

**EFFECT OF E-GOVERNANCE ON STUDENTS' MANAGEMENT IN
AHMADU BELLO UNIVERSITY**

BY

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NIGERIA.**

AUGUST, 2016.

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MSC/Admin/8002/13-14**

**A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE
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**DEPARTMENT OF PUBLIC ADMINISTRATION,
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NIGERIA.**

AUGUST, 2016.

DECLARATION

I declare that the work in this Dissertation entitled “Effect of E-Governance on Students’ Management in Ahmadu Bello University” has been carried out by me in the Department of Public Administration. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this Dissertation was previously presented for another degree or diploma at this or any other Institution.

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CERTIFICATION

This Dissertation entitled “*Effect of E-Governance on Students’ Management in Ahmadu Bello University*” by Lawal MUHAMMAD meets the regulations governing the award of the Degree of Master of Science (MSc. Public Administration) of the Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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ABSTRACT

Apart from the impacts of ICT on the entire societal fabric, one of the goals of Ahmadu Bello University is to be a renowned and celebrated academic institution through computerization, multi-media communication and linkage programmes. Within this framework, the University established the Institute of Computing and Information and Communication Technology (ICICT) to handle issues of computerization and ICT including e-governance. It also among other things laid a 37km fibre optic network that provides internet access to 70% of on-campus environment. Over the years however, the e-governance process of the University seems to be facing some challenges particularly on the issues of student registration and accommodation. There are perceived inadequacies in relation to ICT facilities, technical hitches, slow server response, inadequate staffing of ICICT etc. The major objective of the study therefore, was to assess the effect of e-governance on students' management in ABU for the period 2004-2014 and with emphasis on student registration and accommodation. Specifically, the study ascertained the effect of quality of ICT infrastructure; level of student ICT utilisation; and quality of ICICT staff on student management in ABU. The study utilized both primary and secondary sources of data and used questionnaire, interview and observation as instruments for generating primary data. The data were presented and analysed using descriptive and inferential statistics. It was generally revealed that the ICT infrastructure in the University was of low quality. Also, the level of student ICT utilization and the quality of ICICT staff were equally low. The study concluded that the low quality of ICT infrastructure, low level of student ICT utilisation and low quality of ICICT staff all have a negative effect on students' management in ABU. Among others, it was therefore, recommended that the quality of ICT infrastructure should be improved to meet the minimum standard; MIS Unit staff should provide proper orientation to students on portal usage; and that the staff strength of ICICT be increased and their training be made regular.

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LIST OF ABBREVIATIONS

ABU	-	Ahmadu Bello University
APC	-	Australian Productivity Commission
CASS	-	Computing and Academic Support Services
CSOs	-	Civil Society Organisations
eMM	-	e-governance Maturity Model
G2B	-	Government to Business
G2C	-	Government to Citizen
G2E	-	Government to Employees
G2G	-	Government to Government
G2NGOs	-	Government to Non-Governmental Organisations
ICICT	-	Institute of Computing and Information and Communication Technology
ICT	-	Information and Communicant Technology
IPC	-	Indian Planning Commission
IT	-	Information Technology
ITA	-	Information Technology Academy
LAN	-	Local Area Network
MDAs	-	Ministries, Departments and Agencies
MIS	-	Management Information System
ND	-	No date
NGOs	-	Non-Governmental Organisations
NIS	-	Network and Infrastructural Services
NISG	-	National Institute for Smart Governance
NPM	-	New Public Management

NUC	-	National Universities Commission
RDU	-	Research and Development Unit
SAD	-	Students Affairs Division
SDU	-	Software Development Unit
UN	-	United Nations

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

One of the greatest forces of globalization particularly at the end of the 20th and the beginning of the 21st centuries is the technological revolution. This revolution gave birth to the computer technology and the communication technology, generally referred to as the Information and Communication Technology (ICT). The ICT has impacted significantly on nations all over the globe and particularly on the governance process of countries. Although it was initially utilized in the management of private sector organisations, it has long found its way in the public domain (Okwueze, nd). Indeed, the broad rationale for the existence of public sector organisations is not only to render and provide basic goods and services, but also to ensure their accessibility. Unfortunately in the pre-ICT era, such rationale especially when measured along the lines of efficiency and effectiveness, appears to have been undermined. Describing the state of public sector organisations in the pre-ICT period, Monga (2008:53) writes that:

Cramped spaces; shabby ambience; discourteous dealing personnel and their chronic absenteeism; demands of gratification; inefficiency in work; long queues; procrastinating officials; procedural complexities, etc. where some of the undesirable features of the working of the government departments. Consequently, a visit to government department by a citizen to make use of any service used to be a harrowing experience... (this way) Government tended to be rigid, laid too much emphasis on redtapism, sap creativity, thwarted initiative, wore out dynamism and denied justice as of resultant delays. In addition, the focus was more on following procedures and keeping records. Consequently, the government moved at snails speed, that too, after guzzling scarce public resources.

From the above quotation, it is obvious that public services were neither efficient and accessible, nor responsible and responsive to the yearnings and aspirations of the

people. Interestingly in the 1970s, there arose the New Public Management (NPM) movement which aims to bring about efficiency, improved public management, user-responsiveness, result-based performance, client orientation and a pro-market culture. For all these to be achieved, subscribing to the ICT became necessary (Haque, nd). The application of this ICT to the internal and external workings of public sector organisations is called electronic governance (e-governance).

E-governance has been described as the long sought and overwhelmingly the most fashionable service delivery instrument. Some benefits associated to it according to Patil (2011) are that it enhances the transformation of work culture, better delivery of government services to citizens, improved government interactions with business and industry, citizen empowerment through access to information and more efficient government management. To the Indian Planning Commission (IPC) (nd), it provides means for faster and better communication; efficient storage, retrieval and processing of data and exchange and utilization of information to its users. Most importantly is that e-governance increases the reach of government services both geographically and demographically. But then, for e-governance to be firmly established and yield some benefits, there are conditions. Kariuki and Kiragu (2011) identified these as: the establishment of institutional and administrative arrangements to govern the initiative; development of an enterprise architecture (technical, business, data, application); establishment of an interoperability framework; provision of an enabling legislation to recognise electronic transactions and promote trust, security and privacy; and provide measures to build capacity and manage change.

Although e-governance is capable enough of reaching to its objectives of bringing not just incremental but radical gains in efficiency and effectiveness of public services, the initiative is not without hiccups. Poor quality of paper based records; disjointed

institutional arrangements; resistance to change; weak ICT capacity; insufficient broadband infrastructure; inadequate and unreliable power supply; resource constraints; limited citizen awareness, interest and access are some challenges faced by e-governance according to Kariuki and Kiragu (2011:180-2). On the whole, these challenges are socio-cultural, economic, political and institutional.

The Ahmadu Bello University (ABU), being a public sector institution was not to be left out in the e-governance bandwagon. The institution established on the 14th October, 1962 opened with only four Faculties, fifteen Departments and 426 students, and was in 1987 ranked the largest and the most extensive of all universities in Sub-Saharan Africa. As at 2011, the University had twelve academic Faculties, ninety five Departments, six Institutes, six specialized Centres, a Division of Agricultural Colleges, Postgraduate School, Demonstration Secondary School, Primary School, and Extension and Consultancy Services which provide a variety of services to the University and the wider society. With over 500,000 alumni, ABU has nurtured many universities and has thirty affiliations (Student Affairs Division – SAD, 2012:6; ABU, 2011b:15).

One of the goals of ABU is to be a renowned and celebrated academic institution through computerization, multi-media communication and linkage programmes. For this to be feasible, the University has overtime taken some bold steps towards computerization and automation. It is interesting to note that, computerization in ABU started in 1976 with the creation of the Iya Abubakar Computer Centre. This was followed by the creation of the Management Information System (MIS) in the early 1990s and a project in 2002 with an articulated plan to provide internet connectivity to the University Community. Also, following the establishment of the ICT Directorate at the turn of the millennium, the University's official website was designed and a wireless hotspot network commenced. Currently, the University deploys a 37km optic-fibre

network on an intercampus scalable backbone with many locations having an uplink connectivity (SAD, 2008:24; ABU, 2015; and ICICT, 2015). However, following a merger of the University's Computer Centre and ICT Directorate, an Institute of Computing and Information and Communication Technology (ICICT) was established. The ICICT now shoulders all ICT related operations at the university, including e-governance. The ICICT has six basic units that carry out diverse but coordinated activities. And these units are staffed with different workers.

To this end, this work sets out to assess the effect of e-governance on students' management in Ahmadu Bello University with special focus on student registration and accommodation. At this juncture, it is important to note that ABU has more than ten hostels for students' accommodation including Ribadu, ICOSA, Dan Fodio, Suleiman, Amina, Alexander and Akenzua in Samaru. Others in the Kongo Campus are Tafawa Balewa, Hostel I,II and III and Sardauna Bede. In all of these hostels, there are only about 14,200 bed spaces meant for Postgraduate and Undergraduate students as the sub-degree students are not entitled to on-campus accommodation. In terms of student strength, ABU has more than forty thousand (40,000) students (SAD, 2008). For bed spaces and student registration to be allocated and conducted efficiently, effectively and timely, the University in the 2006/2007 session converted these services from the manual to the electronic approach. Consequently, students now register and reserve hostel accommodation online through a dedicated University portal.

1.2 Statement of the Research Problem

ABU provides a number of services to students meant to facilitate their academic excellence. Apart from registration, other services meant for the comfort of students are health services, accommodation, guidance and counselling, sports activities and ICT

services. But due to the strategic nature of student registration and accommodation, the University chooses to provide them electronically through the portal (portal.abu.edu.ng). Issues relating to student bio-data, academic history, sessional registration, payment of registration fees, registration and add/drop of courses are all done electronically. Reservation of bed space and payment of same are also done through the electronic medium.

For optimum results and economy, the University has put in a lot of efforts, the most important of which is the creation of the Institute of Computing and Information and Communication Technology (ICICT). This Institute shoulders the entire e-governance operations of ABU, mainly through its six Units. The work of the Institute includes among others: software development, training, information management, networking and research. To this end, apart from the development of official portal/website for communications, ABU has deployed a 37km optic fibre network to provide internet access to the University Community. These and many more are in tune with the University's goal (Goal three, ABU, 2011a:5) of being a renowned and celebrated institution through computerization, multi-media communication and linkage programmes.

Based on the picture painted above, the least one would expect is a vibrant, efficient and effective e-governance beneficial to both ABU and its stakeholders (particularly students). Unfortunately, there are perceived inadequacies in terms of shortage of ICT facilities (e.g. networking bandwidth), technical hitches (e.g. over allocation of bed spaces to students), poor maintenance culture, server breach/hacking, and slow response and apathy to change. Others are shortage and inadequate training of ICICT staff; slow server response; congestion; poor network reception; and inadequate skill, awareness and orientation of students. The University has acknowledged some of these

shortcomings in its Self-Evaluation Report on Europe-Africa Connect (ABU, 2011a:10).

In the light of the above, why are there these inadequacies in spite of ABU's enormous investment towards an effective e-governance? Put differently, what is the effect of e-governance on students' management in ABU?

1.3 Research Questions

Consequent from the research problem above are the following research questions:

- i. To what extent has the ICT infrastructure affected students' management in ABU?
- ii. What is the level of students' ICT utilization and what are its effects on student management in ABU?
- iii. What is the quality of ICICT staff and how has it affected students' management in ABU?
- iv. What are the problems associated with e-governance on students' management in ABU?

1.4 Objectives of the Study

The major objective of this study is to assess the effect of e-governance on students' management in ABU between 2004 and 2014. The specific objectives include:

- (i) Ascertain the quality of ICT infrastructure and its effect on students' management in ABU;
- (ii) Examine the level of students' ICT utilization and its effect on students' management in ABU;

- (iii) Determine the quality of ICICT staff and its effect on students' management in ABU;
- (iv) Identify the problems associated with e-governance on students' management in ABU;

1.5 Statement of Hypotheses

To achieve the above set up objectives, the hypotheses inter alia were designed:

- H01:** The quality of ICT infrastructure does not significantly affect students' management in ABU;
- H02:** The level of students' ICT utilization does not significantly affect students' management in ABU;
- H03:** The quality of ICICT staff does not significantly affect students' management in ABU.

1.6 Significance of the Study

In the field of public administration, e-governance is the most recent and fastest developing sub-field. It has also been adjudged to be the most fashionable service delivery mechanism in organisations. Therefore, the significance of our study is enormous.

It is a fact that researches relating to e-governance are just coming up just as the sub-field itself. It is along this line that Patil (2011) remarked that no country or organisation has so far realized and fully utilized the benefits of e-governance. However, a handful of studies have earlier been conducted by Madugu (2012); Fatile (2012) and Ojo (2014). While Madugu (2012) focused on ICT in internal government operations, Fatile's (2012) study was so broad as it emphasizes on the myth and opportunity of e-

governance in Nigeria. On his part, Ojo (2014) focused on the imperative of e-governance for sustainable grass root development. None of these researches assessed the impact of e-governance in organisations with special interest on ICT infrastructure, ICT staffing and stakeholder utilization. Our study is thus unique and justified as it intends to bridge this knowledge gap.

The currency of the literature reviewed will no doubt provide useful information to researchers. Also, the management of ABU will benefit from the study in that it will identify opportunities and threats to the University's e-governance structure and mechanism. This way, the opportunities might be explored and the threats dealt with.

The students who are the largest stakeholders of the University's e-governance would also benefit from the concrete recommendations made which provide basis for improvement.

1.7 Scope and Limitations of the Study

E-governance relates to transactions or relationships between government to government (G2G), government to business (G2B), government to citizens (G2C), government to employees (G2E), and government to non-governmental organisations (G2NGOs). The substance of this study however relates only to G2C transactions translated as e-service delivery. Contrastingly with the other transactions, this is believed to be the most closest to public administration.

The study is interested in e-governance on student management in ABU. This is due to the array of e-governance mechanisms and structures the University has in place. It is important to point that the University has an Institute specifically dedicated to computerization and ICT (which implies e-governance). It has also deployed a fibre

optic network which provides internet connectivity to close to 70% of the University environment. More specifically on students' management in ABU, the study concerns itself with e-governance in terms of student registration and accommodation. This is justified not only by the strategic nature of these services, but also that the students are the largest stakeholders in ABU.

The study deliberately chooses to cover 2004-2014 in relation to its time frame. This is because, although the University has been in existence since 1962, major developments that are of interest to e-governance took place within this period.

A study of this nature is of course bound to have some limitations. For instance, the secondary data needed to complement the primary data in analysis was not sufficiently available. Also empirical researches needed for review were not sufficiently available. These limitations however are not enough to invalidate the findings of the study and its quality as the available secondary data were optimally utilized and empirical researches thoroughly reviewed.

1.8 Definition/Operationalization of Terms

1.8.1 E-governance

E-governance as used in this study implies the application of information and communication technology (ICT) by government and its agencies in order to deliver faster and better services to governance stakeholders. Stakeholders in this study are the ABU students in terms of their e-registration and accommodation. Indicators of e-governance include: ICT infrastructure, ICT staffing, legal provisions, stakeholder utilisation etc.

1.8.2 ICT-Staff

ICT-staff refers to the necessary human elements needed to manipulate the provided ICT tools and infrastructure in order to make for a viable e-governance. This include in ABU the staff of the Institute of Computing and Information and Communication Technology who are in charge of networking, software development and management, management information system, networking, etc. Their quality include: quantity of workers, acquired qualifications, regularity of training, availability of working tools etc.

1.8.3 ICT Infrastructure

Technological infrastructure as used in this study means the fundamental technological facilities and organisational structure needed for a viable e-governance. Put differently, they include those structures and facilities without which e-governance cannot exist and survive. Example: computers; transactional websites, their availability, accessibility and responsiveness; adequate and up-to-date ICT facilities; among others.

1.8.4 ICT Utilization

Specifically to our study, ICT utilization is the extent to which students make use of the e-governance platform provided by ABU. Operationally, it relates to awareness on its existence, trust and confidence in its usage, technical know-how on its usage, its simplicity and accessibility; internet availability, cost of using internet in registration and accommodation etc.

