An e-readiness assessment of Nigeria's Premier University (Part 1*)

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ABSTRACT

The study investigated the preparedness of the University of Ibadan (UI) to benefit from the numerous opportunities offered by the adoption and use of ICT in carrying out university functions. Six research questions centered on eliciting the e-readiness objectives of the University and five e-readiness indicators namely: infrastructural availability, access to infrastructure, manpower availability, institutional ICT policy and regulatory framework, and ICT deployment in the university activities were assessed. An empirical case study research method was adopted. The study population comprised two (2) University of Ibadan ICT project stakeholders, and six thousand, four hundred and thirty one academic staff and students. Questionnaires and a coded sheet were the instruments used for data collection. Findings revealed that the university's overall e-readiness index was 2.57 while the indicators' indices were 3.3 for infrastructural availability, 2.2 for access to infrastructure, 1.5 for manpower availability, 2.57 for policy and regulatory framework and 3.3 for ICT deployment in the university's activities. Based on the findings, recommendations were made.

Keywords: e-readiness, assessment, indices, indicators, information & communication technology, Nigeria, University of Ibadan.

*This paper is Part One of the outcome of a study on an e-readiness assessment of the University of Ibadan, Nigeria. Part Two (forthcoming), proposes an e-readiness policy framework for the university.

INTRODUCTION AND BACKGROUND

Throughout history, mankind has passed through several developmental stages; from the agricultural age where the economy was based on land and work, to the industrial age where capital became the third factor of production and to the information age which is characterized by yet another factor - information (Mani, 2002). This latest developmental stage has affected the human society to a great extent. According to Renu & Sameer (2002), the information age is increasing the gap between the rich and poor, developed and developing countries and creating a society of information haves and have-nots (Renu & Sameer, (2002). Such differing standards or imbalances between countries fully poised to reap the benefits of the information age and those that are unable are referred to by the term ''digital divide'' (Ifinedo, 2005). The information age is driven by information and communication technologies (ICTs). While the growth of the Internet and the continuing "digitalization of society" are much-heralded events in developed countries, many leaders in developing nations are left wondering how they could participate in the rapid changes going on around them. Without a concerted effort by the developing world to get ready for the global networked economy, the gaps in living standards between developed and developing countries will only grow wider, and the productive use of ICT will remain a phenomenon that is largely confined to the richest parts of the world" (CID, 2000; 2002). According to the Collaboration on International ICT Policy for East and Southern Africa (CIPESA) 2005, many developing country leaders have embraced ICT as an engine for growth and development but find it difficult to translate their grand visions into practical steps that fit the local

context, for such to be effectively executed. CIPESA then submitted that decision-makers need to know where the country stands in terms of ICT availability and use, in order to plan toward their goals. To put ICT to effective use, a country must be "e-ready" in terms of infrastructure, accessibility of ICT to the population at large, and the effect of the legal and regulatory framework on ICT use (CIPESA, 2005). This according to CIPESA equally applies at the agency and institutional levels.

In order to address and solve the information gap problem in the Nigerian University system, the National Universities Commission (NUC) initiated the Nigeria Universities Network (NUNet) in 1995 with a view to enabling the universities have access and contribute to the global information super highway so as to enhance, update and widen their teaching, research and overall development using ICT. At its conception in 1995, NUNet was designed on one hand to facilitate dial-up email connectivity between the NUC and federal and state universities, inter-universities centers and between the NUC, federal and state universities and inter-universities centers and other tertiary institutions and the outside world on the other, using the internet infrastructure (Ibrahim, 2004). In 2000, the NUC acquired its own Very Small Aperture Terminal (VSAT) for satellite communication and since then, a majority of the federally-owned universities have also deployed their own VSAT earth stations (Ibrahim, 2004). In May 2001, the University of Ibadan's (UI) internet connectivity project was implemented. The link, which was through a local Internet Service Provider (ISP), consisted of microwave connections using wireless antennas and repeaters to carry data from the nodes on campus to the ISP location. In an effort to ensure a wellset direction for the acquisition and use of ICT that will support the achievement of its goals and objectives, UI engaged the services of Accenture (a consultancy firm) to formulate its ICT master plan. The firm in its submission identified and recommended twelve strategic options crucial to the attainment of the right ICT positioning for the university (See Fig 1.)

   ✓   *Re-branding the image of the University through modernization and reorientation*
   ✓   *Improvement of internal & external communications*
   ✓   *Enhancement of the learning environment/teaching & research aids*
   ✓   *Improvement of the level of computer literacy amongst staff and students*
   ✓   *Enhancement of staff productivity*
   ✓   *Establishment of an efficient and effective student/staff information management system*
   ✓   *Development of a robust ICT architecture that will support current and future ICT needs of the University of Ibadan*
   ✓   *Establishment of a sustainable ICT facility through the introduction of some commercially viable ventures such as internet service provider (ISP) services*
   ✓   *Identification and establishment of various funding alternatives*
   ✓   *Establishment of a distance learning facility*
   ✓   *Establishment of a distance admission process for foreign students*
   ✓   *Establishment of a structured ICT organization*

Source: Accenture 2001

Figure 1: *Twelve ICT Strategic Options for the University of Ibadan (Accenture, 2001)*

UI has since then been investing greatly in ICT as evidenced in the evolution of its ICT infrastructural status from 2001 to the present. Investments made so far include acquisition, installation and configuration of Very Small Aperture Terminals (VSAT) to replace the original microwave media and human resources. In addition, there was investment in the acquisition of

higher bandwidth which had evolved from 256/1024Kbps to 512/2048kbps and later to 2MB/4MB. The university expanded from nine (9) small networks to over thirty (30) larger network units, established two resource centers consisting of sixty-five and eighty computer systems, respectively for the university's staff.

In spite of all these investments, there is yet a need to know how prepared and rightly positioned the institution is to benefit from the networked world. Since investment in ICT alone is not all that is needed to reap its dividends and opportunities, an e-readiness assessment was carried out. According to Ahmed (2006), many ICT projects (eGovernment) have been attempted in developing nations but few have succeeded in achieving their goals whilst a larger number have arguably failed. He noted the correlation between good performance and e-readiness ratings of the various nations (Ahmed 2006). Ahmed (2006), while citing Accenture (2004), declared that nations that were e-ready realized a high rate of eGovernment performance. On the other hand, developing nations that were beginning to design and deliver eGovernment projects were lagging behind developed nations that were e-ready in terms of ICT infrastructure. In essence, an e-readiness assessment is a useful tool for guiding development efforts by providing benchmarks for comparison and gauging progress.

This study was carried out to obtain an e-readiness assessment of the University of Ibadan to ascertain the position of the institution in terms of ICT availability, deployment, and use with a view to planning for the future and advocating specific changes. It could also be a useful tool in measuring and planning for ICT integration into the university's developmental goals. The broad objective of the study was to assess the present level of preparedness of the university to participate in the digital world. The research questions that guided the study were:

(i)   What is/are the major objective(s) of University of Ibadan in connecting to the networked world?

(ii)   What level of infrastructural achievement is already attained by the university?

(iii)   Is the available infrastructure accessible to the target population as determined by the institution's objective for connecting to the networked world?

(iv)   What level of manpower is already available in the university with the ability to use ICT infrastructure especially in connection with the networked world?

