APPLICATION OF ICT IN SERVICE DELIVERY IN PUBLIC UNIVERSITIES IN KENYA. A CASE OF KENYATTA UNIVERSITY, KENYA

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A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF EDUCATION MANAGEMENT, POLICY AND CURRICULUM STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER IN EDUCATION OF KENYATTA UNIVERSITY

JULY, 2017
DECLARATION

I declare that this research project is my original work and has not been presented in any other university/institution for consideration. This research project has been complemented by referenced sources duly acknowledged. Where text, data (including spoken words), graphics, pictures or tables have been borrowed from other sources, including the internet, these are specifically accredited and references cited in accordance with anti-plagiarism regulations.

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DEDICATION

I dedicate this work to my family for bearing with me during the many times I have been away not being able to give them the attention they deserve. I also appreciate the role my late father played in my educational life. I appreciate the financial, moral and spiritual support from my wife Catherine Chepkemoi and my children. May God eternally bless them abundantly throughout their endeavours.
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Last but not least I would like to give special thanks to my dear wife Mrs. Chemion who has constantly supported me during the course of study, giving me a conducive atmosphere at home, thus allowing me to have peace of mind. To God be the Glory now and forever more. Amen.
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# ABBREVIATIONS AND ACRONYMS

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<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>CC-CAMERA</td>
<td>Closed Circuit Camera</td>
</tr>
<tr>
<td>CTO</td>
<td>Commonwealth Telecommunication Organization</td>
</tr>
<tr>
<td>G2C</td>
<td>Government to Citizen</td>
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<tr>
<td>I.T</td>
<td>Internal Information</td>
</tr>
<tr>
<td>ICTs</td>
<td>Information and Communication Technologies</td>
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<tr>
<td>IIS</td>
<td>Internal Information Systems</td>
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<tr>
<td>NASSCOM</td>
<td>National Association of Software and Service Company</td>
</tr>
<tr>
<td>NCES</td>
<td>National Center for Education Statistics</td>
</tr>
<tr>
<td>ODEL</td>
<td>Open and Distance Education Learning</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
</tr>
<tr>
<td>PC</td>
<td>Personal Computers</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Science</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
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ABSTRACT

Information Technology (IT) is said to be the technology of 21st century. There has been a huge growth in the field of information technology. Traditionally IT was used only to provide the back office support to organizations. Nowadays it plays a strategic role in organizations supporting many business functions and also shapes new strategies in organizations. The IT field has also been introduced in the field of governance called “E-Governance”. This IT based E-governance has also been introduced in the field of education. The implementation of e-governance in education has led to new broader innovations. E-governance has enabled universities to expand their current geographical reach, to interact to prospective students all over the world and to establish themselves as global education providers. The process has greatly transformed service delivery and enhanced efficiency in public universities. This study was guided by the following objectives; Find out the extent in which e-governance has transformed service delivery in public universities in Kenya, Establish the status of accessibility and equity in e-governance service delivery in public universities in Kenya, Find out the status of resources used in e-governance programme of service delivery in public universities, Identify the challenges of e-governance in public universities and their mitigation strategies. A case study design was used for this study. The target population of the study was 61946 university students 10 heads of departments who were purposively selected from the 14 schools in the University and 5 I.T officers from the I.T department; however for need of accuracy of data collected the sample size to be used for the study was randomly selected whereby Fresher’s formulae of calculating sample size was used to determine a sample size of 196 3rd year students from 5 randomly selected schools in the universities who participated in the study. The research instruments for the study were questionnaires for students and interview schedules for heads of departments and I.T officers. Descriptive survey was used for data collection and SPSS analysis programme was used to perform descriptive analysis. Data were presented in descriptive form supported by means, tables, frequency, distributions and percentages. Hence service delivery in the institution still remained to be uncreative due to underutilization of the resources. The institution was not fully equipped with all basic ICT resources necessary for effective service delivery within the institution. It was found that accessibility to e-governance-based services was average. The study concludes that the investment in ICT has a significant positive influence on the service delivery. Unless ICT literacy is improved through in-service training with the institution, the quality of service delivery remains low even if all the ICT facilities are procured by the institutions. Adequacy is not only a contributing factor to implementations, but also skills and knowledge on ICT based on application of new technologies, innovated softwares and applications. The study recommends that the institutions invest more in information technology so as to improve on the current ICT situation in the universities and increase the countries competitiveness, productivity and growth through investment in information technology. The study findings may draw light into possibilities of collaboration across universities throughout the nation and region in the development and implementation of digital initiatives in delivering services in Universities and Colleges.
CHAPTER ONE
INTRODUCTION AND BACKGROUND OF THE STUDY

1.0 Introduction

This chapter gives the background to the study, statement of the problem, purpose of the study, study objectives, research questions and significance of the study. It also highlights limitations and delimitations of the study, theoretical and conceptual framework and operational definition of key terms.

1.1 Background to the Study

In the previous two decades higher institutions of learning have heavily invested in Information and Communication Technologies all over the world due to the fact that it has a major impact on service delivery in the University context (Adel, 2008). With the sudden proliferation of personal computers, the viewpoint that using ICT during the service would enhance the quality of education, increase consumers’ level of satisfaction with the services and solve problems became well known. E-governance, meaning ‘electronic governance’ is using information and communication technologies (ICTs) at various levels of the government and the public sector and beyond, for the purpose of enhancing governance.

Recently, the whole world tends to apply the new information and communication technology (ICT) into their Universities as a movement to improve their educational systems (O’Neil & Perez, 2002). Today, the use of computers offers endless choices of data available to all and has become a symbol of transformation as far as service delivery
is concerned (Isman & Dabaj, 2004). Approaches of delivering services in institutions have been the major concern and the use of ICT has been hinged on this to enhance the quality especially in higher learning institutions. For instance, this approach has been realized as cost-effective by the government as it involves a social online platform where services are delivered and necessary documents are delivered and obtained over the internet without directly visiting the offices where such services are offered (Moore & Tait, 2002).

A Study in the United States recommends that University leaders should acquire certain technology skills (Sears, 2006) that effectively help implement technology into their administration. University leaders have the responsibility to enhance the use of technology into their Universities by assisting teachers and students to become computer technology literate so that they can use technology effectively to improve learning. Consequently, University leaders should ensure that everyone in the building understands how to effectively and safely use digital and computer technology (Hague & Williamson, 2009). Moreover, University leaders should open electronic communication lines to develop human relationships among colleagues via the University Websites. However, Aldojan (2007) reported that communications between Educational leaders via the institutions sites are still weak.

In the United Kingdom, even though ICT is utilized in institutions of higher learning to deliver services, it majorly focused on delivering services to students who were enrolled in distance learning (Kirkwood & Price, 2005). However, only a small proportion of students had developed information literacy skills. Rajeev (2008) has specified that ICT
has played a major role in reducing operational inefficiency and improving decision-making in many areas of governance. An integrated Higher Education Service System is one such concept that can empower the governing bodies to administer the progress of the education plan in the whole country and serve various stakeholders in a much better manner.

In Norway, computers were extensively used to deliver services in opening University administrations but basically for purposes such as exposing internal memo, submission of admission forms, getting students’ details from portals and downloading materials from learning management systems (Breivic, 2010). According to Hossein (2008), Information and Communication technology provides several facilities and possibilities for educational administrators to do their tasks. There is a mention that communication and information systems have changed the very nature of higher education, allowing information to be transferred, stored, retrieved, and processed by almost all who work, study or interact with a given institution. The author has also quoted from other research work that there is an increase in managerial effectiveness and efficiency through usage of Information and Communication technologies.

Applying information and communication technology in Universities will no doubt assist the delivery of highly qualified educational programs (National Center for Education Statistics [NCES], 2000). New technology has eliminated some barriers that help educators communicate together much more than before (O’Neil & Perez, 2002; Pasquerilla, 2008), and has forced University leaders to adopt new technology into their University administration. A study by Maki (2008) in Minnesota, USA showed that
Information and Communication Technology (ICT) plays a vital role in supporting powerful, efficient management and administration in education sector. It is specified that technology can be used right from student administration to various resource administration in an education institution. In academic institution, the real time information processing and knowledge management of the institution is made possible. E-Governance solution is an integrated solution that facilitates the processing and maintenance of large volumes of information - including student, faculty, inventory, asset management, facility management, transport, library, staff details, and payroll and student fees among various departments in an academic institution.

According to Maki (2008), administrative subsystems include Personnel administration, student administration, resource administration, financial administration and general administration. Ulf Fredriksson and Elżbieta Gajek (2009) mentioned that Communication and general administration are the two main areas in which ICT is used in the management of education institutions. It is evident from the above that administrative activities in a higher education institution consists of student administration, staff and resources administration, communication and general administration.

E-Governance solution in the field of education sector incorporates whole data and processes of an educational Institution into a unified system, making the process uncomplicated, well-organized and error proof. The solution is designed to make the system user-friendly, time and cost saving. Many of them are flexible enough to adapt to the changing educational environment efficiently and quickly. Educational institutions
may have various requirements that include computerization and management of processes such as registration, admission, student information, classes, time table, transport, attendance, library, salary and expenses, examinations, performance, grades, hostels, security and reports. Many of the software providers allow their clients to choose from the available modules to grab their needs.

In East Africa, digital and electronic technologies have shortened distances and the whole world became at hand (Kuo, 2005). Globalization, speed, and changes are the main characteristics of today’s life. The use of ICT in delivering services entails a kind of exercise based on the drawing of an adequate system which executes different levels of institutional and relational power. These are integrated in a model of electronic governance (e-governance), which is structured in different Internal Information Systems (IIS). E-Governance solutions in educational sector incorporates the latest technology to bring a system that combines administrative and university management functions that are necessary for successful handling of all issues relating to the academic affairs and the challenges for smooth functioning of an educational institution.

In Kenya, the advent of the new communication revolution has made service delivery in Universities following the emergence of various education commissions (Kamunge Report of 1988, Mungai Reoprt of 1995; Koech Report of 1999). However, this has majorly focused on academic institutions to provide a flexible and more open learning environment for students. Currently in Kenyatta university e-governance service delivery in terms of fee payment, units’ registration, booking of accommodation, accessing of
students results, tracking of student/lecturer interaction and other information online has been inculcated into the system.