1.9 Organisation of the Study

This work is designed to contain six chapters. Chapter one is the introductory chapter which provides the background to the study, statement of the research problem, research questions, objectives of the study, research hypotheses, justification for the study, scope of the study, limitations of the study and definition/operationalization of terms.

The second chapter relates to the review of related literature and the theoretical framework which guides the study. The literature review focused on the concept and scope of e-governance; perceived benefits and challenges to e-governance. Others are the concepts of CT infrastructure, ICT utilization and ICICT staff. Empirical researches were also reviewed. The second section of this chapter discusses the theoretical framework using Gartner's (2000) e-governance Maturity Model and its application to the study.

Chapter three contains the research methodology utilized by the study. Specifically, it contains the research design; population and sample size of the study; sampling technique; sources and methods of data collection; administration of instruments and the method of data analysis.

Chapter four provides the contextual background of the case study area including the history of ABU; vision and mission; organisational arrangement; the ICICT, its vision and mission; structure and functions of units.

The fifth chapter is on the presentation and analyses of data; interpretation; test of hypotheses and the summary of major findings. And the sixth chapter concludes by providing the summary, conclusions and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter contains the views of scholars, authors and organisations in the field of study. Specifically, it discusses the concept and scope of e-governance, perceived benefits from e-governance and perceived challenges to e-governance. It also contains opinions on the concepts of ICT infrastructure; ICT staff and ICT utilization. Empirical researches were also reviewed to highlight the uniqueness of our work. Lastly, this chapter contains Gartner Group's (2000) E-governance Maturity Model as our framework of analysis.

2.2 Concept and Scope of E-Governance

E-governance is a compound term made up of the "e" prefix which stands for electronic and "governance". Electronic here means a medium dealing with automation of activities and processes using technological devices. Governance is subjected to different interpretation but, the definition by Monga (2008) is close to the ideal. Accordingly, governance refers to the complex mechanisms, processes, relationships and institutions through which citizens and groups articulate their interests, exercise their rights and obligations and mediate their differences. Flowing from the above, e-governance in its simplest sense means the automation of governance processes, activities and relationships through the application of technological devices. E-governance has gained currency in recent years but as yet, there is no consensus among stakeholders regarding its standard definition. There have also emerged many fashionable terms that overlap with the notion of e-governance such as digital

governance, smart governance, net-governance, cyber management and digital democracy (Haque, 2002).

Further, e-government is sometimes wrongly assumed to be a substitute of e-governance when, they are in fact two different terms. In its scope, e-governance covers even the e-government, i.e. it is wider in scope compared to e-government. Properly speaking, e-government is limited to the internal operations of government and at best the provision of information to the public. On the other hand, e-governance is concerned both with the internal and external operations of government involving relations with citizens, corporate bodies, non-governmental organizations, civil society organisations and other stakeholders (Heeks, 2001). On this, a writer notes:

E-government means the use of ICT to promote more efficient and cost effective government, facilitate more convenient government services and allow greater public access to information, and make government more accountable to citizens. Whereas, e-governance is the use of ICT by the government, civil society and political institutions to engage citizens through dialogue and feedback to promote their greater participation in the process of governance of these institutions. (Monga, 2008:54)

The myriad of e-governance definitions conceived by stakeholders in the field have been categorized into three by Finger and Pecoud (2003) namely: e-governance as customer satisfaction; e-governance as processes and interactions and; e-governance as a tool. Therefore, definitions of e-governance range from “*the use of information technology (IT) to free movement of information to overcome the physical bounds of traditional paper and physical based systems... to the use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees*”. (Savic, 2006:19). According to Dwivedi and Bharti (2005), e-governance refers to the effective use of information and communication technology (ICT) to

improve the system of governance that is in place, and thus provide better services to the citizens. Resting on the classifications of definitions by Finger and Pecoud (2003), this definition obviously sees e-governance as nothing more than a tool used to transform the system of governance. This way, it fails to showcase the processes and interactions involved in e-governance.

The Indian Planning Commission on e-governance (nd) defines the concept as the application of ICT to the process of government functioning in order to bring about simple, moral, accountable, responsive and transparent (SMART) governance. The commission has of course succeeded in presenting the term as a SMART mechanism of governance but, it is deficient in showing the processes and interactions involved in this governance. Thus, it shares the same blame as the conception by Finger and Pecoud (ibid). To Patil (2011), it refers to the process of using information technology (IT) for automating both the internal operations of government and its external interactions with citizens and other businesses. This would have been a good definition only that it relates e-governance to only the automation of governance. Indeed, as observed by Hamiduzzaman (2012), the term goes beyond the mere use of ICT in governance to include also the value added from this automation. The definition by Crowley (2008) as reiterated by Ojo (2004) shares the same weaknesses as that of Patil (Ibid). He defines the concept as the use of ICT for the planning, implementation and monitoring of government programmes, projects and activities.

In his contribution to the definitional crises, Bhatnagar (2004, in Indian Planning Commission, nd) sees it as the use of ICT at all levels of the government in order to provide services to the citizens, interactions with business enterprises and communication and exchange of information between different agencies of the government in a speedy, convenient, efficient and transparent manner. Also, it has been

conceived by Akbar (2004, in Ojo, 2014) as the computerization and automation of common government processes with the goal of lowering costs, improving efficiency and generally providing better services to citizens. Apart from concurring with Patil (2011) and Crowley (2008) on limiting e-governance only to automation of governance, it has also undermined interactions between government on the one hand and businesses, civil society organisations and other stakeholders on the other. In the words of Savic (2006), e-governance is an instrument of an information-rich society, which follows main governance principles and strategies and enables the use of ICTs in interactions between and among the key members of the society. He also sees it as a continuum from information provision, when organisations and public agencies publish statistics information to the internet, all the way to web-based interactive applications and e-transactions, as well as one-stop integrated virtual governmental services. This, to say the least, is more of a description of e-governance trend than its definition.

The Council of Europe took an entirely different dimension in breaking the complexity of e-governance as it views it in three approximations. According to the council, it means the use of electronic technologies in the three main areas of public action: relation between the public authorities and society; functioning of the public authorities at all stages of the democratic process; provision of public services (Savic, 2006:22). This definition has succeeded only in identifying the applicable areas of the term and overlooks its value added, and processes. Along the same dimension, Backus (2001) defines it as the application of electronic means in: the interaction between government and citizens and government and businesses, as well as; in internal government operations to simplify and improve democratic, government and business aspects of governance. According to the World Bank (2008) as captured by the Indian Planning Commission (nd), e-governance refers to the use by government agencies of ITs (such

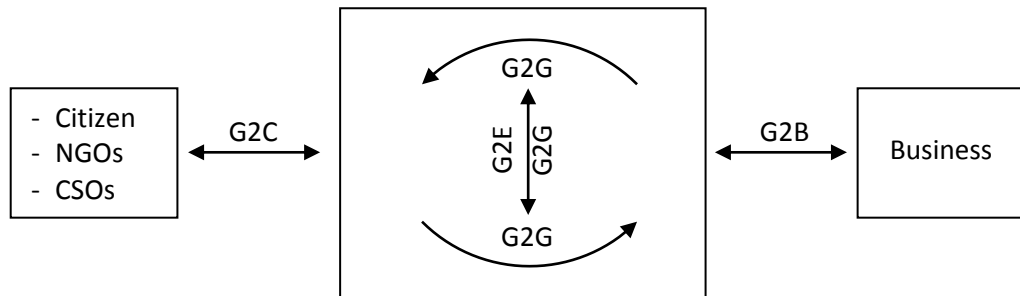
as Wide Area Network, the internet and mobile computing) that have the ability to transform relations with citizens, businesses and other arms of government. Here the World Bank did not show the values (such as cost-cutting, effectiveness etc) associated with e-governance.

By now, it becomes clear that e-governance as an emerging field of public administration is elusive and thus defies a precise definition. In spite of its currency, wider applicability, household nature and cross-cultural relevance, the term has many definitions as there are definers. The reason for this is not far-fetched. The National Institute for Smart Governance – NISG (2012) observes that different governments, organisations, individuals and other stakeholders define the term to suit their own purposes. Consequently, differences in nature, applicability, context, interactional pattern and values of e-governance abound. Arguably, from the above definitions and those of University of Michigan Business School (2003); Savic (2006); European Union (2003 in Savic, Ibid); UNDP (2003); and Mittal and Kaur (2013), we believe a good e-governance definition to contain some elements. It has to show automation and computerization of governance; showcase processes and interactions involved; expected values of automation and of course, the tools of automation. To this end, we define e-governance as the application of information and communication technology to the internal operations of government and its external interactions with all governance stakeholders for efficient, speedy, convenient, accountable and transparent service delivery.

The scope of e-governance is not as contested as its definition. Monga (2008); Indian Planning Commission – IPC (nd); Savic (2006); NISG (2012), Kariuki and Kiragu (2011) and; Sachdeva (2002) have all agreed that the scope of e-governance involves relations between government to government (G2G), government to business (G2B) and

government to citizen (G2C). However, while Kariuki and Kiragu; IPC and NISG extend it to government to employee (G2E), Sachdeva (2002) added government to non-governmental organisation (NGOs) relationship.

Figure 2.1 Scope of E-governance



Source: Adapted from NISG, 2012:17

- (i) **Government to Government (G2G):** This kind of interaction is otherwise regarded by NISG (2012) as e-administration. It serves as the backbone of e-governance because government must enhance and update its own internal system and procedures before electronic transactions with stakeholders begin. G2G involves the use of ICT to restructure the governmental process involved in the functioning of government entities and also to increase the flow of information and services within and between different entities. This kind of interaction occurs only within the government circle and could be both horizontal and vertical (Monga, 2008; IPC, nd). The G2E interaction proposed by Sachdeva (2002) and others belongs to the G2G category because it occurs within the government. State Wide Networks is according to NISG (2012) one of the mechanisms employed in G2G relationship.
- (ii) **Government to Citizen (G2C):** E-democracy as it is otherwise referred to involves interaction between government on one hand and citizens, civil society organisations (CSOs) and NGOs on the other. Monga (2008) argues that it facilitates interaction with government by citizens, NGOs and CSOs which is the

primary goal of e-governance. Because G2C provides a "single window", there is an enhanced access and efficient delivery as citizens, CSOs and NGOs can carry out a variety of tasks especially those involving more than one government department. Payment of taxes, license renewal, voter registration etc. are some of the services offered by G2C (NISG, 2012; Monga, 2008). This way, citizens NGOs and CSOs conveniently determine when, where and how to interact with government.

- (iii) **Government to Business (G2B):-** With the new public management philosophy, relations between government and the private sector is continuously strengthened. G2B interface is employed in this regard. According to the IPC (nd) G2B could be transactional such as licensing permits or promotional and facilitative such as in trade, tourism and investment. It includes both the procurement of goods and services by the government as well as the sale of surplus government goods to the public online (Monga, 2008). In essence and as observed by Savic (2006), government to business interface defines the relationship, structures and processes between government and the private sector.

2.3 Benefits of E-governance

As a public administration reform mechanism, e-governance is generally adjudged to be the long sought and overwhelmingly the most fashionable service delivery instrument. Consequently, the perceived derivable benefits from e-governance are enormous. Ojo (2014) believes that with e-governance, the entire spectrum of governance becomes inclusive, efficient, responsive, transparent, accountable and more participatory. This is because, as noted by Jager and Reyswoud (nd), government's internal and external

activities gain speed, precision, simplicity, outreach and networking capacity, leading to reduced cost and increased effectiveness. Monga (2008) believes that e-governance: has ushered in transparency in the governing process; saves time due to single window; simplifies procedures; better office and record management; reduction in corruption; and improved attitude, behaviour and job handling capacity of personnel. On his part, Haque (2002) stresses that it reduces cost and delay in delivering services; expand citizen's access to public sector information; reinforce public agencies; increased transparency and accountability; weakens authoritarian tendencies; strengthen civil society and democracy; and reduces waste. Glaring from the submissions of Monga (2008) and Haque (2002) is that the values of e-governance are both institutional (on the part of government) and societal (on the part of governance stakeholders).

In addition to better access to information and quality services for citizens; simplicity, efficiency and accountability in governance and expanded reach of governance (IPC, nd); e-governance is also credited with cheaper, quicker, innovative and better governance (Heeks, 2001). The common theme to the above positions is the recognition of e-governance to benefit the governance stakeholders more. But it is common knowledge that e-governance is first meant to improve government processes through e-government before other parties.

The National Institute for Smart Government (2012) views the relevance of e-governance to be both institutional and societal. In government, the Institute believes the computerization and internet connectivity in association with process re-engineering to promise faster and better processing of information leading to speedier and qualitatively better decision making and utilization of resources. To NGOs, CSOs and citizens, the Institute argues that it holds promise of enhanced access to information and government agencies; efficient service delivery and transparency in dealings and

interactions with government. The University of Michigan Business School (2003) equally follows suit in its approach to benefits of e-governance. To citizens and businesses, there is streamlined, standardized information gathering and access; electronic delivery of services to meet citizen expectations and requirement; convenient, anytime, anywhere citizen service; and support for e-governance initiatives. In the government circle on the other hand, it leads to increased employee productivity; facilitation of information reuse across and within departments; reduced system maintenance and training requirement; and cost-effectiveness in the operations of government agencies.

Kumar et al (nd); Dwivedi and Bhart (2005); World Bank (cited in IPC, nd:8); Savic (2006:20-22); UNDP (2013:8); Mittal and Kaur (2013); and Mphidi (nd:5) have all contributed to the literature on the importance of e-governance. However, from these and other submissions reviewed earlier, it is our stand that the benefits of e-governance are both internal and external. It is internal when it pertains the reformation of government's institutional processes and activities. Externally, it relates to improvement in the nature and manner of interactions and relationships between the government on one side and the citizens, CSOs, NGOs and businesses on the other. Therefore, the derivable benefits of e-governance are both institutional and societal.

2.4 Challenges to Effective e-governance

Notwithstanding the global effort by governments to go electronic, there exist some challenges that slow; threaten; and sabotage e-governance efforts. However, a lot of these challenges are more common to the environment of the developing world, in comparison with the developed societies. Inclusive are social issues, infrastructural decay, cost, breadth and depth of coverage, complexity, vulnerability and threats to

stability. Others are level of organisational adaptation, ineffective IT management, technical competence, lack of resources, privacy, security, literacy level and citizen awareness and confidence (Mphidi, nd; UNDP, 2013; and Dawes, 2008).

Kumar et al (nd); Dwivedi and Bharti (2005); Heeks (2009) and; Mittal and Kaur (2013) caution that increased manpower cost, organisational resistance, poverty, language dominance, legal infrastructure, leadership and strategic thinking all connive to serve as a cog in the wheel of effective e-governance. However, note should be taken that inadequacies relating to privacy and security are only latent consequences of e-governance. On the whole, challenges to effective e-governance are socio-cultural, economic, political and institutional.

2.5 ICT Infrastructure

The Information and Communication Technology (ICT) is said to consist various subsystems that make it a whole. From these subsystems however, the infrastructure component is widely adjudged to be the most important. Literally and from a general perspective, infrastructure according to the National Information Technology Development Agency (NITDA -nd) refers to the basic facilities, services and installations needed for the functioning of a system. In relation to ICT, the agency defines infrastructure as all the information technology (IT) assets, components and resources treated as a generic role. This conception by NITDA (nd) appears defective as it fails to provide details on the assets, components and resources of an ICT infrastructure. In his contribution Katz (2002) sees ICT infrastructure as the hardware, network, leadership, skills, budgets and policy. He further describes budget life-cycle funding; and policy to do with information access, privacy, security and ownership.

Along this line, NITDA (nd) provides a more elaborate definition from its earlier submission. Accordingly, ICT infrastructure is viewed as the aggregation of software, hardware, network components and services as well as policies that guide the manipulation of data in storage or in transmit using these components. Therefore, ICT infrastructure involves the assets (software and hardware), components, systems, strategies, policies and resources necessary for the access and utilization of data. Sodiya *et al* (2008) submit the following as the key pillars of ICT infrastructure:

- (a) **ICT hardware:** This include desktop computers, laptops, thin client components, interactive white board, data projectors, digital cameras, printers etc.
- (b) **ICT software:** This may take the form of content management systems, learning systems, finance and assets management systems, staff and students management systems as well as assessment and reporting systems.
- (c) **Connectivity:** These are infrastructures that connect the hardware components to the required tools, services and digital resources. Example are: telecommunication equipment (bandwidth, satellite equipment etc), network equipment and environmental management equipment.
- (d) **ICT support services:** Example of support services are people and skills, processes, externally provided services and financial resources.