(v)   Is there any institutional ICT policy and regulatory framework to support the use of ICT infrastructure in the university?

(vi)   What is the level of ICT deployment in the activities of the University of Ibadan?

REVIEW OF THE LITERATURE

E-readiness Assessment: Objective and Assessment Processes

The complex process of harnessing ICT and bridging the digital divide needs a comprehensive solution built on a foundation of detailed information. E-readiness assessments can provide this information and serve as a benchmark for future progress by assessing the status of the most important areas for the adoption of ICT. According to Mani (2002), a country's e-readiness must be evaluated in order for it to define policies that will allow it to insert itself more effectively into the knowledge-based economy (Mani 2002). E-readiness assessments depict a complicated patchwork of varying levels of ICT access, usage, and applications among countries and peoples. The various e-readiness assessments measure a wide range of factors from ICT policies to everyday ICT usage. An e-readiness assessment, when properly applied in a larger process of

evaluation, is a first step towards converting good intentions into planned actions that bring real changes to people's lives. E-readiness assessments are meant to guide development efforts by providing benchmarks for comparison and gauging progress, determining the current situation in order to plan for the future and advocate specific changes. E-readiness assessments can also be a vital tool for judging the impact of ICT, to replace wild claims and anecdotal evidence about the role of ICT in development with concrete data for comparison (Renu & Sameer, 2002).

Bridges Organisation divided existing e-readiness assessment tools into two classes based on the objectives of carrying out assessments. The tools were categorized as those that focused on basic infrastructure or a nation's readiness for business or economic growth (e-commerce) and those that focused on the ability of the overall society to benefit from ICT (e-society). The organization further presented a similar way to view the e-readiness assessment models in terms of e-society, e-economy, and e-system, where e-system models examine the underlying technology infrastructure that is a prerequisite for both e-economy (including e-commerce, ICT sector jobs, etc.), and e-society (use by the general population, etc.) (Bridges Organisation, 2001). Renu and Sameer (2002), identified e-infrastructure and e- governance as two additional areas to be evaluated by an e-readiness assessment. According to them, the focus in e-infrastructure should be on institutions, hardware and software while the focus in e-governance is on government process reengineering and faster transparent means of delivering government services to the citizens. (Renu and Sameer 2002).

Reports on Assessed E-readiness

Different efforts to assess e-readiness at the global, regional and national levels have been reported. Tankoano (2002) reported at the global level that 32.77% telephone subscribers and 8.42% computer owners experienced inadequate infrastructure support. According to Tankoano, Africa, in addition to having unsuited infrastructures, is the continent where these infrastructures are least developed. In his analysis he reported the least values of 5.56% telephone subscribers and 1.06 % computer owners in Africa as against highest values of 84.97% and 39.91% computer owners in the Oceania. He also added "although Africa is the continent where more than half the population still survives on less than $1 per day, access costs to infrastructure are amongst the highest" with Internet Service Provider (ISP) taxes of 52.3% and14.1% in Africa and Europe respectively in 2001 (Tankoano, 2002). Ifinedo (2005) assessed the integration of Africa into the global economy by computing the e-readiness for nine African countries. In his analysis, he categorized African countries into three broad groups:

i.   *Category one* – those with very low infrastructure, literacy level, GDP per capita, educational and technical endowments, etc., for example, Togo, Cote d'Ivoire

ii.   *Category two* – those with fairly good infrastructure, adequate educational and technical endowments better than those of countries in category one, for example, Kenya.

iii. *Category three* – those with relatively large amounts of infrastructure, good educational and technical endowments, for example, Nigeria, South Africa.

Ifinedo (2005) concluded that overall, the mean e-readiness of Africa is poor in comparison to other economies. Particularly, Sub-Saharan Africa (SSA) - with the exception of South Africa and its neighbors - has a poor e-readiness score; on the other hand, North African countries fared better than those in SSA. Docktor (2002) reported the results of different assessments carried out by organizations such as the International Telecommunication Union (ITU), African Information Society Initiative (AISI), United Nations Education, Social and Cultural Organization (UNESCO), Netcraft, etc. The assessments carried out were on Personal Computer (PC) penetration,

bandwidth quality, vision & planning (national strategy), usage (government web pages) and human capital workforce (IT students in tertiary education).The assessment result was ranked on five levels: low level, low-medium level, medium level, medium-high level and high level. On PC penetration assessment, among thirty one (31) African countries, Mauritius was reported as the only country on the medium high level, Botswana and South Africa on the medium level; Namibia, Togo, Senegal low-medium. The other twenty-six (26) countries including Nigeria were ranked at a low level. In the report on bandwidth quality amongst twenty three (23) countries, South Africa and Zimbabwe were rated at a medium high level; Botswana, Mauritius, Namibia, Nigeria, Ghana and Kenya were rated at a medium level, Burkina Faso, Ethiopia and Gabon were rated at a low medium level and the other thirteen countries were rated low. On vision & planning (national strategy), South Africa was rated on a medium-high level, Benin, Cameroon, Cote d'Ivoire, Ghana, Kenya, Mauritania, Mozambique, Rwanda, Senegal and Uganda at a medium level and the other thirteen countries including Nigeria were at a low level. On usage (government web pages), five countries (Botswana, Nigeria, Senegal, South Africa, Zimbabwe) ranked on medium-high level, sixteen countries functioned at the medium level, fourteen countries at a low low medium level and five countries (Benin, Congo, Guinea, Eritrea, Somalia) at a low level. On human capital workforce (IT students in tertiary education) Botswana, Cameroon, Mauritania, Nigeria, and Tanzania all ranked at a high level. Fifteen countries including South Africa ranked at a medium high level, twelve (12) countries ranked at a medium level. Mauritius ranked at a low medium level and Guinea-Bissau was the only country at the low level (Docktor, 2002).

According to the 2005 Economic Intelligence Unit, the world's e-readiness for the years 2005 and 2004 were assessed, the assessments reported the global average e-readiness indices of 0.42671 and 0.41268 for the two years respectively. The European region had the highest e-readiness indices followed by the Americas while Africa had the least indices for the two years considered. The country level analysis of the global e-readiness data revealed the United States of America as the world's most e-ready country, having an e-readiness index of 0.9062 in 2005 while Liberia was the least e-ready country with e-readiness of 0.0011 in the same year (United Nations, 2006). For the African region, Southern Africa sub-region had the highest e-readiness indices for the years 2005 and 2004 followed by the Northern Africa, while the Western Africa had the least e-readiness indices. Country analysis of the African region showed that Mauritius was the most e-ready country while Liberia was the least e-ready country in African sub-region in the year 2005. The Western Africa's average e-readiness indices for the years 2005 and 2004 were 0.193 and 0.1915 respectively. The most e-ready of all the sixteen countries of this sub-region was Cape Verde having an e-readiness index of 0.3346 with a global position of 116th. Cape Verde was followed by Ghana and then Nigeria while the least e-ready country in the sub-region was Liberia which happened to be the least e-ready country in the African region. Nigeria was rated as the world's 139th e-ready country, the 23rd. in the African region and the 3rd in the Western African sub-region with e-readiness index of 0.2758 in 2005 (United Nations, 2006).

