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Comparative Analysis of Users' Rating of the Management Information System Units of Three Universities in North Central Nigeria

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ABSTRACT

This is a comparative analysis of users' rating of the effectiveness of services provided by the management information system units of three selected Nigerian universities using certain parameters like structural layout, network equipment and security measures, bandwidth and latency, and users' satisfaction. The selected universities were the Federal University of Technology, Minna (FUTMIN), Baze University, Abuja (BAZEUNI) and University of Abuja (UNIABUJA). Each of these universities has Management Information System (MIS) units that are responsible for managing students' academic records and personal details. The FUTMIN MIS is characterized by students complaints ranging from delay in connecting to the university network, incorrect students' records, delay in staff response to queries amongst other. Students' often wish that they were in other universities that were assumed to offer better services. This study therefore conducted a survey research using a structured questionnaire to gather data on the actual year of establishment of MIS, present composition of MIS users, network infrastructures, security measures, bandwidth and latency of the network, staff strength and area of expertise and future plans from Heads of Information Technology Services (ITS) units in charge of MIS as well as students who are users of the MIS services. Simple percentages and frequency counts were used to report the findings. It was revealed that FUTMIN MIS is not meeting the expectations of its users while BAZEUNI and UNIABUJA performed better at meeting the expectations of their users. The study recommended that FUTMIN ITS unit should organize training and workshop for technical staff, increase the number of ITS staff and network equipment and finally, source for funding from international agencies and donors.

Keywords: *management information system, MIS, comparative analysis, FUTMIN, BAZEUNI, UNIABUJA, users' satisfaction, Nigeria.*

African Journal of Computing & ICT Reference Format:

Daniel Ojonugwa Abutu, Fatimah Jibril Abduldayan, Maryam Lami Abdullahi and Aishat Haruna Abduldayan (2019), Comparative Analysis of Users' Rating of the Management Information System Units of Three Universities in North Central Nigeria,
Afr. J. Comp. & ICT, Vol.12, No. 3, pp. 43 - 60.

I. INTRODUCTION

Management is regarded as an organizational procedure that embodies action planning, establishing goals, controlling resources, and availing human, material and financial assets needed to arrive at stipulated objectives [7]. Information is the outcome of data transformation process, as well as the meaning made from organizing, structuring and correlation of data [4]. A system is a set of entities and units all assembled, coupled and interrelated to achieve an end. It can be regarded as a combination of elements or parts which are organized for a common purpose.

Management Information System (MIS) springs from the convergence of the aforementioned three key terms. It is an organized way of studying managerial information needs at all levels and in processing decisions including operational, tactical and strategic [13]. MIS has evolved through distinctive developmental phases from its traditional design, implementation and operation to the electronic-based administration and function. This developmental transition arose from the challenges encountered from previous performance. MIS is deployed in universities taking account of three factors of accountability, budget and staffing. The system defines the responsibility and policies of each university taking into cognizance it's funding as a critical matter for achieving desired functionality.

Another significant criterion to take to heart in the process is the staffing condition. The staff should be well enough with the required expertise. Security is tangible in the deployment process and must not be treated with levity. An auditable security system is usually put in place to ensure maximum security of any information system [11]. Network infrastructures include a variety of components used in a given network. These infrastructures include: servers, client, peer, network media, network adapter, network operating system, resources, topology and users [1].

Campus area networks are the backbone of most MIS in Nigerian universities. A department or unit is often dedicated to handle the development, implementation, management, and sustainability of the MIS. This unit is referred to as Information Technology Service (ITS) unit in most universities. Since almost all universities in Nigeria now have an MIS managed by the ITS unit, it becomes necessary to conduct a comparative analysis of MIS using certain parameters. This study focused on the comparative analysis of MIS of three universities in Nigeria namely: Federal University of Technology, Minna (FUTMIN), Baze University (BAZEUNI) Abuja, and the University of Abuja (UNIABUJA).

The increasing complaints about the management information system of FUTMIN are becoming alarming. Some network users, including staff and students, lament on the frustrations they face such as reluctance on the part of ITS personnel in attending to issues brought forward, limited staff availability leading to delay in resolving problems, slow response rate of the system at heavy traffic periods (such as in payment of fees), delay in effecting changes made on individual's record (e.g. passport), as well as attenuation at long distance from the ITS building makes users to often wish they were in other universities that according to them, offer better services. This study assessed existing university MIS of selected universities that are believed to serve their users better and thereafter make recommendations on how to make the MIS of FUTMIN ITS better.