2.6 ICT Staff

Interestingly, even as organisations are getting more and more automated, the relevance of staff, workers or human resources is gaining momentum. Their physical and mental skills are crucial in determining the effectiveness of an organization against its goals. In the ICT sphere, staff are otherwise called ICT management or ICT infrastructure management. Highlighting their relevance, Murata (2006) points that they have power

over the public's quality of life in an information technology society. Sodiya *et al* (2008) opine that the ICT management handles the specification, procurement, setup, testing, support, operating system, network operations and telecommunication in an organization. NITDA (nd) submits that the ICT infrastructure management recommends best practice for requirement analysis, planning, design, deployment, ongoing operations management and technical support for an ICT infrastructure. ICT management takes the following forms according to Sodiya *et al* (2008).

- (a) **ICT Design and Planning:** This is the process of developing and maintaining strategies and processes for the deployment and implementation of appropriate ICT Infrastructure In an organization.
- (b) **ICT Deployment:** This entails the actual implementation and roll out of appropriate ICT infrastructure or solution as designed and planned such that there is minimum disruption to installation processes or activities.
- (c) **ICT operations:** This is the day-to-day technical supervision of the ICT infrastructure and it includes activities such as time management, backup and restoration, network monitoring system, system monitoring, database monitoring and storage monitoring.
- (d) **ICT Technical support:** This is the development of standards for the evaluation, support and proofing of all current and future ICT infrastructure.

2.7 ICT Utilization

It is a fact that ICT infrastructures deployed by an organization would only be useful when put into proper utilization. In other words, it would amount to a futile organization effort to only deploy ICT infrastructure and management without ensuring their utilization. Of course, ICT leads to the increase in the dissemination and access to

information but, as observed by Kyakulumbye *et al* (2013), only when such information is appropriated by the population that informed decisions would be made at the micro and macro levels. Forth and Mason (2004, cited in Kyakulumbye *et al* 2013) view ICT utilization as the provision, access, assimilation, understanding and application of technology powered information by identified beneficiaries. Coleman, Herselman and Jacobs (2008) point that, apart from raising citizen awareness and expectation, ICT utilization ensures participation in election process and spread of democratic ideas. On the whole however, the dimensions of ICT utilization are; information generation, storage, dissemination and application (Kyakulumbye *et al*, 2013:23).

2.8 Review of Empirical Researches

It needs to be stressed here again that e-governance as an area of administrative theory is only just developing. In other words, stakeholders in the field are still struggling to fully explore and exploit the associated benefits in the area. However, some researchers have made efforts in this regard. For instance, Fatile (2012) sought to establish whether e-governance was a myth or opportunity for Nigerian Public Administration. The objectives of the paper were to assess the implementation levels of e-governance in Nigeria; evaluate critical success factors and analyse the impact of e-governance in service provision in Nigeria. The research was based on secondary data and it found mainly that Nigeria is facing a number of challenges to e-governance including unavailability or poor condition of ICT infrastructures and poor internet usage on the part of the citizens. He recommended that the government should declare access to ICT services as fundamental human right of every Nigerian and to establish a timetable and guarantee enabling environment for attracting the right level of investment. On the whole, the paper concluded that there is a lot of hope on the potential of e-governance to

transform the internal efficiency of government and the relationship of government with citizens.

Although the above study by Fadile (2012) is apt and timely, it is defective in terms of scope. Firstly, it is too ambitious in studying the entire Nigerian public administration, rather than some selected organizations within it. Secondly, the paper fails to define the time period covered by the study. The variables that were of interest to the study should have included the ICT infrastructure which provides the initial take-off for e-governance. Instead, the study emphasized on implementation; success factors; and challenges.

Ojo (2014) conducted a study on the imperative of e-governance for sustainable grassroots development in Nigeria. Data for the study were sourced basically from secondary sources. The paper found that e-governance promotes participant, transparent, responsive and inclusive democracy to enhance grassroots development; e-governance enhances effective communication between the government and the governed at the grassroots; and it creates an open plain ground for the citizens to receive feedback from the appropriate local government channel. Thus, it was concluded that e-governance ensures effective and efficient service delivery and enhances citizen's participation in local affairs. The study however recommended that, the Federal Government should make a policy on the adoption of ICT and training of local government workers for sustainable grassroots development.

This study by Ojo (2014) is unclear regarding the e-governance variables which the study emphasized on. This is more so that e-governance is a phenomenon that cannot be

properly studied in quantum. The study should have identified variables such as ICT infrastructure, ICT literacy, ICT staffing, etc. for examination. The study no doubt was interested on e-governance at the local government level, but it is unclear as to which of the 774 local governments in Nigeria. It would be rather too broad for the paper to study the entire local governments in Nigeria. Also, the scope of the study in relation to time was not defined.

Madugu (2012) also conducted a study on the application of ICT in the conduct of government business and its implications on the bureaucracy. The aim was to examine the extent to which ICTs facilitate the delivery of public goods and services. Data for this study were sourced from secondary sources. The paper concluded that ICTs in government allow for greater public participation and contribute toward efficient service delivery. He recommended that the government should deploy more ICT tools for enhanced service delivery and the application of ICTs should have a national coverage to bridge the digital divide in the country.

Government business is so enormous that this paper ought to have limited itself to some of it. Also, the variables that indicate the application of ICT by the government were not identified. The time span covered by the study was also not specified. In short, the scope of this study is defective in terms of time, substance and area.

2.9 Theoretical Framework

A good research work is always dependent upon a theory or a group of theories which provide a framework within which the work will be analysed. Theories on e-governance are still at an infant stage as the field itself is recent and only just growing. In presenting

the contributions of e-governance to organisation's effectiveness, the United Nation's (2002) E-governance Progress Measurement Model and the Gartner Group's (2000) E-governance Maturity Model stand out. These models will be briefly presented and the study would adopt Gartner's (2000) model as its theoretical framework .

2.9.1 E-governance Progress Measurement Model

The United Nations (UN) in one of its E-governance Surveys at the turn of the millennium developed five stages for measuring progress towards e-governance made by public organisations. The U.N believes that for every e-governance framework and strategy to develop and be effective, it must follow the under mentioned stages (Savic, 2006:37).

1. **Emerging Web Presence** – One or a few web sites offering static information.
2. **Enhanced Web Presence** – Growing numbers of web pages offering dynamic information.
3. **Interactive Web Presence** – Exchanges between users and governments (electronic forms).
4. **Transactional Web Presence** – Services such as purchases (licenses) and payments (taxes).
5. **Fully Integrated Web Presence** – Combination of information, exchanges and services.

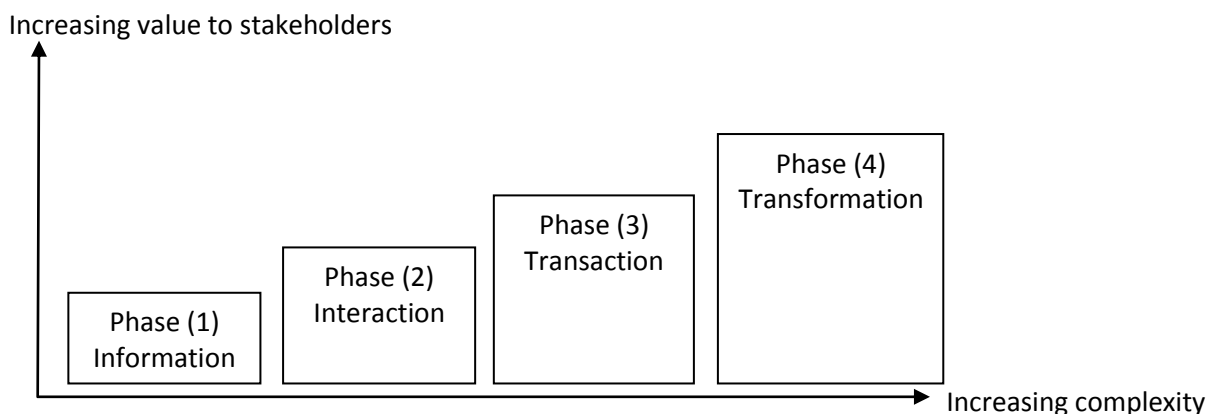
The model presents that organisations pass through these sequential stages to make it to the peak of e-governance which translates to total effectiveness of the system. However, critics have it that some public organisations although pass through these stages, they often do so not in a sequence. For instance, from emerging web presence, an organisation may move to interactive web presence before enhancing web presence.

2.9.2 E-governance Maturity Model

This model was developed by a well-known international consultancy firm, the Garner Group in 2000. The four-phase e-governance model affords the government and other stakeholders to position where a project fits in the overall evolution and effectiveness of an e-governance strategy (Patil, 2011). According to Savic (2006), governments start with the delivery of online information but, public demand and internal efficiency require more complex services. This informs the gradual and steady movement of e-governance projects in order to respond to such demands. Although the model views e-governance maturity in four phases, it however allows for a retrace and retrospection after each phase but only within a feasible frame of time and money. The design and purpose of each step would have to serve the relevant needs of all e-governance stakeholders (Patil, 2011:45).

- Early 90s: Information → Presence
- Mid 90s: Interaction → Intake process
- Present: Transaction → Complete transaction
- Future: Transformation → Integration and Organisational Changes

Figure 2.2: E-governance Maturity Model



Source: Savic, D. (2006) E-governance: Theoretical Foundations and Practical Implications, pp.38

Phase 1: Information

In this first phase, the intentions and objectives of the government are made known through developing a website or a network of sites dedicated to different ministries, departments and agencies (MDAs). These sites convey the government's initiatives providing such information as official working hours and forms to the citizens, economic reviews and corporate regulations for businesses; budgetary allocations and spending to government agencies. In short, the format of these sites is similar to that of a leaflet providing the general public with relevant information (Savic, 2006; Patil, 2011).

Phase 2: Interaction

This phase signals an improvement in e-governance strategy as interaction between government and its stakeholders, i.e. citizens, business and MDAs begins here. A typical government site at this phase provides navigation for ease of interaction and some search engines for locating information and downloading documents. These activities can be done online without having to visit government counter during working hours (Savic, 2006; Patil, 2011). Savic (2006) however notes that, citizens and businesses have to still go to the government office to finalize the transaction by handing over evidence or signing papers. Internally, MDAs use Local Area Networks (LAN), intranets and email to communicate and exchange data.

Phase 3: Transaction

Before phases 3 and 4 could take off, the task of building the underlying information in phases 1 and 2 could have to be sustained especially by technical staff. As e-governance technology becomes complex at this stage, citizens, businesses and MDAs can now initiate and complete transactions without having to visit government office. Patil (2011) cautions that for this phase to be feasible, internal processes have to be

redesigned and new laws that will enable paperless transactions with legal certification be put in place. Payments, digital signatures, licenses, online procurement tax returns etc. are all possible here according to Savic (2006).

Phase 4: Transformation

This is the final phase which focuses on realizing the true vision of e-governance (efficiency and effectiveness in service delivery). In other words, cost savings, efficiency and customer satisfaction are expected to be at the highest possible levels. This phase stands unique in that all government information systems are integrated and thus citizens and businesses can get all required services at one virtual counter. However, this is dependent on major cultural change, process re-engineering, and redefinition of responsibilities within the government institution (Savic, 2006).

The relevance of Gartner's (2000) e-governance maturity model to our study lies in its philosophy of gradual and steady movement of e-governance strategies which determines the effectiveness or otherwise of the initiative. In other words, e-governance according to the Model develops through the four phases of information (ICT infrastructure), interaction (ICT utilization), transaction and transformation. The ABU e-governance platform, particularly the student portal, provides students with information regarding registration, accommodation and other services; allows communication and exchange of data between students and 'technical' staff; e-payments; accommodation reservation; course registration among others. The condition for progressing to Phases 3 and 4 is what captures our last variable (ICICT staff).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The research methodology employed in the process of this study is the hallmark of this chapter. Specifically, it covers such elements as research design; population and sample size of the study and sampling technique. Others are method of data collection; administration of instruments as well as method of data analysis. Justification in each case has also been provided.

3.2 Research Design

This study adopts the survey research method. Survey research design focuses on a sample drawn from a population in which the data collected from the former through questionnaire and interview is generalized on the latter. Survey research design is chosen because it is faster, cheaper and convenient (Ngu, 2009). However, content analysis would be utilized to complement the survey research.

The research is designed to assess the effect of e-governance on students' management in ABU. In doing this, variables relating to e-governance such as ICT infrastructure, level of student ICT utilization, and ICT-staffing were examined. These variables were measured using the five-point Likert scale of measurement alongside the dependent variable (students' management).

3.3 Population and Sample Size of the Study

The population of this study is divided into two categories: the staff and students of ABU. In the staff category, our population comes from the Institute of Computing and Information and Communication Technology (ICICT) and Students' Affairs Division of

the University. The population of the former stands at seventy five (75), while that of the latter is sixty-six (66). This is justified on the grounds that the University's entire ICT activities are handled solely by the ICICT and the staff of the Students Affairs Division (SAD) of the University work hand-in-hand with the ICICT particularly in the area of student accommodation. The second category of the population is the students of ABU who are the largest beneficiaries of the University's e-governance infrastructure. Specifically, students from the four largest out of the twelve faculties of the University form our population, including, Education: 5569; Administration: 3496; Engineering: 3987 and; Science: 6788 (MIS Unit, 2015).

The number of sample respondents from the staff category (ICICT and SAD) according to Krejcie and Morgan's (1970) table for sample size determination is 103, representing 73% of this category (See Appendix "IV"). The same table provides a sample size of 377 respondents from the students' (Administration, Science, Education and Engineering) category.

3.4 Sampling Technique

The fact that we deal with a registered population makes it imperative for us to adopt the probability sampling technique. Specifically, the simple random sampling technique was used for the entire respondents. In other words, for both the staff and students respondents of our study, the simple random sampling technique was utilized. This is justified on the grounds that the technique gives every element a chance of being included in the sample.

3.5 Sources of Data Collection

The data for this study was sourced from both primary and secondary sources. These sources as well as the instruments to be employed are explained below.

3.5.1 Primary Source of Data Collection

This is the data generated from the field first-hand by the researcher through the instruments of questionnaire, interview and observation.

Questionnaire:- The questionnaire for this research is largely made up of close-ended questions ‘for easy coding, tabulation and subsequent analyses’ (Idris, 2011:61). It is however divided into two sets. The first set which is divided into four sections is for the staff respondents of ABU. Section ‘A’ relates to the personal data of the respondents such as gender, age and educational qualification. Section “B concerns the hypothesis on the relationship between technological infrastructure and effectiveness of ABU. Section “C’ contains questions relating to the hypothesis on student ICT utilization and effectiveness of ABU. And section “D” relates to the hypothesis on the quality of ICT staff and the effectiveness of ABU.

The second set of questionnaire is for the students respondents which consist of four sections. Section “A” relates to the personal data of respondents such as age, gender, educational qualification and customer category etc. Section “B’ contains questions relating to the hypothesis on technological infrastructure and effectiveness of ABU. Section “C” relates to the level of ICT utilization students vis-a-vis the effectiveness of ABU. Section “D” is on the quality of ICT staff and the effectiveness of ABU (See Appendices “I“ and “II“). On the whole, the study uses questionnaire because it is economical, reliable and convenient and it affords a wider coverage.

Personal Interview: A semi-structured interview was also conducted to the Director and Unit Heads of the ICICT. Also, representatives of the SAD were also interviewed. Generally, the interviews were based on our interview schedule in appendix “III“. Personal interview is meant to complement questionnaire in terms of follow-up, clarification and verification.

Participant Observation: Through the use of this instrument, the researcher was able to make on-the-spot assessment of technological infrastructural facilities, student ICT utilization and the quality of ICICT staff.

3.5.2 Secondary Source of Data Collection

This study utilizes the secondary source of data to complement the primary source. Official publications and website resources of ABU and ICICT are some of the secondary sources utilized.