METHOD

Research design, study population and sampling procedures

An empirical case study research method was adopted. The study was divided into three main phases namely (i) data collection on e-readiness objectives, policy and regulation framework, ICT deployment in the University of Ibadan from stakeholders in ICT implementation in the University; (ii) inventory of ICT infrastructure in the University; and (iii) survey of staff and students to elicit data on ICT infrastructure access level, and manpower availability. The targeted populations were (i) University of Ibadan ICT project stakeholders: these were those at the strategic level in the organizational structure of the ICT project of the University including the Chairman of the University ICT unit and the Director of the University Management Information System and (ii)

University of Ibadan students and academic staff including all the students (graduates and undergraduates); and all the academic staff in the selected departments. A purposive sample of the Chairman of the ICT project was carried out. The Chairman was purposively selected to elicit information on the university's current state on e-readiness objectives, ICT policy and regulatory framework and ICT deployment in the University. Also, thirty-two (32) out of the eighty (80) departments in the University of Ibadan were selected using stratified sampling technique. With the technique, proportional number of departments/institutes was randomly selected from each of the twelve faculties in the University. The two academic institutes were also selected. The sampling technique resulted in 40% sample of all the departments.

Instrumentation, data collection and analytical procedures

Two questionnaires were designed for the study. The first was used to elicit information from the ICT stake holder on the e-readiness objective, ICT policy and regulatory framework; and level of ICT deployment in the University of Ibadan. It contained twenty-eight close ended structured questions divided into three sections namely: University of Ibadan e-readiness objective, ICT policy and regulatory framework; and ICT deployment in university activities. The second questionnaire was used to elicit information from staff and students of selected departments. It contained twenty-five close ended structured questions divided into three sections namely demographic data, internet access; and manpower. A copy of each is presented in the appendix. A coded sheet was also used to take the inventory of the elements of the infrastructure that were on ground in the selected departments. The sources of data for the coded sheet were ICT infrastructure deployment records in the University of Ibadan ICT unit, supported by field survey of the equipment. Analysis of relevant documents (including Accenture's ICT masterplan for the university, the university's ICT policy documents, etc) was also carried out. These were documents that contain issues relating to those being considered in this study. They were sourced from the Chairman of the ICT committee.

Data on e-readiness objectives, policies and regulations were collected from the Chairman of the ICT project in the university using a close-ended structured questionnaire. This was supplemented by analysis of relevant documents. Data was collected from the students and academic staff with the distribution of five hundred copies of the questionnaire as follows: staff (49copies) and students (451copies). The collected data were analysed using Statistical Package for the Social Sciences (SPSS) software. Bui, Sankaran, & Sebastian (2003) proposed formula for computing e-readiness indices (cited by Ifinedo (2005)), was adapted in finding e-readiness indices from the analysed data.

RESULTS

University of Ibadan e-readiness objective and available ICT policy and regulations

Findings revealed that the major objective of the university for connecting to the networked world is to become an e-campus while the sub-objectives were e-infrastructure, e-learning and e-administration. On the availability of ICT policy supporting the use of ICT infrastructure, seven policies were identified namely: policies on infrastructural acquisition, staff manpower development, student manpower development, internet access, bridging the digital divide, data/information security and acceptable use of ICT equipment policies. These policies were at different levels of implementation. Analysis also shows three regulatory measures put in place to control ICT infrastructural usage in the University of Ibadan. These are internet access, information security and virus invasion regulatory controls. The University's internet access control is meant to limit access to the internet via the university network only to subscribed members of the university community with the use of a 'Remote Authentication Dial In User

Service (RADIUS) server. The information security control is targeted towards preventing unauthorized access to available information, currently implemented with the use of passwords while virus invasion control adopts the use of an antivirus (e-Scan) at the clients' end. This shows that the university already has in place these regulations to ensure control over the use of the available ICT infrastructure.

ICT policy awareness levels among staff and students

The awareness level of the identified ICT policies among staff and student respondents was rated on a four point scale (very high, high, low, and very low). The ratings are presented in Table 1.

Table 1: Rating used in questionnaire data analysis

Rating	Interpretation (%)	Used Value
Very high	0 – 24	1
High	25 - 49	2
Low	50- 74	3
Very low	75 - 100	4

Based on the above ratings, analyses show that the awareness level of four of the seven policies (infrastructural acquisition, staff manpower development, student manpower development and internet access) was high amongst staff, while only one of the policies (student manpower development) recorded high awareness level among students.

ICT Regulation Compliance, Punitive measure and Execution

Compliance level among staff and students was rated between very high and very low on a four-point scale just like in the rating for the ICT awareness level. It was found that the compliance level was very high for internet access regulation, high for information security, and low for regulation for controlling virus invasion. The punitive measure for defaulters of internet access and virus invasion policies is access denial with the executor of the measure being the University's ICT committee. No explicit punitive measures or executors were available for defaulters in information security resulting in low level of compliance.

ICT deployment in students- and staff-based activities

ICT deployment in the University activities among the students and staff was assessed, using the systems development life cycle stages. Table 2 shows that only students' admission is fully automated while the other five student-based activities (learning, registration, result, transcript preparation and accommodation allocation) are still at the design stage. This shows that the University is still at the infant stage as far as deployment of ICT in student-based activities is concerned. Table 2 equally shows the level of ICT deployment in staff-based activities in the University and reveals that five out of the six activities assessed were already deployed on ICT while deployment of ICT in only one staff based activity (teaching), is at the design stage.

Table 2 shows also that ICT has been deployed in most of the staff-based activities. However, observing the university activities, it was found that, out of all the five areas of staff-based

activities having ICT deployment, university staff only make use of only two; that is research and staff publicity. The other three (staff administration, intra-campus communication and electronic publishing) are still dormant, probably because the members of the teaching staff are limited by inadequate infrastructure.

Table 2: ICT deployment in students- and staff-based activities

Students-based Services	Stage of development
Learning	Design
Students admission	Implementation
Students registration	Design
Result checking	Design
Transcripts preparation	Design
Student accommodation	Design
Staff-based Services	**Stage of development**
Teaching	Design
Research	Implementation
Staff administration	Implementation
Staff publicity to the global world	Implementation
Intra-campus communications	Implementation
Electronic publishing	Implementation

Source: Field Survey, May 2007

ANALYSIS OF DATA COLLECTED FROM THE QUESTIONNAIRE SURVEY

Background Information on the respondents

Table 3: Distribution of Respondents by Faculty/Institute

Faculty	Frequency	Percent
ARCIS	5	1.1
Agriculture and Forestry	52	11.9
Arts	77	17.7
Basic Medical Sciences	30	6.9
Dentistry	3	0.7
Education	53	12.2
Institute of African Studies	7	1.6
Law	24	5.5
Pharmacy	9	2.1
Public Health	10	2.3
Science	84	19.3
Social Science	31	7.1
Technology	37	8.5
Veterinary Medicine	14	3.2
Total	436	100.0

Source: Field Survey, May 2007

Out of the four hundred and thirty six (436) respondents that responded to the questionnaire, three hundred and ninety (390), which represents 89.4%, were students while forty-six representing 10.6% were academic staff. Disparity in the proportion of respondents from these categories is as a result of the variation in the sampled number targeted in the research design. Also, a total of three hundred and ten (310), representing 71.4% were male respondents while one hundred and twenty four (124) representing 28.4% were female respondents. Two respondents did not indicate their gender.