Statement of the Problem

The increasing complaints about the management information system vis-à-vis campus network service of FUTMINNA are becoming alarming. Some network users (staff and students) lament on the frustrations they face such as; reluctance in the part of ITS personnel in attending to issues brought forward, limited staff availability at beck and call leading to delay in resolving problems, slow response rate of the system at heavy traffic periods (payment of fees), delay in effecting changes made on individual's record (e.g. passport), poorly secured system resulting from recorded cases of malicious intrusion as well as attenuation at long distance from the ITS building make users to often wish they were in other universities that according to them, offer better services. The researcher considered all the series of complaints and 'wishes' of these users and deemed it fit to carry out a research that will study other existing university MIS that are believed to serve their own users better and thereafter make recommendations on how to make our own MIS (FUTMIN ITS) better.

Aim and Objectives of the Study

The aim of this study was to carry out a comparative analysis of MIS in selected universities in Nigeria. These universities are University of Abuja (UNIABUJA ICT), Federal University of Technology, Minna (FUTMIN ITS) and Baze University, Abuja (BAZEUNI CCS). The following objectives were set to realize this aim:

1. Determine the physical and logical layout of the MIS of the three universities under study;
2. Identify the security procedure and confidentiality of academic records of students on the MIS of the three universities;
3. Determine the available network infrastructure and equipment of the three universities MIS;
4. Find out the bandwidth and latency rate of each of the three universities' MIS network;
5. Determine the staff strength and their areas of expertise in the three universities' MIS;
6. Determine the level of user's satisfaction of the MIS in each of the universities under study.

II. LITERATURE REVIEW

Management Information Systems in Universities

MIS can be regarded as the outcome of general intent and consequences of "computer" invention in developed countries. The knowledge of MIS which is a branch of system science has a background of less than fifty (50) years [14]. Since inception, the main objective of MIS was to present cognitions, solutions and conduct required procedures for management students, managers and decision makers of the society in order to design, apply and manage automatic information systems in organizations and management sections [5]. In the face of high competitive global environment, pressure is much on most institutions to make their processes, operations, tactical and strategic functions more efficient and resourceful.

Management information system is a combination of components which can increase competitiveness, productivity and gain better information for decision making. The management of most universities all over the world today offers students, staff, clients and their community an information infrastructure, which could still mean management information system to assist them on different endeavors, provide them with solutions to complex situations, and give them an interactive interface to enable a stress free university life [15]. These infrastructures were traditionally based on two principal elements; paper documents and face to face communication.

Approaching the end of the twentieth century, universities had a long experience in physical campus information system (manual or file systems) encountering so much than can be controlled. However, drawing towards the end of the twentieth century, the rise of information technology and electronic communication radically altered the potential for exchanging information in university campuses. In like manner, the widespread use of WWW (World Wide Web) from mid-1990's onwards produced unprecedented transition from the analog system to the digital (computerized) system. Although it is increasingly cutting across Nigerian universities, it has not gained full embrace as some universities are still operating manually and others with MIS have not fully converted, making their operation dual (partly paper based, partly computerized). MIS of universities in developed countries function quite enviably with the universities harnessing and maximizing its capacities and prospects [6].

Deployment of Management Information System

The successful deployment of the MIS is due to three factors of accountability, budget and staffing [11]. Accountability is established by creating an MIS structure that clearly defines the responsibilities and policies of each university such as level of data to be collected, shared and disseminated across management and students. Funding of the MIS is very critical for attainment of desired effect and function. The MIS of each university is largely funded by the administration or pioneer of the respective institution. Deploying an MIS in any institution requires a well spelt out budget, ability and support in the part of the management to direct funds to sustain the MIS as part of its annual budget. The budget also includes on-going training for its staff and maintenance services.

There are lots of data to handle which calls for efficient staff to be responsible as MIS is just technology. Staff should be trusted to decide on what data they can use, share and transfer. The university's MIS is successful largely due to the qualified and willing staff members. They must make sure that the staff members they select stay with them. It is a waste for universities to train staff and have them leave; besides it is not easy to get qualified staff. Qualified and skilled staff is employed to manage the MIS and most of them extend their services beyond five years due to the appeal of the employment benefits for technical staff at each university. The MIS of each

university needs to be secured in terms of confidentiality, integrity and availability of information. As the number of students increases in both undergraduate and graduate programs, maintainability of the university's MIS becomes critical for its business continuity. The system should have a security audit, security management system is developed to access the vulnerability of the MIS and securing information becomes the top priority [11].

