Africa's ICT Status and the Evolution of the Information Society

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Abstract

Purpose: The paper investigates the status of Information and Communication Technology as the enabling infrastructure in the evolutionary process of an inclusive Information Society It provides an overview of the Geneva 2003 –Tunis 2005 of the World Summit on the Information Society. The purpose was to identify key issues for Nigeria and Nigerian libraries and point the way forward in the march to the Information Society.

Design/methodology/approach: The approach adopted was basically a secondary research that commenced with the traditional library and web investigation. The next approach was to examine statistically, the Internet usage status and Information and Communication Technology facilities in Africa and Nigeria. Based on the data provided and discussed the final approach was to draw up critical issues for Nigeria and Nigerian libraries.

Findings: The findings indicate abysmal state of Internet usage in some African countries. Egypt leads North Africa counties in Internet usage while Nigeria accounts for more 80% Internet usage in the West African Sub-region. In Southern Africa, South Africa has the highest-56.4%. ICT facilities in Africa generally and in Nigeria in particular, are generally not impressive. The results and discussions imply that it is critically important for information professionals to begin to re-assess their roles in terms of how they contribute to the evolution of the Information Society.

Research/limitation/implication – The results and discussions imply that it is critically important for information professionals to begin to re-assess their roles in terms of how they contribute to the evolution of the Information Society. They must participate in information and knowledge creation through content development and management, and be active users of ICTS. Librarians will be called upon to provide authentic and reliable information, evolve strategic alliances participate in network activities and contribute to the bridging of the digital divide. They will emerge as technology experts, guides, scouts, researchers, analysts, knowledge engineers, editors, navigators, gatekeepers, brokers and asset managers. Conclusively, librarians will need to acquire new skills to access net resources, and develop new strategies and services to meet the challenges of the knowledge age.

Originality/value: The paper's originality lies in its contextualization of the Information Society in its historical perspective and further analytical presentations and discussion of Africa's ICT infrastructure status as the major building blocks for an inclusive Information Society. Perhaps its value is in the paper's identification of the critical innovations, institutional imperatives and Nigeria and Africa's roadmap into the evolving Information Society.

Keywords: **Africa, ICT status, internet use pattern, information society, libraries, librarians, Nigeria**.

Paper Type: Secondary/Empirical Research

Introduction

When the Nigerian Library Association (NLA) chose the theme ***Libraries: Dynamic Engines for the Knowledge and Information Society*** for her 44th National Conference and Annual General Meeting, the theme clearly emerged as a call for professional rediscovery. The library institution is traditionally and historically the custodian of knowledge and information. But, the paradigm shift from traditional information handling methodologies to technological platforms seems to transfer the information and knowledge custodian roles of libraries to other institutions and professions like the computer, communication and information technology groups. This theme seems to rightly contend that when it comes to information and knowledge, libraries of all categories and classifications remain the dynamic engines for the knowledge and information society. The theme is applicable in the context of the need for professional reinvention. As new approaches to information management evolve, library and information

professionals must move with the times. Developments in the information technology field pose serious professional challenge to all libraries and related information institutions. These technological advances must be exploited in their applicable forms to oil the engines that process, produce and provide knowledge and information. The theme is technologically approximated or auspicious in view of challenges of the World Summit on the Information Society {WSIS} Geneva 2003-Tunis 2005. Both Summits recognized the critical role of Information and Communication Technology (ICT) in the evolution and emergence of an inclusive Information Society. If the libraries are to become "dynamic engines" for the knowledge and Information Society, it is certainly the approximate time to explore how ICT tools are redefining the professional practice and landscape.

The Geneva 2003 and Tunis 2005 World Summit on the Information Society have come and gone, but what are the key issues and the way forward for Africa and Nigeria? If ICT is the foundation for the evolution of the Information Society, how ready are Africa, Nigeria, and information institutions like libraries, museums and the knowledge sub-sector? These and other issues are raised and discussed in this paper. A good starting point is to explore the Information Society in its historical and conceptual framework. This author wishes to state that the conference version of this work was presented at the 44th Conference of the Nigerian Library Association. It has been critically updated to reflect current facts, figures and developments in the evolutionary process an ICT-driven Information Society.

The Information Society: Historical and Conceptual Clarification.

Debates and discussions on the Information Society are occurring at the peak of the information technology revolution (ITR) but the ITR must be approximated in the historical context of the world's past revolutions beginning from the agrarian revolution. The critical factors of production in the agrarian society were land, labour and resources-seeds, plants, etc. The role of money during this revolution was for the procurement of land (where necessary), labour and agricultural planting materials. The nexus between the agrarian revolution and that of industrial revolution (IR) can be understood from the point of view that increase in agricultural production provided the raw materials for the take off of the industrial ion. In the early stage of the IR, steam engine and spinning jenny emerged and hand tools were replaced by machine-operated mechanisms' (Dawson, 2012). In the subsequent stages of IR the critical inventions were electricity, internal combustion engines, steel casting, scientific chemicals and telegraphy, as a means of communication. In this era, the major means of production were man, materials, money and machines. Increasingly, the involvement of man in the production process was replaced by machines as one machine could do in one day what 100 men could not accomplish in 100 days.

The nexus between the IR and ITR must be historically located in the printing revolution. It "provided man with reading and written information in great mass" (Jimba, 1999). Drucker (1987) observes that in the first 500 years since Gutenberg (1450 – 1950) and just 25 year after (1950 – 1975) equal number of books were published. Equal number of books in 25 years and 500 years is indicative of the phenomenal impact of tools and technologies crucial for the production, processing and production of information. As observed by Omekwu (2010).