3.6 Administration of Instruments

Two sets of questionnaires totalling 480 were self-administered with the help of a research assistant to both the staff and students categories of our respondents. The questions for the respondents relate to the three hypotheses of the study. The two questionnaires were measured based on the five-point Likert Scale. Personal interviews were also conducted to some staff and Unit Heads of ICICT as well as others from the SAD based on our interview schedule in appendix “III“. A participant observation was also undertaken by the researcher for on-the-spot assessment.

3.7 Method of Data Analysis

This study utilizes both qualitative and quantitative approaches to data analysis. This is through the descriptive and inferential statistical tools of analysis. The descriptive tools used in the interpretation and analyses of data were the frequency tables and simple percentages. The inferential statistical tool of Linear Regression Analysis was used to test the hypotheses formulated. The fact that Linear Regression tests the level of impact an independent variable has on a dependent variable is what informs its adoption.

A Linear Regression Analysis is a non-parametric tool which measures the extent of the impact or effect of one independent variable on a dependent variable. A regression equation is calculated using the following formula:

$$y = a + bx$$

Where A = constant

B = slope or coefficient of regression.

However, in calculating the coefficient of regression (b), the formula down is used

$$b = \frac{n \sum xy - \sum x \sum y}{n \sum y^2 - (\sum y)^2}$$

Source: Kothari and Garg (2014:313-314).

Decision Rule: If at 5% level of significance the P value is greater than 0.05, we accept the null hypothesis. However, we reject the null hypothesis if the P value is less than 0.05 at the same level of significance.

CHAPTER FOUR

HISTORY AND ORGANISATIONAL STRUCTURE OF AHMADU BELLO UNIVERSITY AND ITS INSTITUTE OF COMPUTING AND INFORMATION AND COMMUNICATION TECHNOLOGY

4.1 Introduction

This chapter presents the overview of the case study area, Ahmadu Bello University. Specifically discussed is the history; vision; mission; philosophy and objectives as well as; the organisational arrangement of the University. Also explored is the brief history; vision; mission, mandate and organogram of the University's Institute of Computing and Information and Communication Technology (ICICT). The ICICT's Units and their functions have also been discussed. It is interesting to note that the ICICT is the ABU's arm that shoulders all ICT-related operations of the University, including e-governance.

4.2 Brief History of ABU

The Ahmadu Bello University (ABU), whose law was enacted on 14th October, 1962, belongs to the First Generation Universities. Others in this category are the University of Ibadan; University of Nigeria; University of Lagos and Obafemi Awolowo University. The University has its genesis from the visit by the United Kingdom Inter-University Council delegation when they were searching for a "University of Northern Nigeria" in the late 1950s. Long before that however, the ABU has its origins from the former Samaru Agricultural Station founded in 1924; the Shika Stock Farm, 1928; the Nigerian College of Arts, Science and Technology, 1955 and the Clerical Training Centre, Kongo, 1975 (ABU, 2011a; ABU, 2011b). By April 1961, the Northern Nigeria Legislature according to ABU (2011b) passed a Law which established the Provisional Council of the University with Sir Norman Stanley Alexander as its first Principal (later Vice-Chancellor).

The University was named after its first Chancellor and Premier of Northern Nigeria, Sir. Ahmadu Bello, the Sarkin Daura of Sokoto. It was through the Ahmadu Bello University (Transition) Decree of 1975 taken over by the then Federal Military Government, along with other First Generation Universities. Opening with only four Faculties, fifteen Departments and 426 students, the University was in 1987 ranked the largest and the most extensive of all Universities in Sub-Saharan Africa. And as at 2011, the University has twelve academic Faculties, ninety five Departments, six Institutes, six specialized Centres, a Division of Agricultural Colleges, Postgraduate School, demonstration Secondary School, Primary School, and Extension and Consultancy Services which provide a variety of services to the University and the wider society. With over 500,000 alumni in Nigeria, Niger Republic, Cameroon, South Africa, Europe, Asia and the United States, ABU has nurtured many universities and has thirty affiliations (Student Affairs Division – SAD, 2012:6; ABU, 2011b:15).

4.3 Values, Vision and Mission of ABU

According To ABU (2011a:5), the Values, Vision and Mission of Ahmadu Bello University are as follows:

Values: ABU considers as fundamental the values of quality, excellence, diversity, equity, integrity, service, accountability entrepreneurialism; pluralism, sharing and partnering.

Vision: Ahmadu Bello University shall be a world-class centre of learning and research that is responsive to the needs of its immediate community, Nigeria and the world at large.

Mission: To advance the frontiers of learning and break new grounds, through teaching, research and the dissemination of knowledge of the highest quality; establish and foster national and international integration, develop and promote African traditions and

cultures, produce high-level human capital and enhance capacity, building through retraining in order to meet the needs and challenges of the catchment area, Nigeria and the rest of the world.

4.4 Philosophy, Objectives and Goals of ABU

The philosophy of ABU was clearly stated by the founding father and mentor of the University, Sir Ahmadu Bello, when he said: *“The first duty of every university is the search for and the spread of knowledge and the establishment of truth... But it must also serve the need of the nation”*(SAD, 2012:7).

The philosophy of ABU is predicated upon the *“cardinal principles of imparting knowledge and learning to men and women of all races without any distinction on the grounds of race, religious or political beliefs”* (SAD, 2012:7).

The objectives of the Ahmadu Bello University as articulated in Article 4 of its 1962 and 1975 Laws (SAD, 2012:7) are to:

- (a) provide regular and liberal courses of instruction in the humanities, sciences and other spheres of learning of a standard required and expected of university of the highest standing;
- (b) promote research and the advancement of science and learning;
- (c) secure the diffusion of knowledge throughout Nigeria.

Further, the goals of ABU are:

1. To be an academic centre of excellence in teaching, learning and research through the provision of the high quality learning resources and relevant curriculum.
2. To be a leader in cutting edge research through the provision of ultra-modern multi-user specialized laboratories and information resources.

3. To be a renowned and celebrated academic institution through computerization, multi-media communication and linkage programmes.
4. To have the best learning and research environment for academic work through the rehabilitation, upgrading and expansion of infrastructural, municipal, sporting, health and welfare services.
5. To build formidable resource base by enhancing the University's income generation through revenue sourcing and collection, alumni and advancement development.
6. To be the best run academic institution through transparent, accountable and prudent management of resources (ABU, 2011a:5-6).

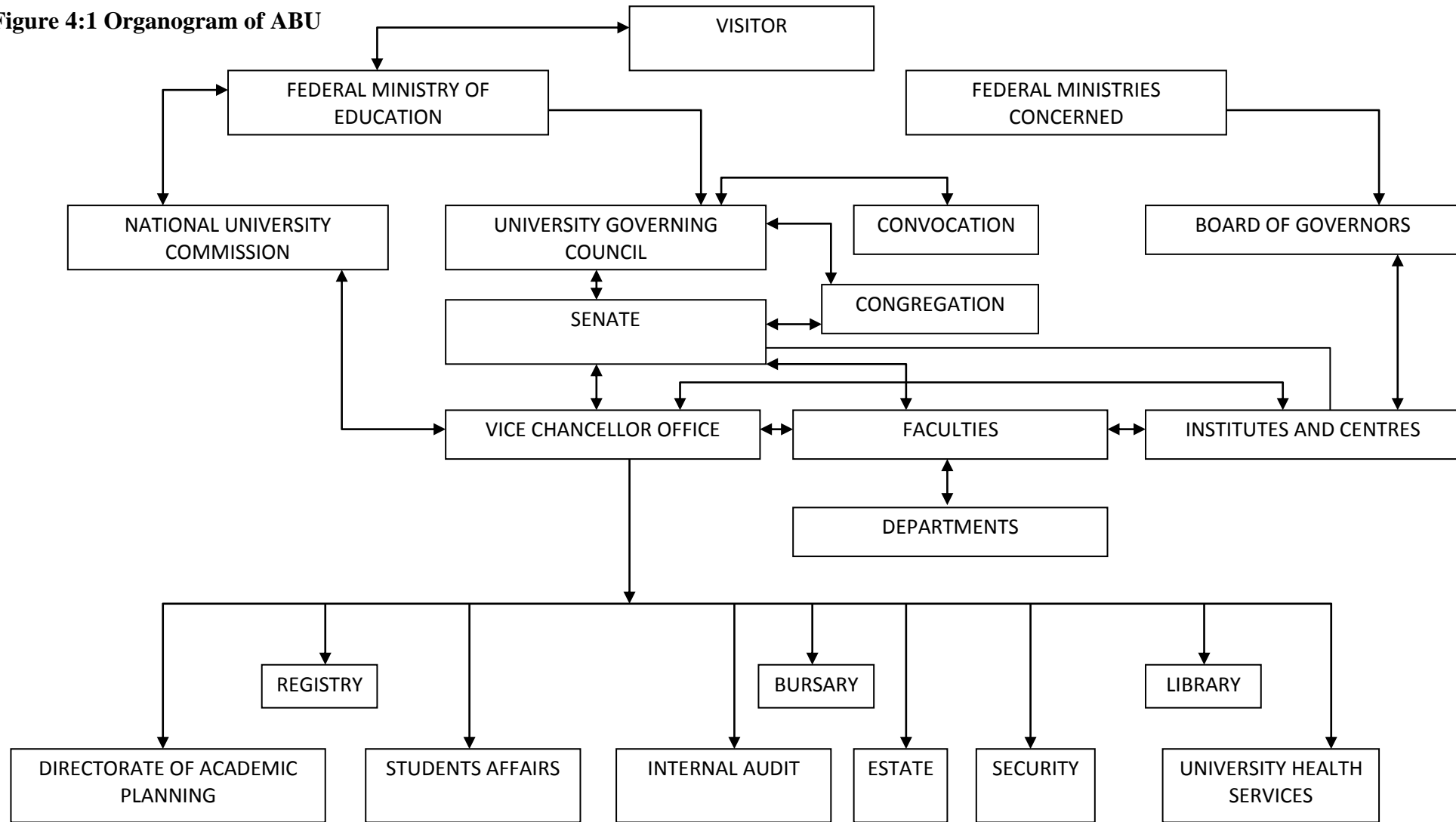
4.5 Administration and Organisation Structure of ABU

The Federal government of Nigeria governs Ahmadu Bello University through the Federal Ministry of Education and through the National Universities Commission (NUC). The President of Nigeria serves as the visitor to the University. There is a Chancellor who is the ceremonial Head of the University. The governing structure has two major levels of strategic policy formulation and management: the Council and the Senate. The Principal Officers of the University Management team include: the Vice Chancellor; Deputy Vice Chancellor Administration; Deputy Vice Chancellor Academic; the Registrar; the Bursar and the University Librarian (ABU, 2011a).

The Governing Council manages all matters of the University, not otherwise provided for or under the University Law. The Senate is empowered to manage the Academic Affairs of the University, under which there are Boards of Faculty, a Postgraduate School Board, Board of Governors as well as Professional Academic Boards of Institutes and Centres which administer their respective academic and administrative issues (SAD, 2012:8). Therefore, the strategic component units of ABU are the twelve

Academic Faculties, ninety five Academic Departments, Postgraduate School, six Institutes, six specialized Centres and a Division of Agricultural Colleges. The University's Extension and Consultancy Services also form the component units. The organisational chart of the University is as follows:

Figure 4:1 Organogram of ABU



Source: Adapted from NUC (2014:4) Report of the Accreditation of Degree Programmes for B.S.c Public Administration, Ahmadu Bello University, Zaria.

4.6 The Institute of Computing and Information and Communication Technology (ICICT)

The ICICT is as a result of a merger in 2013 by the ABU Governing Council of the defunct Iya Abubakar Computer Centre established since 1976, and the Information and Communication Technology Directorate of the University (ABU, 2015). The Institute is “saddled with the responsibility of providing timely and qualitative computing and information technology services for the University” (ICICT, 2015). The ICICT works to enable ABU take position in the committee of best ICT-driven universities in Africa and the world at large.

4.6.1 Mission, Vision and Values of ICICT

The ICICT (2015) explicitly states its Mission, Vision and Values as follows:

Mission: To deploy state-of-the-art infrastructure and groom ICT-savvy personnel in various specialty areas to support teaching and learning, research and other services.

Vision: To be an ICT centre of excellence with modern computing facilities and manpower to support teaching, research and learning in the University and country at large.

Values: The ICICT has the following as its values:

1. Provision of robust, reliable and state-of-the-art ICT facilities.
2. Building a pool of highly qualified, trained, motivated and committed staff.
3. Creation of specialty groups and delineation of responsibilities among staff.
4. Creation of diverse linkages and global outreach.

4.6.2 Functions of the ICICT

The ICICT of ABU is mandated to carry out the following:-

1. Develop an expansive computing infrastructure that supports ICT services needs of the University.

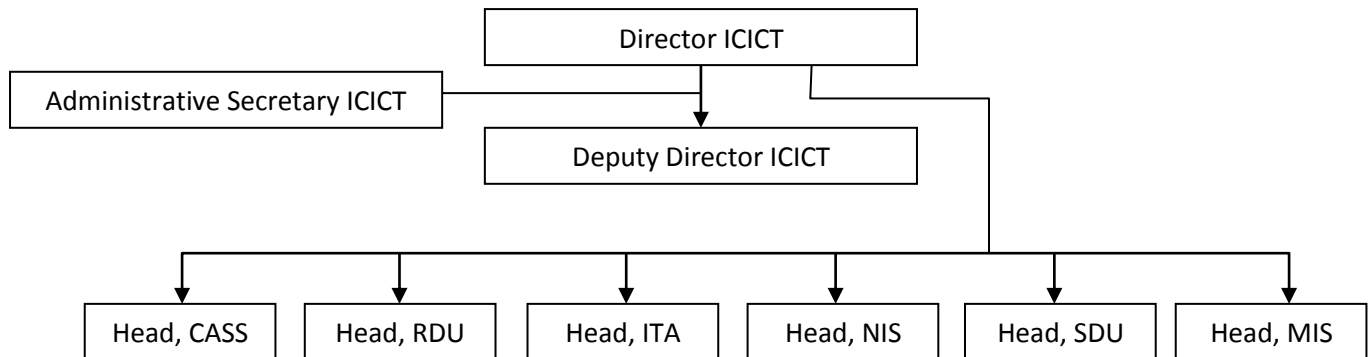
2. Develop ICT technical support for high quality teaching, learning, research and administrative activities.
3. Develop adequate and competent manpower required to provide quality support services.
4. Identify, develop and maintain software applications for efficient and effective execution of operational processes of the University.
5. Coordinate the acquisition, installation, maintenance and decommissioning of computing facilities in the University.
6. Establish and maintain rich web resources that ensure easy and wide access to the University.
7. Establish linkages, partnerships and collaborations with IT organisations and industry.
8. Improve the University's IGR through ICT
9. Assist in the teaching functions of the University.
10. Conduct applied research and promote commercialization of research results.
11. Provide training in ICT proficiency, professional certificate and other relevant courses at various levels.

4.6.3 Organisational Structure of ICICT and Functions of Units

Within the overall University hierarchy, the ICICT exists as one of the Institutes under the Senate and directly situated under the Vice Chancellor's Office. It is therefore one of the component units of University management. The ICICT has a Director as the Executive Head of the Institute and who is responsible to the Vice Chancellor. Apart from the Deputy Director of the Institute, there are Unit Heads who lead the six components of the Institute. These Units include: the Computing and Academic Support Services (CASS), Information Technology Academy (ITA), Management Information

Services (MIS), Networking and Infrastructural Services (NIS), Research and Development Unit (RDU), and Software Development Unit (SDU).

Figure 4.2 Organogram of ICICT



Source: Adapted from ICICT (2015)

4.6.3.1 Function of Computing and Academic Support Services (CASS)

The CASS of the ICICT performs the following functions:

- (a) Provide the expertise and advice on the selection and the acquisition of learning and information resources, materials and technical equipment;
- (b) Deliver, setup and collect ICT/audio visual equipment and resources for e-learning;
- (c) Manage and maintain learning and information resources, materials and technical equipment;
- (d) Conduct workshops on use and management of teaching and learning resources;
- (e) Manage University computer laboratories/digital centres;
- (f) Provide user support for the above services (ICICT, 2015).