Several studies have attempted to explain the role and the added value of these technologies in classrooms and students’ performance. Since the internet revolution, there has been a shift in studies that focus more on the impact of online activities: use of educative online platforms, digital devices and use of blogs and wikis among students. These activities significantly depend on the ownership of ICT devices, connectivity and prior ICT skills. Nevertheless, none of these studies have attempted to focus on the institutional, e-technological and e-management related factors influencing the transformation of service delivery in public universities in Kenya. The study also sought to identify the challenges of e-governance in public universities and their mitigation strategies.

1.2 Statement of the Problem

Although studies in e-governance are increasing in number, related models offered in the academic literature are mainly conceptual; while empirical studies are heavily ignored. Great numbers of higher learning institutions have not adopted technology in the daily schools administrations processes thus resulting to poor record keeping methods and very slow ways of undertaking many procedures. With the increasing number of students admitted to higher leaning institutions adoption of technology in governance is very crucial.
Moreover, the existing e-government literature to date focused on developed countries, with a greater predisposition towards the internet, while the worldwide growth of e-commerce has shown the need to extend this research to other unstudied developing countries. However, none of these studies focused on the status of resources used in e-governance programme, accessibility to e-governance and challenges of e-governance in public universities and their mitigation strategies. In addition, none is known about the extent to which e-governance service delivery has been transformed in public universities in Kenya. The current study attempted to fill the gap in the current body of literature by investigating e-governance and transformation of service delivery in Kenyatta University. This will contribute greatly in literature in the academic field since not much research has been done in this field.

1.3 Purpose of the Study

The purpose of this study was to evaluate the application of ICT in service delivery in public universities in Kenya, a case of Kenyatta University, Kenya. This opted to identify opportunities and weaknesses on the use of ICT in service delivery, which can be later improved to enhance the quality of service delivery in Kenyatta University.

1.4 Study Objectives

The specific objectives of the study were to;

i) Find out the status of resources used in ICT programme of service delivery in public universities

ii) Establish the status of accessibility to ICT-based service delivery in public universities in Kenya.
iii) Find out the extent to which service delivery has been transformed in public universities in Kenya.

iv) Identify the challenges of ICT-based e-governance in public universities.

v) To seek for mitigation strategies on challenges facing ICT-based e-governance in public universities.

1.5 Research Questions

i. What resources are used in ICT programme of service delivery in public universities in Kenya?

ii. What is the status of student’s accessibility to financial and academic records in public universities in Kenya?

iii. How has ICT transformed financial and student’s record management services in public universities in Kenya?

iv. What challenges do public universities in Kenya face in the provision of ICT-based services:

v. What interventions are taken to curb the challenges facing ICT-based service delivery in public universities in Kenya?

1.6 Significance of the Study

The study may help educational planners and university management to understand e-governance and its role in delivery of educational services; training for life-long skill development and broadening the market of the university courses. This will lead to viable plans on how the university objective of promoting skills and knowledge could be heightened and thus promoting access to training in the various courses.
The study will also lead to an understanding of the status of e-governance which would lead to devising viable ways of improving delivery of courses in public universities in Kenya via e-Learning. In addition, the study would also show a reflection of the costs required to set-up e-governance programmes. Finally, the study would contribute to the existing knowledge on application of e-learning in course delivery. It would also act as future reference source for stakeholders in university education.

The study findings may draw light into possibilities of collaboration across universities throughout the nation and region in the development and implementation of digital initiatives in delivering services in Universities and Colleges. Greater information for policy debates on significant issues associated with service delivery for higher education students and the public consumers regarding access, equity, and quality may be brought to light.

The study may also give opportunities to other scholars to identify issues related to service deliveries that have been left out in this study. Filling these gaps are crucial in establishing a comprehensive research and solutions to problems related to ICT use which may be consequently embraced by service providers in higher institutions of learning towards strengthening the quality of service delivery.

1.7 Assumptions of the Study

In the proposed study the following assumptions were made;

i. All respondents would corporate and provide reliable responses
ii. That the heads of departments and the I.T officers were highly qualified and completely aware of the administrative functions of public universities.

iii. That the use of e-governance enhances transformation of service delivery in public universities.

iv. Public universities are applying e-governance in running the universities.

1.8 Limitation of the Study

This study will have some limitations in the sense that, as a survey, it relied on self-report data that is; it depends on respondents to truthfully and accurately report on occurrences in their institution. Hence, information unknown to the participant was not tapped in the survey. However, the researcher made efforts to follow up where possible and sought clarifications to improve accuracy of the findings.

The study was a case study which only focused only one public institution of higher learning, Kenyatta University. As a result, the findings of this study may not exactly bring out the general picture of ICT and service delivery in public university setting in Kenya as resources related to ICT prorammes greatly vary from one institution to another. Hence generalization of the findings was appropriate for all public universities in Kenya.

1.9 Delimitation of the Study

The study was restricted to resources used in ICT programme of service delivery, student’s accessibility to financial and academic records, the extent to which ICT transformed financial and student’s record management services and challenges public
Kenyatta University face in the provision of ICT-based services. ICT officers, heads of department (service providers) and the students (consumers) were the targeted population for the purpose of this study. The study was case study in nature which focused only Kenyatta University, hence other public Universities were left.

Transformation of service delivery was evaluated in terms of: efficiency in service delivery in public universities; accessibility to information and services by students and staff; quality of services; opportunity for students and staff to participate in the administration of public universities; and accountability, responsiveness and transparency in public universities governance.

1.10 Theoretical Framework

This study intended to use the system theory which shows the interrelation of systems working together for a common goal in a perfectly efficient way;

**Systems theory**

System theory was used by Bertalanffy (1968), a biologist, as the basis for the field of study known as ‘general system theory’, a multidisciplinary field. A system is a set of interrelated parts that work together for a common goal(s). Every system has the following characteristics. Goals which are the targets to be achieved by the system. All parts of the system should work towards achieving the same goals. For example, an educational institution pursues normative goals which imply the values it aims at imparting to the students. In this study the goal is service delivery via e-governance. Subsystems are the interrelated parts of elements that form the system. For example, in an
educational institution parents, teachers/lecturers, and students are parts of the University system. A system works in a hierarchy of relationships.

All sub systems work interdependently. Subsystems in this study entail management, capacity skills and information and communication technology inputs. Harmony denotes that all the elements in a system work in harmony to achieve the common goals. In achieving successful e-learning course delivery the lecturers, hardware, software and management must work in harmony. Feedback implies the avenue through which a system evaluates its success level in achieving the objectives. Interface is the boundaries between the subsystems. In social systems, boundaries are mainly imaginary. For example, the boundary between lecturers and students, System boundaries ensure that a specific task is performed at a specific point. A system operates within an environment referred to as the supra system. Characteristic of organization, whether of a living organism or a society, is notions like those of wholeness, growth, differentiation, hierarchical order, dominance, control, and competition (Bertalanffy, 1968).

A system must interact with the environment in order to survive. According to Kumar (2006) the supra system receives the product of an open system which becomes a part of the functioning of the environment. Information is the input from the environment that is processed by the system in order to produce an output. Growth denotes a system is dynamic and as such it grows either through transformation or diversification. The concept of input-transformation-output links the management control system to the environment.
Organizations obtain inputs from their environment, transform them into outputs, and then send the outputs back into the environment. In order to design a good management control system, it is imperative that we have a proper understanding of where in the environment to find the right inputs, what kind of transformation to perform, and what output to produce. In line with this study the researcher considers e-Learning as course delivery method in public universities in Kenya where there are the inputs, the process and output which is e-Learning courses.

When applied in the context of e-government, systems theory can help identify challenges surrounding the implementation of e-government systems. By examining the three mechanisms of institutionalization, the theory elucidates how goals are developed in an organization, organized and achieved. This paper investigates how e-government transforms service delivery in public universities.
1.11 Conceptual Framework

![Diagram of Conceptual Framework]

**Independent Variable**
- ICT Resources
  - Computers
  - Printers
  - Internet
  - Photocopier
  - Projectors
  - Television
  - Digital cameras

**Accessibility to:**
- Free and accessible WiFi
- Reliability
- Adequacy of computers
- Equity in access

**Challenges and Interventions for:**
1. Policy & Strategy
2. Co-ordination and communication
3. Supervision of system for quick service delivery
4. Evaluation of customers’ feedback
5. Financial management

**Dependent Variables**

**Transformation of service delivery in public universities**
- Efficient service delivery in public universities.
- Easy access to information and services by students and staff.
- Increase the quality of services.
- Provide opportunity for students and staff to participate in the administration of public universities.
- Ensure accountability, responsiveness and transparency in public universities governance

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**Figure 1.1: Conceptual Framework Showing Transformation of Service Delivery Through E-Governance**

**Source:** Researcher’s own model, 2017

E-Governance is the process of electronic transformation of data from government to grassroots level people by using internet, web-networks, digital communication, telecommunication infrastructure etc. It ensures an electronic transaction relationship between top to bottom. To execute all activities of the government internet, digital and
modern technology is used in this system. Education sector is the biggest part of the
government. It is surrounded and managed by many traditional processes in Bangladesh.
The study was conducted on how e-Governance brings effective and efficient
management of education system, special focus was on Sylhet Education Board.

The independent variables of the study were grouped into three categories which
included; Availability of ICT resources, Accessibility and Institutional Challenges. ICT
Resources were; computers, printers, internet, photocopier, projectors, television, digital
cameras among others faculties which could support service delivery. Accessibility was
measured based on legibility to use free and accessible ICT facilities, their reliability,
adequacy of computers and quit in access. Challenges were based on issues related to
ICT skills/literacy and institutional based factors.

The dependent variables of the study were: Efficient service delivery in public
universities, Easy access to information and services by students and staff, Increase the
quality of services, provide opportunity for students and staff to participate in the
administration of public universities and lastly ensure accountability, responsiveness and
transparency in public universities governance.

The efficiency and effectiveness of management system of Sylhet Education Board as
well as the whole education system is dependent on various factors. It is a long term
process to apply e-Governance and bring efficiency and effectiveness. e- Governance
deals with using modern technology like-internet, CC-camera, digital telecommunication
etc. for their daily work. By using effective and proper technologies, the education sector
can adopt e-Governance. Data about the students, teachers, and personnel are preserved in the computer in a database. Data disk may form for this purpose. Through the computer and internet result, examination and admission can be done. The personnel of education sector are fully trained up with ICT training and learned about e-Governance concept properly.