> *Tools and techniques crucial to the control and consolidation of the exponential growth of information evolved into information technology. The evolution became revolutionary climaxing into yet another evolution – the information technology revolution"*

Jimba (1999) has established a nexus between the information technology revolution and the industrial revolution:

> *At the end of the twentieth century and down the twenty-first century, a new revolution has just begun to tape the context of human civilization. It is called, the information technology revolution. Basically propelled by the gains of the industrial revolution the result is the convergence between information and communication technology (2010).*

Omekwu has further explained the enabling element of the convergence

> *The convergence of Information and Communication Technology (ICT) is enabled by digital technology (DT). Digital Technology provided the critical element for the conversion of analogue system of communication of human knowledge and experience. The conversion as well as integrative capacities ensured that texts, audios, videos and images can all converge and migrate to electronic frontiers.*

It is in this revolution that the Information Society must be appropriately contextualized. In essence, information has become a critical element of productive activity. In all fields of human endeavour, information has become the pervasive factor. In fact we are living in information-driven society. A few conceptual clarifications will be vital here.

Conceptual Clarification

Basically, the Information Society is characterized by increase of employment in information activities as well as rise of business and industry tied to the production, transmission and analysis of information (Dawson, 2012). Dawson believes that Fritz Matchup must be credited for popularizing the concept of the information society through his landmark paper – ***The production and distribution of knowledge in the United State (1962).*** From occupational perspective Porat (1977) wrote on ***The Information Economy: definition and measurement*** and categorized the information society into two broad sections – primary land secondary sectors:

- The primary section in populated by organization whose main raison d'etre is an information-based good or service (eg. insurance, publishing, government); and
- The secondary information sector comprises those working on information tasks with a non-information business (eg a manager responsible for timetabling on railway (Dawson, 2012)

In December 12, 2003, the WSIS-Geneva Declarations of Principle adequately captures the vision of the Information Society.

- The Information Society must be people-centered, inclusive and development-oriented;
- In the Information Society, everyone can create, access, utilize and share information; and
- In the Information Society, peoples are able to achieve their fully potential in promoting their sustainable development and improving their quality of life premised on the purposes and principles fully and upholding the Universal Declaration of Human Rights. (http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=1161|1160)

The Information Society: The Nexus in the Labyrinth

Any human society is a labyrinth of complex individuals and institutions connected in a web of relationships .This relationships may be economic, social, religious, educational, governmental, national, regional or international. These relationships may be physically situated or isolated .To be truly human and humane, law and order are the regulatory imperatives. But even in this situation, information is the vehicle that carries the law and orders the society. Information in the last five decades has become a vital societal resource in the productive process. Investment consultants are already writing about infopreneurs and informercials (Allen,2004). Omekwu (2005) has indicated that:

> *The increasing prime of place given to information through technological development and deployment evolves into an Information Society. Information demand, use and dissemination are critical elements that determine information structuring and services. Ultimately information influences societal functionalities and set-up. Globalization of information products and services occur because individuals and institutions are able to exchange information on a global basis using ICT-driven platforms. The globalization of information exchange creates new frontiers for interaction in the economic, educational, legal and information sectors.*

The evolving trend indicates that all aspects of human actions, reactions and interactions in all contexts-social, economic, cultural, scientific, educational, national and international will

operate from a common nexus. The nexus in the labyrinth of the emerging Information Society will be information driven by sophisticated ICT systems.

The new frontiers for information exchange are premised on developments in the ICT domain. But, ICT facilities are unevenly distributed between developed and developing countries. Anan (2000), Jensen (1998) and Banigo (2001) have all highlighted these digital discrepancies between both economies. The result or problem is the emergence of an Information Society that is becoming exclusive rather than inclusive. WSIS Geneva 2003-Tunis 2005 are initiatives that are designed to pursue the evolution of an inclusive Information Society. But can an inclusive Information Society emerge without the presence of the enabling ICT environment in the partnering nations and key stakeholders like libraries? What is the relationship between Nigerian libraries and WSIS? These then are the key questions for this investigation.

Research Questions

The following questions guided this investigation:

1. What are the goals and ICT provision of WSIS?
2. What are the critical recommendations for libraries and related institutions in the WSIS?
3. What actions have Nigeria taken in relation to WSIS Geneva 2003-Tunis 2005?
4. What is the current internet use pattern of African regions and nations?
5. What is the ICT status in Nigeria?
6. What are the key issues for Nigerian libraries and information profession?
7. What are the required innovations?
8. What are the imperatives for the information professionals?
9. What is the way forward for Nigeria and the library and information profession?

Objectives

The central objective of this investigation is to highlight the action plan of WSIS, identify key issues and examine imperatives for Nigerian libraries in the evolution of an inclusive Information Society .Specifically this study will

i. Highlight and discuss key issues in WSIS Geneva 2003-Tunis 2005;
ii. Examine internet use pattern in global, regional and national perspectives;
iii. Discuss ICT status of Nigeria and by extension that of Nigerian libraries;
iv. Identify key issues for Nigerian libraries in relation to WSIS proposal, imperatives, innovation and agenda; and
v. Recommend the way forward for Nigeria and Nigerian libraries.

Methodology

This is a secondary research using web sources to obtain data for empirical analysis. The four major sources of data for this investigation were

a. Internet world statistics
b. African press
c. The Nigerian Communication Commission (NCC); and
d. World Summit on the Information Society documents.

Data structuring was carried out to facilitate a comparative analysis of Internet and ICT situations in Africa, Nigeria and across the globe.

What are the goals and ICTs provision of WSIS?

DocumentWSIS-03/GENEVA/DOC/5-E provides the goals and general ICTs direction for WSIS as follows:

> *The objectives of the Plan of Action are to build an inclusive Information Society; to put the potential of knowledge and ICT at the service of development; to promote the use of information and knowledge for the achievement of internationally agreed development goals, including those contained in the Millennium Declaration; and to address new challenges of the Information Society, at the national, regional and international levels*.

Under ***Access to information and knowledge*** it stipulates among others that***:***

- Governments should actively promote the use of ICT as a fundamental working tool by their citizens and local authorities. In this respect, the

international community and other stakeholders should support capacity building for local authorities in the widespread use of ICT as a means of improving local governance.