Eighty four (84) respondents (students and teaching staff), 19.3% are from the faculty of Science, followed by faculty of Arts with seventy seven (77) respondents, 17.7%. The faculty of Education followed with a total of fifty-three (53) (12.2%) respondents, closely followed by the faculty of Agriculture and Forestry with a total of fifty two (52) respondents, 11.9%. The least number of respondents came from the faculty of Dentistry with 0.7% of respondents.

Internet Access of Staff and Students

As presented in Table 4, three hundred and fourteen (314), representing 72% of the respondents confirm accessibility to the internet in their faculties, while seventy five (75), representing 17.2% lack access to the internet in their faculties. This shows that a considerably high percentage of respondents have access to internet in their faculties. Also, two hundred and eighty seven (287), representing 65.8% of respondents confirm accessibility to the internet in their departments while one hundred and eleven (111) representing 25.5% of the respondents deny it. The percentage of respondents that confirmed internet access in their departments is much greater than those who denied availability of internet access in their faculties. However, the percentage of those that confirms internet access at departmental level is less than those at the faculty level.

In addition, sixty two (62) or 14.2% of them confirm accessibility to the internet in their offices/classrooms while three hundred and fifty one (351) or 80.5% of the respondents deny it. Majority of them also denied availability of internet access in their offices/classrooms. In like manner, one hundred and forty nine (149) or 34.2% confirm accessibility to the internet in their faculty computer rooms. Two hundred and one (201) or 46.1% of them deny it. One hundred and seventy eight (178) or 41% of the respondents confirm access to the internet in their departmental computer rooms while two hundred and six (206) or 47.5% of them deny it. It was noted that the percentage of respondents that indicated internet access in their departmental computer rooms is higher than those that said the same about their faculty computer rooms. The other places of internet access mentioned by respondents are hall/hostel cyber café, library cybercafé and students browsing from their lecturers' offices. The commercial cyber cafes are also very relevant in the provision of internet access to university staff and students as some of them indicated using them to gain access to the internet.

Table 4: *Pattern of Internet Access of Staff and Students*

Internet Access in the Faculty	Frequency	Percent
Yes	314	72.0
No	75	17.2
I don't know	44	10.1
Total	433	99.3
System	3	0.7
	436	100
Internet Access in the department	Frequency	Percent
Yes	287	65.8
No	111	25.5
I don't know	35	8.0
Total	433	99.3
System	3	0.7
	436	100
Internet Access in office/classroom	Frequency	Percent
Yes	62	14.2
No	351	80.5
I don't know	19	4.4
Total	432	99.1
System	4	0.9
	436	100.0
Availability of Computer Laboratory for Internet access in the faculty	Frequency	Percent
Yes	149	34.2
No	201	46.1
I don't know	79	18.1
Total	429	98.4
System	7	1.6
	436	100
Availability of Computer Laboratory for Internet access in the department	Frequency	Percent
Yes	178.0	41.0
No	206.0	47.5
I don't know	48.0	11.1
Total	434.0	99.5
System	2.0	0.5

Source: Field Survey, May 2007

Training and Manpower Development

Two hundred and three (203) respondents had undergone training on ICT usage while two hundred and twenty three (223) of them had not undergone any such training.

Table 5: Mode of ICT Skill Acquisition by Respondents

Mode of ICT skill acquisition	Frequency	Percent
Faculty/Departmental organized/sponsored training/workshop	18	4.1
Course in academic curriculum	20	4.6
Independent registration in a computer school	83	19.0
Continual practice	225	51.6
Other	6	1.4
Total	352	80.7
System	84	19.3
	436	100

Source: Field Survey, May 2007

Results in Table 5 shows that more than fifty percent (51.6%) of the respondents acquired their ICT usage skills through continual practice, followed by 19.0 % of them who acquired their skills in computer schools where they registered independently; 4.6 % acquired their skills through courses in academic curriculum. This shows that most of the respondents acquired their ICT usage skills through continual practice. Other means of ICT skills acquisition specified by respondents include those that were trained in their primary schools and those that received training in their secondary schools. On the need for further training in ICT, three hundred and twenty six (326), representing 74.80% of the respondents indicated their need for further training on ICT usage while ninety eight (98), representing 22.5% indicated "no need" for any further training. The high percentage of respondents who indicated the need for further training reveals that some of the respondents who possess adequate skill for ICT usage still identify their deficiencies to fully benefit from the various opportunities offered by ICT.

Table 6 shows that the most predominant other ICT skill, possessed by the respondents is the Microsoft office packages as indicated by 66.74 % of the respondents, followed by 6.88% who indicated skills in desktop publishing. Software installation and data analysis had 0.92 % respondents each, the next being software development (0.69%) while the least is web site design (0.46%). The results show that most of the respondents are skilled in using Microsoft Office packages. Since this is not the only ICT skill required to benefit sufficiently from the networked world, the other required skills are lacking or inadequate. This calls for skills upgrading in the university.

As presented in Table 7, the most crucial challenge facing the respondents in their use of ICT facilities, as indicated by 80.28% of respondents, is poor electric power supply, followed by inadequate computer system (5.28%) and then inadequate ICT personnel (2.86%). The category with the least percentage is those who are of the opinion that inadequate internet access is the major challenge facing them. Other challenges indicated by the respondents are financial-related including affordability in terms of ownership of ICT equipment and cost of access to internet facilities. This result in more or less not surprising in that poor energy infrastructure has been a

knotty challenge to successive governments in Nigeria for decades and the University of Ibadan is not excluded.

Table 6: Respondents' Other ICT Skills

Other ICT skills possessed	Frequency	Percent
Microsoft Office packages	291	66.74
Desktop publishing	30	6.88
Computer repairs	8	1.83
Software development	3	0.69
Software installations	4	0.92
Hardware installations	10	2.29
Computer graphics and animation	5	1.15
Web page design	2	0.46
Networking	7	1.61
Data analysis	4	0.92
Other	4	0.92
Total	368	84.40
System	68	15.60
	436	100

Source: Field Survey, May 2007

Table 7: Major challenges facing respondents use of ICT facilities

	Frequency	Percent
Poor electric power supply	350	80.28
Inadequate computer systems	23	5.28
Poor ICT literacy	7	1.61
Inadequate ICT personnel	12	2.75
Status discrimination	8	1.83
Inadequate ICT infrastructure	9	2.06
Inadequate internet access	6	1.38
Other	5	1.15
Total	420	96.33
System	16	3.67
	436	100

Source: Field Survey, May 2007

Analysis of data collected with the coded sheet

Due to inadequate records, much data could not be collected with the coded sheet especially data on the number of computers, routers, etc in the sampled departments and institutes. However, some of the collected data are presented below.

Table 8: Availability of Wide Area Network (WAN) Infrastructure

Infrastructure Available	Capacity
University-owned ISP	14 staff members
VSAT	2.4m Dish, 20W BUC (Block Up Converter)
Omni directional Antenna	18 dbi
Uplink Bandwidth	1.5 Megabytes
Downlink Bandwidth	5 Megabytes

Source: Field Survey, May 2007

Table 8 shows the level of infrastructural achievement already attained by the University of Ibadan at the Wide Area Network (WAN) level. These include an internet service unit (of 14 Information Technology Professional staff members), a 2.4meter Very Small Aperture Terminal (VSAT) dish with 20 Watt Block Up Converter (BUC), a 18 decibel (dbi) omni directional antenna; and uplink and downlink bandwidth of 1.5 and 5 Megabytes respectively.