Challenges of Management Information Systems in Universities

It is much evident from a number of surveys carried out in developed countries, UK and USA in particular that current MIS making advantage use of advanced computer equipment have recorded little or no success in providing management with the information it needs. Developing countries, Nigeria inclusive are not spared out of these setback creating challenges for universities with MIS in the country. The reason has been that there is lack of management involvement in the design of the MIS; narrow or inappropriate emphasis of the computer system; poor knowledge by information specialists of the management's information requirements, expanding university population and lack of top management support.

In order to make any reasonable mark or become successful, an MIS must be designed and operated in line with institutional and behavioral principles as well as technical factors. The management must be informed enough to participate and provide effective contribution to the system design and also the information professionals including system analysts, DBMA (Database Management Administrator) and operations researchers must be more aware of managerial functions and needs. This would help in jointly developing a more effective MIS. The problem is that managers do not always know what information they need and information professionals do not have a balanced knowledge about management to help them produce relevant information for the managers they serve.

No doubt, if active communication between management and information professionals exist and there is wider understanding and knowledge by both groups of MIS, the task of developing relevant and appropriate information systems would be greatly facilitated. Another pressing matter is the issue of non-compliance and acceptance of the technological process by management. There is relatively poor interest in computerized information systems by management for fear of being too difficult to maintain, not wanting to spend so much to acquire and maintain it, the fear of the technicalities involved in operating it and a lot more, making it difficult for MIS to penetrate and gain full balance in Nigerian Universities. It should be noted that there is no outlined checklist to be followed to automatically produce the perfect MIS. What is required is a knowledge and understanding of key principles and functions so that the design, implementation and operation of the MIS are a culmination of informed decisions and evaluation, rather than haphazard development without regard to the right organizational requirements.

Theoretical Framework

User satisfaction can be described as the provision of actual information, product or services that will meet the exact need of a user. Expectancy Disconfirmation Paradigm has been proposed as the most reliable and promising theoretical framework for the assessment of user satisfaction. The model implies that users purchase or acquire goods and services with pre-purchase expectations about the anticipated performance. The product or service is eventually judged based on the expectation level. If the result matches the expectation, confirmation occurs. Disconfirmation sets in where there is variance between expectations and outcome. Therefore, the satisfaction or dissatisfaction of a user is determined by the positive or negative difference between expectations and perceptions. When the product performance is better than what the customer had initially expected, a positive disconfirmation between expectations and performance is expected resulting in satisfaction.

On the other hand, if product performance is as expected, there is a confirmation between expectations and perceptions which results in satisfaction. When service performance is not as good as what the customer expected, a negative disconfirmation between expectation and perceptions which causes dissatisfaction is the result. This form of discrepancy theory has a long history in the satisfaction literature, dating back to Howard and Sheth's 1967 definition of satisfaction which is the level of congruency between aspirations and perceived reality experiences. This theory has found great degree of acceptance from researchers in other disciplines and is most widely used to evaluate satisfaction with different products and services. Here is how it works. Users with a prior performance expectation of a product, service or function, compare the eventual performance to their initial expectation after experimenting or usage. The satisfaction of the user(s) however is based on how well the

performance of the product matches their expectation and likewise their dissatisfaction will be if the product performance goes contrary to their expectation. The construct and how it will be used in this study is given below.

i. The students/users are assumed to have a prior performance expectation of their schools MIS, which will be required of them to state.
ii. The users/students will be requested to state if the MIS performance eventually matches their initial expectation or not and also back their answers with reasons.
iii. As it is, the satisfaction of the users/students is the utmost target. Therefore, the students/users will be expected to state if the MIS of their universities satisfy them or not and also state reasons for their answer.
iv.

Empirical Studies on MIS

Management is making meaning out of the numerous challenges encountered by organizations, making decisions and developing strategies to surmount organizational problems [10]. Information technology innovations have served organizations and institutions of higher learning a great deal.