- Support the creation and development of a digital public library and archive services, adapted to the information society, including reviewing national library strategies and legislation, developing a global understanding of the need for "hybrid libraries ", and fostering worldwide cooperation between libraries.
- Encourage initiatives to facilitate access, including free and affordable access to open access journals and books, and open archives for scientific information.

The **Capacity building** agenda of WSIS Plan of Action emphasizes that:

> *Everyone should have the necessary skills to benefit fully from the Information Society. Therefore capacity building and ICT literacy are essential...ICT can contribute to achieving universal education worldwide, through delivery of education and training of teachers, and offering improved conditions for lifelong learning, encompassing people that are outside the formal education process, and improving professional skills.*

The strategy will be to:

- Develop domestic policies to ensure that ICTs are fully integrated in education and training at all levels, including in curriculum development, teacher training, institutional administration and management, and in support of the concept of lifelong learning.
- Promote e-literacy skills for all, for example by designing and offering courses for public administration ,taking advantage of existing facilities such as libraries , multipurpose community centers , public access points and by establishing local ICT training centers with the cooperation of all stakeholders .Special attention should be paid to disadvantaged and vulnerable groups.
- In the context of national educational policies, and taking into account the need to eradicate adult illiteracy, ensure that young people are equipped with knowledge and skills to use ICT, including the capacity to analyze and treat information in creative and innovative ways, share their expertise and participate fully in the Information Society.
- Empower local communities, especially those in rural and underserved areas in ICT use and promote the production of useful and socially meaningful content for the benefit of all.

The Plan of Action encourages the creation of an enabling environment through the development of a framework for the secure, storage and archival of documents and other electronic records of information.

The crux of the argument is that:

> *ICT applications can support sustainable development, in the fields of public administration, business, education and training, health, employment, environment, agriculture and science within the framework of national e-strategies. This would include actions in the following: sectors;* e- *government, e- business, e- learning, e- health, e- employment, e- environment, e- agriculture, e- science*

What are the critical recommendations for libraries and related institutions in the WSIS?

The most conspicuous and ambitious provisions for libraries and related institutions appear under ***Cultural diversity and identity, linguistic diversity and local content.*** That provisions are germane to this investigation and is fully cited below:

- Cultural and linguistic diversity, while stimulating respect for cultural identity, traditions and religions, is essential to the development of an Information Society based on the dialogue among cultures and regional and international cooperation. It is an important factor for sustainable development.
- Create policies that support the respect, preservation, promotion and enhancement of cultural and linguistic diversity and cultural heritage within the Information Society, as reflected in relevant agreed United Nations

documents, including UNESCO's Access to information and knowledge: Universal Declaration on Cultural Diversity. This includes encouraging governments to design cultural policies to promote the production of cultural, educational and scientific content and the development of local cultural industries suited to the linguistic and cultural context of the users.

- Develop national policies and laws to ensure that libraries, archives, museums and other cultural institutions can play their full role of content including traditional knowledge -providers in the Information Society, more particularly by providing continued access to recorded information.
- Support efforts to develop and use ICT for the preservation of natural and cultural heritage, keeping it accessible as a lining part of today's culture. This includes developing systems for ensuring continued access to archived digital information and multimedia content in digital repositories, and support archives, cultural collections and libraries as the memory of humankind.
- Develop and implement policies that preserve, affirm, respect and promote diversity of cultural expression and indigenous knowledge and traditions through the creation of varied information content and the use of different methods, including the digitization of the educational, scientific and cultural heritage.
- Support local content development, translation and adaptation, digital archives and diverse forms of digital and traditional media by local authorities. These activities can also strengthen local and indigenous communities.
- Provide content that is relevant to the cultures and languages of individuals in the Information Society, through access to traditional and digital media services.
- Through public-private partnerships, foster the creation of varied local and national content, including that available in the language of users, and give recognition and support to ICT-based work in all artistic fields.
- Strengthen programmes based on gender-sensitive curricula in formal and non-formal education for all and enhancing communication and media literacy for women with a view to building the capacity of girls and women to understand and to develop ICT content.
- Nurture the local capacity for the creation and distribution of software in local languages, as well as contents that is relevant to different segments of population, including non-literate, persons with disabilities, disadvantaged and vulnerable groups especially in developing countries and countries with economies in transition.
- Give support to media based in local communities and support projects combining the use of traditional media and new technologies for their role in facilitating the use of local languages, for documenting and preserving local heritage, including landscape and biological diversity, and as a means to reach rural and isolated and nomadic communities.
- Enhance the capacity of indigenous peoples to develop content in their own local languages.
- Cooperate with indigenous peoples and traditional communities to enable them to more effectively use and benefit from the use of their traditional knowledge in the Information Society.
- Exchange knowledge, experiences and best practices on policies and tools designed to promote cultural and linguistic diversity at regional and sub-regional levels. This can be achieved by establishing regional and sub-regional working groups on specific issues of this plan of action to foster integration efforts.
- Assess at the regional level the contribution of ICT to cultural exchange and interaction, and based on the outcome of this assessment, design relevant programmes.
- Governments, through public/private partnerships , should promote technologies and R&D programmes in such areas as translation, iconographies,

voice-assisted services and the development of necessary hardware and a variety of software models, including proprietary ,open source software and free software ,such standard character sets ,language codes ,electronic dictionaries, terminology and thesauri, multilingual search engines , machine translation tools, internationalized domain names, content referencing as well as general and application software.

What actions have Nigeria taken?

His Excellency, Nigeria's former President Olusegun Obasanjo pointed out the following as action already taken by Nigeria:

- National ICT policy and National Telecommunication network that liberalize ICT sector thereby

  creating the necessary enabling environment for public –private partnerships for ICT development; *Launching of a satellite.
- Plans to launch Nigeria's Communication Satellite in 2006 at advanced stage; and
- In collaboration with ECOWAS Secretariat, Nigeria hosted stakeholders from the West African Sub- Region to a conference to develop the best strategies for implementing the declaration of Principles and Plan of action in the sub-region.(Obasanjo, 2005)

What is the current internet use pattern of African regions and nations?