Management Information System can be approved for the application of e-Governance. Here, the management policy, planning, decisions, activities, supervision, monitoring, evaluation must be done through digital and modern way like- CC-Camera, web-networking etc. Financial resources can be managed properly through accounting software for ensuring efficiency and effectiveness of management.
1.12 Definition of Key Terms

**E-administration**: Refers to back office information systems, supporting the management and administrative functions of public institutions.

**E-governance**: Is the application of information and communication technology (ICT) for delivering services, exchange of information communication transactions, integration of various stand-alone systems.

**E-services**: An umbrella term for services on the internet.

**Public universities**: Are universities that are sponsored by the government in their daily running of activities in the university.

**Transformation**: Is the shift in a way of doing something from an ordinary way to a more advanced and effective manner.
CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter covered the concept of e-governance, history of e-governance, extent to which e-governance has transformed service delivery, access and equity in e-governance service delivery in public universities, status of resources used in e-governance programme services in public universities, challenges of e-governance in public universities service delivery and summary and identification of gaps.

2.2 Concept of E-Governance

According to the Organization for Economic Co-operation and Development (OECD, 2003), e-government is the use of ICTs, particularly the Internet, to improve governance. The World Bank (2006a), in agreement with OECD’s definition, added that e-government entails transformation of relationships among policy-makers, citizens, businesses, and government employees. Gartner Group (2000) defined e-government as the continuous optimization of service delivery, citizens’ participation, and governance through technology, both the Internet and new media, while Palvia and Sharma (2007) argued that e-government means web-based services from agencies of local, state, and federal governments.

The UN (2008) defined e-government as the use of the Internet for delivering government information and services to citizens. Similarly, Norris (2004) defined e-government as the use of ICTs as channels of interactive communication between the
citizens and government—information travels downwards to citizens and public feedback upwards to government officials. In his analysis of Gartner’s e-governance model, Backus (2001) observes that “e-governance means being present on the Web, providing the public with relevant information”. Backus (2001), for instance, argues that e-governance is more than just a government website on the internet, and that it should be thought of as the “application of electronic means in the interaction between government and citizens and government and businesses, as well as the application of electronic means in internal government operations”.

Although the e-government technologies have potential to improve the lives of 80% of the world's population living in developed countries such as United States, Canada, United Kingdom, and Australia (Former Ander-son consulting, 2002). According to Mofleh, Wanous and Strachan (2008), providing better services for citizens and responding to their growing demand for online needs have been major drivers for implementing e-government in developed countries. Thus, the majority of the services are focused on providing citizens and others with comprehensive electronic resources to respond to individuals’ routine concerns and government transactions. With government-to-citizen (G2C) applications, the organizations publish information and contact details, and offer regular services online. The ultimate aim of these applications is to give users different options and communication channels for government transactions.

The advent of e-government has provided new opportunities to enhance governance, which include the improvement of efficiency, new services, the enhancement of citizen participation, and the strengthening of the global information infrastructure (Bohman
2001). According to Clift (2003) e-government in governance seeks at improving government decisions, increasing citizen trust in government, enhancing government accountability and transparency, accommodating the public will in the information-age and involving stakeholders, including NGOs, business, and interested citizens in new ways of meeting public challenges.

Some researchers point out that in many countries provision of e-government services is still far from reaching full effectiveness (Moon, 2002; Reddick, 2004; Wescott, 2002). Morris (2002) claims that government still necessitates to supply citizens and organizations through traditional channels since not all appropriate services are matched to electronic delivery. UAE government is inputting their best for facilitating the citizens electronically but they are still facing problems in this regard. The problems are mostly related to the lack of contribution from the citizens.

2.3 History of E-Governance

At the beginning of the 21st century, there was a feeling among the citizenry that ‘managerialism’ has widened the distance between government and citizen instead of bringing them closer together (Noordhoek and Saner, 2004), as well as citizen dissatisfaction or disengagement, which is reflected, particularly in the Anglo Saxon countries, in a perception that public services are failing and of poor quality (Oakley, 2004). The search for new styles of governance through the engagement of citizens is viewed as a way to change such feeling and to improve citizen trust in governments.
The roots of this government reinvention can be traced back to a number of historical causes (Heeks, 1999). One of them is the challenge confronting governments to keep or win back citizens’ trust and confidence in public institutions, which has waned through the years with increasing reports of corruption. Another is the influence of the neo-liberal thinking that emphasizes the efficiency of markets and the notion that the inefficiency of the public sector may be corrected by making it as similar as possible to the private sector. Corollary to this is the intensified pace of competition brought about by globalization, which could also explain why so many governments pursued many reform strategies so aggressively at much the same time (Kettl .D, 2002).

Unlike traditional structures, which are hierarchical and one-way, the Internet delivery systems are non-hierarchical, two-way and available 24 hours a day, seven days a week (24/7). The non-hierarchical character of Internet delivery frees citizens to seek information at their own convenience, not just when a government office is open (West 2004). Two-way interaction has been deemed a way of improving service delivery and responsiveness to citizens, a way of generating greater public trust in governments (Markoff, 2000; Raney,2000) and of making governance function better than it currently does.

The interactivity of the Internet is also expected to improve government accountability as it makes government more responsive to the needs and demands of citizens. More information delivered in a more timely fashion to citizens is expected to increase the transparency of government and to empower citizens to monitor government performance more closely. Therefore, e-government is viewed as a positive channel for enhancing
trust in governments through government accountability and by empowering citizens (La Porte, de Jong, and Demchak; Demchak, Friis, 2000). According to Thomas (1998), trust could be obtained, or restored, by repeated successful individual interaction, which is what open websites aim to achieve (Porte, 2000).

2.4 E-Governance in Universities

To begin with, the University made available on-line services pertaining to admission, examinations & its other allied activities. Information centers have been established under the e-Governance initiatives in all government-affiliated colleges ensuring the transmission of data through e-based mechanism on University Wide Area Network. These centers serve as e-services delivery centers for the students at their respective colleges & regions as well as support centers for the respective colleges by digitizing the data at their sources.

The entire e-Governance solutions are designed & developed in-house through a highly competent, committed & capable group of engineers working with a mission. To ensure development of quality solutions of international standards, the services of multinational companies through consultancy & collaborative exchanges are hired. This has helped in University developing its own core competencies. The E-Governance services developed and implemented generate sufficient revenue to meet E-Governance related various budgetary requirements for salaries of man power, up-gradation and maintenance of IT infrastructure. The revenue is generated through different sources including IT service charges, consultancy & trainings.
The various research studies conducted to evaluate the extent of usage of Information and Communication technologies in multiple aspects of higher education revealed that heads of faculties utilized technology in planning, and to a large extent in the supervision and evaluation of academic affairs, student affairs, financial affairs and administrative affairs. It was concluded that information and communication technologies have an impact on increase of the scientific level of faculty members, students, and staff.

Ashish Kumar and Arun Kumar (2005) highlighted the importance of Information Technology (IT) as a modern day techno-management tool that would benefit institutions of higher education in India. Gumala Suri (2005) reported that Spanish and Indian universities have been changing fast due to the development of new Information and Communication Technologies (ICT).

The author has mentioned that user satisfaction is a widely used measure of ICT success. The author has concluded by providing a conceptual model for implementing a good technical system. It is mentioned that ICT is used in administration to support the business strategies and processes of higher education institutions, and a “dynamic new shift occurred in higher education” due to the application of ICT in University administration. This facilitated creation of large and complex institutions that could function with increased efficiency and user-friendliness.

It is also mentioned that usage of ICT in higher education administration involves “harnessing technology for better planning, setting standards, effecting change and monitoring results of the core functions of universities. One of the key conclusions
arrived at is that the integration of ICTs in higher education is inevitable (UNESCO, 2009). Olive Mugenda (2006) said ICT fosters the dissemination of information and knowledge by separating content from its physical location. This flow of information is largely impervious to geographic boundaries allowing remote communities to become integrated into global networks and making information, knowledge and culture accessible, in theory, to anyone.

ICT is used in maintenance of student and staff records and for communication and document management (OECD, 2001). Ashish Kumar and Arun Kumar (2005) have mentioned about the positive perception towards the use of ICT in education. It is mentioned in the study that students of different universities reported the usage of ICT for communication and for on-line discussion forums. ICT facilitated contact and information exchange and also promoted access to higher education. ICTs included systems for student admission and records, examination results and transcripts, finance database, human resources database, and management information.

Various literature reviews reveal that Information administration is one part of overall administration of education institutions which mainly covers general and day-to-day operational activities. Hence, it could be concluded that Information administration cycle includes four major components namely, Student administration, Staff administration, and General administration. A theoretical model for Information administration has been formulated, and is depicted below:
Information administration in this context refers to activities relating to the management of higher education institutions which is often mentioned in other studies as managerial activities in higher education institutions. The administrative systems include Personnel administration, student administration, resources administration, financial administration and general administration (Maki, 2008). Based on the literature review the three main functional areas of information administration that are of great significance for day-to-day management of higher education institutions was identified as follows; Student administration, Staff administration and General administration.

Student administration is an important and integral part of information administration. This involves various activities commencing from the admission process to learning activities till processing of results and performance analysis. The integration of ICT into this process enhances the overall admission activities of higher education institutions by making it more accessible to many (Thomas Kwaku Obeng, 2004).

Based on the literature review, the important items identified under this category relates to the automation of admission process through e-media. This includes admission enquiry by students, applying for admissions through electronic media, registration / enrolment
using computers, course allotment, and availability of information like timetable / class schedule in electronic form and attendance monitoring / maintenance through e-media. Further it includes the various communications relating to transport, hostel accommodation and other communication to guardians/parents. The integration also helps in expansion of the geographical boundaries for student intake, thus facilitating cross-border higher education.

Staff administration includes recruitment and work allotment of faculty and staff in the institution, their attendance and leave management, and performance appraisal. This also includes relevant communication to and from the institutions and among peers. Staff administration done through Information and communication technology (ICT) helps in processing of voluminous records in a quick, meticulous, and impeccable manner thereby making data retrieval easier (Thomas Kwaku Obeng, 2004).