From a juxtaposed perspective with the work at hand, management information systems in universities as part of its functional requirement enables university management in making enhanced, strategic and tactical plan for informed decision making. It is through the MIS that the management will appropriately realize the whole population of both staff and students, number of facilities and courses offered, know the population of each department. Again, from the school's MIS, it is easy for the management to get informed on how many students have made payments of fees in contrast to the actual number of student in the school to decide whether to close the portal or still extend the closure. Another impact of MIS in strategic and tactical planning for successful decision making in universities is the informing of the management on the performance of students, that is, how massive students have failed or passed. This will give the management an edge to take appropriate measures or employ tactical and strategic planning to surmount the situation or appraise efforts as the case may be.

[1] conducted a study on performance evaluation of campus area network of three universities in Nigeria namely, University of Lagos, University of Jos and Federal University of Technology Minna. The study used bandwidth, latency rate, and network media and users response as criteria for comparison. The research used survey method to know the technologies behind the network design of the three university's networks under study and opinion of the network users. Other tools for data collection included interview, questionnaire, and direct observation. The findings of the research revealed that UniJosNet has a higher bandwidth compared to the other university's networks, that a reasonable percentage of UniJOSNet users access the internet on a daily basis as varied from FUTMINNet and UNILAGNet, and that none of the respondents assessed the FUTMINNet as excellent which could be because of their inability to access the network at all time. However, FUTMINNet was rated well by more than half of respondents, 57.8%, although most of them comprise of wireless network users from Gidan Kwano Campus.

The study concluded by recommending an increased number of Network Operations Centre (NOC) staff or technical staff, this should include not only professional staff but also interns and apprentices; source for external funding and aid from private international organizations and financial institutions, upgrade and expand networks in existence and facilities as well as bandwidth to meet up with the increasing number of users and the current trends in university networks. Findings of the study coincide well with the research in view. It is not practicable for organizations, institutions, to have a plethora of software, hardware all spread across their edifices and offices or community for the purpose of acquiring, recording, storing, analyzing and retrieving information without a network. Computers in all their kinds, design, and forms are the major means of communication which is heavily hinged on networking.

[3] presented a work on the impact of MIS on managers' decision in industrial companies. The researchers investigated forty five manufacturing companies whose managers responded appropriately. The companies were categorized into three groups on the basis of turnover to effect and make valid the comparative study. The instruments used for data capture were questionnaire, interview and observation. The Binomial-Test in IBM-SPSS version21 served as the statistical tool. The study suggests that industrial companies take all business operations to heart while orchestrating the MIS and the importance of MIS should be made known to companies with fewer turnovers. This study is limited to describing the relationship between the MIS and the decision making in industrial companies. The investigation at hand on

comparative analysis of users' rating of the effectiveness of services provided by the MIS units of three selected Nigerian universities stretches this limitation to cover the impact of MIS on managers decision in universities, considering how valuable the MIS is to the management in terms of providing adequate and accurate information for making tactical decision in right proportion with operational management of institutions. This work relates a great deal to the ongoing research.

Amidst analyzing the efficacy of MIS in managerial decision making, Ajayi and Omirin [2] in their work on the use of MIS in decision making in the south-west Nigerian universities, provides an avid presentation on MIS and decision making. The descriptive research design of the survey type was used for the study. The collection of data was from a sample of 600 subjects including 200 academic staff at the helm of affairs of the administration and 400 academic staff, heading administrative staff positions using stratified random sampling technique. Frequency count, percentage, mean, standard deviation and t-test statistics were the tools for used for analyzing the collected data. The three hypothesis generated were tested at 0.05 level significance. From the result of the study, MIS was not appropriately used in decision making process on long-term planning, short term planning and budgeting.

Furthermore, there was no significant difference between federal and state universities in terms of the use of MIS for decision making on both long and short term planning, although there was significant difference in the use of MIS for decision making on budgeting between federal and state universities in favor of the federal universities. The study recommended that the MIS units should be well financed and maintained to make way for free flow of information and proper use of MIS in decision-making on short-term and long-term planning as well as budgeting. The essence of an MIS primarily is to provide managers with required information which will in turn lead to making tactical and valiant decisions that will benefit and foster the organization. This work has a valid link with the current research in the sense that it uncovers crucial importance of MIS in managerial decision making.