Table 9: Available Intra Campus Network Infrastructure

	Frequency	Percent
Wireless Medium Only	19	59.38
Fibre Optics Medium Only	1	3.13
Wireless and Fibre Optics media	12	37.50
Total	32	100

Source: Field Survey, May 2007

Table 9 shows that nineteen (19) out of the thirty two (32) departments sampled representing 59.38% are connected to the central hub of the university ICT through wireless medium only, twelve (12) departments, representing 37.50% have both wireless and fibre optics links while only one department has fibre optics link only. This shows that all the departments are on a network.

Table 10: Available Departmental LAN and computer rooms

LAN		
	Frequency	Percent
Available	32	100
Not Available	0	0
Total	32	100
Computer room		
	Frequency	Percent
Available	12	37.5
Not Available	20	62.5
Total	32	100

Source: Field Survey, May 2007

Table 10 shows that all the thirty two (32) departments have Local Area Networks (LANs). This shows a 100% availability of departmental LAN. Table 10 also shows that only twelve (12) departments (37.5%) have computer rooms for staff and student internet access. Despite the availability of internet access and LAN in all the departments a larger percentage of them do not have computers for staff and especially students' internet access. In some of the departments and institutes, the ratio of 1 computer to 2 members of staff was recorded while 1 computer to 5 students is more common.

Computing University of Ibadan E-Readiness Indices

Bui et al's (2003) e-readiness index formula as presented by Ifinedo (2005) is adapted as follows:

$$\text{e-readiness index} = \Sigma j=_{1,n} \, wij \, eij \, /n$$

Where,
  e-readiness: the overall e-readiness value
  j: each of the five (5) indicators
  wij: relative weights assigned to the five (5) indicators (j)
  eij : individual index score for each indicator on a scale of 1 to 4
  n: total number of measures (5)

Based on this, an overall index for the University's e-readiness and the contributory indices are as presented in Table 12. Data collected with the questionnaire were analyzed using the predefined scale in Table 11.

Table 11: *The predefined scale for questionnaire analysis*

Calculated Value (%)	Converted value (scale)
0 – 24	1
25 – 49	2
50- 74	3
75 – 100	4

Based on this, the overall e-readiness index of the University of Ibadan = (3.3+2.2+1.5+2.57+3.3)/5 while the overall e-readiness index of the university = 2.57 (See Table 12).

Table 12: University of Ibadan e-Readiness Indicators and Indices

e-Readiness Indicator	Contributory Parameters	Calculated value	Parameter Index	Indicator Index
infrastructural availability	Intra- Campus Network	100	4.00	3.3
	Local Area Network	100	4.00	
	Computer	37.5	2.00	
access to infrastructure	Access in Faculty	72.0	3.00	2.2
	Access in Department	65.8	3.00	
	Access in offices/classrooms	14.2	1.00	
	Access in Faculty Computer rooms	34.2	2.00	
	Access in Departmental Computer rooms	41	2.00	
manpower availability	Trained Users	46.6	2.00	1.5
	Users possessing enough skill	81.22	4.00	
	Users needing more training	(74.8)	-3.00	
Enabling policy and regulatory framework	Effectiveness of staff enabling policies	2.57	2.57	2.57
	Effectiveness of student enabling policies	2.14	2.14	
	Effectiveness of controlling regulations	3.00	3.00	
ICT Deployment	Deployment in staff based activities	3.78	3.78	3.3
	Deployment in student based activities	2.89	2.89	

Source: Field Survey, May 2007

DISCUSSION

The University of Ibadan's overall e-readiness index is 2.57 over a scale of 1 to 4 (with one (1) being the lowest value and four (4) the highest). Contributory to this score are varying indicators' indices discussed under the research questions as follows:

Research Question 1: What is/are the major objective(s) of University of Ibadan in connecting to the networked world?

Findings revealed that the University of Ibadan's main objective for connecting to the networked world is to attain the status of e-campus while its sub-objectives are to achieve e-infrastructure, e-learning and e-administration. E-campus, in the context of this study is a contemporary of an e-society that is confined to an academic community. The Computer Systems Policy Project (CSPP) as cited by Bridges Organisation (2001, 2005a) defined an e-ready society as a community with high-speed access, with constant access and application of ICT in schools, government offices, businesses, healthcare facilities and homes; user privacy and online security; and government policies which are favorable to connectedness and use of the network (Bridges Organisation, 2001, 2005a). This implies that for UI to attain the status of an e-campus, it must be able to provide the following: high-speed and constant access to ICT, application of ICT in

learning, teaching and all other academic related activities, application of ICT in administrative offices, healthcare, businesses, sports, etc, assurance of user privacy and on-line security, and favorable policies to aid the connectedness and use of the network.

Research Question 2: *What level of Infrastructural achievement is already attained by the University?*

Findings show infrastructures at the WAN level, and that the university owns an internet service provision unit which connects to a bigger internet access provider, INTELSAT, based in the United States of America. The university connects to geostationary satellite via a 2.4metre, 20 Watt Block Up Converter (BUC) Very Small Aperture Terminal (VSAT) dish with 1.5 and 5 Megawatts uplink and downlink bandwidth respectively. The university's infrastructural availability index score was 3.3 on a scale of 1 to 4. Maximum values of 4 were attained in the intra-campus network and Local Area Network parameters while an average value of 2 was attained for computer availability. The university performs generally well in infrastructural availability except in the availability of computers. This performance is analogous to Nigeria's performance as reported by Ifinedo (2005) and Docktor (2002). Ifinedo's (2005) assessment of the integration of Africa into the global economy categorized Nigeria among the African countries having relatively large amount of infrastructure, while Docktor reported Nigeria as being one of the twenty six (26) African countries that were ranked low in Personal Computer (PC) penetration.

Research Question 3: *Is the available infrastructure accessible to the target population as determined by the institution's objective for connecting to the networked world?*

The University of Ibadan's infrastructural access indicator score is just about average (2.2 out of 4). This relatively low performance when compared to infrastructural availability is connected to the university's low rating in computer availability parameter (2) under infrastructural availability. The access dwindles as one moves from faculty, department (3 out of 4), to faculty computer rooms, department computer rooms (2 out of 4) and then to offices and classrooms (1 out of 4). The occurrence of a trend like this where access to infrastructure reduces as one moves closer to where people can actually be found limits people's participation in applying ICT to their developmental needs.

Research Question 4: *What level of manpower is available in the university with the ability to use ICT infrastructure especially in connection with the networked world?*

The university's score in manpower index is very low (1.5). Although skill possession index was very high, the value was neutralized by a high negative value for the need for more training parameter. The trained users parameter was average (2). This reveals that most respondents have skills just enough to achieve or perform few basic activities with ICT. They still lack the skill to maximally benefit from these infrastructure, hence a high negative value (-3) for the need for more training. Nigeria was rated high on human capital work force by Docktor (2002) in his report, however the focus in his report was just on IT students in tertiary education while this study considers the level of manpower that could confidently use ICT infrastructure in the University of Ibadan.