In general, a good communication system should also be in place for the overall effectiveness of administration. ICT helps in providing a good communication system in higher education system (Magni, 2009). ICT helps in providing timely information to all concerned. Communication could be for internal and external information acquisition and dissemination. It includes communication between the important stakeholders of the system such as sending e-circulars to students, faculty and staff. The dissemination of information about the institution using e-kiosks is also a very important item to be considered. The relevant aspects of communication have been clubbed with Student administration and Staff administration for this research study.
A very important part of Information administration is general administration of higher education institutions which includes the various day-to-day activities of the entire system. Through literature reviews, it is evident that the integration of ICT into general administration has brought increased efficiency and optimal resource utilization (Hasan et al., 2007). The various items classified under this category include usage of electronic media for scheduling of halls and other resources, fee payment, and handling internal and external examination activities in coordination with the faculty members, all day to-day activities, and intra and inter communication etc.

2.5 Status of Resources Used in E-Governance Programme of Service Delivery in Public Universities

Fair-weather (2002) argues that faculty have been characterized as barriers to ICT use in higher education and this contributes to the clients’ negative view of faculty efficiency in service delivery. Research has shown that university education can make optimum contribution to national development by intensifying and spreading its programme through utilizing ICT to improve the quality of higher education.

Bhattacharya, Gulli and Gupta (2012) conducted a research study and proposed a set of seven items for assessing the e-service quality of government portals. These items can provide insight on users’ needs to government portal developers for the purpose of improving the design and implementation of online services. Like many research studies, this research study is no exception to those studies that lack to provide the basis or rationale in selecting service quality dimensions.
For Tat-Kei Ho (2002), under the e-government paradigm, public managers shift from emphasizing producer concerns such as cost-efficiency, to focusing on user satisfaction and control, flexibility in service delivery, and network management with internal and external parties. This paradigm stresses innovation, organizational learning and entrepreneurship so that institutions can continue to reinvent themselves.

Naz (2009) conducted research by proposing hypotheses to assess whether e-governance is positively related to the outcomes of effectiveness, efficiency and equity in services. The research concludes that benefits of public service delivery through e-governance can be much above the citizen expectations in achieving effectiveness, efficiency and equity that are treated as principal aims of the quality from public management perspective.

Ajayi (2002) argues that with the proper utilization of ICT facilities for information services delivery, it has become easier for most public universities to handle high enrolment rate. This offers new opportunities for rapid communication and access to information worldwide as it increasingly been used by all sectors of the society and this made the information resources of the world more accessible to ordinary people all over the world.

Customer services according to Gronroos (2001) can be divided into high touch and high-tech services. High touch services are mostly independent to people offering the services whereas high tech services are predominantly based on the use of automated systems. Therefore, one should always remember that high-touch also includes physical resources and technology based systems that have to be managed and integrated into the service process in a customer oriented fashion (Gronroos, 2001). Consequently, electronic services include both
high-tech and high-touch services. For example, high-tech services include online pay, Mobile billing, ATM machines, etc whereas high-touch services consist of instructions and personnel assistance in using the services. The current study sought to find out the status of resources used in ICT programme of service delivery in public universities, Kenyatta University in particular.

2.6 Access to E-Governance Service Delivery in Public Universities

The stakeholders in e-governance are government, investors, employees, vendors, intermediaries and citizens. Various environmental variables that exert an impact upon implementation of e-governance are Social, Political, Legal and Economic. This also includes internal aspects which cover IT applications to increase efficiency and effectiveness of internal functions, internal communications and internetworking (Ray and Dash 2005).

The broad vision of the state (GOMP, 2007) for the IT sector is to improve the life of the common man by leveraging the strengths of e-governance, attract investment in the sector so that educated youth can contribute to the development of the state, create a pool of highly skilled professionals who are at par with the best in the country, and transform a resource based economy to a knowledge based economy. Regardless of whether a company’s core offerings are products or services, superior service quality is essential for excellent performance on an enduring basis. The rationale behind this conclusion is that service quality is much more difficult for competitor to copy than product quality and price (Parasuraman and Grewal, 2000).
Studies by Ozioko (2005) and Nwachukwu (2005) recommends that users of ICT should possess some skills of ICT for a better and quick information retrieval. The utilization of ICT facilities for information service delivery becomes a crucial one. It is so because with the utilization of ICT facilities, institution would be able to provide a clear demonstration and address the needs and desires of the teeming users of information.

In a study by Chisenga (2007) on the skills of information technologies in Zambia found that any library that has effectively utilized ICT facilities in its services delivery can boast of having world wide access to much information to meet the needs of its users. Lau (2003) pointed out that the availability of I.C.T and skilled workforce with good capacity for learning is essential for e-governance along with other factors like leadership, regulatory frameworks, financial resources, organizational conditions, and Information and technology infrastructure. The current study sought to establish the status of accessibility to ICT-based service delivery in public universities in Kenya.

2.7 Extend to which E-Governance Transforms Service Delivery

Most researchers argued that e-government is mainly driven by the desire to improve accessibility to public information and services, lower costs, and improve efficiency (Adeboye, 1995; Herman, 1996; Heeks, 2002; Holzer, 2004; Kenny, 2001; Welch E.W, 2005 ;). Kashorda (2009) observed that the Kenyan government has increased access to computers in all ministries. However, Thompson (2009) argued that computers do not necessarily translate to positive outcome.
Rationalization and simplification of the vast number of regulations and procedures through computerization, cut-short delays and enhance the quality of service-delivery. E-governance not only reduces paper work, but also facilitates speedy communication and effective coordination. This ultimately reduces red tape and corruption and helps in providing more and better service at lesser cost (NASSCOM, 2003). For example, as a result of legal obligations and widely available information technology many public agencies aim to decrease administrative costs for businesses. To emphasize and spur the transformational effect of IT implementation in government, this new generation of e-government initiatives is referred to as Transformational Government, defined as a driver for generating greater benefits from e-government (Irani Z., Elliman, T. and Jackson, P. 2007).

Instead, they claim that IT reinforces the current institutional structure of public administration (Kraemer & King 2005). Realization of increased benefits of e-government, therefore, requires changes in multiple directions besides IT implementation. A prominent expectation is that government organizations become more customer-oriented (Peristeras & Tarabanis 2000), requiring organizations to transform back office processes beyond merely setting up a service delivering front office (Dhillon, G. S., Weerakkody, V. and Dwivedi, Y.K., 2008). A transformation from organizations with a traditional vertical command and control structure will take place by moving away from this silted structure in which islands of IT perform isolated tasks to performing tasks as part of chains or networks (Castells 2000; Bannister 2001).
Nwachukwu (2005) in his study on information technology application to libraries in developing countries points out that that ICT in library is a tool which could provide users or consumers in an institution with the opportunity for optimum organizational utilization which include enhance user satisfaction, cost effectiveness, integration and effective service focus. In support to this notion, Iya (2008) in his study on internet resources and productivity in scientific research in Nigerian universities reported that with the utilization of ICT in reference services information sources are now found in libraries and information centres to answer inquiries through a variety of mixed ways such as data bases, the internet, online library services, e-mail, fax, video tapes, CD’s diskettes, among others.

A research conducted by the Commonwealth Telecommunications Organization (CTO) undertaken in Ghana, India and South Africa revealed that demand and supply factors affects the provision of services by use of IT systems. It further reported that, expense was the main reason for respondents not using e-services in South Africa, while a perceived lack of demand for services was the least important. In contrast, it was noted that in Ghana, there was a feeling that there is no need for the e-services while local language issues was cited as the least important (CTO, 2007).

Schuppan (2008) in his article E-government in developing countries: Experiences from sub-Saharan Africa addresses the different institutional and cultural contexts which must be considered when implementing ICT services in institutions and organizations in sub-Saharan Africa. It was clear that the development potential of ICT services can only be realized if certain minimum preconditions exist in the country or if they are taken into consideration during implementation. Due to institutional conditions in Africa, longer preparations and
project times (compared to developed countries) are expected when implementing ICT project. The article suggested that different administrative contexts and rationalities must be taken into account when implementing ICT projects and strategies to ensures success.

In Kenyan institutions and organizations, connectivity is now sufficient and human resource capacity to support it is plenty. The laying of the fiber optic cables opened Kenya’s potential to be IT and ecommerce hub. The enacting of Kenya Communications (Amendment) Act 2008 also previously known as the ICT Bill has played a role in the creation of conducive IT environment. The law geared towards encouraging e-services and protects the privacy of the public, interests of consumers and clients from potential misuse (Kemutai, 2009). However, little is known about the benefits of ICT utilization on service delivery in public universities in Kenya. The current study therefore sought to find out the extent to which service delivery has been transformed in Kenyatta University.

2.8 Challenges of E-Governance in Public Universities and their Mitigations

Chadwick (2001) finds that institutions websites in the United States, Great Britain, and the European Union are predominantly non-interactive and non-deliberative, and concludes that e-institutions are not likely to reshape governance. Moon (2002) compares programmes and outcomes of e-government in US institutions. Major findings show that although e-government has been adopted by almost all public institutions, web sites remain at an early stage far from the achievement of the expected results.

Mishra, (2014) argued that the need of a comprehensive plan to bring E-Governance culture for the above mentioned problems. He suggested that the researchers must evolve a mechanism, and a simple and easily executable plan of action, as a way of improving
performance in higher education sector in India. This culture of E-Governance in higher education sector can be implemented by administrators and academicians. Computerization of university is assuming an ever increasing role as the demands being placed on university escalate, the reason of the demands may be due to the increasing number of students and greater demands for sound fiscal management and planning.

Dhakal and Jamil (2010) provided challenges of ICT use and their effects on the service delivery in Nepal. Data revealed that the majority of the respondents viewed much improvement in terms of easier to know information in time (70%); easier to make complain (59%); and service delivery in time (52%). On the other hand, more than half of the respondents confirmed that reporting of services has been in the improvement process. The study concluded that improvements have been felt through the application of ICTs; however, there was a feeling that there is still lack of skills on the use ICT for the better delivery of services.

The factors for failure are those occurrences that constraint proper/smooth implementation and use of ICT projects in the universities. These can either be barriers or inhibitors as described by Ndou (2004). Some of these factors that hinder success use of ICT include: Infrastructural status, finances, poor data systems and lack of compatibility, level of personnel skills, leadership styles, culture, and bureaucracy and user attitudes. The best way to achieve maximum benefit for ICT implementation is to have all the factors for success with no occurrence of the factors for failure (Bhatnagar 2003).
The studies in the literature revealed various challenges facing the adoption of ICT in service delivery. However, these issues do vary with respect to context and setting in which services are delivered. The current study specifically sought to identify the challenges of ICT-based e-governance in Kenyatta University.