[12] presented the impact of management information systems on School administration and opinionated that the use of information technology in educational management has rapidly increased as a culmination of its efficiency and effectiveness. During initial development, MIS basic objective was to enhance the efficiency of school office routines and to store student and personal data. The research reviewed the positive impact and effect of MIS on school administration and management including enhanced accessibility to information, better efficient administration, increased utilization of schools, resources, decreased workload, better time management and advanced quality of reports. The research elucidated a number of challenges to MIS utilization among which are, lack of confidence or skill, inadequate time, unskilled personnel or lack of training, lack of senior management support, and lack of technical support. The research concluded that school MIS have greatly improved over the last two decades and a great number of them incorporate several important services required by schools administration. Although every school has its specific needs.

Further researches are needed to explore the aspects of improvement in MIS being that most of these systems were not developed in line with the institutions based needs. Systems should be designed through a process that involves stakeholders from all levels of organizations to enable faculty and general users take ownership of the system and actually use it. The relevance of the research work, impact of MIS on schools administration to this research cannot be over emphasized as it is apparent and not farfetched. The impact of MIS in its broadest sense embodies all the benefits, operations and impingement of MIS, which to a large extent, this research work tries to capture.

In like manner, [11] researched on management information systems for supporting educational organization and stated clearly that MIS is becoming a most important asset for an organization competing in the 21st century global economy. University MIS brings together important institutional activities such as relational database applications for managing admissions, registration, financial aid, managing human resources and for budgeting the fiscal controls. The capacity of universities to personalize its MIS is imperative to institutional competitiveness. A private university was selected for this paper offering online distance education for matured students at both undergraduate and post graduate levels. Analysis of written documents and a brief interview with the senior systems engineer and two students was used to obtain information about the MIS functions. The research concluded that the development of MIS in institutions of higher learning is necessary for current management of the education systems that computer applications, technology and database help in

data and information collation, use and dissemination. This research work points out clearly the stance of MIS in the education system and matters alike with the investigation at hand to a reasonable extent.

III. METHODOLOGY

The survey research design using mixed method of data collection was adopted for this study. For the purpose of this study, random sampling technique was used. It is the selection procedure where all cases in the defined population have an equal probability or chances of being selected.

Structured questionnaire were used for collecting data from the three (3) Heads of MIS units and 557 students selected randomly from the three universities under study. A simple percentage, tables and frequency counts were used for analyzing data and generating results.

IV. RESULTS AND DISCUSSIONS

Table 1 shows the response rate of MIS users from the three universities under study

There were also three Heads of ITS Units responsible for managing the MIS of the university. These heads of ITS units were given questionnaire to fill and the analysis is given in Table 2.

The information provided above shows the technologies behind the design of the three university networks and security measures deployed to ensure privacy and confidentiality of records on the MIS. The variation in the number of network equipment is as a result of difference in the number of users served by the university networks. The population of students of F.U.T MINNA as at the time of this study is 15,000 (https://en.m.wikipedia.org/wiki/Federal_University_of_Technology_Minna), UNIABUJA has a student population of 14,000 (http://www.currentschoolnews.com/school-news/about-university-of-abuja/), Baze University, Abuja currently has a student population of about 1,500 (https://www.bazeuniversity.edu.ng). The MIS unit is expected to serve all students and staff of the university community.

Bandwidth and Latency Rate of the Network

BAZEUNI provides more of wireless services to the network users and it is rated as fast by 45.8% of users and slows by 33.7% of users. The FUTMIN ITS provides both wired and wireless network service and it is rated fast by 30.3% of users and slow by34% of users. UNIABUJA was rated fast by 25.7% of users and rated slow by 5.3% of users.

Location and Network Access

More than half of the users of all the three universities' MIS agree that their location at a point in time affects connection to the network while few others attest to location not having effect on network access.

Network Access outside the Campus

On the average, the three networks can be accessed from outside. Though majority of users of the three university MIS network voted for not been able to access the network from outside the campus.

Time Taken to Connect to Network

It takes 5-10 minutes to connect to the FUTMIN network at first login while within a minute, you are in the BAZE UNI and UNIABUJA network ready to browse the internet.

Time Taken to Open a Webpage

Opening web pages depends on the fastness of the network (bandwidth) and availability of the webpage being accessed. On the average, based on users' personal observation after several attempts, it takes 1-3 minutes to open a webpage on FUTMIN ITS and UNIABUJA ICT, while 3-5 minutes is required for BAZEUNI.

Performance Expectation of MIS

The users of the three universities' MIS were asked about their expectation on the performance of the MIS service. Table 9 shows their response.