Research Question 5: Is there any institutional ICT policy and regulatory framework to support the use of ICT infrastructure in the University of Ibadan.

The University has a framework comprising seven (7) policies and three (3) regulations to enable the usage of the ICT infrastructure as shown in Table 12. However, the essence of any policy and regulatory framework is in its effectiveness. University of Ibadan's index in ICT policy and regulatory framework indicator was measured by the effectiveness of these policies and regulations. On the overall, the University score in ICT policy and regulatory framework indicator is about average (2.57 out of 4). The University's effectiveness in control regulations is higher (3) than those in policy (2.57 and 2.14 among staff and students respectively). The higher value in effectiveness of policy among staff than among students, shows that more staff benefit from the existing policies.

Research Question 6: What is the level of ICT deployment in the activities of the University of Ibadan?

The assessed level of ICT deployment in the activities of the University of Ibadan gives a considerably high index value of 3.3 out of 4. The indices of parameters yielding this value are 3.78 and 2.89 for deployment in staff-based activities and student-based activities respectively. The higher being the deployment in staff-based activities. Although the assessment shows relatively high indices for ICT deployment indicator and its parameters, observing the university activities, it was discovered that the university staff only make use of only two of the staff-based activities, namely research and staff publicity. The other three (staff administration, intra-campus communication and electronic publishing) are inactive, probably because the teaching staff are limited by inadequate hardware and software to support some of those activities. This, in essence, means that though ICT deployment is relatively high, participation of the University populace in maximally making use of the ICT is still low. The United Nations' (2005) record of Nigeria's performance shows a very low e-participation index of 0.079 when compared with 0.223 and 0.590 for web measure and human capital indices respectively (United Nations, 2005). This shows that it is one thing for the facilities to be available or for ICT to be deployed and yet another for people to appropriately participate in its use as expected.

CONCLUSIONS AND RECOMMENDATIONS

This study is an e-readiness assessment of the University of Ibadan. It provides information on the current level of the university's preparedness, which if worked upon, could help the University to insert itself more effectively into the knowledge-based economy. With an overall e-readiness index of 2.57, on a scale of 1-4, the university's e-readiness rating is above average (about 64.25%). However, considering the indicators and parameters that contribute to yield the overall index, four out of five indicators (infrastructural availability, ICT deployment in university activities, access to infrastructure; and policy and regulatory framework) have indices that are above average in value. That is 3.3 or 82.5% each for infrastructural availability and ICT deployment in University activities; 2.57 or 64.25 % for enabling policy and regulatory framework; and 2.2 or 55% for access to infrastructure. The remaining one indicator (manpower availability) has an index that is below average, that is 1.5 or 37.5%. This means that the most critical indicator that needs improvement is manpower availability. Considering the individual parameters, six (intra-campus network, Local Area Network, access in faculty, access in departments, effectiveness of controlling regulation and ICT deployment in staff-based activities) out of the fifteen parameters' indices are well above average. Seven indicators' indices are either average or just above average including availability of computers, access in faculty computer rooms, access in departmental computer rooms, availability of trained users, effectiveness of staff enabling

policies, effectiveness of student enabling policies; and deployment of ICT in student-based activities; having indices 2.00, 2.00, 2.00, 2.00, 2.57, 2.14, 2.89 respectively. The remaining two parameters (access to internet infrastructure in offices/classrooms and effective value of possession of enough skills) have indices of 1.00 each.

For the University of Ibadan to achieve its e-readiness objective of becoming an e-campus and considering the fact that all e-readiness parameters are all interdependent and mutually relevant in the achievement of e-readiness goals, there is a need for it to exert effort towards improving its e-readiness rating in the parameters in which the findings of this study have revealed it is weak. The university can thus benefit more from the adoption and use of ICT if the following recommendations for the improvement of its e-readiness rating and future endeavors regarding ICT development are followed. The recommendations include:

(i)   There is a need for the extension of internet connection to offices and classrooms: For the University to achieve its e-learning sub-objective, there should be internet access in all academic staff offices and classrooms. This will enable increased access to the internet by staff and students.

(ii)   Faculties, departments and institutes should invest in the procurement of computers: Internet signal provision is presently not enough. There should be complementary provision of enough computer systems for user to access the internet.

(iii)   Each department and institute in the university should have a well equipped internet accessing computer room accessible to both staff and students. Since access to ICT is crucial to its productive usage, the university should make a policy by which every academic department would, of a necessity, have a well equipped computer room.

(iv)   Periodic workshops and regular lunch hour hands on trainings should be organized as means through which university staff and students ICT skills could be developed enough to make them well able to use the available ICT infrastructure. These workshops and trainings should be organized at the university level by the ICT unit and also at the faculty and departmental levels. They should be designed to impart the requisite ICT skills in staff and,

(v)   Staff and students of the university need to be well informed about the content and provisions in available ICT policies as a means of making all stakeholders adequately informed. The University ICT Unit should publicize as much as possible, all available policies for all those concerned and affected by the policies. This could be done by sending them electronically to staff and students.

(vi)   Finally, the university should develop a university portal that will be used in e-governace and e-administration of the university as a means of increasing awareness and popularization of ICT usage on the university campus, and effective discharge of university functions.

It is hoped that if the above recommendations are pursued with the right policies, the e-readiness rating of the University of Ibadan will be greatly improved.

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APPENDIX 1: ICT STAKEHOLDER QUESTIONNAIRE

AFRICA REGIONAL CENTRE FOR INFORMATION SCIENCE
UNIVERSITY OF IBADAN

AN E-READINESS ASSESSMENT OF THE UNIVERSITY OF IBADAN.

Dear Respondent,

This questionnaire is designed to gather information with which to assess University of Ibadan's preparedness to benefit from the networked world. All information provided shall be handled with utmost confidentiality and it shall be used strictly for the purpose of this research only. Thanks for your anticipated cooperation.

Dr. Olatokun Wole & Opesade, A.O.

SECTION A: UNIVERSITY OF IBADAN E-READINESS OBJECTIVE

1. What is /are the University's main objective(s) of connecting to the networked world?
[ ] e-infrastructure   [ ] e-learning   [ ] e-administration   [ ] e-campus
[ ] Other Pls. specify---
---

2. Is there any University-owned Internet Service Provider responsible for internet connectivity in the university?
 [ ] Yes   [ ] No

3. With what medium does the University connect to the networked world?
[ ] VSAT   [ ] Microwave   [ ] Leased line
[ ] Other pls. specify --
--

4.   Please indicate the university's uplink bandwidth size
[ ] 256KByte- 512kByte [ ] 512KByte – 1024KByte   [ ] 1MByte- 2MByte
[ ]   >2MByte

5.   Please indicate the university's downlink bandwidth size
[ ] 256KByte- 512kByte [ ] 512KByte – 1024KByte   [ ] 1MByte- 2MByte
[ ]   >2MByte

SECTION B: ICT POLICY AND REGULATORY FRAMEWORK

6. Are there any policies enabling e-readiness in the university?
[ ] Yes [ ] No

7. If yes, please indicate the available policies on ground
[ ] Policy enhancing internet infrastructural acquisition
[ ] Policy to enhance manpower development among staff
[ ] Policy to enhance manpower development among students
[ ] Policy to improve students / staff access to the internet
[ ] Policy to bridge the digital divide in the University

