is reshaping and revolutionizing communication globally. According to Marcelle (2000), the availability of this new technology has been reshaping the material basis of the society as well as bringing about a profound restructuring of economics, political and cultural relations among the states. Nigeria is not an exception.

According to Tiemo (2006), the importance of information cannot be overemphasized. People need information to plan and carry out their decisions more than 90percent of Africa's population could greatly benefit from information on better choice of food, safe water and basic nutrition, child care, family planning, immunization, prevention and control of endemic diseases. The combination of modern communication devices could play significant roles in the collection and dissemination of global information. Oji-Okoro (2006) supported this view by stating that mobile telephone usage by individuals enables them to communicate with loved ones, clients and business associates. For large businesses, it is a means of providing a service that leads to an increase in profits. For governments, revenues are gained through taxes and duties. As a tool for sustainable livelihoods, mobile telephones provide employment for many who could have been idle.

Fax machine

Telefacsimile systems permit the transaction of images (photos, printed images, maps, drawings) and their reproduction on paper at a remote receiver. Facsimile (fax) is not a new service however, advances in digital imaging technology and microelectronics have caused a sharp drop in prices with a significant increase in capacities (O'Brien, 1996). "Long distance copying" might be an appropriate nickname for this telecommunication process. Any document, whether it is handwritten which contains pictures, diagrams, graphs, charts or typed text can be transmitted at a great speed for relatively low cost. The fax system is widely available as most organizations have at least one fax machine.

ICT AND DEVELOPING COUNTRIES

The birth and the growth of the internet were in the United State and this has led, mostly, to large distortion in connectivity between the developed and developing nations. However, economy remain the obvious overcoming reason for the continuation of the divide. Data from the Cooperative Association for Internet Data Analysis (CAIDA) show that the Internet is overwhelmingly concentrated in a few locations. An exception is East Asian developing countries, notably South Korea and China. In last few years, these countries have been aggressively building next generation networks using the next generation of Internet Protocol (IP).

ICT AND NIGERIAN SITUATION

Advances in ICT are phenomena in the Western Europe and United State of America, which are centres of industrial and ICT revolution. The situation in Nigeria is a far cry from what obtains in the advanced nations. Nigeria is however, coming along but at lower pace. As observed by Adediji(2001), "We hop rather than leap, automation wise". Consequently, Nigeria is still trapped among the group of nations categorized as information poor societies. Low-level technology, inadequate planning, poor implementation, lack of expertise, under-funding and high costs of equipment occasioned by unfavourable exchange rates are major factors militating against ICT revolution and development of virtual library in Nigeria. Although Nigeria is not relenting in her efforts to be part of the global village, a lot still needs to be done in order to achieve a breakthrough in ICT. Ayodele (2001) sheds more light on this thus:

The developing countries and Nigeria for that matter have been caught on the backwardness called digital divide i.e. we have been left behind by some ten

years and in a revolution that is moving at the speed of light, to say ten years is a lot. Thank God, we have a vibrant knowledge thirsty citizenry whose only handicap is lack of opportunity. Thanks to ICT, the world has been made a global village. Given the right learning environment, the materials to help bridge the digital divide is at our fingertips.

However, the Federal Government saw the situation as a challenge and has risen to the occasion by putting in place policies and measures that will bridge the digital divide and transform Nigeria into a key player in the global village for socio-economiy advantage. Recognizing the importance of ICT as an indispensable tool in national development, the Federal Government of Nigeria has accorded ICT development a national priority. This has found expression in the policy document tagged "National Policy for Information Technology", which contains national IT policy guidelines for the country. In the preamble, the Federal Government observed that:

Information Technology (IT) is the bedrock for national survival and development in a rapidly changing global environment and challenges us to device bold and courageous initiatives to address a host of socio-economic issues such as reliable infrastructures, skilled human resources open government and other essential issues of capacity building... It is for this reason that every progressive country has national IT policy and an implementation strategy to respond to the emerging Global reality and thus avert becoming a victim of digital divide. A developing nation like Nigeria that aspires to participate effectively and be a key player in the emerging information age needs to have in place a highly efficient information technology system driven by a vibrant national IT policy. . .(FGN,2001).

The size of ICT Industry

Available official statistics shows that there were 14,800 ICT companies of varying sizes and activities in the country as at 2003, while the population of computers stood at 2,855,555. Out of this figure ,672,700 were in homes and the rest in offices. Also, virtually all organizations sampled engaged in multiple types of activities. For instance, the companies in computer sales and services also claimed to provide consultancy services. Virtually all the establishments who engaged in computer sales also assembled unbranded computer system (clones).