2.9 Strategies for effective ICT utilization in Services Delivery in Public Universities

Modern technology like, optical fiber cabling, Wi-Fi shall be used in order to connect the departments in campus as well as with the outer world through internet. In spite the widening digital gaps the ICT policy does not have a specific mechanism to ensure inclusion and equal access (UN, 2010). In order to implement the information system for various purposes, university requires a complete procedural re-engineering. In view of limited resource and revenue, the computerization of universities would be more challenging.

Kandiri (2006) observed that addressing the challenges of e-government requires an enabling ICT policy environment, leadership at the highest level. The digital divide will multiply this challenge in reaching a larger segment of the stakeholders, especially the students. Lack of infrastructure, scarcity of local technical expertise, unnecessary bureaucratic and weak legal supports will make it more difficult for universities in India to implement E-Governance. In the view of Kandiri (2006), although resistance towards technology could be among the main challenges, there is no evidence that the universities have created awareness amongst its staff and students on the benefit of e-governance in transformation of service delivery.
Bhatnagar (2003) that best way to achieve maximum benefit for ICT implementation is to have all the factors for success with no occurrence of the factors for failure. However, in real world that is not the case. Given such a situation, an action to increase the chances of success is always required. Settles (2005) notes that the process of implementing e-government solutions requires new managerial and technical skills to plan, evaluate, manage, finance and integrate information systems as part of government operations.

Ekweme (2001) enumerated some ICT facilities that should be provided to the academic libraries for a better service delivery such as telephone, fiber optics, satellite, fax, television, micro films, micro cards, facsimiles, photocopiers, microcopies, electrocopies, duplicating machine, printers CD-ROM, computers, internet etc.

Adegboyega, Tomasz, Elsa and Irshad (2007), Information Technology (IT) skills are technical skills necessary to implement e-government in order to facilitate smooth service delivery through improved information management. These may include basic IT literacy for all employees, and technical skills for IT specialists to design and implement technical elements: hardware, software and communication of e-government initiatives. Specific IT-skills may include: Strategy and Planning, System Development, System Implementation and Maintenance, and Service and User Support.

Nworgu (2006) opined that the national information technology policy should be revised, there should be proper coordination of ICTs policies and programmes. Longshak, Daze and Duse (2003) suggested that federal ministries of education, information science and technology, state library boards as well as governing bodies of all other special and
research libraries should embark on a nationwide computerization, networking, website design and hosting of all these libraries. From these process an indispensable information resources forum would be created affording all academic, research institutions and organizations the opportunity to tap from, thus would enhance the development processes of the nation at large they added.

Okore (2005) believed that building a reservoir of ICT manpower in the libraries as well as ICT infrastructures are necessary strategies. Okore (2005) further stated that government should provide adequate funds; necessary infrastructural facilities and the national information technology policy should be implemented to enhance efficient services delivery using ICTs in the libraries.

Ezeugwu (2006) recommended that there should be an orientation, workshops, seminars and conferences for the purpose of sharing ideas between older and younger service providers that would create a mutual understanding between the traditional service providers and those with ICTs skilled. According to Jibril (2009) government should enforce compulsory ICT training at all levels of education. Jibril (2009) described ICT as a language for survival in the world and bedrock of development of any nation and this can be done when ICT is made compulsory not only teaching and learning but also in educational administration and management. The current study also sought for mitigation strategies being taken towards curbing the challenges facing ICT-based e-governance in public universities.
2.10 Summary and Research Gaps

The review of related literature was based largely on documentary sources. They include text books, journals, conference proceedings, seminars/workshops paper and they were both print and electronic resources (accessed on the internet). A good number of the information resources consulted for the review are Nigerian origin. The review has given the researcher insight to understand more of the topic under study from the contributions of the literature reviewed it has become more evident that for universities to deliver an effective and efficient information service delivery at present era of information and communication technology, ICT facilities has to be readily available and should be properly utilized for the service delivery. It is also discovered from the reviewed related literature that service delivery are associated with some problems that hinder them to make their needed ICT facilities available and effective utilization. It is also evident from the reviewed literature that, many studies have been carried out in ICTs, especially in areas of availability and utilization particularly in institutions of higher learning. However to the best knowledge of the researcher much has not been done in this area at public universities in Kenya. This is why the study on to evaluate the application of ICT in service delivery in Kenyatta University is relevant and timely.
CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter detailed research design, study locale, target population, sample and sampling procedure, research instruments, piloting, data collection procedure, data analysis and presentation.

3.1 Research Design

A case study design was used for this study. Case studies are widely used in many social science studies, especially when an in-depth explanation of a social behaviour and a contemporary phenomenon within its real life context is investigated. The survey described the status of e-governance and analyzes the challenges of this type of institution management. Yin (1994) also points out that a case study allows an investigation to obtain the holistic and meaningful characteristics of real life events. It is a method of study which is in depth rather than breadth and lays more emphasis on a limited number of events and other interrelations. Previous studies of similar nature have successfully used this method Koske (2003), Muthuiya (2004), Machuki (2005), Olali (2006), Atandi (2010), Miako (2011) and Nyariki(2012) among others. Since the focus of the study was one organization, a case study was the most appropriate design.

3.1.1 Study Variables

Table 3.1 below shows the variables to the study and their measurement.
Table 3.1: Variables and their measurement

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<thead>
<tr>
<th>Independent variable</th>
<th>Measurement</th>
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<tbody>
<tr>
<td>ICT Resources</td>
<td>Availability of:</td>
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<td></td>
<td>1. Computers</td>
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<td>2. Printers</td>
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<td>3. Internet</td>
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<td>4. Photocopier</td>
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<td>5. Projectors</td>
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<td>6. Television</td>
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<td>7. Digital cameras</td>
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<td>Accessibility to ICT resources</td>
<td>• Free and accessible WiFi</td>
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<td></td>
<td>• Reliability</td>
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<td></td>
<td>• Adequacy of computers</td>
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<td></td>
<td>• Equity in access</td>
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<td>Challenges and Interventions</td>
<td>1. Policy &amp; Strategy</td>
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<td></td>
<td>2. Co-ordination and communication</td>
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<td></td>
<td>3. Supervision system</td>
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<td>4. Evaluation</td>
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<td>5. Financial management</td>
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<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Measurement</th>
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</thead>
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<tr>
<td>Transformation of service delivery by ICT resources in public university</td>
<td>• Efficiency in service delivery in public universities.</td>
</tr>
<tr>
<td></td>
<td>• Accessibility to information and services by students and staff.</td>
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<td></td>
<td>• The state of quality of services.</td>
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<tr>
<td></td>
<td>• Ensure accountability, responsiveness and transparency in public universities governance</td>
</tr>
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</table>
3.2 Study Locale

Kenyatta University is situated along Nairobi/Thika Road in Nairobi County, about 23 kilometers from Nairobi city. It was previously a military barrack known as Templer Barracks. It was converted into a teachers’ college (Kenyatta College) in 1965. It became a constituent college of the University of Nairobi in 1970, training mainly teachers. It achieved university status when the Kenyatta University Act received Presidential assent in 1985. This made it a fully-fledged university and was renamed Kenyatta University.

The university currently has 14 schools and it offers degree courses in physical sciences, social sciences, business studies and environmental sciences. Kenyatta University is renowned for its programme in education for which it is considered the leading in Eastern and Central Africa (MwiriaK., Ng’ethe N., Ngome C., Ouma O.D., WawireV. &Wesonga D, 2007). Kenyatta University currently has the highest number of programs; most are given both at undergraduate and postgraduate levels. Diploma courses are also being offered by some departments. The university has ODEL-programme, e-learning, University-based, part-time and full-time teaching. This has led to it being the second largest institution of higher learning in Kenya after Nairobi University with a very large student’s population and intake. Currently it has 20 campuses and constituent colleges. Kenyatta University being the only institution with digital school, made this appropriate institution for the study.
3.3 Target Population

Target population encompasses the individuals to be studied (Mugenda & Mugenda, 1999). This study involved 61496 third year students from the University, 10 heads of the 14 departments and 5 I.T staff at Kenyatta University.

3.4 Sampling Procedure and Sample Size

Sampling is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the larger group from which they were selected (Mugenda and Mugenda, 1999). A sample size of 196 was calculated using the following formula for determining sample size in social science as recommended by Mugenda and Mugenda (1999).

\[ n = \frac{Z^2pq}{12} \]

Where: \( n \) = the desired sample size since the total population is greater than 10,000
\( Q = 1-p \)
\( d \) = level of statistical significance, in this case 95%
\( n = \frac{(1.96)^2 (0.85)(0.15)}{(0.05)^2} = 196 \)

Simple random sampling was used to pick a representative sample of 196 3rd years students from Kenyatta university, 10 head of departments including five from the I.T department were purposively selected for the study and the results from the study were generalized as this size is consistent with normal distribution and standard statistical procedures as discussed by among others Mugenda and Mugenda (1999).
### Table 3.2: Sample Size

<table>
<thead>
<tr>
<th>Sample Size</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>It Officers</td>
<td>5</td>
</tr>
<tr>
<td>Students</td>
<td>$196 \left( n = \frac{z^2pq}{12} \right)$</td>
</tr>
<tr>
<td>Head Of Departments</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total population</strong></td>
<td><strong>211</strong></td>
</tr>
</tbody>
</table>

Source: Researcher.

### 3.5 Study Instruments

The researcher used questionnaires to conduct the study an interview schedule as supplements to the questionnaires which were administered to the Heads of departments and I.T Officers in the University.

#### 3.5.1 Questionnaire for Students

According to Orodho (2003), a questionnaire offers considerable advantages in its administration; it brings out information that lies deep within the minds, or within attitudes, perceptions and feelings beyond the researchers reach. The questionnaires were used to obtain information from students in the university about accessibility and equity, status of e-resources and challenges and their mitigating strategies. The researcher used close-ended questions, open-ended questions, and contingency and likert-scale questions.

An open ended questionnaire requires the respondent to give direct views. Close- ended questionnaires are sometimes multiple choice questions, the respondents was given specific questions to respond to. Contingency questions are follow-up questions to close
ended questions. Linkert-scale questions are a group of questions which share the same response options.