4.6.3.2 Functions of Networking and Infrastructural Services (NIS)

The designated functions of this Unit according to ICICT (2015) are:

- (a) Design, implement and maintain network and communication infrastructure to provide effective services to the University Community;

- (b) Maintaining ICT infrastructure/system uptime, ensure increased network utilization and optimal network performance as a matter of priority;
- (c) Estimating costs of network system hardware changes including competitive analysis of future requirements;
- (d) Providing operational support and management of networks;
- (e) Integrating voice, video and desktop services within networks;
- (f) Undertake installation and monitor basic maintenance of network equipment
- (g) Provide training and support for the internet/promoting awareness campaign;
- (h) Assist in personnel development and training;
- (i) Ensure reliable monitoring and reporting progress of network status;
- (j) Ensure that degradation in network service or fault is resolved as efficiently as possible;
- (k) Troubleshoot and resolve the problems existing in network equipments;
- (l) Ensure proper and up-to-date documentation of all network equipment and active devices on the network including but not limited to switches, servers, routers, wireless devices, network printing and scanning devices etc;
- (m) Maintain an inventory of all network devices;
- (n) Maintain power solutions at all network nodes including the access levels;
- (o) Provide data centre services as may be required;
- (p) Provide adequate network security that will guarantee the integrity of network services on the University network.

4.6.3.3 Functions of Software Development Unit (SDU)

As one of the components of the Institute of Computing and Information and Communication Technology (ICICT), the SDU has the mandates below:

- (a) Develop software applications and/or components for automation of processes and services in the University, including mobile applications;
- (b) Source, deploy, promote and manage use of open sources software;
- (c) Advice the University Management on acquisition of Commercial off-the-shelf (COTS) software;
- (d) Provide technical supports for the use and management of software systems in the University;
- (e) Provide system administration services for the computing facilities in the University;
- (f) Develop policies and guidelines for use and maintenance of official and personal websites;
- (g) Provide consultancy services in software development (ICICT, 2015).

4.6.3.4 Functions of Management Information System (MIS)

The MIS Unit of the ICICT is saddled with the following responsibilities:

- (a) Provide lead in planning and policy formulation for developing information systems that automate University operational processes;
- (b) Ensure the various information systems of the University have complete and up-to-date data at all times;
- (c) Ensure seamless data exchange among deployed information systems leading to creation of an enterprise data warehouse for the University;
- (d) Promote use of deployed information systems by administrators and other stakeholders at all levels;
- (e) Ensure data and report needs by University organs and other stakeholders are easily obtained from deployed information systems with minimum intervention from MIS staff;

- (f) Define and document data processing business rules as stipulated by University rules and as may be amended;
- (g) Design report formats as may be required by stakeholders;
- (h) Prepare ad-hoc reports as may be needed from time to time using some reporting tools such as Crystal Reports, MS Excel, etc. (ICICT 2015).

4.6.3.5 Functions of Information Technology Academy (ITA)

According to the ICICT (2015), the mandate of ITA is to *“provide teaching, training and capacity development, using a range of information and communication technology curricula/tools/resources and especially to help the youth in acquiring core skills for growth and self-sustenance”*.

4.6.3.6 Functions of Research and Development Unit (RDU)

This unit is made up of the Research Development and Policy Team; Research Linkages and Advancement Team, and Planning and Consultancy Team. However, generally the Unit is in charge of executing duties based on the functions of these teams.

4.7 State-of-the-art ICT Facilities in ABU

In an effort to catch up with and join other public organisations that imbibe the technology revolution, the Ahmadu Bello University has reasonably and strategically invested in the initial take-off and consequent consolidation of its information and communication technology (ICT) drive. It is interesting to note that, computerization in ABU started in 1976 with the creation of the Iya Abubakar Computer Centre and later also, the ICT Directorate. The Centre and the Directorate were merged in 2013 to form the extant Institute of Computing and Information and Communication Technology (ICICT). The ICICT now shoulders all ICT related operations of the University, including e-governance. The ICICT has six basic units that carry out diverse but

coordinated activities. The work of the Institute includes among others: software development, training, information management, networking and research (ABU, 2015; SAD, 2008). Currently, apart from the creation and existence of a University website (www.abu.edu.ng) and student portal (portal.abu.edu.ng), ABU deploys a 37km optic-fibre network on an intercampus 10GB scalable backbone with 65+ locations having a minimum of 2GB uplink connectivity. This network being the longest to be deployed by any university in Africa provides network reception to about 70% of on-campus environment. Also, there are now Digital Centres equipped with computers connected to the internet in each University Faculty, in addition to the HOTSPOT SERVICE for students and staff with personal computers for connectivity (SAD, 2012; and ICICT, 2015).

CHAPTER FIVE

PRESENTATION AND ANALYSIS OF DATA

5.1 Introduction

This chapter presents and analyses the data generated from both primary and secondary sources. The instruments of interview, questionnaire and observation were used to collect the primary data and; official publications and website resources of ABU and ICICT are some of the secondary sources utilized. The scores of respondents from the survey are analysed along the Likert measurement scale in the questionnaire. This is complemented by responses from interviews and observation as well as the data generated from secondary sources.

The chapter is divided into seven sections. Section one introduces the chapter and provides detail of questionnaire administration. The second section discusses the background information of respondents. Sections three, four and five provide detail analysis of the data relating to ICT infrastructure and effectiveness of ABU; student ICT utilization and effectiveness of ABU; and quality of ICICT staff and effectiveness of ABU respectively. These are the three hypotheses formulated in chapter one. The sixth section discusses the tests of hypotheses and their interpretation and; the last section captures the summary of major findings arrived at in the course of the research.

5.1.1 Rate of Questionnaire Returns

A total of 480 questionnaires were administered to the two category of respondents based on the sample size of each category. The staff category has 103 respondents and the student category has 377 questionnaires. However, out of the 103 and 377 questionnaires administered to the staff and students respectively, only 79 and 333 units of questionnaire were duly completed and returned. The table below presents the details:

Table 5.1 Computation of Questionnaire Rate of Returns

Population Category	Sub-Category	Questionnaire Administered	Questionnaire Filled & Returned	Percentage (%) of Return
Staff	ICICT	55	48	87.27
	SAD	48	31	64.58
	Sub-Total	103	79	76.69
Students	Science	161	141	87.57
	Education	132	119	90.15
	Administration	84	72	85.71
	Sub-Total	377	333	88.32
	Grand Total	480	412	85.83

Source: Survey Research, 2015.

From the staff category, out of the 55 questionnaires administered to the ICICT, 48 units representing 87.27% were duly completed and returned. Also, from the 48 questionnaires administered to the SAD sub-category, 31 units representing 64.58% were duly completed and returned. Therefore, the ICICT sub-category with 87.27% has the highest questionnaire returns from the staff category. This is attributable to the constant follow-up to the respective Units of the ICICT by the researcher, as opposed to the SAD's staff individual follow-up. In the students category, out of the 161; 132; and 84 questionnaires administered the three faculties, only 142; 119; and 72 questionnaires were respectively filled and returned. On the whole however, from the total 480 questionnaires administered, some 412 units representing 85.83% were duly filled and returned. Therefore, our analysis is going to be based on these 412 (85.83%) questionnaires which are considered reasonable enough for generalization.

5.2 Background Information of Respondents

This section discusses some demographic characteristics of our respondents, such as age, gender, educational qualification and length of service. However, while age and gender relate to only the students; educational qualification relates to both students and staff; whereas length of service relates only to staff.

5.2.1 Gender of Respondents

In order to determine the sex formation of respondents, they were asked to indicate their gender. The responses are as presented in the table 5.2 below:

Table 5.2 Gender of Respondents

Gender	Frequency	Percentage
Male	239	71.8
Female	94	28.2
Total	333	100

Source: Survey Research, 2015.

Table 5.2 above shows that from the student category of our respondents, 239 of them representing 71.8% are male, while some 28.2% standing at 94 respondents are female. This indicates that although the majority respondents in this category are male, the female gender is fairly represented.

5.2.2 Student Level in the University

The student category of our respondents were asked to indicate their level within the University class structure. Their level without saying is a strong determinant of their familiarity with the e-governance in the universality. The higher their level in the University; the higher their utilisation of the e-governance platform. The table below shows the responses:

Table 5.3: Student Level in the University

Years	Frequency	Percentage
Year I	35	10.5
Year II	39	11.7
Year II	169	50.8
Year IV	82	24.6
Others	8	2.4
Total	333	100

Source: Survey Research, 2015.

The data in the table above shows that some 10.5% of the students respondents are in their first year, while 11.7% and 50.8% are in their second and third years respectively. Also, while 24.6% are in their final year, some 2.4% comprise a category different from the I-IV class structure. They may be spill over or postgraduate students. From the table above, we can infer that majority of our respondents are familiar with the usage of portal as they are in their third and fourth years.

5.2.3 Educational Qualification of Respondents

Our respondents were asked to state their highest educational qualification which is believed to translate to an enlightened response. Below are the responses gathered.

Table 5.4 Educational Qualification of Respondents

Qualification	Frequency	Percentage
Primary Certificate	0	0
WASC	272	66
NCE/OND/ND	33	8
First Degree/HND	79	19.2
Postgraduate	22	5.3
Others	6	1.5
Total	412	100

Source: Survey Research, 2015.

From table 5.4 above, no single respondent has primary certificate as a highest qualification. Also, 66% of our respondents have the WASC as their highest educational qualification. This being the highest, could be linked to the fact that majority respondents are undergraduate students who are just pursuing their first degree. However, some 8% and 19.2% possess either of NCE/OND/ND and first degree/HND respectively. Those with postgraduate qualification stand at 5.3% and some 1.5% possess different qualifications from those above. Thus, we can say that majority of our respondents have WASC and first degree/HND as their highest qualification.

5.2.4 Length of Service in the University

The staff length of service in the University is an important factor in their knowledge of the trends of e-governance in ABU. The following are the responses:

Table 5.5 Classification of Respondents Length of Service

Length of Service	Frequency	Percentage
Less than one year	9	11.4
1-10 years	49	62
11-20 years	14	17.7
21-30 years	5	6.3
31 years and above	2	2.5
Total	79	100

Source: Survey Research, 2015.

Table 5.5 above indicates that 9 staff with a percentage of 11.4 have less than a year in the service of the University. Also, 62% and 17.7% have between 1-10 years and 11-20 years. Further, while 6.3% of the staff respondents have between 21-30 years, some

2.5% have at least 31 years in the services of ABU. This shows that majority of staff respondents (62%) have between 1-10 years in the university.

5.3 ICT Infrastructure and Students' Management in ABU

The Information and Communication Technology (ICT) infrastructure is the most fundamental indicator of e-governance. The ICT and its infrastructure serve as the engine that make e-governance possible. In fact, it has been established that without this technological infrastructure, we cannot talk about governance being electronic. Therefore, the quality or otherwise of the ICT infrastructure is a strong determinant of an effective e-governance vis-à-vis the students' management in of ABU. In relation to this, various issues were raised and data generated to establish the impact of ICT infrastructure on effective e-governance and student management of ABU. The sub-sections below have details.

5.3.1 Level of Computerization of Services in ABU

Before the need for internet connections and automation, computerization comes to the fore. In this regard, respondents were asked to indicate their opinion on the level of computerization in ABU. The responses obtained are tabulated below:

Table 5.6; Level of Computerization of Services in ABU

Responses	Frequency	Percentage
Very High	70	17
High	240	58.3
Undecided	12	2.9
Low	70	17
Very low	20	4.9
Total	412	100

Source: Survey Research, 2015.

From table 5.6 above we can see that 70 respondents representing 17% opined that computerization is very high in ABU, just as a similar number of respondents indicate that it is low. Also, while as high as 240 respondents opine that computerization is high, some 20 respondents argue that it is very low. However, 12 respondents standing at 2.9% are undecided on this. This shows that the level of computerization is high in ABU considering the votes above. Further, ABU (2015) confirms this as its record shows that computerization in the University has a long history dating back to 1976. However, while our interview respondents agree to this, they note that the process is marred with resistance and apathy. Thus, the computers are not used to the fullest capacity.

5.3.2 Functionality of Student Portal in ABU

The student portal provides the interface for interaction between the university and its students. Its functionality or otherwise being an infrastructure will go a long way in shaping the e-governance of the University. We sought to determine this by eliciting responses on it from our respondents. Below is the detail of their responses.

Table 5.7 Functionality of Student Portal

Responses	Frequency	Percentage
Very functional	100	24.2
Functional	252	61.2
Undecided	50	12.1
Dysfunctional	10	2.4
Very dysfunctional	0	0
Total	412	100

Source: Survey Research, 2015.

Data in table 5.6 above shows that 24.2% and 61.2% of respondents believe that the portal is very functional and functional respectively. Some 12.1% of respondents are undecided on the functionality of the portal. Also, dysfunctional and very dysfunctional responses stand at 2.4% and 0% which are low compared to the others. Therefore, we can say that the student portal is functional as a pre-requisite for e-governance in the University. Confirming this, our observation shows that the portal accommodates all multi-level students: sub-degree; undergraduate and postgraduate students.

5.3.3 Level of Complexity of Student Portal

Respondents were asked to rate the complexity of the portal in terms of user friendliness. Its level of complexity of course impacts on its level of usage and consequent effectiveness. Below are the responses:

Table 5.8: Level of Complexity of Student Portal

Responses	Frequency	Percentage
Very Complex	20	4.9
Complex	110	26.7
Undecided	70	17
Simple	180	43.7
Very Simple	32	7.7
Total	412	100

Source: Survey Research, 2015.

Table 5.7 above shows that 20 respondents opine that the portal is very complex and another 110 standing at 26.7% agree to the complexity of the portal. Also, 43.7% of respondents view the portal to be simple and 7.7% others see it as very simple. However, some 70 respondents standing at 17% are undecided on the issue. Therefore,

although a significant percentage of respondents (26.7%) agree the portal to be complex, we can still say that the University portal is not complex as a much higher percentage of respondents (43.7%) confirmed this. Further, our results of observation indicate that the portal provides for easy navigations within it from one link to another.

5.3.4 Provision of Adequate and Up-to-Date Information by the Portal

Navigations for course registration and accommodation are opened only for some time, after which they remain closed. Information regarding the opening of portal for course registration, accommodation and add/drop of courses is made available by the University through the MIS Unit at the portal. Thus, the adequacy and currency of information provided in the portal is a strong determinant of its utilization. Respondents were asked to respond in this regard, the following are the responses generated.

Table 5.9: Provision of Adequate and Up-to-date Information by the Portal

Responses	Frequency	Percentage
Strongly Agree	2	0.5
Agree	100	24.3
Undecided	50	12.1
Disagree	170	41.3
Strongly Disagree	90	21.8
Total	412	100

Source: Survey Research, 2015.

Responses in table 5.8 above show that 21.8% and 41.3% respondents strongly disagree and disagree respectively that, the student portal provides the needed and timely information. Also, while 24.3% of respondents agree, 0.5% respondents strongly disagree. However, some 50 respondents standing at 12.1% are undecided on the issue. Following the above, it could be said that the student portal does not provide adequate

and up-to-date information to stakeholders. This appears to be in conflict with the elements of our model of analysis. According to the first phase of the e-governance Maturity Model (eMM), for a public sector organisation’s website/portal to be effective, it has to be seen to provide information regarding the variety and availability of services in it.

5.3.5 Level of Language Simplicity in the Portal

The user’s ability to decode the language contained in a software (website/portal) will go a long way in translating to ease of navigation and general usage. This language coded in a website/portal could be simple or complex. It is along this line that respondents were asked to rate the level of language simplicity in the portal. Below are the responses:

Table 5.10: Level of Language Simplicity in the Portal

Responses	Frequency	Percentage
Very High	98	23.8
High	140	34
Undecided	52	12.6
Low	100	24.3
Very low	22	5.3
Total	412	100

Source: Survey Research, 2015.

Out of the total number of respondents, 98 of them opined that the level of language simplicity in the portal is very high and 140 of them believe that it is high. Also, while 52 respondents are undecided, 100 others argue that the language simplicity is low. And 22 respondents believe it is very low. On the whole, it can be inferred that the student

portal of the University contains a simple language that is easy to decode and act upon. This is the stand of 57.8% of our respondents as contained in table 5.10 above.