70 (34%) respondents of FUTMIN users expected the MIS to perform excellently. 66 (39.8%) of respondents in BAZEUNI expected the MIS to perform excellently and 74(39%) UNIABUJA respondents expect the MIS to give an excellent performance.

Users' Expectation of the MIS

Sadly, only FUTMIN MIS service is yet to meet the expectations of its users. Users of Baze University and University of Abuja MIS seem to be averagely satisfied with the MIS service. This is shown in Table 10.

Reasons given for the lack of satisfaction by FUTMIN MIS users include delay in staff response to users queries and delay in network connection or failure to connect to the network at all locations in the school. Those satisfied with the FUTMin MIS were able to identify the major hotspots within the university campuses and hence, browse within such locations.

Frequency of Use of MIS

In BAZE UNI CCS, 38.0% of users access the internet on a daily basis. This is because the network is always available and users only need to be stationed at the right spot to browse at any time of the day. FUTMIN ITS and UNI ABUJA ICT have lesser number of usage per day amounting to 20.4% for FUTMIN ITS and 7.4% for UNI ABUJA ICT. This is because the network is rather not available or slow or the server is down. All these setbacks make the users to either not use the network at all or rarely use it.

Free Network Access for All

User's response at this question is not surprising considering the large percentage of users from the three institutions supporting free network for all which is believed to enhance unlimited access to online information at all times and also facilitate improvements in the teaching and learning process. However, the few respondents that feel otherwise gave their reasons to be that whatever is offered for free lacks criticism and improvement and posterity becomes a problem. Moreover, free network might lead to misuse of the network, improper management and final breakdown of the entire network.

V. SUMMARY AND CONCLUSION

Before the study was conducted, FUTMIN MIS was assumed to be an under developed MIS in comparison to BAZEUNI and UNIABUJA MIS, because of its inefficiencies as regards prompt response to issues encountered by users, provision of network services to users and some cases of network intrusions. However, based on the criteria for comparison which are: structural layout, security procedure and confidentiality, network infrastructure and equipment, bandwidth and latency rate, and user's satisfaction, it was revealed that FUTMIN MIS inadequacies is as a result of insufficient infrastructures and inadequate proactive human resources.

Recommendations

Based on the findings of the study and the conclusions drawn, the following were recommended for improvement of the FUTMIN MIS service:

The FUTMIN ITS Unit should:

1. Organize training, workshop, seminars to improve communication skills and other soft skills of the ITS staff;
2. Upgrade and expand existing network components and infrastructures;
3. Source for external funding and support from private international agencies;
4. Increase the number of Network Operations Centre (NOC) staff or technical staff to accommodate the growing student population in the university.

ACKNOWLEDGEMENT

The authors will like to acknowledge the anonymous reviewers and editors for useful input into the paper.

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Table 1: Distribution and return of questionnaires

University MIS	Questionnaire Distributed	Questionnaire Returned	Percentage Returned (%)
BAZE UNI CCS	306	166	**54.2**
FUTMIN ITS	375	201	**53.6**
UNIABUJA ICT	375	190	**50.6**
TOTAL	**1,056**	**557**	**52.7**