3.5.2 Interview Schedule for Heads of Department and I.T Officers

According to Caswell (1982), an interview is a commonly used method for collecting data from the general public. However, it involves placing great reliance upon the integrity and skills of the interviewer. Interview refers to a social interaction between a researcher and the one, two or more participants. Interviews are a process and therefore a face-to-face encounter (Anderson (1990). According to Palton (1990), interviewing has an advantage of letting the researcher to penetrate the feelings and thinking of interviewees. It sought information on status of E-resources, accessibility and equity to e-governance and lastly challenges and mitigation strategies.

3.6 Piloting

Pilot testing is a trial run of procedures and instruments that one plans to use. Pilot testing may prevent costly mistakes. It is an important step in the research process because it reveals vague questions and unclear instructions in the instrument. The main purpose of pilot testing is to capture potential problems before they become costly mistakes. A pilot study was conducted to test the validity and reliability of the study instruments. The questionnaires were rendered to 20 randomly selected students and interview schedule to 1 head of department who were excluded in the actual study. The procedure was repeated after two weeks to test for validity and reliability of the instruments.
3.6.1 Validity
According to Wiersman (1985), validity is the extent to which the instrument measures what it is designed to measure. The researcher ensured that the instrument was clear, understandable, and in a logical order (face validity) and that the same variables were observed from all the sample participants. Lastly, the researcher consulted his supervisors to approve the content of the instruments (content validity), based on the study objectives.

3.6.2 Reliability
According to Mugenda and Mugenda (1999) reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. Reliability in research is influenced by random error, of which if it is high then reliability is low. To assess the reliability of instruments, test-retest technique was used. The research instruments were presented to the respondent in the institution selected for a pilot study then recorded, the same instruments were presented to the same group after two weeks and the results for both tests were correlated. The scores from the two testing period’s were correlated and a reliability index was determined using a coefficient level of 0.80. A significant level of 0.85 was achieved confirming that the research instruments were reliable. Creswell (2005) states that a positive correlation of 0.8 and above shows that the instrument is reliable.

3.7 Data Collection Procedure
Before proceeding to the field for the study, the researcher will obtain approval letter from Kenyatta university graduate school allowing him to collect data and then seek for a
permit from the National commission for Science, Technology and Innovation. Upon obtaining the permit, the researcher sought permission from the university and later visited the sampled University /departments to book appointments with the respondents; thereafter the researcher administered the data collection instruments to the respondents. Then he finally collected the data and proceeded for analysis.

3.8 Data Analysis

The data was analyzed by using quantitative approach of descriptive statistics. The responses that were received from the questionnaires and interview schedules conducted were analyzed using Statistical Package for Social Sciences (SPSS version 20) organized tabulated and analyzed using simple frequencies and percentages. Cross tabulations were used to analyze the ICT resources based on adequacy, functionality, non-functionality and unavailability. Descriptive statistics such as frequencies and percentages were used to describe the findings. Means and standard deviations were used to measure the impact of ICT on service delivery based on a Likert scale. Tables, bar-graphs and pie charts were used to present the findings of the study. Qualitative data such as challenges and measures obtained from the interview was organized into relevant themes, presented using direct quotes and discussed according to the objectives.

3.9 Ethical Considerations

The research sought informed consent and assured confidentiality of information gathered. According to Kothari (2005) subjects must be informed of the nature of the research in ideal and understandable language. Informed consent must be also documented and the researcher needs to guarantee anonymity and confidentiality.
CHAPTER FOUR
DATA ANALYSIS AND PRESENTATION

4.0 Introduction

This chapter presents the analysis of the collected data from 211 sampled respondents who included students, I.T officers and head of departments. The study aimed at establishing how e-governance transformed service delivery in public universities in Kenya, a case of Kenyatta University. The analysis was guided by the following objectives; Find out the status of resources used in e-governance programme of service delivery in public universities, Establish the status of accessibility to e-governance service delivery in public universities in Kenya, Find out the extent in which e-governance has transformed service delivery in public universities in Kenya and lastly to Identify the challenges of e-governance in public universities and their mitigation strategies

4.1 Response Rate

The study observed an average of 99% response rate from the study instruments whereby the questionnaires rate of return was 98% and the interview schedules recorded 100% rate of return. According to Hagger et al., (2003), the researcher should strive to achieve a response rate of 50 percent, 60 percent or 75 percent to a make conclusion to the study. Hence the study obtained a positive response. The results is as shown in the table 4.1
Table 4.1: Response rate

<table>
<thead>
<tr>
<th></th>
<th>Questionnaires</th>
<th></th>
<th>Interview schedule</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Rate of return</td>
<td>192</td>
<td>98%</td>
<td>15</td>
<td>100%</td>
</tr>
<tr>
<td>Non returned</td>
<td>4</td>
<td>2%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>196</td>
<td>100%</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.2 Demographic Information

The study considered the background information of the participating respondents. This information was required in order to provide the basis of establishing the characteristics of the target population and also deemed to form the basis of the study. The background information consisted of; Gender, Level of education, Time served in current working position and lastly Job position.

4.2.1 Gender

The figure 4.1 below shows the gender distribution of respondents to the study

![Gender Distribution](image)

Figure 4.1: Gender
From the findings in the figure 4.1 the study indicated that majority 58% of the respondents to the study were male while 42% were female.

### 4.2.2 Level of Education

The table 4.2 below shows the distribution of level of education of the respondents to the study.

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>185</td>
<td>90%</td>
</tr>
<tr>
<td>Masters</td>
<td>10</td>
<td>5%</td>
</tr>
<tr>
<td>PhD</td>
<td>9</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>207</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

From the findings in the table 4.2 above the study affirms that majority 185(90%) of the respondents were undergraduate students, seconded by 5% (10) who were masters students and then 4% (9) who had attained PhD level of educations and lastly 1%(3) had other levels of educations.

### 4.2.3 Time served in Current Working Position

Respondents were required to state the duration of their employment at Kenyatta University in their current positions and their feedback is as shown in the figure 4.2 below;
Figure 4.2: Time served in current Job position

From the findings in the figure 4.2 above the study affirms that majority 73% (11) of the respondents have been in their current Job position for a period of between 1-5 years while on the other hand 27% (4) have been serving in their current job for a period of between 6-10 years. It can therefore deemed that majority of the respondents have been working for the university in their specific positions for less than 5 years.

4.2.4 Job position

The findings in the Figure 4.3 below show the distribution of job Positions for the respondents to the interview schedule
Figure 4.3: Distribution by Job Position

From the findings in the figure 4.3 above the study established that 10(67%) of the respondents were heads of departments in Kenyatta university while 5(33%) were I.T officers at the Institution. The I.T personnel were very essential for the study since they are the ones with skills and capabilities to run the systems as confirmed by Adegboyega, Tomasz, Elsa and Irshad (2007), Information Technology (IT) skills are technical skills necessary to implement e-government in order to facilitate smooth service delivery through improved information management. These may include basic IT literacy for all employees, and technical skills for IT specialists to design and implement technical elements: hardware, software and communication of e-government initiatives.
4.3 Status of Resources Used in E-Governance Programme of Service Delivery in Public Universities

This is the first objective of the study which sought to establish the status of resources used in E-governance at public University. In achievement of this objective, the availability, state of function and non-availability of the ICT resources in the institution under study was analyzed. The students’ responses are presented in Table 4.3.

Table 4.3: Percentage Responses of the Students (Consumers) on ICT Resources Available in Kenyatta University

<table>
<thead>
<tr>
<th>S/N</th>
<th>ICT Resources</th>
<th>Adequate and functional</th>
<th>Functional but not adequate</th>
<th>Available but non-functional</th>
<th>Resources not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Stand mark comp</td>
<td>56</td>
<td>26</td>
<td>32</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>29.2</td>
<td>13.5</td>
<td>15.7</td>
<td>40.6</td>
</tr>
<tr>
<td>2</td>
<td>Networked comp</td>
<td>45</td>
<td>102</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>23.4</td>
<td>53.1</td>
<td>13.0</td>
<td>10.4</td>
</tr>
<tr>
<td>3</td>
<td>Printers</td>
<td>78</td>
<td>26</td>
<td>32</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>40.6</td>
<td>13.5</td>
<td>15.7</td>
<td>29.2</td>
</tr>
<tr>
<td>4</td>
<td>Scanners</td>
<td>20</td>
<td>46</td>
<td>25</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>10.4</td>
<td>24.0</td>
<td>13.0</td>
<td>52.6</td>
</tr>
<tr>
<td>5</td>
<td>Photocopier</td>
<td>50</td>
<td>32</td>
<td>32</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>26.2</td>
<td>16.7</td>
<td>15.7</td>
<td>40.6</td>
</tr>
<tr>
<td>6</td>
<td>CD ROMS</td>
<td>26</td>
<td>56</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>13.5</td>
<td>29.2</td>
<td>20.8</td>
<td>36.5</td>
</tr>
<tr>
<td>7</td>
<td>Flash drives</td>
<td>56</td>
<td>26</td>
<td>32</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>29.2</td>
<td>13.5</td>
<td>15.7</td>
<td>40.6</td>
</tr>
<tr>
<td>8</td>
<td>Projector</td>
<td>60</td>
<td>22</td>
<td>32</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>31.3</td>
<td>11.5</td>
<td>15.7</td>
<td>40.6</td>
</tr>
<tr>
<td>9</td>
<td>Internet/WiFi</td>
<td>101</td>
<td>40</td>
<td>31</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>52.6</td>
<td>20.8</td>
<td>16.1</td>
<td>10.4</td>
</tr>
<tr>
<td>10</td>
<td>Institutional website</td>
<td>56</td>
<td>26</td>
<td>78</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>29.2</td>
<td>13.5</td>
<td>40.6</td>
<td>15.7</td>
</tr>
<tr>
<td>11</td>
<td>Television</td>
<td>20</td>
<td>40</td>
<td>21</td>
<td>108</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>10.4</td>
<td>24.0</td>
<td>13.0</td>
<td>52.6</td>
</tr>
<tr>
<td>12</td>
<td>Telephone lines</td>
<td>101</td>
<td>46</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>52.6</td>
<td>24.0</td>
<td>13.0</td>
<td>10.4</td>
</tr>
<tr>
<td>13</td>
<td>Video Disc player</td>
<td>0</td>
<td>46</td>
<td>126</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>0</td>
<td>24.0</td>
<td>65.5</td>
<td>10.4</td>
</tr>
<tr>
<td>14</td>
<td>Audio tape player</td>
<td>0</td>
<td>26</td>
<td>88</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>0</td>
<td>13.5</td>
<td>45.8</td>
<td>40.6</td>
</tr>
</tbody>
</table>
Table 4.3 shows the percentages responses of students on ICT resources available in Kenyatta University. The results showed that ICT resources were available as: internet 101 (52.6%), Telephone lines 101(52.6%) printers 78(40.6%) and photocopiers 50(26.6%). However, majority 78(40.6%) of the respondents were of the view that stand mark computers were not available. Networked computers were functional but not sufficient as reported by 102 (53.1%) of the respondents. Findings of the study further revealed that institutional websites were available but not functional as reported by 78(40.6%) and finally 108(52.6%) reported that televisions were not available at all.