5.3.6 Security of Transactions in the Portal

The MIS Unit staff of the ICICT are the advanced operators of the student portal and so, they decide the activities and transactions that occur on it. Also, they limit access to the portal to some individuals and within the framework provided by the University. For instance, accommodation reservation and add/drop are regulated by the MIS Unit. Further, payments made by students in respect of registration and accommodation are activated in the portal. Within this purview, we sought to find out if there are breaches against the work of the MIS Unit. The responses generated are tabulated below:

Table 5.11: Security of Transactions in the Portal

Responses	Frequency	Percentage
Very Secured	88	21.4
Secured	198	48.1
Undecided	22	5.3
Unsecured	64	15.5
Very Unsecured	40	9.7
Total	412	100

Source: Survey Research, 2015.

Data in table 5.10 above shows that 88 respondents standing at 21.4% and 198 others with 48.1% opined that transaction in the portal are very secured and secured respectively. Those who believe the portal is unsecured are 15.5% and some 9.7% view it to be very unsecured. However, 5.3% of respondents are undecided. Based on this, we can say that transactions in the portal are secured. However, this does not mean that

there is total absence of breach. Indeed, our interview respondents observed breaches do occur, only that they are very minimal. Also, results from observation have it that such breach occurred recently during the 2014/2015 session when the postgraduate accommodation process was hacked.

5.3.7 Adequacy of Funds for the Procurement of Technological Facilities

We sought to find out the adequacy or otherwise of funds necessary for the procurement of technological facilities. These facilities, it goes without saying, are what determine the effectiveness of e-governance. Responses generated exclusively from staff respondents are as below.

Table 5.12: Adequacy of Funds for Procurement of Facilities

Responses	Frequency	Percentage
Strongly Agree	2	2.5
Agree	10	12.7
Undecided	17	21.5
Disagree	43	54.4
Strongly Disagree	7	8.9
Total	79	100

Source: Survey Research, 2015.

It can be seen from table 5.11 above, 2.5% of respondents and 12.7% strongly agree and agree respectively that there is adequacy of funds for procurement of ICT facilities. While 54.8% of the staff respondents disagree that the University has adequate funds for the purchase of facilities, 8.9% strongly disagree. Considering these responses, it could be said that ABU does not have adequate funds for procurement of needed ICT facilities. Our interviewees further confirmed this, according to them, although the University has done well in terms of some facilities, there is still need for many others.

5.4 Students' ICT Utilization and Students' Management in ABU

The nature, character and level of ICT utilization by students, needless to emphasize, is a strong determinant of the effectiveness of e-governance in ABU. The students are deliberately selected in this regard not because they are the only e-governance stakeholders but, because they constitute the majority. Some indicators of this ICT utilization raised include: ICT literacy, accessibility of internet, quality of network reception, speed of transactions and economy of utilization among others. The aim is to establish the impact of student ICT utilization on effectiveness of ABU. The subsections below present and discuss the responses.

5.4.1 Student ICT Compliance

The student portal being one of the e-governance platforms in ABU require a student to be computer literate before he/she can access and benefit from services available in it. Thus, respondents were asked if students are ICT compliant. The generated responses are as tabled below:

Table 5.13 Student ICT Compliance

Responses	Frequency	Percentage
Strongly Agree	130	31.6
Agree	172	41.7
Undecided	50	12.1
Disagree	60	14.6
Strongly Disagree	0	0
Total	412	100

Source: Survey Research, 2015.

According to table 5.13 above, majority of respondents totalling 302 and representing 73.3% are of the opinion that majority of students are ICT compliant. This therefore

indicates that students do possess computer literacy for e-governance. However, 60 respondents representing 14.6% have a divergent view, and 50 respondents (12.1%) are indecisive. Our interview respondent from the NIS of ICICT confirms that, they have close to 30,000 student users of the university hotspots (wifi). This of course further indicates that a good number of students are ICT compliant.

5.4.2 Adequacy of student ICT Skill

After establishing above that majority of students are ICT compliant, the aim here is to ascertain the adequacy of such compliance. This is because, it is one thing to have the ICT skill and it is another thing for it to be adequate. The table below contains the data generated on the adequacy of student ICT skill.

Table 5.1.4 Adequacy of Student ICT Skill

Responses	Frequency	Percentage
Very adequate	70	17
Adequate	250	60.7
Undecided	40	9.7
Inadequate	50	12.1
Very inadequate	2	0.5
Total	412	100

Source: Survey Research, 2015.

From table 5.3 above, while 17% of respondents believe that the ICT skills of students are very adequate, 60.7% believe that it is adequate. This is significant enough to say that the ICT skill of students is adequate for the utilization of e-governance facilities of ABU. Also, 12.1% and 0.5% of respondents digress from the above to say that it is inadequate and very inadequate respectively. However, respondents that are undecided

stand at 9.7%. In spite of the above responses, our interviewees (68%) argue that the ICT skill of students is poor due to constant complaints that are resolved through mails, phone calls and visit to the MIS units.

5.4.3 Accessibility of Internet Facilities to Students.

Because e-governance occurs through an on online platform, students need internet access to utilize those services that are electronic in nature. The student registration and accommodation which this study emphasizes on have been electronic in ABU for close to a decade now. Thus, respondents were asked to indicate whether or not, students have accessible internet facilities. Below are their responses.

Table 5.15 Accessibility of Internet Facilities

Responses	Frequency	Percentage
Very accessible	40	9.7
Accessible	191	46.4
Undecided	41	10
Inaccessible	120	29
Very inaccessible	20	4.9
Total	412	100

Source: Survey Research, 2015.

While 41 (10%) of our respondents are undecided on the nature of network accessibility, 140 (33.9%) of respondents opined that internet facilities are inaccessible. Contrastingly, 56.1% share a different view. According to them, internet facilities are of course available to students. Our interview respondents follow suit, saying that there is 70% of on-campus internet accessibility. This is not surprising as the University has a Local Area Network (LAN), which transmits internet connectivity signal to the

University Community. ABU deploys a 37km long optic fibre cable backbone, which links the major campuses: Samaru, Kongo and Shika on an inter-campus 10GB scalable backbone (SAD, 2008:24; ICICT, 2015).

5.4.4 Quality of Internet Access Available to Students

It is not enough for the students to only have the internet access, but there is need for it to be qualitative enough for proper communication. Indeed, a poor network reception is also inefficient and thus makes interactions boring. On the other hand, an excellent reception implies proper utilization and by extension effective e-governance. Responds were asked to rate the quality of network available to them.

Table 5.16 Quality of Internet Access Available to Students

Responses	Frequency	Percentage
Excellent	11	2.7
Very Good	30	7.3
Undecided	69	16.7
Good	92	22.3
Poor	210	51
Total	412	100

Source: Survey Research, 2015.

Data from the table 5.16 above shows that 11 (2.7%) respondents opined that the network quality is excellent and 30 (7.3%) others rate it to be very good. Also, while 22.3% respondents vote that the network is good, 51% indicate that it is poor. Some 16.7% are however undecided on the matter. Thus, since majority of respondents (51%) rate it to be poor, we can say the network reception available to students is not qualitative enough to utilize the University's e-governance services. This position is

supported by our interview respondents who attribute this to inadequate network bandwidth in the University. This appears to be a digression from our model of analysis. According to the second phase of the eMM, which is interaction, activities are carried out online without having to visit the institution's counter. Simply put therefore, unless there is qualitative network reception, e-governance cannot at least be effective, or worst still cease to exist.

5.4.5 Confidence in Transactions with the Portal

The nature of confidence students have on portal transactions in terms of functionality, reliability and security is equally a good determinant of e-governance. Responses on the level of confidence the students repose in the portal are as follows:

Table 5.17: Responses on Confidence in Portal Transactions

Responses	Frequency	Percentage
Strongly Agree	160	38.8
Agree	200	48.5
Undecided	2	0.6
Disagree	50	12.1
Strongly Disagree	0	0
Total	412	100

Source: Survey Research, 2015.

Based on the data in table 5.17, students are confident on the transactions they conduct on the University portal. As has been established elsewhere in this work, cases of hacking and breaching into secured data, which could affect the level of student confidence, are very minimal. 38.8% and 48.5% of respondents strongly agree and agree respectively that students have confidence on electronic transactions. Also, while only 12.1% of respondents share a divergent opinion, 0.6% are indecisive.

5.4.6 Speed of Transactions in the Portal

One of the benefits of e-governance is its reduction of unwanted bureaucratic delays and its total elimination. Consequently, e-governance makes transactions quicker than they were. In this regard, our respondents indicated the nature of speed in transactions in the portal. The table below contains the responses.

Table 5.18 Speed of Transactions in the Portal

Responses	Frequency	Percentage
Very Fast	12	2.9
Fast	60	14.6
Undecided	60	14.6
Slow	240	58.3
Very Slow	40	9.7
Total	412	100

Source: Survey Research, 2015.

As it is visible in table 5.18 above, 12 respondents standing at 2.9% and 60 respondents representing 14.6% voted that transactions in the portal are very fast and also fast respectively. Those who are undecided stood at 14.6% and 240 respondents (58.3%) are of the believe that transactions are generally slow. While 9.7% of respondents argue that transactions are very slow. Explaining this, our interview respondents from the ICICT attribute the sluggish response to inadequate bandwidth. This is when the students are using the University LAN. However, when students are using their personal internet service providers, the hitch may be due to a poor signal. All the same, considering the above responses, we can say that transactions via the portal are slow and thus not encouraging.

5.4.7 Economy in Transactions via the Portal

It is a fact that e-governance is associated with economy in terms of time, energy and resources. When this is defeated, we cannot be talking about an efficient e-governance. We sought to find out from our respondents on whether or not ICT makes transactions economical. The table below has the responses.

Table 5.19 Economy in Transactions

Responses	Frequency	Percentage
Strongly Agree	60	14.6
Agree	220	53.4
Undecided	10	2.4
Disagree	120	29.1
Strongly Disagree	2	0.5
Total	412	100

Source: Survey Research, 2015.

Based on table 5.19 above, we can infer that transactions via the portal are economical as 68% of respondents attested to. 29.6% of respondents hold a divergent view and some 2.4% are undecisive on the matter. Our interview respondents while commenting on this point that e-governance in ABU is cost-effective. Instead of students being in line during registration and accommodation, they are now on-line. They do not have to observe the official working hours to secure services as they can do so at the comfort of their rooms. This is equally in line with Phase II of the eMM.

5.5 Quality ICICT Staff and Students' Management in ABU

Although there is less human intervention in e-governance, human resources are still relevant for effective results. Recognizing this, the ICICT staffed all its major Units

with diverse but relevant brains. Software engineers and network administrators are some of these. It is along this line that we formulated a hypothesis to explore the impact of quality of ICICT staff as an indicator of e-governance on the effectiveness of ABU. Issues such as adequacy; needed ICT skill; regularity of training and availability of working facilities were raised. The sub-sections below explain these further.

5.5.1 Adequacy of ICT Staff.

The ICICT has six Units that discharge different but coordinated responsibilities towards delivering the mandate of the Institute. In this subsection, the aim is to ascertain the adequacy of staff in the entire Institute. Our staff respondents were asked on whether or not they agree that they have adequate staff. The following table contain the responses.

Table 5.20; Adequacy of ICICT Staff

Responses	Frequency	Percentage
Strongly Agree	0	0
Agree	10	12.7
Undecided	0	0
Disagree	41	51.9
Strongly Disagree	28	35.4
Total	79	100

Source: Survey Research, 2015.

From table 5.20 above, we can see that 10 respondents (12.7%) agree that there are adequate staff in the ICICT and 28 others standing at 35.4% strongly disagree. As high as 51.9% chose to disagree which signifies that there is shortage of staff in the ICICT. The responses on strongly agree and undecided both have 0% votes.

Table 5.21; Distribution of ICICT Staff into Units

Units of the ICICT	Number of Staff Required	Number of Staff Available
CASS	40	23
MIS	6	6
NIS	25	14
SDU	20	11
ITA	20	12
RDU	15	9
Total	126	75

Source: Researchers Computation from the records of ICICT (2015).

Table 5.21 above shows that out of the six Units in the ICICT, only one has the required number of workers needed for its operation. The remaining five however have shortage of workers. An Institute that ought to be staffed with at least 126 workers is left at the mercy of only 75 workers. This will of course be a minus on the quality of the available staff.

Owing to these submissions, we will be right to infer that the institute which shoulders e-governance in ABU is bedevilled with shortage of manpower. This, needless to say, will impact negatively on the effectiveness of the Institute. The responses from our interview respondents are no different from this fact. 75% of them complained of inadequate staff to man the affairs of the ICICT.

The eMM which is our model of analysis has it as a condition that, before Phases III and IV could begin, the first 2 phases (Information and interaction) would have to be sustained. It needs to be pointed out here that, the sustainability of these phases is largely a function of adequate and skilled staff. Consequently, it is obvious that the ICICT does not fulfil this condition which invariably is a minus on effective e-governance in ABU.

5.5.2 Needed Skill of ICICT Staff

Closely related to the availability of staff is the personal skill of ICICT staff. The aim is to examine whether or not the available staff in ICICT do possess the needed skill to discharge their duty. Below are the responses generated in this regard.

Table 5.22; Needed Skill of ICT Staff

Responses	Frequency	Percentage
Strongly Agree	100	24.3
Agree	192	46.6
Undecided	80	19.4
Disagree	30	7.3
Strongly Disagree	10	2.4
Total	412	100

Source: Survey Research, 2015.

Data in table 5.22 above shows that 292 respondents representing 70.9% are of the opinion that indeed the ICICT staff have the necessary skill to deliver on their mandate. This stand is of course stronger than that of 9.7% of respondents who have a divergent view. However, 19.4% of respondents are indecisive. Therefore, although the institute has shortage of staff, we can say that the available ones do have the relevant skills for

the job. However, our interview respondents caution that this skill is only on the average.

5.5.3 Regular Training of ICICT Staff

It is no gainsaying that the ICT sector is fast developing and as such professionals need constant update on the trends in the sector. Thus, we asked our staff respondents to comment on the regularity or otherwise of training in the ICICT. Their responses are as tabled below;

Table 5.23: Regular Training of ICICT Staff

Responses	Frequency	Percentage
Very Regularly	0	0
Regularly	9	11.4
Undecided	7	8.9
Irregularly	46	58.2
Very Irregularly	17	21.5
Total	79	100

Source: Survey Research, 2015.

Table 5.23 above shows that while 11.4% of respondents voted that training in ICICT is regularly conducted, 8.9% are undecided. Also, 58.2% and 21.% opined that the training irregular and very irregular. The above responses establish that the ICICT staff are irregularly trained and thus they risk being out of touch with latest trends in the ICT sector. This fact is supported by our interview respondents who lament on their need for regular training. When asked to state the problems of e-governance in the open-ended section of our questionnaire, 82.7% of staff cited irregular training as part of them.

5.5.4 Availability of ICT Facilities to Staff

The strongest requirement of ICT apart from having the skill is the availability of facilities to match aptitude with action. In short, the need for ICT facilities in e-governance is more of necessity than luxury. Our respondents were asked to indicate their level of agreement on the availability of these facilities. The details are as contained in the table below;

Table 5.24 Availability of ICT facilities to Staff

Responses	Frequency	Percentage
Strongly Agree	120	29.1
Agree	170	41.3
Undecided	70	17
Disagree	50	12.1
Strongly Disagree	2	0.5
Total	412	100

Source: Survey Research, 2015.

From the table above, while 70.4% of respondents are of the opinion that the ICICT staff have the needed facilities for their job, only 12.6% have a divergent view. Those that are undecided stand at 17%. Inferentially, it could be said that the e-governance staff of ABU do not have shortage of working facilities. Our interview, observation and secondary data all support this conclusion. In fact, our interview respondents stated that there is currently a non-utilization of some facilities. For instance, because of lackadaisical attitude, some strategic components of the University administration have failed to utilize the servers available for them with the ICICT. At this juncture, it would be good to point that the fibre optic cable deployed by ABU is the longest of such network (37km) by any university in Africa (SAD, 2008:24).

5.6 Test of Hypotheses

Following the presentation and analyses of data, this section attempts to test and interpret the results of the three hypotheses that guide the study. As stated in our methodology, a Linear Regression using the SPSS version 20.0 is used in testing the hypotheses. However, using one tail test, only the null hypotheses (Ho) were tested. In this case, once the Ho is accepted, the alternate (H₁) is rejected and vice versa.