Table 1: Distribution of Establishments by Types

Types of Establishments	Distribution (%)
Telephone / Tele-centre Services	45
Computer Sales and Services	36
Computers Assembly(Formal and Informal)	22
Cyber café Services/ISP's	21
Web Design	21
Software (Sales and Services)	19
Web Hosting	11

Source: Adapted from NITDA ICT baseless study, 2003

Table 2: Distribution of ICT Establishments by Zone

Zones	Distribution(%)
Special Lot (Lagos & Abuja)	26
South- South	26.7
South – East	14.6
South – West	13.2

North – West	7.3
North – Central	7.0
North – East	5.2

Source: Adapted from NITDA ICT baseless study, 2003

The South – South had the highest number of ICT companies with a slight edge over special lot. This could be attributed to the presence of oil companies and oil operations in the zone, which is propelling economic activities. The North – East had the least population of ICT companies.

The above survey shows that, the ratings are somewhat consistent with the findings of NITDA in 2003. The situation remains the same with minor changes. Cyber cafes still remain the most popular means of Internet access. But Internet connectivity via VSAT link is widely gaining ground. Again, the GSM phones remain the most widely used means of communication in Nigeria.

Slow Internet development in Nigeria has attributed to high cost of bandwidth, computers, Internet infrastructures and unreliable power supply (Ndukwe, 2006). These challenges are being tackled head on. Several measures have been embarked upon to stimulate Internet penetration and high quality services so that Nigerian are able to enjoy improved quality services.

Nonetheless, internet/ telephony has continued to witness expansion while the Nigerian Government is addressing issues arising from the analysis.

In a related development, a study carried out by C. M. C on Internet in Nigeria and published in the Punch newspaper of Tuesday, 30th March, 2004, revealed:

- About three million Nigerians were having access to internet services. This was considered small when benchmarked with 150 million populations of Nigerians.
- The use of Internet in Nigeria had been largely elitist as it is mostly used by the urban working class and students.
- Also, Internet usage was mostly shared in offices at no direct cost to authorized users and cyber centres where people pay to use.
- The usage of Internet at home was minimal.
- The Internet subscribers had various options open to them. These included the use of radio waves, wireless dial up, VSAT access supplied by ISPs, network operators or cyber café. Generally, subscribers did not have a good understanding of VSAT technology.

Finally, the survey acknowledged the fact that the Internet industry in Nigeria has recorded some progress when compared to 90% when only few people in the country were connected to it. This has been attributed to the liberalization, deregulation and privatization embarked upon by the Federal Government. About the same time, the *Guardian Newspaper* in a publication, titled “Why Internet Connectivity is Low?” published on 6th of April, 2004 painted another picture of Internet market in Nigeria. It reported that:

- Poor Internet Market had become a major source of concern to end users in the country.
- More and more people especially corporate organizations were opting for Very Small Aperture Terminal (VSAT) in place of dial up and radio connectivity. But this option was not only expensive but also difficult to acquire.
- The situation according to the option of the Cyber café operators hindered those who want to connect to the much cherished technology.
- Consequently, end-users were asking for access rates that were not only affordable but realistic adding that if the rates were realistic, the much talked about rural-urban drift would be controlled. This would create an enabling environment and replicate what

Global System of Mobile Communication (GSM) had done for voice communication and this would lead to internet revolution in the country. It should be noted that the use of mobile phones has increased tremendously.

Summary and Conclusion

It has been commonly accepted and proven that information and communication technology (ICT) is the engine of the 21st century and beyond; as it will chart the economic, religious, cultural, legal and social life of nations, particularly that of developing countries (Ukodie, 2004). Hence, according to Nkereuwem (1996), the importance of Information and Communication Technology for sustainable development, has long been recognized by developing countries. ICT has impacted on different sectors of the Nigerian economy. The application of ICT has emerged as the most radical development of the 21st century. It facilitates speedy information transmission, high level decision making, reduces cost in resources/organizational management and as well opens vast opportunities for information sharing among individuals, companies and governmental institutions. It is a truism that Information and Communication Technology (ICT) is very indispensable to Nigerian sustainable development drive. Today, ICT has been successfully integrated in the process of state administration, leading to a view concept of e-government. The potential benefit of ICT to sustainable development in Nigeria has been accepted as an imperative paradigm.