An interview with heads of department and ICT officers revealed that computers, printers, scanners, photocopiers, video players, audio players and DVDs were available and functional in all departments. However, one of the heads of the department lamented that:

“We have challenges in intercom, internet, and telephone lines since they occasionally function. The connectivity of internet is very low and sometimes rely on our own modems to facilitate our internet use. For telephone lines, most of them are malfunctioned due to rare maintenance.”

In another statement, one of the ICT officers admitted that:

“Currently we lack adequate fax machines, CD ROMs, flash drives, projectors, external hard discs, digital cameras and other updated softwares...But we have quite a number of computer accessories that are currently in our procurement list.”

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These findings imply that the institution was not fully equipped with all basic ICT resources necessary for effective service delivery within the institution. This means that the use of e-governance programmes to deliver services was not fully implemented.

These findings are supported by Lau (2003) who pointed out that the availability of I.C.T and skilled workforce with good capacity for learning is essential for e-governance along with other factors like leadership, regulatory frameworks, financial resources, organizational conditions, and Information and technology infrastructure (Lau, 2003).

In support to the findings of the current study, Akintunde (2008) maintains that the availability of some ICTs facilities in Nigerian tertiary institutions shows that there is some consciousness of the significant role that ICT can play in delivering library service, even though ICT is not fully embraced by most of the higher education libraries in the country. The author added that ICT facilities to academic libraries could give students, lecturers and researchers in developing countries the opportunity to bridge the knowledge gap between them and their counterpart in developed countries. Similarly, Ogunsola (2004) observes that ICTs have already begun to exert massive transformation of education system in developed countries distance education. Universities are now quoted on the stock exchange and the best teachers in the world are becoming available anywhere at the click of a bottom.

In agreement with the findings of the study, Ayo (2001) stresses that the essence of ICTs is its power to help individuals and societies achieve greater access to knowledge and ideas for the benefits of humanity. ICT also allow a new easy and better method of
carrying out a number of library operations. Traditional library services have consequently been displaced by new proactive ICTs available for a better service delivery.

4.4 Status of Accessibility to E-Governance Service Delivery in Public Universities in Kenya

The second objective of the study sought to establish the status of e-governance service delivery in public universities in Kenya. The researcher used a Likert scale questions of 1-5 items with key (1-Strongly agree, 2-Agree, 3-neither agree nor disagree, 4- disagree and lastly 5- strongly disagree) to get students’ feedback on status of E-governance integration in service delivery in their institution. Their feedback was recorded analyzed and presented as shown in the Table 4.4 below

<table>
<thead>
<tr>
<th>Table 4.4: Status of Accessibility to E-Governance Service Delivery in Public Universities in Kenya</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. There is free internet access in the university</td>
</tr>
<tr>
<td>2. There is reliable internet connection in the institution</td>
</tr>
<tr>
<td>3. There are adequate computers in the institution that can serve the whole students population</td>
</tr>
<tr>
<td>4. Both female and male students can easily access the university e-services</td>
</tr>
<tr>
<td>5. Lack of high level championship</td>
</tr>
<tr>
<td>6. There is equity in service delivery regardless of the level of authority</td>
</tr>
<tr>
<td>N=192</td>
</tr>
</tbody>
</table>
From the findings in the Table 4.4 the study established that majority 77(40%) of the respondents strongly agreed that there is free internet access in the university, they were seconded by 74(39%) who agreed, 30(16%) neither agreed nor disagreed to the statement. Whereas 6(8%) disagreed and lastly 5(3%) strongly disagreed.

On whether there is a reliable internet connection in the institution majority 63(33%) of the respondents indicated that they strongly disagreed and were seconded by 61(32%) who disagreed while 21(11%) neither agreed nor disagreed. On the other hand 42(22%) indicated that they strongly agreed and were seconded by 5(3%) of the respondents. On whether there are adequate computers in the institution that can serve the whole students population majority 42 % ( 81) of the respondents disagreed and were seconded by 7% (14) who strongly disagreed. 24% (46) of the respondents neither agreed nor disagreed. On the other hand 16% (31) agreed and were followed by 10 % ( 20) of the respondents who strongly agreed.

70% (93) of respondents indicated they neither agreed nor disagreed on the statement of whether both female and male students could easily access the university e-services. 25% (48) strongly disagreed to that and were seconded by 21% (48) of the respondents who disagreed. On the other hand 4% (7) agreed and were seconded by 2% (3) who strongly agreed.

The study recorded that majority 64 % (123) of the respondents strongly agreed that there is Lack of high level championship and were seconded by 9 % ( 17). 26 % ( 49) neither agreed nor disagreed to the statement, but on the other hand 25%(3) disagreed to the statements.
Lastly on the statement there is equity in service delivery regardless of the level of authority, Majority 55 % (105) indicated that they neither disagree nor agree to that. This shows uncertainty. 21 % (41) disagreed and were seconded by 8 % (15) who strongly disagreed. On the other hand 16 % (31) agreed and were seconded by 5 % (9) who agreed.

Students were further asked to provide the services that they received from the service providers in the institution. Figure 4.4 indicates the types of service offered by E-governance in the institution.

![Types of services offered](image)

**Figure 4.4: Type of services offered**

From the findings in the figure 4.4 above affirms that majority 19 % (38) of the respondents indicated that e-governance offers platforms for research and output, 18% (37) indicated that it offers distance learning services to online students, 17% (37) indicated that they offer results and fee statements for students online.
15% (32) of the students indicated that e-governance offers learning and examination service, the platforms offers advertisement and hiring this was confirmed by 11% (22) of the respondents, also 10% (21) suggested that they offer help desk services and lastly 10% (21) indicated that they offer students information services.

During an interview with heads of department and ICT officers, the respondents were requested to state the purpose served by computers in their institution. Majority of the ICT officers explained that most of the consumers utilize ICT resources during a teleconferencing and academic workshops scheduled by tutors. One of the ICT officers reported that:

“My students only use the computers and internets for educational purposes and interactions. However, the few who have the WiFi enabled phones hardly visit our centres, but rather do most of their work in their devices since network spots have been established in most parts within the institution. One could only come to seek for assistance in case he/she is not informed.”

In another statement by one of the heads of the department, it was said:

The services are reliable and averagely sufficient to our students to the public. However, due to the large numbers of students, we always refer them to websites and create emails where they can access the services at their own time.

These findings imply that consumers of the ICT facilities were eligible to access the resources through the available resources for the sake of institutional services. But the increasing demand due to large number of enrolment for services left a good number, especially those without computers and internet enabled devices not satisfied with the
services. It can be therefore deemed that accessibility to e-governance-based services was medium.

The findings are in line with scholars such as Nkanu (2008) who affirmed that computers as one of the ICT facilities are well established feature in service delivery. It is interesting at this juncture to point out that the utilization of ICT in libraries such as computers, software, audio tapes, video tapes, scanners, printers and other information gadgets have been derived to cope with and make a quicker, faster, wider flow of quality information and better library services.

According to Ajayi (2002) with the proper utilization of ICT facilities for information services delivery, it has become easier for most public universities to handle high enrolment rate. Ajayi (2002) added that it offers new opportunities for rapid communication and access to information worldwide as it increasingly been used by all sectors of the society and this made the information resources of the world more accessible to ordinary people all over the world.

In addition the internet as the international network of computers that provides a wider range of information in all facets of human endeavours. However, Ozioko (2005) and Nwachukwu (2005) advised that users of such ICT should possess some skills of ICT for a better and quick information retrieval. The utilization of ICT facilities for information service delivery becomes a crucial one. It is so because with the utilization of ICT facilities, institution would be able to provide a clear demonstration and address the needs and desires of the teeming users of information. According to Chisenga (2007) any
library that has effectively utilized ICT facilities in its services delivery can boast of having world wide access to much information to meet the needs of its users.

4.5 Extent in Which E-Governance Has Transformed Service Delivery in Public Universities in Kenya

The third objective of the study sought to find out the extent to which e-governance had transformed service delivery in public universities in Kenya. The objectives achieved its aim by using questions on both research instruments used for data collection in this study. The results were discussed in sub topics below;

4.5.1 All Student Services are Accessible Online

Respondents were requested to indicate their extent of agreement with whether all student services are accessible online and their response was recorded and presented as shown in the figure 4.5 below

![Figure 4.5: All student services are accessible online](image-url)
From the findings in the figure 4.8 above the study indicated that majority 48 %( 93) of the respondents strongly disagreed that all students services are accessible online, and were seconded by 28 %( 54). 21 % ( 40) were neutral on the statements whereas 2 % ( 4) indicated that they agreed and lastly 1 % ( 1) strongly agreed. This confirms that the institution has not fully integrated e-governance and service delivery online.