5.6.1 Test of Hypothesis One

The first hypothesis states that: “the quality of ICT infrastructure does not significantly affect the effectiveness of e-governance on student management in ABU”. The independent variable here is `quality of ICT infrastructure` while the dependent variable is `students’ management`. We therefore want to assess the impact of the independent variable on the dependent variable.

For this to be done, responses from respondents in table 5.6; for independent variable (quality of ICT infrastructure), and table 5.9; for dependent variable (students’ management) were coded in the computer using SPSS package to produce the output presented in tables 5.25, and 5.26 below:

Table 5. 25: Linear Regression Result (Model Summary) between quality of ICT infrastructure and students’ management in ABU

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.	Durbin-Watson
1	.798 ^a	.636	.635	.62439	717.243	.000 ^b	.189

a. Predictors: (Constant): Quality of ICT Infrastructure (Independent Variable)

b. Dependent Variable: Students’ management (Dependent Variable)

Source: SPSS Version 20.0 output, (2015).

The result in table 5.25 above shows that the quality of ICT infrastructure accounts for or explains about 63.5% (adj. r = 0.635) of the effectiveness of e-governance on students’ management in ABU. The implication is that, the remaining 36.5% of the

effectiveness of e-governance on students' management in ABU can be explained by other factors outside the model. It also shows a strong relationship between the quality of ICT infrastructure and effectiveness of e-governance on students' management in ABU ($r^2 = 0.636$). The $F = 717.243$ indicates the fitness of the model while Durbin-Watson statistics is 0.189 indicating absence of serial auto-correlation.

Table 5.26: Linear Regression Result (Coefficients^a) between quality of ICT infrastructure and students' management in ABU Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.780	.113		6.898	.000	.558	1.002
	Quality of ICT Infrastructure (Independent Variable)	.742	.028	.798	26.781	.000	.688	.797

a. Dependent Variable: Students' management in ABU (Dependent Variable)

Source: SPSS Version 20.0 output, (2015).

Table 5.26 above shows the overall result of the tested hypothesis. The model contributes about 63.5% of the quality of ICT infrastructure to the effectiveness of e-governance on students' management in ABU. The hypothesis which states that the quality of ICT infrastructure does not significantly affect the effectiveness of e-governance on students' management in ABU is significant at 1% level ($P = 0.000$) with a positive relationship ($Beta = 0.798$) which shows that the P value is less than the level of significance. The study therefore rejects the null hypothesis and accepts the alternate that, the quality of ICT infrastructure does affect the effectiveness of e-governance on students' management in ABU. This further proved that there is a significant relationship between 'quality of ICT infrastructure' as the independent variable and 'Student management in ABU' as the dependent variable. That is, the higher the quality

of ICT infrastructure, the higher the effectiveness of e-governance on student management in ABU.

5.6.2 Test of Hypothesis Two

The second hypothesis states that: “the level of student ICT utilization does not significantly affect the effectiveness of e-governance on students’ management in ABU”. The independent variable is ‘students’ ICT utilization’ while the dependent variable is the ‘students’ management in ABU’. The study aims to assess the impact of the independent variable on the dependent variable.

For this purpose, responses in table 5.13; for independent variable (students’ ICT utilization), and table 5.16; for dependent variable (students’ management in ABU) were coded in the computer using SPSS package to produce the output presented in table 5.27, and 5.28 below:

Table 5.27: Linear Regression Result (Model Summary) between student ICT utilization and students’ management in ABU

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.	Durbin-Watson
1	.770 ^a	.593	.592	.44195	596.295	.000 ^b	.161

a. Predictors: (Constant), Students’ ICT Utilization (Independent Variable)

b. Dependent Variable: Students’ management in ABU (Dependent Variable)

Source: SPSS Version 20.0 output, (2015).

The result in table 5.27 above indicates that student ICT utilization can account for or explain about 59.2% (adj. $r = 0.592$) of the effectiveness of e-governance on students’ management in ABU. The implication is that, the remaining 40.8% of the effectiveness of e-governance on students’ management in ABU can be explained by other factors outside the model. It also shows a strong relationship between the students’ ICT utilization and effectiveness of e-governance on students’ management in ABU ($r^2 =$

0.593). The $F = 596.295$ indicates the fitness of the model while Durbin-Watson statistics is 0.161 indicating absence of serial auto-correlation.

Table 5. 28: Linear Regression Result (Coefficients^a) between student ICT utilization and student management in ABU

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	2.807	.062		45.168	.000	2.685	2.929
1 Students' ICT Utilization (Independent Variable)	.388	.016	.770	24.419	.000	.357	.420

a. Dependent Variable: Students' management in ABU (Dependent Variable)

Source: SPSS Version 20.0 output, (2015).

Table 5.28 above shows the overall result of the tested hypothesis. The model contributes about 59.2% of the students' ICT utilization to the effectiveness of e-governance on students' management in ABU. The hypothesis which states that the level of students' ICT utilization does not significantly affect the effectiveness of e-governance on students' management in ABU is significant at 1% level ($P = 0.000$) with a positive relationship ($Beta = 0.770$) which shows that the P value is less than the level of significance. The study therefore rejects the null hypothesis and accepts the alternate that, the level of students' ICT utilization does significantly affect the effectiveness of e-governance on students' management in ABU. This further proved that there is a significant relationship between `students' ICT utilization` as the independent variable and `students' management in ABU` as the dependent variable. That is, the higher the level of students' ICT utilization, the higher the effectiveness of e-governance on students' management in ABU.

5.6.3 Test of Hypothesis Three

The third hypothesis of the study states that: “the quality of ICICT-staff does not significantly affect the effectiveness of e-governance on student management in ABU”.

The independent variable is the ‘quality of ICICT-staff’ while the dependent variable is ‘students’ management in ABU’. For cross tabulation, the responses from respondents in table 5.21 for independent variable (quality of ICICT-staff), and table 5.23 for dependent variable (students’ management in ABU) were coded in the computer using SPSS package to produce the output presented in table 5.29 and 5.30 below:

Table 5. 29: Linear Regression Result (Model Summary) between quality of ICICT-staff and students’ management in ABU

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.	Durbin-Watson
1	.976 ^a	.952	.952	.31652	819.583	.000 ^b	.144

a. Predictors: (Constant): Quality ICICT Staff (Independent Variable)

b. Dependent Variable: Students’ management in ABU (Dependent Variable)

Source: SPSS Version 20.0 output, (2015).

The result in table 5.29 above shows that the quality of ICICT-staff can account for or explain about 95.2% (adj. $r = 0.952$) of the students’ management in ABU. The implication is that, the remaining 4.8% of the effectiveness of e-governance on students’ management in ABU can be explained by other factors outside the model. It also shows a strong relationship between the quality of ICICT-staff and effectiveness of e-governance on students’ management in ABU ($r^2 = 0.952$). The $F = 819.583$ indicates the fitness of the model while Durbin-Watson statistics 0.144 indicates absence of serial auto-correlation.

Table 5. 30: Linear Regression Result (Coefficients^a) between quality of ICICT-staff and students' management in ABU

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	.089	.041		2.152	.032	.008	.169
1 Quality ICICT Staff (Independent Variable)	.987	.011	.976	90.552	.000	.966	1.009

a. Dependent Variable: Students' management in ABU (Dependent Variable)

Source: SPSS Version 20.0 output (2015).

The table above shows the overall result of the tested hypothesis. The model contributes about 95.2% of the quality of ICICT-staff to the effectiveness of e-governance on students' management in ABU. The null hypothesis which states that the quality of ICICT-staff does not significantly affect the effectiveness of e-governance on students' management in ABU is significant at 1% level ($P = 0.000$) with a positive relationship ($Beta = 0.976$) which shows that the P value is less than the level of significance. The study therefore rejects the null hypothesis and accepts the alternate that, the quality of ICICT-staff does significantly affect the effectiveness of e-governance on students' management in ABU. This further proved that there is a significant relationship between ` quality of ICICT-staff ` as the independent variable and ` students' management in ABU ` as the dependent variable. That is, the higher the quality of ICICT-staff the higher the effectiveness of e-governance on students' management in ABU.

5.8 Major Findings of the Study

Based on the data presented, analysed and the result thereof, the study arrived at the following findings:

- i. The ICT infrastructure available in the University is not qualitative enough for effective e-governance of student management in ABU. Apathy to computerization of student management; failure to provide sufficient information on portal services and inadequate funds for procurement and maintenance of facilities have all contributed in this regard.
- ii. The study also found the level of student ICT utilization to be low. This has affected the effectiveness of e-governance on student management in the University. This is particularly occasioned by poor internet access available to students, slow nature of transactions due to poor server response and poor student orientation on portal usage.
- iii. Apart from inadequate staff in the ICICT, staff training is found to be irregular and available working facilities are partly archaic. These resulted in low quality of ICICT staff and by extension, affect the effectiveness of e-governance on student management in ABU

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter captures the summary, conclusion and recommendations of the study. It is divided into four sections with the first section introducing the chapter. Sections two and three contain the summary of the work and the conclusions drawn from the tests of hypotheses. The recommendations of the study form the fourth section.

6.2 Summary

One of the goals of ABU is to be a renowned and celebrated academic institution through computerization, multi-media, communication and linkage programmes. For this reason and the revolution in ICT and its consequent adoption as the most fashionable and effective way of delivering services, the university converted student registration and accommodation to the electronic means during the 2006/2007 academic session. Among other things, the university in this regard established the ICICT and deployed 37km of fibre optic network which provide internet access to close to 70% of university environment. This study attempts to assess the impact of e-governance to the effectiveness of ABU in relation to student registration and accommodation between 2004 and 2014. It specifically ascertained the quality of ICT infrastructure and how it affected the effectiveness of ABU. It also determined the level of student ICT utilization and its effect on the effectiveness of ABU. Further, it ascertained the quality of ICICT staff and its effect on the effectiveness of ABU.

The study postulated three hypotheses which were stated only in the null form. They focused on examining the impact of ICT infrastructure; level of student ICT utilization; and quality of ICICT staff on the effectiveness of ABU. The study further stated in clear

terms its significance in bridging knowledge gap and also to the Management of ABU, students of ABU and researchers. In terms of scope, the study centered on e-governance of ABU in relations to student registration and accommodation in the period 2004-2014. The limitations of the study were the dearth of secondary data and the lack of empirical researches for review. The concepts of e-governance, effectiveness, ICT infrastructure, ICT utilization and ICICT staff were operationally defined for proper understanding of the work.

Current and related literature to the study was reviewed. Specifically areas covered include the concept and scope to e-governance. Others were the concepts of effectiveness, ICT infrastructure, ICT utilization and ICT staffing. The e-governance maturity model (eMM) as espoused by Gartner Group (2000) was adopted as our model of analysis. Also, earlier empirical researches were critically examined and reviewed.

The research design utilized by the student was survey research and thus, data were collected using questionnaire, interview and observation. A content analysis was however used to complement the survey. The study has two categories of population. The staff of ICICT and SAD whom were 141; and students of ABU from four faculties whom were 19,840. Using Krejcie and Morgan's (1970) table for sample determination, the sample size arrived at was 103 and 377 for the staff and students categories respectively. The simple random sampling technique was used by the study. Data was analysed qualitatively and quantitatively while hypotheses were tested using Linear Regression through the SPSS package.

The study also explored the historical and organizational structure of ABU. Specifically discussed is the brief history of ABU; values, vision and Mission of ABU; Philosophy,

Objectives and Goals of ABU as well as the structural organisation of the University. Other areas are the Mission, Values, Vision, Functions and Units of the ICICT.

Data generated from the survey was presented and analyses using frequency tables and simple percentages. Responses were also analysed alongside the secondary data. All the three null hypotheses formulated and tested were rejected and their alternative counterparts accepted. The study found that ICT infrastructure are not qualitative; student ICT utilization is low and ICICT staff are not qualitative enough for effective e-governance.

6.3 Conclusion

Following the presentation and analyses of data as well as tests of hypothesis, it is our conclusion that the ICT infrastructure needed for e-governance in ABU; was qualitatively low. The level of student utilization of ICT facilities was in ABU was also low. Equally low was the quality of ICICT staff in ABU. Therefore, over the study period e-governance on student management in ABU was not effective.

The first hypothesis tested indicated that the poor quality of ICT infrastructure affects the effectiveness of e-governance on student management in ABU. The conclusion on the second hypothesis is that the low level of student ICT utilization affects the effectiveness of e-governance on student management in ABU. Also on the third hypothesis, the study concludes that the poor quality of ICICT staff affect the effectiveness of e-governance on student management in ABU.

Regarding student registration, the much students can do in the portal after making payment is to register their courses and thereafter print the course form. It needs to be pointed out here that these forms have to be taken to authorities for manual endorsement

and documentation. This shows that e-governance in student registration stops at the second phase of our model of analysis. The issue of accommodation is not any different from registration. After reservation of bed space and making payment for same, students have to print the bed space allocation form and submit to the authorities for clearance and subsequent access to the room. We therefore conclude that based on our model, e-governance in ABU stops at the second phase.

Properly speaking, the low quality of ICT infrastructure; low level of student ICT utilization; and low quality of ICICT staff are the factors responsible for the failure of e-governance to effectively contribute to students' registration and accommodation.

6.4 Recommendations

Based on the findings and conclusion of the study, the following g recommendations are offered for improvement.

- i. The quality of ICT infrastructure should be improved by the University to meet the minimum standard for effective e-governance. In this regard, apathy to computerization of student management should be dealt with by giving computerization and ICT a legal backing. The MIS staff being the manning operators should be charged to provide timely, adequate, and regular information on the portal services. Also, procurement and maintenance of ICT facilities should be contracted in-house to the ICICT or outside Consultancy firms.
- ii. It is our recommendation that more network bandwidth should be procured, and existing ones upgraded and properly maintained by the Network Infrastructure and Security Service Unit of the ICICT in collaboration with the University. This will solve the problems of poor internet reception and server response.

Also, MIS Unit staff should be invited at the levels of the University, Faculty and Departmental Orientations to guide students on proper use of the portal.

- iii. On the low quality of ICICT staff, we recommend that the University should increase the staff strength of the Institute by engaging potential human resources from the ITA Unit, Computer Science Department and the Cisco Networking Academy. Further, the available staff should be engaged in off and on-the-job trainings from the variety of training services offered by the ICICT and the relevant Departments in the University.

A further study is recommended on the application of e-governance on examination management in Higher Institutions of Learning.

BIBLIOGRAPHY

A. TEXTBOOKS

- Emmanuel, Y. (2013) *Fundamentals of Research Methodology*. Kaduna: Sunjo A.J. Global Links Ltd.
- Kariuki, E. and Kiragu, K. (2011). "Modernizing Public Administration Through Electronic Government" in Adamolekun, L. (ed) *Public Administration in Africa: Main Issues and Selected Country Studies* (2nd Edition). Ibadan: Evans Brothers (Nigeria) Publishers Ltd pp.172-191.
- Kothari, C.R and Garg, G. (2014). *Research Methodology: Methods and Techniques* (3rd Edition). New Delhi: New Age International (P) Ltd.
- Ngu, S.M. (2009). *Research Methodology Made Simple for Social and Behavioural Sciences*. Zaria: Ahmadu Bello University Press Limited.

B. JOURNAL ARTICLES

- Adeyemo, A.B. (2011). E-Government implementation in Nigeria: an assessment of Nigeria's global e-government ranking". *Journal of Internet and Information System* Vol. 2 No. 1 pp.11-19.
- Dawes, S.S. (2008). The evolution and continuing challenges of e-governance: the quest for high performance. *Administration Review (Special Issue) of the Centre for Technology in Government, University of Albany*, pp.86-S102.
- Dwivedi, S.K. and Bharti, A.K. (2005) E-governance in India: problems and acceptability. *Journal of Theoretical and Applied Information Technology*, pp.37-43.
- Fatile, J.O. (2012). Electronic governance: myth or opportunity for Nigerian public administration. *International Journal of Academic Research in Business and Social Sciences*, Vol. 2 No. 9 pp.122-140
- Finger, M. and Pecoud, G. (2003). From e-government to e-governance: towards a model of e-governance. *Electronic Journal of E-government*, Vol.1 Issue 1 pp.1-10.
- Hamiduzzaman, M. (2012). E-governance in management of education system in Bangladesh: innovations for next generation level. *Universal Journal of Education and General Studies*, Vol. 1 No.17 pp.195-209.
- Haque, M.S. (2002). E-governance in India: impacts on relations among citizens, politicians and public servants. *International Review of Administrative Sciences*, Vol. 68 pp.231-250.
- Katz, R.N. (2002). The ICT infrastructure: a driver of change. *EDUCAUSE review*-July/August. Pp. 50-61.

