

Evaluation of ICT Development in Nigeria using some Key Indices

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ABSTRACT

There are four technology groups in the global ICT market namely: Hardware, Software, Services and Communications. The communication services and equipment group has by far the largest share of total ICT. The services group has the second largest share, while the hardware and software hold the least share.

Nigeria ICT industry is a predominantly service based industry that is characterized firstly, by Highly fragmented markets, exemplified by proliferation of small players with low-value offerings. Secondly, by Delivery of value-added services such as network and systems integration is mostly for corporate customers that are comparatively few in number. Thirdly, by Manufacturing and Assembly of hardware exhibits very low growth due to lack of essential support infrastructures which limit opportunities and raise entry barriers. Fourthly, by Software development, and the software industry in general is underdeveloped due to paucity of skill despite a ready and untapped market.

This paper evaluates information and communication technology (ICT) development using indicators of ICT and field work survey. It develops a conceptual framework for and selects key indicators measuring ICT development, with a specific focus on information and communication technologies (ICTs) as pervasive technologies of global impact, wide application and growing potentials.

Keywords: Market, Hardware, Software, Services, Communication, ICT.

1. Introduction

ICT has been the basis for technological development in the 21st Century and this has driven the society 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 [Ndukwe E., 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 [NNPIT, 2001]. 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 organizational levels, and at the right, 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. Information Technology is the use of man made tools for the collection, generation, 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 [Anyako

M. W.,1991]. ICTs are credited with the ability to transform, and deep and significant changes are expected from their widespread use. From this stand point Nigerians 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 understand 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. Mobile phones are now the ICT that is reshaping and revolutionizing the communication globally. Its impact on the economic activities of nations, businesses, and small entrepreneurs is phenomenal. The availability of this new technology has been reshaping the material basis of the society as well as bringing about a profound restructuring of economic, political, and cultural relations among states [Marcelle G. M., 1999]. Nigeria is not an exception.

1.1 Challenges and Prospects in Nigeria's ICT Market

The global market research industry is leveraging the computer, mobile phone and mobile applications (software) to revolutionize an industry that is largely dependent on paper for data collection and research. While market research companies in the United States and Europe, among others, have

stepped up their games with computer Assisted Personal Interviews and mobile - CAPI driving research efficiency with ICT for reliable results that public and private organizations subscribe to for effective management decision, the situation is still a far-cry in Nigeria.

The Nigerian Market Research Association (NIMRA) laments that there is difficulty in achieving credible data base amid poor data collection and management practice in the country because most of the researches done here are on paper. NiMRA also says research on the Internet remains a grey area in Nigeria, adding that the country will continue to lag behind if serious attention is not paid to Internet research as it is currently done in Europe and America. What, perhaps seems to be the greatest challenge to NiMRA is also the indigenous market research companies' failure to take advantage of the telecommunications revolution in the country and tap into the huge market, which Internet research potentially offers. However, TNS, a global market research firm which recently merged with RMS, an indigenous market research company to form TNSRMS, say technology is central to its operation and its already driving the growth of the Nigerian market research through it.

The growth of ICT is changing the way economic and social development occurs in Nigeria. New ICT-related tools have been known to make institutions and markets more productive, enhance skills and learning, improve governance at all levels, and make it easier for services to be accessed.

To further strengthen ICT development as well as the entertainment industry in Nigeria, the World Bank had expressed readiness to kick-start investment on facilities to promote growth and employment project in that sector. The development would go a long way to show that even if Nigerians do not see the immense challenges facing the ICT sector in view of the progresses recently recorded, the world is really aware of the lapses. Hence, the promise by the World Bank to do more to salvage the situation.

ICT is a combination of telecommunications and computing, which have seen the country progress in a number of ways. There are indeed several other indications that considerable progress had been made in the information technology and telecoms sector since the advent of democracy, and the awareness of the potentials of using IT to transform the nation's economy is already widespread among policy makers and leaders of the organized private sector.

2. ICT Market Indicators

Connectivity

Connectivity is narrowly defined as the physical infrastructure available to a country, as distinct from broader factors determining access (e.g. literacy and cost). It represents the basic "limiting factor" regarding access to and use of ICTs - without the essential physical hardware, ICT use is not possible. UNCTAD defined narrow "connectivity" as the minimum set of measures necessary for ICT access, comprising internet

hosts per capita and mobile subscribers per capita. This excludes supporting infrastructure (such as electricity supply and transport), affordability and broadband access. This view sees connectivity as a cluster of technologies with synergies, rather than precedence between different types of infrastructure.

The Nigerian ICT Market

Software and IT: Nigeria is Africa's leading market for software and IT service. Independent research by Microsoft has indicated that the market could drive the creation of new businesses and new jobs rapidly. Nigeria's success is built on several key strengths. Firstly, Nigeria is a power house for software development and secondly, Nigeria is home to specialist software companies and all the major global software companies such as Microsoft, IBM and HP have sizeable operations here.

Cyber Security: Nigeria offers opportunities in a vast number of areas under the broad cyber security heading including: authentication, authorization, trust, identity management, cryptography, cryptanalysis, computer security, human aspects of security, privacy, information hiding, anonymity, digital rights management and watermarking. Nigeria cyber security market worth huge amount of money and increased general awareness of the cyber threats, as well as other areas such as the continuing evolution of connected services, will continue to drive growth in this market. Mobile phone security is expected to be one of the largest markets.