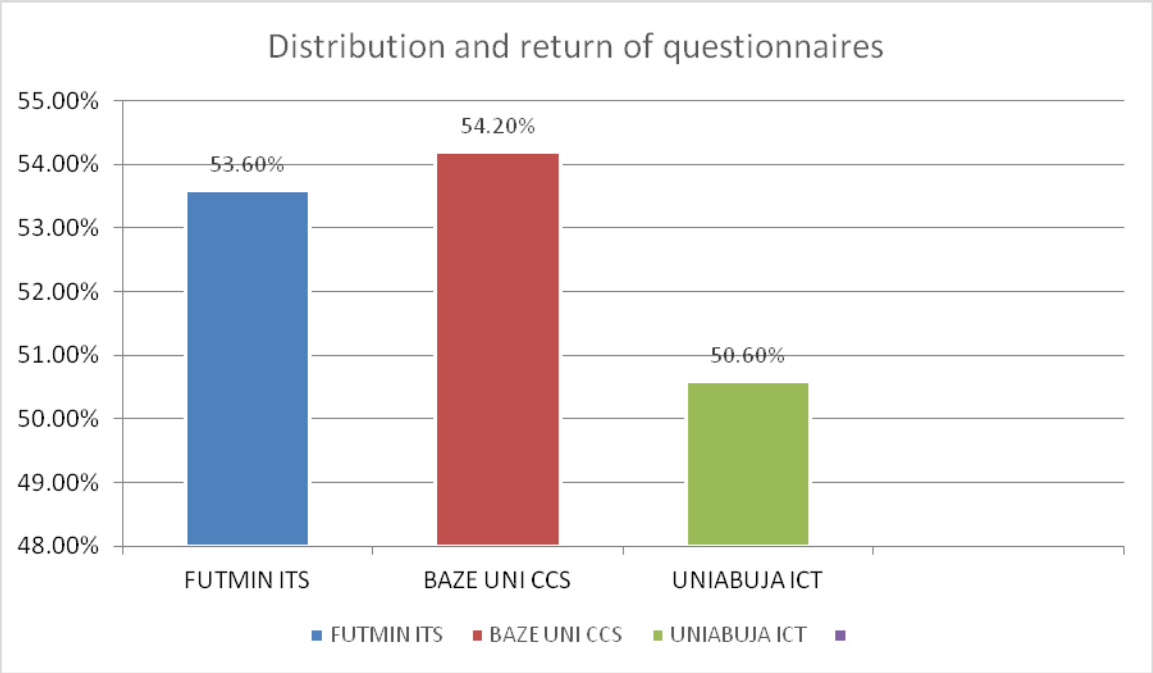

Table 2: Overview of the Three University's MIS

	FUTMIN	**BAZEUNI**	**UNIABUJA**
Department in charge of MIS	Information Technology service (ITS) unit.	Computer Centre Service (CCS) Centre	Information and Communication Technology (ICT) Centre
Date of Establishment	2002	2011	2009
Composition of Network Users	Staff (Academic and non-Academic) and Students (all levels)	Staff (Academic and non-Academic) and Students (all levels)	Staff (Academic and non-Academic) and Students (all levels)
MIS Building	Dedicated building(specifically for MIS)	Available, but as appendage to the Senate building	Available, but as appendage to the senate building
Website Address	www.futminna.edu.ng	www.bazeuniversity.edu.ng	www.uniabuja.edu.ng

Table 3: Network Equipment and Security Measures of MIS

Network Equipment	**FUTMIN ITS**	**BAZEUNI CCS**	**UNIABUJA ICT**
Personal Computers, Servers and workstations	Server (10) Workstations (100)	Over 600	About 300
UPS, stabilizers	10	Over 120 KVA Inverter	Rack/Tower, SMX2200VA
Routers	MIKROTIK Router	CISCO (Over 5)	Netgear
Channel of Communication	Twisted Pair, Fiber Optic (Cat6 fiber optic)	Twisted Pair, Fiber Optic	Twisted Pair, Fiber Optic
Ethernet Cards	Available	Available	Available
Antennae	Omni Antenna	Not specified	Not given
Operating System Used on Server	Linux Server (Ubuntu Server)	Linux/Windows	Microsoft Windows Server 2008
Computer Accessories used	NIL	Not given	Not given
Office equipment like air conditioner, furniture and cabinet	Available	Over 300	200 plus
Source of Alternative Power Supply	Inverter and Solar	Generators, Inverters and Solar systems	Generators and Inverter
Types of VSAT installed	NIL Fiber optic on	Not Mentioned	Not Mentioned

	premises		
Modem	NIL	Not Mentioned	Not Mentioned
Servers	DNS Server, Web Mail Server and Intranet Server	DNS, Proxy, Web mail, Print Server and Intranet Server	DNS, Proxy and Web mail Servers
Gateway and Firewall	Mikrotic Firewall and Gateway	SourceBell / Cisco	Proxy Firewall
Satellites	NIL	NIL	NIL
Security Measures	DMZ and Firewall	Business Continuity	SSL Certificate
Unauthorized Threat to the System	None	None	None
Bandwidth and Latency	310/310	154 mbps (STMI)	100 mbps

Table 4: Users Response on Network Response to Request

Network Response to Request	**FUTMIN ITS**		**BAZE UNI CCS**		**UNIABUJA ICT**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
Excellent	14	7.0	12	7.2	18	9.5
Very Fast	23	11.4	0	0	82	43.2
Fast	61	30.3	76	45.8	49	25.7
Slow	70	34.8	56	33.7	10	5.3
Very Slow	33	16.5	22	13.3	31	16.3
TOTAL	**201**	**100**	**166**	**100**	**190**	**100**