ICT Conditions in Africa

Despite advances in ICT, a wide digital disparity exists between developing and developed nations. Annan (2001) puts this disparity graphically:

> *Today there are almost as many hosts in France as in all of Latin America and the Caribbean, and there are more hosts in Australia, Japan and New Zealand than in all the other countries in the Asian Pacific Region combined. Perhaps most telling, there are more hosts in New York than in all of Africa.*

Further evidences confirm Africa's slowness in Internet connectivity and usage. Although Internet usage has dramatically improved over the past ten years, only 1.2 million out of a population of about 744 million use the Internet. Jensen (1998) reports that despite increase in Internet usage over the past 12 months the ratio of usage was not better than one Internet user for every 5000 people. Of this figure, South Africa stands topmost with as many as 600,000 users. The Internet usage growth for Africa as at December 3, 2004 was remarkable (186.6%) (Internet World State 2004); that however represents only 1.4% population penetrations and 1.6% of the users in world. This means that 98.4% of the entire global Internet users are outside African. But these conditions have dramatically improved between 1998 and 2003/2004 and 2011. In December 2011, total internet users in Africa represent 6.2% while the entire global internet users outside Africa declined from 98.4% in 2004 to 93.8% in 2011.

Hassanin (2003) indicates that:

> *Egypt introduced its first Internet use in 1993 through a link by the Egyptian University Network and France. In 1993, Egypt had 2,000 Internet users - mainly from the academic community – today we have more than 400,000 users. The Cabinet Information and Decision Support Center (IDSC) of the Egyptian Cabinet and the Regional Information Technology and Software Engineering Center (RITSEC) collaborated to enlarge the Internet user base in the country. From one local Internet Service Provider (ISP) in 1993 to 12 in 1996, Egypt now has 106 ISPs, most of which are from the private sector. This exponential growth in Internet users and ISPs show the tremendous demand and need for Internet use in Egypt. This growth in ISPs was also the outcome of creating points of Internet presence (POPs) outside of Cairo. This permitted users in secondary cities to connect to the Internet at local call rates. As for the future, USAID estimated the potential Internet users in Egypt by the year 2003 as 1 million users.*

In 2011, internet use in Egypt reached 21.692 million. Table 1 indicates that Egypt has more than 42.3% of the entire Internet users in North Africa. Morocco comes second with

15.656million internet users. Libya is least with 391,880 users.

TABLE1: Internet Usage Statistics North Africa

Country	Population (2004 Est.)	Internet Users Dec/2000	Internet Users, Latest Data: 2011	Use Growth (2000-2004)	% Population Penetration	Facebook Use	% Users in North Africa
Egypt	82,079,636	450,000	**21,691,776**	26.4 %	15.5 %	9,391,580	42.3
Morocco	31,968,361	100,000	**15,656,192**	49.0 %	11.2 %	4,075,500	30.5
Sudan	45,047,502	30,000	**4,200,000**	9.3 %	3.0 %	n/a	8.2
Mali	14,159,904	18,800	**414,985**	2.9 %	0.3 %	132,720	0.8
Tunisia	10,629,186	100,000	**3,856,984**	36.3 %	2.8 %	2,799,260	7.5
Niger	16,468,886	5,000	**128,749**	0.8 %	0.1 %	44,580	0.3
Chad	10,758,945	1,000	**190,863**	1.8 %	0.1 %	38,000	0.4
Mauritania	3,281,634	5,000	**100,333**	3.1 %	0.1 %	83,260	0.2
Algeria	34,994,937	50,000	**4,700,000**	13.4 %	3.4 %	2,835,740	9.2
Libya	6,597,960	10,000	**391,880**	5.9 %	0.3 %	391,880	0.7
Total	**255,986,951**	**769,800**	**51,331,762**	**1**	**0**	**19,792,520**	**100**

Source: adapted from www.internetworldstats.com

Data in Table 2 shows that Nigeria has the largest number of Internet users in the West African Sub-region. The upsurge in Nigeria's Internet usage statistic can be attributed to the 1998 liberalization when the Nigerian Communication Commission licensed over 50 Internet service providers to market services. Nigeria alone has over 87% of the entire internet usage in the West African Sub-region.

TABLE 2: Internet Usage Statistics West Africa

Country	**Population (2004 Est.)**	**Internet Users Dec/2000**	**Internet Users, Latest Data (2011)**	**Use Growth (2000-2004)**	**% Population (Penetration)**	**Facebook Use**	**% Users in West Africa**
Cote d'Ivoire	21,504,162	40,000	**968,000**	4.5 %	0.7 %	n/a	1.8
Nigeria	155,215,573	200,000	**45,039,711**	29.0 %	32.2 %	4,369,740	87.1
Guinea	10,601,009	8,000	**95,823**	0.9 %	0.1 %	42,280	0.2
Ghana	24,791,073	30,000	**2,085,501**	8.4 %	1.5 %	1,146,560	4.0
Sierra Leone	5,363,669	5,000	**48,520**	0.9 %	0.0 %	48,520	0.1
Senegal	12,643,799	40,000	**1,989,396**	15.7 %	1.4 %	620,260	3.8
Burkina Faso	16,751,455	10,000	**230,562**	1.4 %	0.2 %	95,380	0.4
Togo	6,771,993	100,000	**356,300**	5.3 %	0.3 %	71,200	0.6
Liberia	3,786,764	500	**20,000**	0.5 %	0.0 %	n/a	0.0
Gambia	1,797,860	4,000	**159,012**	8.8 %	0.1 %	74,840	0.3
Benin	9,325,032	15,000	**744,195**	3.0 %	0.2 %	130,240	1.4
Total	268,552,389	452,500	51,737,020	1	0	6,599,020	100

Source: adapted from www.internetworldstats.com

Ernest Ndukwe – Chief Executive of Nigerian Communication Commission presentation at WSIS conveyed authoritative information on the status of ICT infrastructure in Nigeria.