References

- Adesanya, O (2002) The impact of information technology on information dissemination. In Madu. E. C. and Dinsu, M. B. (Eds). *Information science and technology for library schools in Africa*, Ibadan: Evi-Coleman. Pp. 10 – 24.
- Akpore, A. S. (1999) Free expression in age of the Internet. Social and legal boundaries. Boulder: Westview Press
- Anaehobi, E. S. (2007). Availability of ICT facilities in academic libraries in Anambra State. *Anambra State Library and Information Science Digest* 1(1): 57-64
- Annan, K (2002). Information and communication development; Information society summit P. 7
- Anyakoha, M. W. (1991) basic librarians. Modern technologies in information work. Owerri,. Totan publisher. Pp. 106 – 108.
- Aragbe-Akpore, S. (2004). Why e-government for Nigeria. *The Guardian*, March 16, pp 41-45, 59.
- Attama, R. O. & Owalabi, K.A. (2008). Information and Communication Technology (ICT). Dynamics in Management and Governance in an emerging Democracy. *Nigerian Library Link* 6(1). : 35-44
- Bruce, O. (1995) Internet with a difference. Getting people hocked up. Available:
www.zwren.org.zw/publications/information.
- Crede, A. and Marsell, R. (1998) Knowledge societies... In a nutshell: Information technologies for sustainable development. Ottawa, Canada. IDRC
- Eseyin, E (1997) African Internet status. Available: www.3.5n.apc.org/atstat.htm
- Federal Republic of Nigeria (2001) Nigeria National Policy for Information Technology (IT). Available: www.nitde.gov.ng/nigeriapolicy.pdf/Madu2000andFapohunda1999.
- Guardian Newspaper* in a publication, titled "Why Internet connectivity is Low?" published on 6th of April, 2004.
- Hawkrige, D. (1983), New information Technologies in education: London Broom Relm, P. 161.
- Lanvin and Qiang (2003): Chapter Poverty 'E –readcation': Using ICT to meet MDGs: Direct and Indirect Roles of E-Maturity in Dutta; Lanvin and Paua, ed, Global IT Report 2003- 04 Oxford University Press.
- Marcelle, G. M.(1999) Getting gender into African ICT policy: A strategy view in Rathgeber and Ofwona (Eds) Gender and the information revolution in Africa. IDRC.

- Martin, J. W.(1988). The Information Society. London: Aslib. P. 179
- Martin, J. W. (1995): The global information society. England: Aslib. P. 3
- Ndukw, E. (2002): Application of Information Technology. The Pointer, 28 October, P. 16.
- Nkereuwem, E. E. (1996). The utilization of aid organizations in the development of information technology in developing countries. *Library Management* 17(5). : 25-30.
- Nwosu, I. (2004): Digital public relations concept and practice, in Nwokocha, J. (Ed.). Digital public relations: New techniques in reputation management. Lagos: Zoom Lens Publishers. Pp. 33-34.
- O'Brien, j. A. (1996): Management Information Systems: Managing Information technology in the networked enterprise: Boston: McGraw Hill. Pp. 282 – 285.
- Ogbomo, M. O. and Ogbomo, E. F. (2008) Importance of Information and Communication Technologies (ICTs) in making a Healthy Information Society: A case study of Ethiope East Local Government Area of Delta State, Nigeria. *Library Philosophy and Practice*(December). ISSN 1522-0222.
- Oji-Okoro, M. (2006) Mobile telephony and sustainable livelihoods in Nigeria: Case studies from south east Nigeria. In Iyoha, C. C. (Ed.). Mobile telephony: Leveraging strengths and opportunities for socio-economics transformation in Nigeria. Lagos: Ezcell Communications Ltd. Pp. 53-56.
- Oketunji, I. (2000): Computer applications in Libraries. A compendium of papers presented at the 39th National Annual Conference of the Nigerian Library Association. Owerri. Pp. 2 – 4.
- Otabor, L. N. (2006). The significance of Information technology in the making of a healthy information society: A survey of Delta state. (An Unpublished project work).
- Punch newspaper in a publication published by C. M. C connects on Internet in Nigeria on Tuesday, 30th March, 2004.
- Thioune, R. M. C. (2003): Information and Communication Technologies for development in Africa Opportunities and Challenges for community development. Volume 1, Ottawa: IDRC: Available: <http://www.idrc.ca>.
- Tiemo, P. A. (2006): Impact of global system of module (GSM) communication services on rural communities in Delta State. In Iyoha, C. C. (Ed.) Mobile telephony: Leveraging strengths and opportunities for socio-economic transformation in Nigeria. Lagos: Ezcell Communications Ltd. Pp. 90 – 99.
- Ukodie, A. (2004). Ekuwem: Nigerian striking force: Icons of ICT in Nigeria: Their passion, vision, thoughts. Lagos: ICT Publications.
- UNDP(2001) World report on human development 2001 United Nations Development Programme. De Boeck University for UNDP, Brussels, Belgium.
- United Nations Conference on Trade and Development (2005). *Information Economy report 2005*. New York: United Nations.
- Woherem, E. R. (2000), Information technology in the Nigerian banking Industry. Ibadan: Spectrum Books, Pp. 1-2, 13-14, 26, 55 -60.