Cloud Services: Nigeria cloud computing annual market value is on the increase. Currently, a fair percentage of Nigerian SME (small & medium enterprises) business use cloud solutions. Indicators are beaming revealing that in the nearest future, half of all new IT spending by the public sector will be on public cloud services.

Data Centres: Nigeria data centre market, is the largest in Western Europe and the growth in the amount of data and new services such as clouding computing is creating new sources of demand.

Mobility: There is a big opportunity for enterprises to revolutionize business processes and customer interactions using mobile applications. Smart phone penetration in Nigeria is the highest in Africa and is growing year in year out. A third of all mobile subscribers have smart phones, with growth seen across iphone, ipad, Android and Blackberry devices.

3. Methodology and Results

This work uses a survey. The instrument for data collection was the questionnaire, which consisted of two parts.

Part A -Collection of data based on personal characteristics.
Part B -Collection of data based on ICT facilities.

A sample of 120 respondents was used. The respondents were drawn from different walks of life. Data were analyzed using frequency counts and simple percentages.

Part A

Table I: Distribution of respondents by sex.

Sex	Frequency	Percentage
Male	54	45.0%
Female	66	55.0%
Total	120	100%

Observation:- More females than males responded to the questionnaire.

Table II: Distribution of respondents by Age.

Age (yrs)	Frequency	Cumulative Freq.	Percentage (%)
16 - 25	19	19	15.83
26 - 35	30	49	25
36 - 45	48	97	40
46 - above	23	120	19.17
Total	$\Sigma f = 120$		100

Observation:- Majority of the respondents were between the ages of 36 - 45 years.

Table III: Distribution of respondents by qualifications.

Qualifications	Frequency	Cumulative Freq.	Percentage (%)
WAEC/GCE/NECO/SSCE	33	33	27.5
OND/NCE/DIPLOMA	27	60	22.5
HND	22	82	18.33
B.SC	19	101	15.83
M.SC	14	115	11.67
Ph.D	5	120	4.17
TOTAL	$\Sigma f = 120$		100

Observation:- Majority of the respondents were WAEC/GCE/NECO/SSCE and OND/NCE/Diploma holders.

Table IV: Distribution of respondents by occupation

Occupation	Frequency	Cumulative Freq.	Percentage (%)
Teachers(Secondary school)	26	26	21.67
Civil Servants	22	48	18.33
Petty Traders	12	60	10
Students(Secondary school)	22	82	18.33
Self Employed	30	112	25
Others	8	120	6.67
TOTAL	$\Sigma f = 120$		100

Observation:- Majority of the respondents can read and write, and can use ICTs adequately.

Part B

Table V: Frequency of the use of ICT facilities

ICT facilities	Frequency	Percentage (%)
Computer	109	90.83
GSM/Telephone	120	100
Internet	35	29.16
Satellite technology	0	0
Radio set	120	100
Electronic mail	40	33.33
Digital video Disk (DVD)	32	26.67
CD-ROM technology	22	18.33
Fax	0	0
Printer	41	34.17
Scanner	53	44.17

All respondents indicated use of GSM/telephone and Radio set. A further analysis shows 90 percent use computers little less than half use scanners, a little more than one-third use the printers, and one-third use the electronic mail.

Table VI: Reasons/Benefits of using ICT facilities.

Reasons/Benefits	Frequency	Percentage (%)
Capacity building	82	68.33
Health and sanitation	50	41.67
Improvement of teaching condition	100	83.33
Increased income	110	91.67
Job creation	76	63.63
Improvements in agricultural production	50	41.67
Greater involvement in community matters	66	55
Better use of information	85	70.83
Improvements in contact with relatives and friends	120	100
Time saving	85	70.83

Respondents use ICTs for capacity building, improvement of teaching conditions, job creations, increased in income, greater involvement in community matters, better use of information, improvements in contact with relatives and friends, and to save time. Although, health and sanitation were also benefits, fewer respondents used ICTs for those reasons.

Table VII: Problems militating against the use of ICT facilities.

Problems of ICT facilities	Frequency	Percentage (%)
Frequent power outage	100	83.33
High cost of connectivity	106	83.33
Lack of ICTs skills	106	83.33
Poor telecommunication infrastructure	96	80
Obsolete equipment	70	58.33
High cost of equipment	65	54.17
Lack of basic education	78	65
Urban-rural digital divide	100	83.33
Inter connectivity problem	104	86.67

There are several problems militating against the respondents' use of ICT facilities. Power outages, the high cost of connectivity, lack of ICTs skills, urban-rural digital divide and interconnectivity ranked highest while poor infrastructure, lack basic education, obsolete equipment, and high cost of equipment were also highlighted.

4. Conclusion

There is widespread research interest in information and communication technologies (ICTs). ICTs are crucially important for sustainable development in developing countries [Crede A., and Mansell R., 1998]. In a technology - driven society getting information quickly is important for both sender and receiver. ICTs have made it possible to quickly find and distribute information [Thioune R. M. C., 2003]. The information society is a way for human capacity to 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 isolated regions. Informatization of society is a major hurdle that most nations, especially developing countries, are encountering [Annan K., 2002].

The African Information Society (AIS) document (2005) argues that Africa should build an information society in which everyman, woman, child, village, public and private sector

office 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. A healthy information society is concerned with getting reliable and timely information to its members. Making people aware of the benefits derivable from the use of ICTs will help to make the society a healthy one.

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