[ ] Policy to ensure data/information security
[ ] Policy to ensure acceptable use of ICT equipment
[ ] Other, (please specify) ---
--

8. Please rate the awareness level of the identified policies among academic staff of the University by ticking the appropriate column below:
Note: 4 = Very high 3=High 2=Low   1= Very low 0= Don't know

	Very high	High	Low	Very low	Don't know
Policy	4	3	2	1	0
Infrastructural acquisition					
Staff manpower development					
Student manpower development					
Internet Access					
Bridging the digital divide					
Data/information security					
Acceptable use of ICT equipment					
Other (please specify) -----------------------					

9. Please rate the awareness level of the identified policies among students of the University by ticking the appropriate column below:
Note: 4 = Very high 3=High 2=Low   1= Very low 0= Don't know

	Very high	High	Low	Very low	Don't know
Policy	4	3	2	1	0
Infrastructural acquisition					
Staff manpower development					
Student manpower development					
Internet Access					
Bridging the digital divide					
Data/information security					
Acceptable use of ICT equipment					
Other (please specify) -----------------------					

10. Are there stipulated regulations guiding e-readiness in the University?
[ ] Yes   [ ] No

11. If yes, please indicate the existing ones

[ ] Internet access regulation   [ ] Information security regulation
[ ] Virus invasion control [ ] Acceptable usage regulation
[ ] Others (pls. specify) ---
--

12. Please rate the level of compliance among academic staff /Students of the university by filling the appropriate column below:
Note: 4 = Very high 3=High 2=Low   1= Very low 0= Don't know

	Very high	High	Low	Very low	Don't know
Regulation	4	3	2	1	0
Internet access regulation					
Information security regulation					
Virus invasion control					
Acceptable usage regulation					
Other (please specify) --------------------					

13. Is there any punitive measure against defaulters of ICT regulation in the University?
[ ] Yes   [ ] No

14. If yes, please specify with the following:

Regulation	Punitive measure
Internet access regulation	[ ] Access denial [ ]Temporary loss of subscription right [ ] Permanent loss of subscription right [ ] Not applicable Other(s), pls. specify --- -------------
Information security regulation	[ ] Access denial [ ]Temporary loss of subscription right [ ] Permanent loss of subscription right [ ] Not applicable Other(s), pls. specify --- -------------
Virus invasion control	[ ] Access denial [ ]Temporary loss of subscription right [ ] Permanent loss of subscription right [ ] Not applicable Other(s), pls. specify --- -------------
Acceptable usage regulation	[ ] Access denial [ ]Temporary loss of subscription right [ ] Permanent loss of subscription right [ ] Not applicable Other(s), pls. specify --- -------------
Other (please specify) ----------------- ------------	[ ] Access denial [ ]Temporary loss of subscription right [ ] Permanent loss of subscription right [ ] Not applicable Other(s), pls. specify --- -------------

15. Is there any University organ meant for executing the punitive measures on defaulters?
 [ ] Yes   [ ] No

16. If yes, please indicate the body
[ ] Senate   [ ] Student's disciplinary Committee   [ ] ICT Committee [ ] University council
Other, pls. specify---

SECTION B: ICT DEPLOYMENT IN UNIVERSITY ACTIVITIES

17. Please identify which of the following services are available to students online
[ ] Students admission processing   [ ] students registration
[ ] Result checking   [ ] Transcripts preparation [ ] Student accommodation processing
Others, pls. specify ---
---

18. Are there any student-based ICT application areas currently being proposed for implementation? [ ] Yes   [ ] No

19. If Yes, please identify these applications and indicate their stages of development

Service	Stage of development
e-learning	[ ] Initiation [ ] Investigation [ ] Analysis [ ]Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------
Students admission processing	[ ] Initiation [ ] Investigation [ ] Analysis [ ]Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------
Students registration	[ ] Initiation [ ] Investigation [ ] Analysis [ ]Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------
Result checking	[ ] Initiation [ ] Investigation [ ] Analysis [ ]Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------
Transcripts preparation	[ ] Initiation [ ] Investigation [ ] Analysis [ ]Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------
Student accommodation processing	[ ] Initiation [ ] Investigation [ ] Analysis [ ]Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------

Other (please specify) ----------------------	

20. Which of the following are the staff-based ICT application areas in the University?
[ ] Research collaboration   [ ] Staff administration
[ ] Staff publicity to the global world   [ ] Intra-campus communications
[ ] Electronic publishing
[ ] Other(s), pls. specify --
--

21. Are there any staff-based ICT applications currently being proposed for implementation?
[ ] Yes   [ ] No

22. If Yes, please identify these applications and indicate their levels of development

ICT Application Area	Stage of development
Research collaboration	[ ] Initiation [ ] Investigation [ ] Analysis [ ] Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------
Staff administration	[ ] Initiation [ ] Investigation [ ] Analysis [ ] Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------
Staff publicity to the global world	[ ] Initiation [ ] Investigation [ ] Analysis [ ] Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------
Intra-campus communications	[ ] Initiation [ ] Investigation [ ] Analysis [ ] Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------
Electronic publishing	[ ] Initiation [ ] Investigation [ ] Analysis [ ] Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------
Other (please specify-----------------------	[ ] Initiation [ ] Investigation [ ] Analysis [ ] Design [ ] Implementation [ ] Not applicable Other pls. specify --- ------------------------

23. Please indicate the existing/on-going key ICT projects in the University

Project	Status
VSAT acquisition	[ ] Existing [ ] On-going
Bandwidth Increment	[ ] Existing [ ] On-going
Increased computer density	[ ] Existing [ ] On-going

Increased internet access	[ ] Existing [ ] On-going
Implementation of campus wide network	[ ] Existing [ ] On-going
Other(s), (please specify) (i) (ii) (iii)	[ ] Existing [ ] On-going [ ] Existing [ ] On-going [ ] Existing [ ] On-going

24. Kindly specify the purpose, benefits/ perceived benefits and sponsor(s) of each of the projects indicated above:

Project	Purpose	Benefit(s)	Sponsor(s)	Not Applicable
VSAT acquisition				
Bandwidth Increment				
Increased computer density				
Increased internet access				
Implementation of campus wide network				
Specified Other(s) (i) (ii) (iii)				

25. Are there any existing measures to improve the University staff ICT skills?
[ ] Yes   [ ] No

26. How often are ICT trainings organized or sponsored for these staff categories?

Staff Category	Training frequency
ICT Staff	[ ] Annually [ ] Quarterly [ ] Monthly [ ] As need arises [ ] Never [ ] Other, pls. specify -- ------------------
Deans of Faculties & Heads of Departments	[ ] Annually [ ] Quarterly [ ] Monthly [ ] As need arises [ ] Never [ ] Other, pls. specify -- ------------------
Academic staff	[ ] Annually [ ] Quarterly [ ] Monthly [ ] As need arises [ ] Never [ ] Other, pls. specify -- ------------------
Administrative staff	[ ] Annually [ ] Quarterly [ ] Monthly [ ] As need arises [ ] Never [ ] Other, pls. specify -- ------------------
Senior non academic staff	[ ] Annually [ ] Quarterly [ ] Monthly [ ] As need arises [ ] Never [ ] Other, pls. specify -- ------------------
Junior non academic staff	[ ] Annually [ ] Quarterly