Table 3: Status of ICT Infrastructure in Nigeria

ICT facility	Dec.'00	Dec.'02	June'03	Dec.'03	Mar.'04
No of connected fixed lines	450,000	702,000	724,790	850,000	888,854
No of connected Digital mobile lines	None	1.6m	2.05m	3.1m	3.8m
No of national carriers	1	2	2	2	2
No of operating ISPs	18	30	30	35	35
No of Active Licensed fixed line operators	9	16	19	30	30
No of licensed Mobile operators	1	4	4	4	4

Source: www.ncc.gov.ng/speeches

It is evident that ICT facilities in Nigeria experienced radical growths between 2000 and 2004. The most pronounced sector of growth was in mobile communication with digital mobile lines growing from zero in December.2000 to 3.8 million in March 2004. (Ndukwe, 2005). Other growth indices include:

- Telephone subscribers growth from 450,000 in December 1999 to over 4,700,000 by March 2004.
- Zero private investment in ICT in December 1999 to estimated 4million by December 2003
- Teledensity of 0.4 lines per 100 inhabitants in 1999: 1.96 in 2002; 3.33 in 2003 and 3.92 per 100 inhabitants in 2004.
- Several towns and cities estimated at 48% of the population and 18% of land mass have potential access.
- Geographic penetration of fixed lines as at March 2000 has reached
  - All states of the federation
  - Over 200 towns and cities
  - 9% of estimated land mass and
  - Estimated population of 20% (Ndukwe, 2005)

While it can be argued that ICT developments have been remarkable, the growth pattern must be compared against the national population. So even if telephone subscribers' figure of 4,700,000 is noticeable, that still leaves an estimated 126 million without telephone access. Although many villages in Nigeria are now reached by mobile telephone operators, countless others are still uncovered. Table 4 below reveals the state of ICTs deficiencies when compared with the population statistics.

Table 4: ICT STATUS IN NIGERIA IN TERMS OF USER POPULATION

Population (millions)	132.8
Literacy rate	66.8
Gross national income per capita	290
TVs per 1000 people	68
Radios per 1000 people	200
Telephone mainlines per 1000 people	5
Mobile phones per 1000 people	4
Personal computers per 1000 people	6.8
Internet users (thousands)	115

Source: The Africa ICT Policy Monitor is an initiative of the Association for Progressive Communications (APC)

According to Table 5, Central African countries present the poorest picture of Internet use situation in any of the Sub-regions with users' population penetration below 0.50 in most Central African countries. With user population of 1.6%, the Region is to Africa what the continent is to the world Internet usage statistics. The situation in Southern Africa is second only to that of North Africa. However South Africa is to the Region what Egypt is to North Africa. But the South Africa's figure of 27.2% is clearly better than Egypt's 20.9%. In fact, more than a quarter of the entire Internet population is in South Africa alone. Low tariffs policies by the South Africa's telecommunication agencies empowered the rapid growth of Internet usage in the country with added advantage of extending access to the country's neighbors.

Table 5: Internet Usage Statistics: Central Africa

Country	Population (2004 Est.)	Internet Users Dec/2000	Internet Users, Latest Data(2011)	Use Growth (2000-2004)	% Population (Penetration)	Facebook Use	% Users in Central Africa
Central African Rep.	4,950,027	1,500	**123,800**	2.5 %	0.1 %	123,800	3.7
Rwanda	11,370,425	5,000	**818,048**	7.2 %	0.6 %	114,740	25.1
Burundi	10,216,190	3,000	**176,040**	1.7 %	0.1 %	30,780	5.4
Gabon	1,576,665	15,000	**108,845**	6.9 %	0.1 %	91,200	3.3
Congo	4,243,929	500	**295,132**	7.0 %	0.2 %	77,100	9.0
Congo, Dem. Rep.	71,712,867	500	**915,400**	1.3 %	0.7 %	915,400	28.1
Cameroon	19,711,291	20,000	**783,956**	4.0 %	0.6 %	467,340	24.0
Equatorial Guinea	668,225	500	**42,024**	6.3 %	0.0 %	18,180	1.3
Total	**124,449,619**	**46,000**	**3,263,245**	**0**	**0**	**1,838,540**	**99.9**

Source: adapted from www.internetworldstats.com

Table 6: Internet Usage Statistics South Africa

Country	Population (2004 Est.)	Internet Users Dec/2000	Internet Users, Latest Data(2011)	Use Growth (2000-2004)	% Population (Penetration)	Facebook Use	% Users in South Africa
South Africa	49,004,031	2,400,000	**6,800,000**	13.9 %	4.9 %	4,822,820	56.4
Zimbabwe	12,084,304	50,000	**1,445,717**	12.0 %	1.0 %	n/a	11.9
Mozambique	22,948,858	30,000	**975,395**	4.3 %	0.7 %	186,460	8.1
Angola	13,338,541	30,000	**744,195**	5.6 %	0.5 %	322,300	6.2
Botswana	2,065,398	15,000	**167,180**	8.1 %	0.1 %	167,180	1.4
Malawi	15,879,252	15,000	**716,400**	4.5 %	0.5 %	112,100	5.9
Namibia	2,147,585	30,000	**148,414**	6.9 %	0.1 %	134,140	1.2
Zambia	13,881,336	20,000	**882,170**	6.4 %	0.6 %	177,820	7.3
Swaziland	1,370,424	10,000	**95,122**	6.9 %	0.1 %	54,220	0.7
Lesotho	1,924,886	4,000	**83,813**	4.4 %	0.1 %	27,700	0.6
Total	134,644,615	2,604,000	12,058,406	1	0	6,004,740	99.7

Source: adapted from www.internetworldstats.com

In Eastern Africa, data in Table 7 shows that Kenya has the larges Internet user. The entire region contributes only 7.5% of the 4.3% of Internet use population penetration.