Table 5: Users Response on Location and Network Access

Does your location affect Network Access?	**FUTMIN ITS**		**BAZE UNI CCS**		**UNIABUJA ICT**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
Yes	142	70.6	123	74.1	140	73.7
No	59	29.4	43	25.9	50	26.3
TOTAL	**201**	**100**	**166**	**100**	**190**	**100**

Table 6: Network Access from Outside Campus

Can you access the Network from outside campus?	**FUTMIN ITS**		**BAZE UNI CCS**		**UNIABUJA ICT**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
Yes	57	28.4	36	21.7	59	31.1
No	144	71.6	130	78.3	131	68.9
TOTAL	**201**	**100**	**166**	**100**	**190**	**100**

Table 7: Time Taken to Connect to Network

Time Taken to connect to Network	**FUTMIN ITS**		**BAZE UNI CCS**		**UNIABUJA ICT**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
0-60secs	21	10.5	39	23.5	65	34.2
1-3mins	38	18.9	65	39.2	57	30.0
3-5mins	52	25.9	30	18.1	23	12.1
5-10mins	67	33.3	23	13.9	32	16.8
Over 10mins	23	11.4	9	5.3	13	6.9
TOTAL	**201**	**100**	**166**	**100**	**190**	**100**

Table 8: Time taken to open a Webpage

Time Taken to Open a Webpage	**FUTMIN ITS**		**BAZE UNI CCS**		**UNIABUJA ICT**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
0-60secs	38	18.9	22	13.3	59	31.0
1-3mins	65	32.3	46	27.7	64	33.7
3-5mins	53	26.4	59	35.5	36	19.0
5-10mins	27	13.4	31	18.7	19	10.0
Over 10mins	18	9.0	8	4.8	12	6.3
TOTAL	**201**	**100**	**166**	**100**	**190**	**100**

Table 9: Users Response on Performance Expectation of MIS

Performance Expectation of MIS	**FUTMIN ITS**		**BAZE UNI CCS**		**UNIABUJA ICT**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
Excellent Performance	70	34.8	66	39.8	74	39
Very Good Performance	56	27.9	56	33.7	57	30
Good Performance	44	21.9	26	15.7	11	5.8
Fair Performance	22	10.9	18	10.8	20	10.5
Poor Performance	9	4.5	0	0	28	14.7
TOTAL	**201**	**100**	**166**	**100**	**190**	**100**

Table 10: Users Response on Met Expectation

Met Expectation	**FUTMIN ITS**		**BAZE UNI CCS**		**UNIABUJA ICT**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
Yes	78	38.8	104	62.7	123	64.7
No	123	61.2	62	37.3	67	35.3
TOTAL	**201**	**100**	**166**	**100**	**190**	**100**

Table 11: Users Response on Frequency of Use of the MIS

Frequency of Use of the Network	**FUTMIN ITS**		**BAZE UNI CCS**		**UNIABUJA ICT**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
Everyday	41	20.4	63	38.0	14	7.4
At least once in a week	25	12.4	42	25.3	46	24.2
At least once in a month	48	23.9	31	18.7	37	19.5
Rarely use it	16	8.0	19	11.4	65	34.2
Don't use it at all	71	35.3	11	6.6	28	14.7
TOTAL	**201**	**100**	**166**	**100**	**190**	**100**

Table 12: Users Response on MIS Rating

MIS Rating	**FUTMIN ITS**		**BAZE UNI CCS**		**UNIABUJA ICT**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
Excellent	32	15.9	14	8.4	46	24.2
Very Good	47	23.4	45	27.1	23	12.1
Good	86	42.8	79	47.6	78	41.1
Poor	23	11.4	28	16.9	35	18.4
Very Poor	13	6.5	0	0	8	4.2
TOTAL	**201**	**100**	**166**	**100**	**190**	**100**

Table 13: Users Response on Free Network for all

Should the Network be free for all?	**FUTMIN ITS**		**BAZE UNI CCS**		**UNIABUJA ICT**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
Yes	148	73.6	129	77.7	155	81.6
No	53	26.4	37	22.3	35	18.4
TOTAL	**201**	**100**	**166**	**100**	**190**	**100**