	[ ] Monthly [ ] As need arises [ ] Never [ ] Other, pls. specify -- -------------------

27. Please indicate the number of ICT trainings that have been organized /sponsored for these staff categories in the last three and a half years:

Staff Category	Number of trainings
ICT Staff	[ ] None [ ] 1-5 [ ] 6-10 [ ]11- 15 [ ]16-20 [ ] above 20
Deans of faculties & Heads of Departments	[ ] None [ ] 1-5 [ ] 6-10 [ ]11- 15 [ ]16-20 [ ] above 20
Academic staff	[ ] None [ ] 1-5 [ ] 6-10 [ ]11- 15 [ ]16-20 [ ] above 20
Administrative staff	[ ] None [ ] 1-5 [ ] 6-10 [ ]11- 15 [ ]16-20 [ ] above 20
Senior non academic staff	[ ] None [ ] 1-5 [ ] 6-10 [ ]11- 15 [ ]16-20 [ ] above 20
Junior non academic staff	[ ] None [ ] 1-5 [ ] 6-10 [ ]11- 15 [ ]16-20 [ ] above 20

28. Please indicate the percentage of these staff categories that benefited from those trainings over the specified period:

Staff Category	Percentage
ICT Staff	[ ] < 5% [ ] 5% - 30% [ ] 30% - 50% [ ] 50% - 75% [ ] >75%
Deans of faculties & Heads of Departments	[ ] < 5% [ ] 5% - 30% [ ] 30% - 50% [ ] 50% - 75% [ ] >75%
Academic staff	[ ] < 5% [ ] 5% - 30% [ ] 30% - 50% [ ] 50% - 75% [ ] >75%
Administrative staff	[ ] < 5% [ ] 5% - 30% [ ] 30% - 50% [ ] 50% - 75% [ ] >75%
Senior non academic staff	[ ] < 5% [ ] 5% - 30% [ ] 30% - 50% [ ] 50% - 75% [ ] >75%
Junior non academic staff	[ ] < 5% [ ] 5% - 30% [ ] 30% - 50% [ ] 50% - 75% [ ] >75%

29. Are there any existing measures to improve the University students' ICT skills?
[ ] Yes   [ ] No

30. If yes, what are they?
[ ] Inclusion of ICT related courses in the student's academic curriculum
[ ] Organizing periodic workshops and trainings for students
[ ] Partnering with notable IT firms for certification trainings
[ ] Other (Please specify) ---

APPENDIX 2: ACADEMIC STAFF AND STUDENTS QUESTIONNAIRE

AFRICA REGIONAL CENTRE FOR INFORMATION SCIENCE
UNIVERSITY OF IBADAN

AN E-READINESS ASSESSMENT OF THE UNIVERSITY OF IBADAN.

Dear Respondent,
This questionnaire is designed to gather information with which to assess University of Ibadan's preparedness to benefit from the networked world. All information provided shall be handled with utmost confidentiality and it shall be used strictly for the purpose of this research only. Thanks for your anticipated cooperation.
Dr. Olatokun Wole & Opesade, A.O.

SECTION A: DEMOGRAPHIC DATA

Please, tick or fill the appropriate answer as it applies to you.
1. Category: [ ] Student: [ ] Post graduate   [ ] Undergraduate
         [ ] Teaching staff: [ ] Professor   [ ] Reader   [ ] Senior lecturer
         [ ] Lecturer I   [ ] Lecturer II [ ] Assistant Lecturer

2. Faculty --

3. Department --

4. Sex: [ ] Male [ ] Female

SECTION B: INTERNET ACCESS

5. Is there internet access in your faculty?
 [ ] Yes [ ] No   [ ] I don't know

6. Is there internet access in your department?
 [ ] Yes [ ] No   [ ] I don't know

7. Is there internet access in your Office / Classroom?
 [ ] Yes [ ] No   [ ] I don't know

8. Is there any available computer laboratory for staff /students' internet access in your faculty? [ ]
Yes   [ ] No   [ ] I don't know

9. Is there any available computer laboratory for staff /students' internet access in your
department? [ ] Yes   [ ] No   [ ] I don't know

10. From which of the following do you have internet access?
[ ] Faculty laboratory   [ ] Departmental laboratory [ ] Your office/ classroom
[ ] University owned cybercafé   [ ] Business Centre Cyber café [ ] None of the above
Other (please specify) --

11. Do you own a computer system /laptop that can connect to the internet?
 [ ] Yes [ ] No
SECTION C: MANPOWER

12. Do you make use of the internet facility?
 [ ] Yes [ ] No
If 'No', please go to question 14, but if 'Yes' kindly continue.

13. What do you usually use the Internet for?
[ ] Chatting   [ ] Searching   [ ] Web browsing   [ ] E-mailing
[ ] Other(s) pls. specify---

14. Have you ever undergone any formal or informal training on how to use the internet?
 [ ] Yes [ ] No

15. Do you have enough skill to access and navigate the internet on your own?
 [ ] Yes [ ] No

16. If yes to question 15, please tick the applicable option underneath
 [ ] I picked the skill through a training/workshop organized / sponsored by my department /
   faculty
 [ ] I got trained in one of the courses offered in the academic curriculum
 [ ] I got trained independently by registering in a computer school
 [ ] I picked up the skill by continual practice
 [ ] Other (Please specify) --

17. Do you feel the need for some further training to enhance your internet usage?
 [ ] Yes [ ] No

18. If yes, which means of skill acquisition will you prefer?
 [ ] An ad-hoc training, organized / sponsored by my department / faculty
 [ ] As part of courses offered in the academic curriculum
 [ ] To get trained independently by registering in a computer school
 [ ] To pick up skill by continual practice on my own.
 [ ] Other (Please specify) --

19. Apart from the use of the internet, which other ICT skills{s} do you possess?
[ ] Microsoft Office software usage   [ ] Desktop publishing   [ ] Computer repair
[ ] Software development   [ ] Software installations   [ ] Hardware
installations
[ ] Computer graphics and Animation   [ ] Web Page Design [ ] Networking
[ ] Database management and administration [ ] Data analysis   [ ] Project management
[ ] Other(s) (please specify) ---

20. In which of these ICT skills do you need further training?
[ ] Microsoft Office software usage   [ ] Desktop publishing   [ ] Computer repair
[ ] Software development   [ ] Software installations   [ ] Hardware
installations
[ ] Computer graphics and Animation   [ ] Web Page Design [ ] Networking
[ ] Database management and administration [ ] Data analysis   [ ] Project management
[ ] Other(s) (please specify) ---

21. What are the major challenges of using ICT facilities in the University?
[ ] Poor electric power supply   [ ] Inadequate Computer systems
[ ] Poor ICT literacy   [ ] Inadequate competent ICT personnel
[ ] Gender discrimination   [ ] Status discrimination
[ ] Inadequate ICT infrastructure [ ] Inadequate access
[ ] Other(s) (please specify) --**-------**

APPENDIX 3

AFRICA REGIONAL CENTRE FOR INFORMATION SCIENCE
UNIVERSITY OF IBADAN

AN E-READINESS ASSESSMENT OF UNIVERSITY OF IBADAN.

Infrastructure Inventory Coding Sheet

Department: ---

Faculty: ---

S/NO.	Equipment code	Quantity	Purpose