Table 7: Internet Usage Statistics Eastern Africa

Country	Population (2004 Est.)	Internet Users Dec/2000	Internet Users, Latest Data(2011)	Use Growth (2000-2004)	% Population (Penetration)	Facebook Use	% Users in Eastern Africa
Kenya	41,070,934	200,000	**10,492,785**	25.5 %	7.5 %	1,298,560	50.7
Tanzania	42,746,620	115,000	**4,932,535**	11.5 %	3.5 %	414,540	23.8
Uganda	34,612,250	40,000	**4,178,085**	12.1 %	3.0 %	346,980	20.2
Ethiopia	90,873,739	10,000	**622,122**	0.7 %	0.4 %	472,460	3.1
Somalia	9,925,640	200	**106,000**	1.1 %	0.1 %	55,140	0.5
Djibouti	757,074	1,400	**61,320**	8.1 %	0.0 %	51,240	0.3
Eritrea	5,939,484	5,000	**283,699**	4.8 %	0.2 %	19,180	1.4
Total	225,925,741	371,600	20,676,546	1	14.70%	2,658,100.	100

Source: adapted from www.internetworldstats.com.

What are the key issues for Nigerian libraries and information profession?

wsis: Key Issues for Nigeria and Nigerian Libraries

In view of the facts, figures and findings presented in the proceeding sections of this investigation, what are the emerging issues for Nigeria and Nigerian Libraries, post – WSIS Geneva 2003 – Tunis 2005? Both the Geneva and Tunis Summits represent a conscientisation of the global community on the need to address the digital disparity between the developed and developing countries. They emphasized the need to evolve an inclusive Information Society driven on ICTS platforms. The ICT conditions and Internet connectivity in Africa and other developing nations are still at low level stage.

Oruame (2005) of IT Edge, Nigeria discusses ***"Africa's long road to WSIS***. He contends that;

For West African countries and particularly Nigeria, it is still a long road plugging into the emerging Information Society. Other countries outside the continent have since the first phase of WSIS at Geneva about two years ago made considerable progress at opening ICT access to a larger number at their population, particularly the rural areas. While China and India for instance have been able to improve on building both human policy capacities to contend with the challenge of the new knowledge economy, there appears to be very little in place to show that African countries are ready for the IS.

With specific reference to Nigeria, he contends thus:

> *In Nigeria, government has made several policy statements on the WSIS agenda, but there is still poor understanding of the IS and its global implications for well over 98% of the population in the country of more than 130 Million people.*

Almost a year after Tunis and four years after Geneva there appears to be no noticeable impact of both phases of WSIS in the nation's information sector. It is appropriate to identify key issues that are germane to the evolution of an inclusive Information Society. Nigeria and Nigerian libraries must address the following emerging issues in order to be appropriately repositioned for the Information Society:

(i) **Awareness of WSIS and IS:** If according to Oruame (cited above) well over 98% of the Nigerian population are not aware of the implications of the emerging Information Society, it follows therefore that a critical gap of ignorance exists in the awareness level of Nigerians about the whole concept of the Information Society. It follows further that a fundamental error of omission or inaction can be posted at the doorstep of the WSIS National Implementation Agency – The National Information Technology Development Agency – NITDA.

(ii) **Urban – Rural Digital Divide:** The yawning digital divide between the developed and developing countries was the vital motivation for WSIS. The concentration of ICTS in urban Nigeria has created a new form of digital divide – the urban – rural digital divide (DD). To connect villages with ICTs and establish community access points are vital issues that will create "rural inclusive" IS.

(iii) **Sociological Issues;** It is understandable that digital or ICT infrastructural framework are vital to the emergence of the Information Society. But ICT must be perceived for what they are – means to the Information Society and the IS itself. Three concepts must be clarified here – ICTs are technological tools that impact the evolution of the Information Society. The sociology of information pertains to the vital role of information in connecting and establishing relationships between individuals and institutions or people and places. Instrumental information describes the information that has utility value. It is argued here that the whole essence of the Information Society is to enable people to have access to information that could empower them.

(iv) **Involving the Critical Stakeholders;** It is argued further here that librarians and other information professionals are best trained and positioned to manage the

sociological and instrumental properties of information. Through intensive web research, it seems to this investigator that one of the most critical institutions in the whole process of national information management has not been adequately involved in post- Geneva 2003 – Tunis 2005 of WSIS. The Information Society, it must be re-emphasized is all abut enabling the citizens to have access to information that would empower their lives.

(v) **Content Development:** What is the essence of ICT infrastructure that conveys information of no real value to members of the public? It seems that the current emphasis is all about ICT development. It is a critical issue to begin to address the development of the information and knowledge content of the ICT systems If this is not done, then alien contents will dominant local/national IS.

(vi) **Content Management:** Content management is a follow-up to content development. It is submitted here that while content development should be a multi-disciplinary initiative, content management is the professional domain of librarians and other information professionals. Do we have agenda for managing information in the digital frontier of the ICT- driven Information Society?

(vii) **Vital Connections:** It has been discussed earlier that bridging the urban – rural digital divide is vital to rural inclusiveness or integration. The Geneva 2003 of WSIS identified in its plan of action other vital institutions that should be connected with ICTs. Targets to be achieved by 2005 include:

(a) To connect universities, colleges, secondary schools and primary schools with ICTs;

(b) To connect scientific and research centers with ICTs;

(c) To connect public libraries, cultural centers, museums, post offices and archives with ICTs;

(d) To connect health centers and hospitals with ICTs;

(e) To connect all local and central governments and establish websites and email addresses;

(f) To adapt all primary and secondary school curricula to meet the challenges of the Information Society, taking into account national circumstances;

(g) To ensure that all of the world's population have access to television and radio services;

(h) To encourage the development of content and to put in place technical conditions in order to facilitate the presence and use of all world languages on the Internet; and

(i) To ensure that more than half the world's inhabitants have access to ICTs within their reach.