- Krejcie, R.V. and Morgan, D.W. (1970). Determining sample size for research activities. *Journal of Educational and Psychological Measurement*, Vol. 30 pp. 607-610.
- Kyakulumbye, S. et al (2013). Information communication technology (ICT) utilization in private universities in Uganda: exploring strategies to improve. *Journal of Technology and Investment*, Vol. 4 Pp. 22-29.
- Madugu, U. (2012) Application of information and communication technologies (ICTs) in the conduct of government business in Nigeria: implications for the bureaucracy. *ABU Journal of Public Administration*, Vol. 1 No.1 pp.122-141.
- Mittal, P. and Kaur, A. (2013). E-Governance: a challenge for India. *International Journal of Advanced Research in Computer Engineering and Technology*, Vol. 2, Issue 3, pp.1196-1199.
- Monga, A. (2008) E-Government in India: opportunities and challenges. *JOOAG*, Vol. 3 No.2. pp.52-61.
- Narayan, G. (2007). Addressing the digital divide: e-governance and m-governance in a hub and spoke model. *EJISDC*, Vol. 31 No. pp.1-14.
- Ojo, J.S. (2014) E-governance: an imperative for sustainable grassroot development in Nigeria. *Journal of Public Administration and Policy Research*, Vol. 6 No.4 pp.77-89.

C. UNPUBLISHED MATERIALS

- Ahmadu Bello University (2011a). *Europe Africa Quality Connect: Building Institutional Capacity through Partnership: A Self-Evaluation Report*. ABU, Zaria.
- Heeks, R. (2001). *Understanding E-governance for Development*. An i-Government Working paper series (ii) of the Institute for Development Policy and Management, U.K.
- Idris, M. (2011) *Assessment of the Effectiveness of Anti-Corruption Institutions in the Federal Public Service of Nigeria*. A Ph.D Dissertation submitted to the Postgraduate School, Ahmadu Bello University, Zaria.
- Jager, A.D and Reijswoud, V.V. (nd) *E-governance: The Case of District Net in Uganda*. A working paper prepared for the International Institute for Communication and Development (IICD).
- Sachdeva, S. (2002). *E-Governance Strategy in India*. A White Paper on E-governance in India, prepared for UNPAN.
- Saleh, L. (2014) *Assessment of the Administration of National Poverty Eradication Programme (NAPEP) in Selected Northern States of Nigeria*. A PhD Dissertation submitted to the Postgraduate School, Ahmadu Bello University, Zaria.

Sodiya, A.S. et al (2008). *Managing ICT Infrastructure in Higher Educational Institutions*. Proceedings of the Third Conference on Science and National Development.

University of Michigan Business School (2003). *Citizen Centricity: E-governance in Andhra Pradesh*. A Report Prepared by the Department of Corporate Strategy and International Business.

D. INTERNET SOURCES

ABU (2015). Official Website of Ahmadu Bello University, Zaria, accessible on www.abu.edu.ng/ict.

Ahmadu Bello University (2011b) *Ahmadu Bello University Calendar: 2011-2014*. Retrieved on September 10th, 2015 from www.naerlsgov.ng/abucalendar/

Backus M. (2001). *E-governance and Developing Countries: Introduction and Examples*. Retrieved from <http://www.ftpiid.org/files/research/reports/report3.pdf> (23/10/2015).

ICICT (2015) Official Website of the Institute of Computing and ICT, Ahmadu Bello University, Accessible on www.icict.abu.edu.ng

Kumar, M. et al (nd) *An E-governance Model using Cloud Computing Technology for Developing Countries*. Retrieved from www.weblidi.info.unlp.edu.ar on August 22nd, 2015.

Mphidi, H. (nd) *Digital Divide and E-governance in South Africa*. Available at **Error! Hyperlink reference not valid.** (23/10/2015).

Murata. K. (2006). *ICT Workers and Professional Attitudes: Construction of an Appropriately Working Environment*. Retrieved from www.kisc.meiji.ac.jp on 16/2/2016.

NITDA (nd). *Standards and Guidelines for ICT Infrastructure in Nigeria*. A Draft Document retrieved from **Error! Hyperlink reference not valid.** on 16/1/2016.

Okwueze, F.O. (nd). *E-governance as a Tool for Public Sector Development in Nigeria*.

Savic, D. (2006) *E-governance: Theoretical Foundations and Practical Implications*. Available at dobrica.savic.ca/pubs/egovernance_foundations.net (September 13th, 2015).

United Nations Democratic Programme (2003). *From Connectivity to Service Delivery; Case Studies in E-governance*. An Independent Report of the UNDP available at <http://www.undepgov.org/> (12/10/2015).

E. OFFICIAL PUBLICATIONS

National Institute for Smart Governance (2012). *E-governance project Lifecycle: Reading Supplement Handbook* Prepared for Specialized Training for E-governance Programme, India.

National Universities Commission (2014) Report of the Accreditation of Degree Programmes Offered in Nigerian Universities: B.S.c Public Administration, Ahmadu Bello University, Zaria.

Students Affairs Division (2012) *Undergraduate Student Handbook: 2012/2013 Session (10th Edition)*. Zaria: Ahmadu Bello University Press Limited.

United Nations (2002). *Global E-government Readings Report: Towards Access for Opportunity*. New York: Department of Economic and Social Affairs, U.N.

APPENDIX I
QUESTIONNAIRE FOR STAFF OF INSTITUTE OF COMPUTING AND
INFORMATION AND COMMUNICATION TECHNOLOGY AND STUDENTS
AFFAIRS DIVISION

Department of Public Administration
Faculty of Administration
Ahmadu Bello University
Zaria,

25th October, 2015.

Dear Respondent,

I am a student in the Department of Public Administration, Ahmadu Bello University, Zaria, writing an MSc. Dissertation entitled, **“Effect of E-governance on Students’ Management in Ahmadu Bello University”**.

The attached questionnaire is meant to obtain your response on the questions therein. Please, be rest assured that the information you provide would be used purely for academic purpose and shall be accorded utmost confidentiality.

Your prompt response to the questions would be appreciated.

Yours faithfully,

Signed

MUHAMMAD, Lawal
(MSC/Admin/8002/13-14)

SECTION A
(PERSONAL DATA OF RESPONDENTS)

Please tick (✓) as appropriate.

1. Highest Educational Qualification

- a. Primary certificate ()
- b. WASC/GCE/SSCE ()
- c. NCE/OND/ND ()
- d. Degree/HND ()
- e. Post graduate ()
- f. Others: specify ()

2. Length of Service in ABU

- a. Less than one year ()
- b. 1 – 10 years ()
- c. 11 – 20 years ()
- d. 21 – 30 years ()
- e. 31 years and above ()

SECTION B:

(Technological infrastructure and students' management in ABU)

3. What is the level of computerization of services in ABU?

- a. Very high ()
- b. High ()
- c. Undecided ()
- d. Low ()
- e. Very low ()

4. How functional is ABU's portal?

- a. Very functional ()
- b. Functional ()
- c. Undecided ()
- d. Dysfunctional ()
- e. Very dysfunctional ()

5. What is the level of complexity of the student portal?

- a. Very complex ()
- b. Complex ()

- c. Undecided ()
 - d. Simple ()
 - e. Very simple ()
6. Do you agree that the portal of ABU provides adequate and up-to-date information?
- a. Strongly agree ()
 - b. Agree ()
 - c. Undecided ()
 - d. Disagree ()
 - e. Strongly disagree ()
7. What is the level of language simplicity in ABU's portal?
- a. Very high ()
 - b. High ()
 - c. Undecided ()
 - d. Low ()
 - e. Very low ()
8. How secured are transactions in ABU's portal?
- a. Very secured ()
 - b. Secured ()
 - c. Undecided ()
 - d. Unsecured ()
 - e. Very unsecured ()
9. Do you agree that ABU has adequate funds for the procurement of technological facilities?
- a. Strongly agree ()
 - b. Agree ()
 - c. Undecided ()
 - d. Disagree ()
 - e. Strongly disagree ()

SECTION C:

(Student ICT utilization and students' management in ABU)

10. Would you say that majority of students are ICT compliant?
- a. Strongly agree ()
 - b. Agree ()

- c. Undecided ()
 - d. Disagree ()
 - e. Strongly disagree ()
11. If you agree to the above, how adequate in your opinion is the ICT skill of students?
- a. Very adequate ()
 - b. Adequate ()
 - c. Undecided ()
 - d. Inadequate ()
 - e. Very inadequate ()
12. How accessible are internet facilities to students?
- a. Very accessible ()
 - b. Accessible ()
 - c. Undecided ()
 - d. Inaccessible ()
 - e. Very inaccessible ()
13. What is the quality of internet access available to students?
- a. Excellent ()
 - b. Very good ()
 - c. Undecided ()
 - d. Good ()
 - e. Poor ()
14. Do you agree that students are confident with transactions via ABU's portal?
- a. Strongly agree ()
 - b. Agree ()
 - c. Undecided ()
 - d. Disagree ()
 - e. Strongly disagree ()
15. What is the speed of transactions over ABU's portal?
- a. Very fast ()
 - b. Fast ()
 - c. Undecided ()
 - d. Slow ()
 - e. Very slow ()

16. Do you agree that ICT makes transactions economical?

- a. Strongly agree ()
- b. Agree ()
- c. Undecided ()
- d. Disagree ()
- e. Strongly disagree ()

SECTION D

(Quality of ICICT-staff and students' management in ABU)

17. Do you agree that ABU has adequate ICT staff to handle the affairs of the organisation?

- a. Strongly agree ()
- b. Agree ()
- c. Undecided ()
- d. Disagree ()
- e. Strongly disagree ()

18. Do you agree that the staff have the needed ICT skill by ABU?

- a. Strongly agree ()
- b. Agree ()
- c. Undecided ()
- d. Disagree ()
- e. Strongly disagree ()

19. How regularly trained are ICICT staff in ABU?

- a. Very regularly ()
- b. Regularly ()
- c. Undecided ()
- d. Irregularly ()
- e. Very Irregularly ()

20. Do you agree that staff have the needed ICT facilities in ABU?

- a. Strongly agree ()
- b. Agree ()
- c. Undecided ()
- d. Disagree ()
- e. Strongly disagree ()

21. What in your opinion are the factors that impede effective e-governance in students' management in ABU? List them:

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.....
.....

22. What in your opinion should be done to make e-governance more effective in students' management in ABU? List them:

.....
.....
.....
.....

APPENDIX II
QUESTIONNAIRE FOR STUDENTS OF ABU

Department of Public Administration
Faculty of Administration
Ahmadu Bello University
Zaria,

25th October, 2015.

Dear Respondent,

I am a student in the Department of Public Administration, Ahmadu Bello University, Zaria, writing an MSc. Dissertation entitled, **“Effect of E-governance on Students’ Management in Ahmadu Bello University”**.

The attached questionnaire is meant to obtain your response on the questions therein. Please, be rest assured that the information you provide would be used purely for academic purpose and shall be accorded utmost confidentiality.

Your prompt response to the questions would be appreciated.

Yours faithfully,

Signed

MUHAMMAD, Lawal
(MSC/Admin/8002/13-14)

SECTION A
(PERSONAL DATA OF RESPONDENTS)

Please tick (✓) as appropriate

1. Gender of respondents
 - a. Male ()
 - b. Female ()
2. Level in the University
 - a. Level I ()
 - b. Level II ()
 - c. Level III ()
 - d. Level IV ()
 - e. Others ()
3. Highest Educational Qualification
 - a. WASC/GCE/SSCE ()
 - b. NCE/OND/ND ()
 - c. Degree/HND ()
 - d. Post graduate ()
 - e. Others: specify _____

SECTION B:
(ICT infrastructure and students' management in ABU)

4. What is the level of computerization of services in ABU?
 - a. Very high ()
 - b. High ()
 - c. Undecided ()
 - d. Low ()
 - e. Very low ()
5. How functional is the ABU portal?
 - a. Very functional ()
 - b. Functional ()
 - c. Undecided ()
 - d. Dysfunctional ()
 - e. Very dysfunctional ()
6. What is the level of complexity of the student portal?

- a. Very complex ()
 - b. Complex ()
 - c. Undecided ()
 - d. Simple ()
 - e. Very simple ()
7. Do you agree that the ABU portal provides adequate and up-to-date information?
- a. Strongly agree ()
 - b. Agree ()
 - c. Undecided ()
 - d. Disagree ()
 - e. Strongly disagree ()
8. What is the level of language simplicity in the ABU portal?
- a. Very high ()
 - b. High ()
 - c. Undecided ()
 - d. Low ()
 - e. Very low ()
9. How secured are transactions in the portal of ABU?
- a. Very secured ()
 - b. Secured ()
 - c. Undecided ()
 - d. Unsecured ()
 - e. Very unsecured ()

SECTION C:

(Student ICT utilization and students' management in ABU)

10. Would you say that majority of students are ICT compliant?
- a. Strongly agree ()
 - b. Agree ()
 - c. Undecided ()
 - d. Disagree ()
 - e. Strongly disagree ()
11. How adequate in your opinion is the ICT skill of students?
- a. Very adequate ()
 - b. Adequate ()

- c. Undecided ()
 - d. Inadequate ()
 - e. Very inadequate ()
12. How accessible are internet facilities to you?
- a. Very accessible ()
 - b. Accessible ()
 - c. Undecided ()
 - d. Inaccessible ()
 - e. Very inaccessible ()
13. What is the quality of internet access available to you?
- a. Excellent ()
 - b. Very good ()
 - c. Undecided ()
 - d. Good ()
 - e. Poor ()
14. Do you agree that students are confident with transactions via ABU's portal?
- a. Strongly agree ()
 - b. Agree ()
 - c. Undecided ()
 - d. Disagree ()
 - e. Strongly disagree ()
15. What is the speed of transactions over ABU's portal?
- a. Very fast ()
 - b. Fast ()
 - c. Undecided ()
 - d. Slow ()
 - e. Very slow ()
16. Do you agree that ICT makes transactions economical?
- a. Strongly agree ()
 - b. Agree ()
 - c. Undecided ()
 - d. Disagree ()
 - e. Strongly disagree ()

SECTION D

(Quality of ICT-staff and students' management in ABU)

17. Do you agree that ABU staff have the ICT skill needed by the organisation?

- a. Strongly agree ()
- b. Agree ()
- c. Undecided ()
- d. Disagree ()
- e. Strongly disagree ()

18. Do you agree that staff have the needed ICT facilities in ABU?

- a. Strongly agree ()
- b. Agree ()
- c. Undecided ()
- d. Disagree ()
- e. Strongly disagree ()

19. What in your opinion are the factors that impede effective e-governance in students' management in ABU? List them:

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.....

20. What in your opinion should be done to make e-governance more effective in students' management in ABU? List them:

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APPENDIX III

RESPONDENTS' INTERVIEW FORMAT

1. What is the status of the computerization of services in ABU?
2. How has computerization aided the delivery of services in ABU?
3. In your opinion, what is the quality of the broadband facility in ABU?
4. What is your view on the availability or otherwise of needed funds for the procurement and maintenance of ICT facilities?
5. What do you think of the ABU portal in terms of:
 - a. Functionality;
 - b. Reliability and
 - c. Security.
6. How would you rate the quality of ICICT-staff in your organisation?
7. What do you think about the utilization or otherwise of ABU's ICT platform by students?
8. Do you think students are benefitting from your ICT platform?
9. What in your opinion are the major problems associated with ICT delivery of services in ABU?
10. What in your opinion should to be done to make the ICT delivery of services more effective in ABU?

APPENDIX IV

Krejcie and Morgan (1970) Table for Sample Determination

Table for Determining Sample Size from a Given Population

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size.
S is sample size.