Can we say that these target connections for 2005 have been achieved? How many of Nigerian public libraries have Net access? The issue of web access in public primary and secondary schools seems not be of any policy concern to educational managers? It is disappointing that web access in the nation tertiary institutions is still nothing to write home about. Even the very unsatisfactory Internet services in Nigeria's higher institutions are provided by commercial operators. It is an issue of serious concern that 31 years after the development of the Internet in 1979, the nation's primary information institutions are virtually, if not practically, left behind.

(viii) **Legal and Policy Framework:** The crux of the matter really is the absence of legal and policy frameworks for the development of all types of library systems. Anaeme (20006) observed that in most of the laws/acts setting up the parent bodies where most law libraries operate, the place of the libraries was vaguely mentioned. There must be explicit legal and policy frameworks for libraries

development as vital allies in the match to the information society.

(ix) **Education:** The Geneva plan of action recommends the adaptation of all primary and secondary school curricula to meet the challenges of the Information Society. The idea behind this recommendation is to ensure that children and young people acquire ICT skill early in life. It is also an issue for educational institutions to develop ICT training programmes for the adult members of the society. The educational institution would define the training needs, programme, goals and the training institutions.

(x) **Indigenous Knowledge Systems:** Under section C8 (k, i), the Geneva Plan of Action recommends the need to:

(j) Enhance the capacity of indigenous peoples and traditional communities to develop content in their own languages; and

(k) Cooperate with indigenous peoples and traditional communities to enable them to more effectively use and benefit from the use of their traditional knowledge in the Information Society

These recommendations recognize the value of the indigenous knowledge as an essential aspect of the Information Society. Has the information professionals developed a reliable system for the documentation of the nation's rich indigenous knowledge and cultural heritage? These issues challenge the profession to reinvent and rediscover the essence and practice of librarianship. Information remains the tool of profession's trade. Providing it most effectively is the practice domain of the profession. As new technology evolves and the information variable migrates to the electronic frontiers, innovative ways must be developed to handle both the technology and the new frontiers.

What are the required innovations?

The central challenge for librarians from developing countries in the digital age would be to bridge the digital divide. As more and more libraries in developing countries move to the electronic frontier, their librarians would have the dual responsibility of not only managing information but also the technology systems that enable the information production, - processing-provision chain. Old skills may not be adequate to address new and emerging challenges of the Information Society. Innovative strategies must be designed to address the policy, practice and professional challenges of the Information Society. The following questions are related to innovations that the profession must begin to address:

(i) Are traditional or conventional skills sufficient to cope with relevance in the Information Society?

(ii) How knowledgeable are librarians in IT and ICT handling?

(iii) How familiar are the professionals with the electronic and digital frontiers?

(iv) Should information professionals stay on the fence of indecision and inertia while it is being sidetracked in WSIS national programme?

(v) What are the critical intervention points for libraries, museums, archives and information centers in advancing the evolution of the Information Society?

(vi) What advocacy role must the leadership of the National Library Association's play to ensure the formulation of a library development policy for their nations

(vii) What are the professional imperatives for individuals and institutions as the Information Society evolves?

What are the imperatives for library and information professionals?

Somewhere else Omekwu (2005) observed that:

> *Librarians in all types of libraries are already at the cross road of management imperatives induced by changing information environment. Academic libraries will be challenged to adopt new management styles to support teaching, learning, research, and recreation in an environment where scholarship is increasingly migrating to digital frontiers. Special libraries managers will require*

> *specialized skills to navigate the ocean of information in order to address the specific information needs of their often sophisticated clientele system. School libraries are already designated multimedia resources centers. Management of multimedia systems, services and staff implies the acquisition of new managerial arts and skills. Astute managerial skills are even more compelling for the expanding roles of public libraries as institutions for the development of the mind, literacy in developing countries and cultural repositories*

But the imperatives for relevance in the Information Society are not only managerial but can be viewed from individual and institutional perspectives.

Institutional Imperatives

Imperative I: Computer Technology.

Computer technology is inevitable for all kinds of libraries. It is no longer an exclusive luxury meant for libraries in developed nations. To operate Nigerian libraries without computer technology is to be more than three decades behind advances in technology.

Imperative 2: Automation

Library automation is the goal of acquiring computer technology. Manual librarianship is not the emphasis in the Information Society. The Geneva Plan of Action mentions the creation and development of a digital public library and archive services, adapted to the information society, including reviewing of national library strategies and legislation, developing a global understanding of the need for "hybrid libraries, and fostering worldwide cooperation between libraries.

Imperative 3: Local Area Network (LAN)

It is an imperative for libraries or their institutions to operate a LAN. First, it facilitates internal communication among staff. Secondly, it maximizes network facilities like printers. Thirdly, it improves work flow as data entry into a single database can go on from various workstations. And finally, it lays the groundwork for external communication via Internet connectivity.

Imperative 4: Web Access

Web access will become increasingly an imperative for all libraries in the emerging Information Society. Without it, library users will be denied a round-the-clock access to global information. The whole essence of the emphasis on ICT infrastructural facilities development is to build the platform for real time, non-stop easy access to information that transcends national boundaries and barriers.

Imperative 5: Websites

To operate without a website is to be non-existent in the virtual environment. As institutions develop their websites, their libraries must ensure that the library's bibliographic records/database are uploaded to become part of the global resources.

Imperative 6: On-line Libraries/Databases

Virtual, electronic or Internet librarianship will increasingly become the dominant features of the Information Society. Skills in managing online library resources will become a compelling imperative in that society. And the digitization of library, archival and cultural repositories will become inevitable.

Imperative 7: Hybridization

It is obvious that library and information centers can neither become virtual overnight or irrelevant in the next few years. A hybrid of manual and machine systems must of necessity co-exist. The ability to manage a hybrid library is a challenge that must be addressed

Individual Imperatives

Librarians and information professionals have a choice either sit on the fence of professional indecision and traditionalism or move with the times. To lead in the emerging Information Society, librarians must adapt their skills to the challenges of an ICT-driven Information Society. The individual imperatives will include:

Imperative 8: Computer Skills

What can modern librarians do in the Information Society without the ability to operate the computer system? The answer will range from nothing to little. The emphasis of WSIS is on ICT-propelled Information Society. Librarians will do themselves a professional duty to acquire skills that will enable them to use computers effectively.

Imperative 9: IT Literacy

Information technology is essentially the deployment of computer and related technologies like telephone, Fax, and reprographic tools to information management.

It is imperative that librarians as custodians of information management facilities should know how use these systems in isolated and integrated platforms. **Imperative**

Imperative 10: ICT Competency

As the Information Society operates on ICT platforms, librarians must be competent users of ICT facilities. The ICTs are basically the scientific integration of information technology and communication systems for the transmission of information in multimedia formats. The cutting edge in ICT development is in its ability to create information systems in vastly global proportions

Imperative 11: Internet Proficiency

Librarians must become active users of the Internet. It is only then that they help the library users on how to navigate the web in the Information Society.

Imperative 12: Network Issues

What has happened to the National University Network (NUNET) in Nigeria. Why should the Nigerian Association of Law Libraries operate as isolated mountain? Nigerian libraries must use emerging technology to network their resources for the common good of all categories of library users.

Imperative 13: Initiatives and Proactiveness

Librarians must become active managers of change. Library services must move to the proactive platform. Librarians must take the initiatives in the evolutionary process of the Information Society. This is imperative because information is the librarians' tool of trade. Inclusive Information Society can hardly evolve without the active involvement of library institutions and information professionals. Any meaningful post- Geneva 2003-Tunis 2005 programme leading to an inclusive Information Society must carry libraries along.

Having identified the key issues and the innovations and imperatives, what is the way forward for Nigeria?

What is the way forward for Nigeria?

The World Summits on the Information Society – the Geneva 2003 – Tunis 2005 have achieved generally laudable goals. They have sensitized the international community on the need to bridge the digital divide between the developed and the developing countries. They are emphasized the need to evolve an inclusive Information Society. They have recognized the primary role of ICT in the evolution of the Information Society. They have called for partnership among key stakeholders in the information sector. The WSIS Plan of Action and Commitments are all clear about national goals and targets in the evolution of an Information Society that is truly global and inclusive. The way forward for Nigeria and Nigerian libraries include:

(1) The formulation of a policy and legal framework that would domesticate WSIS national goals, targets and plan of action.

(2) An intensive sensitization of the Nigerian civil society groups on their involvement in the evolutionary process of the Information Society..

(3) Identification and involvement of the critical institutions and professions in the implementation of WSIS national targets and goals. Such critical institutions and professions include libraries, archives, museums, universities, and other tertiary institutions, librarians, computer scientists and engineers, the Nigerian Internet Group, Computer Association of Nigeria, publishers, educationists, sociologists and medical doctors. Other includes the Nigeria Bar Association, Nigerian Society of Engineers and the Institute of Chartered Accounts of Nigeria.

(4) A deliberate effort to bridge the urban – rural digital divide in Nigeria. The launching of a satellite programme that could enable a wireless communication platform is a vital step towards effective rural integration into an inclusive Information Society.

(5) The repositioning of Nigerian libraries and related information institutions as the primary agencies of information service provision. It is submitted here that the most critical way forward for Nigeria and indeed Africa is to comprehensively connect all categories of libraries with ICT.

(6) The recreation of the nation's public libraries as agencies for the development of the mind, lifelong learning ,enlightenment of the people, and

cultural preservation. A detailed study on the metamorphosis of Nigerian public libraries into digital public libraries is long overdue. Nigeria will move toward the Information Society if public libraries are revamped and revived in the model of the famous New York Public Library.

(7) Lessons from the experience of nations like China and India can provide Nigeria with pitfalls to avoid and pathways to adopt. If these countries have made remarkable progress since WSIS Geneva 2003 – Tunis 2005, Nigeria can benefit from their experience to move forward into an inclusive Information Society.

Conclusion

Nigerian and African libraries are critically situated at the cross road of global proposals on the essentials for the evolution of an inclusive Information Society. The WSIS Geneva 2003 – Tunis 2005 are clarion calls on nations to wake up to the challenges of the Information Society. In Nigeria, developments since 2003 and 2005 of WSIS have been more of statements and less focus on actions. Critical stakeholders vital to the emergence of the kind of Information Society envisaged by WSIS seem not to be fully involved in post – Geneva and Tunis Summits activities in Nigeria. The ICT infrastructural facilities are yet to provide for over 100 million people. Nigerian libraries are mainly without functional web access. The connecting ICT platforms to libraries, archives, museums, rural areas and educational institutions are virtually unavailable. It is a really long journey getting to the Information Society. It must be submitted that there could never be a truly inclusive Information Society without libraries, librarians and other knowledge workers and institutions.

The library as the major information institution will remain the most critical nexus between the society and the information that are instrumental to societal growth and development. This is the reason why librarians must reinvent themselves as dynamic engines for the knowledge and information society. The professional rediscovery of librarians is premised on the maxim that only the people who hold the key are best qualified to open the door. Every profession is critically situated at three edges of the development paradigms. These are the trailing edge, the cutting edge and the leading edge. As ICT systems impact the evolution of the Information Society, it seems that Nigerian libraries have been relegated to the back door of the trailing edge. The ICT systems are merely cutting edge tools that mainstream people, places and professions into the Information Society. And when that society eventually arrives, information professionals would be there to provide the leading edge.

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