4.5.2 Extent to which E-Governance has Transformed Service Delivery in Public Universities in Kenya

Respondents were presented with various questions which sought to establish the extent to which e-governance had transformed service delivery in public universities in Kenya. The researcher used a Likert scale questions of 1-5 with key (1-Strongly agree, 2-Agree, 3- neither agree nor disagree, 4- disagree and lastly 5- strongly disagree ) to get feedback from the ICT officers and heads of department. The data was coded, analyzed and presented as shown in the Table 4.5.
Table 4.5: Extent in which e-governance has transformed service delivery in public universities in Kenya

<table>
<thead>
<tr>
<th>Statements</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portals are easily accessible by the users and the service providers.</td>
<td>4</td>
<td>27%</td>
<td>5</td>
<td>33%</td>
<td>3</td>
</tr>
<tr>
<td>The portals support online application for admission, accommodation by the students</td>
<td>9</td>
<td>60%</td>
<td>6</td>
<td>40%</td>
<td>0</td>
</tr>
<tr>
<td>Financial services are offered online like payment of University fee and inquiries</td>
<td>7</td>
<td>47%</td>
<td>8</td>
<td>53%</td>
<td>0</td>
</tr>
<tr>
<td>Centralized services management</td>
<td>6</td>
<td>40%</td>
<td>3</td>
<td>20%</td>
<td>5</td>
</tr>
<tr>
<td>The portals allows online registration of units by students and e-learning</td>
<td>4</td>
<td>27%</td>
<td>3</td>
<td>20%</td>
<td>8</td>
</tr>
<tr>
<td>Increased service efficiency</td>
<td>13</td>
<td>87%</td>
<td>2</td>
<td>13%</td>
<td>0</td>
</tr>
<tr>
<td>The portals are user friendly and easily accessible by both students and academic staff</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>47%</td>
<td>5</td>
</tr>
<tr>
<td>The portals have a higher traffic engagement and offer first and efficient services to users</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The portals have greatly assisted in implementation of e-governance in the institution and have reduced congestions and long queues</td>
<td>3</td>
<td>20%</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>University services are accessible anywhere within and outside the institution as long as there is internet connection</td>
<td>6</td>
<td>40%</td>
<td>4</td>
<td>27%</td>
<td>5</td>
</tr>
<tr>
<td>More transparency</td>
<td>10</td>
<td>67%</td>
<td>2</td>
<td>13%</td>
<td>0</td>
</tr>
<tr>
<td>The services are managed by I.T experts, thus no cases of inconveniences like breakdown or crashing of services</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>20%</td>
<td>2</td>
</tr>
</tbody>
</table>

N=15
From the findings in the table 4.5 the study established that majority 33 %( 5) of the respondents agreed that the Portals were easily accessible by the users and the service providers. And were seconded by 27 %( 4) who strongly agreed. Whereas, 20 %( 3) neither agreed nor disagreed but on the other 20 %( 3) disagreed to the statement.

The study established that majority 60% (9) of the respondents indicated that they strongly agreed that the portals support online application for admission, accommodation by the students and were seconded by 40 %( 6) who agreed to the statement. On whether financial services are offered online like payment of University fee and inquiries as a results of e-governance adoption, majority 53 % (8) of the respondents indicated that they agreed and were seconded by 47 %( 7) who indicated that they strongly agreed.

Majority 53 %( 8) of the respondents indicated that they neither agreed nor disagreed on the statement that suggested that the portals allows online registration of units by students and e-learning.27%(4) strongly agreed and were seconded by 20%(3) who agreed to the statement.

Majority 87%(13) of Respondents indicated that they strongly agreed that e-governance Increased service efficiency they were seconded by 13%(2) who agreed to that too. On whether the portals are user friendly and easily accessible by students and academic staff, majority 47%(7) of the respondents indicated that they agreed to the statement while 33% (5) neither agreed nor disagreed but on the other hand 20 %( 3) disagreed to the statement.
Majority 80% of the respondents indicated that they strongly disagreed to the statements which stated that The portals have a higher traffic engagement and offer first and efficient services to users, they were seconded by 13%(2) who disagreed whereas 7%(1) neither agreed nor disagreed.

The study established that majority 73 %( 11) of the respondents neither agreed nor disagreed on the statements that The portals have greatly assisted in implementation of e-governance in the institution and have reduced congestions and long queues while 20%(3) strongly agreed that but on the contrary 7%(1) disagreed to the statement.

The study established that majority40 % (6) of the respondents strongly agreed that University services are accessible anywhere within and outside the institution as long as there is internet connection, they were seconded by 27%(4) who agreed to the statements whereas 33%(5) neither agreed nor disagreed to the statement.

On whether e-governance has enhanced transparency in service delivery majority 67% (10) of the respondents indicated that they strongly agreed to that and were seconded by 13%(2) who agreed but on the other hand 20%(3) strongly disagreed to that .

Lastly on whether services are managed by I.T experts thus no cases of inconveniences like breakdown or crushing of services, majority 47%(7)of the respondents strongly disagreed to that and were seconded by 20 %( 3) who disagreed.13 %( 2) neither agreed nor disagreed but on the other hand 20 %( 3) agreed to the statements.
After the above analysis, students were asked to show the impact of ICT on service delivery. Mean and standard deviations were used to discuss the findings. The responses are as presented in Table 4.6.

**Table 4.6: Impact of ICT on Service Delivery**

<table>
<thead>
<tr>
<th>ICT Factors</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT systems has provided reliable service delivery</td>
<td>4.1</td>
<td>0.9</td>
<td>192</td>
</tr>
<tr>
<td>ICT has facilitated effective access to services</td>
<td>4.0</td>
<td>0.9</td>
<td>192</td>
</tr>
<tr>
<td>ICT has facilitated timely delivery of services</td>
<td>3.8</td>
<td>1.0</td>
<td>192</td>
</tr>
<tr>
<td>ICT systems has led to improved quality of service</td>
<td>4.1</td>
<td>1.0</td>
<td>192</td>
</tr>
<tr>
<td>ICT systems has provided effective means of communication within Kenyatta University</td>
<td>4.1</td>
<td>0.8</td>
<td>192</td>
</tr>
<tr>
<td>It has improved on incident reporting</td>
<td>3.8</td>
<td>0.9</td>
<td>192</td>
</tr>
<tr>
<td>ICT systems provides convenient customer feedbacks</td>
<td>3.6</td>
<td>0.9</td>
<td>192</td>
</tr>
<tr>
<td>IT systems has facilitated decision making at higher levels of management</td>
<td>3.5</td>
<td>0.9</td>
<td>192</td>
</tr>
<tr>
<td>ICT has boosted staff morale</td>
<td>3.5</td>
<td>0.8</td>
<td>192</td>
</tr>
<tr>
<td>ICT has improved staff working relationships</td>
<td>3.6</td>
<td>0.8</td>
<td>192</td>
</tr>
<tr>
<td>Average Mean and Std Dev</td>
<td>3.8</td>
<td>0.9</td>
<td></td>
</tr>
</tbody>
</table>

From the findings in Table 4.6, the respondents felt that IT systems has provided reliable service delivery (Mean = 4.1, Std. dev =0.8); and that ICT has facilitated effective access to services, timely delivery of the same services (Mean = 4.0, Std. dev =0.8); again respondents felt that, ICT systems has led to improved quality of service, and provided
effective means of communication within Kenyatta University (Mean = 4.1, Std. dev =0.8).

More so, it seems that ICT systems provides convenient customer feedbacks, (Mean = 3.8, Std. dev =1.0), and that, it has reduced congestion, boosted staff morale and facilitated decision making at higher levels of management (Mean = 3.5, Std. dev =0.9). In general, it was established that ICT adoption has had positive impact on the delivery of services at Kenyatta University, (Mean = 3.8, Std. dev =0.9).

These findings are in agreement with Nikko, Ilo and Odaro (2006) who submit that the ICT utilization in storage processing and dissemination of information has made the organization of information very efficient the delivery of information services more effective and the information dissemination to users also made easier.

In agreement with the findings, Nwachukwu (2005) also asserts that ICT in library is a tool which could provide users or consumers in an institution with the opportunity for optimum organizational utilization which include enhance user satisfaction, cost effectiveness, integration and effective service focus, faster and easier operational procedures. Basing on the consumer satisfaction with the services delivered in an institution, Eze and Chiaha (2007) ICTs has made people to conduct research and ask question in person in writing, by phone and fax and online by e-mail and by using chart rooms and video conferencing. Iya (2008) reported that with the utilization of ICT in reference services information sources are now found in libraries and information centres
to answer inquiries through a variety of mixed ways such as data bases, the internet, online library services, e-mail, fax, video tapes, CD’s diskettes, among others.

4.6 Challenges of E-Governance in Public Universities

The fourth objective of the study sought to identify the challenges of ICT-based e-governance in public universities. Respondents were required to indicate their extent of agreements to various statements presented to them which sought to establish the challenges of e-governance in public universities. The researcher used a Likert scale questions of 1-5 with key (1-Strongly agree, 2-Agree,3-neither agree nor disagree,4-disagree and lastly 5- strongly disagree ) to get feedback from ICT officers, Heads of departments and students. The data was later coded analyzed and presented as shown in the table 4.7 below

<table>
<thead>
<tr>
<th>Table 4.7: Challenges to E-Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
</tr>
<tr>
<td>--------------------------------------</td>
</tr>
<tr>
<td>1. Resistance to change within the administration</td>
</tr>
<tr>
<td>2. Concerns about security and confidentiality</td>
</tr>
<tr>
<td>3. Lack of political will and drive</td>
</tr>
<tr>
<td>4. Lack of skills amongst administration staff</td>
</tr>
<tr>
<td>5. Lack of high level championship</td>
</tr>
<tr>
<td>6. Students unresponsiveness</td>
</tr>
<tr>
<td>7. Concerns about risks and frauds</td>
</tr>
<tr>
<td>8. Poor internet connection services</td>
</tr>
</tbody>
</table>

N=192
The findings in the Table 4.7 above indicated the study outcomes when respondents were requested to indicate their agreement with suggested challenges to E-governance in their institution. Majority 52% (102) of the respondents indicated that they strongly agreed to the statements that suggested Resistance to change within the administration as a challenge to e-governance in their institution. They were seconded by 40%(76) of the respondents who indicated they agreed to the statement while on the other hand 8%(12) neither agreed nor disagreed.

On the statement of whether there are concerns about security and confidentiality, majority 73% (140) of the respondents indicated that they strongly agreed to that and were seconded by 27% (46) who agreed to the statement. Majority 50% (102) of the respondents indicated that they neither agreed nor disagreed that lack of political will and drive is a greater challenge in integration of e-governance in management of higher learning institutions and were seconded by 31%(64) who agreed to the statement whereas 17% (35) strongly agreed while on the hand 2% (1) disagreed.

The study established that majority 63%(130) of the respondents indicated that they strongly agreed that Lack of skills amongst administration staff is a great challenge in adoption of E-governance in their institutions and were seconded by 29%(55) who agreed to that while 8%(12) neither agreed nor disagreed. Lack of high level championship was indicated by majority 83% (67) of the respondents who indicated that they agreed that it is a greater challenge to e-governance adoption and were seconded by 17 %(30) who strongly agreed.
Student’s unresponsiveness was recorded as among the challenges to e-governance integration in higher learning institution this was affirmed by 34% (70) of the respondents who agreed and were seconded by 15% (31) who strongly agreed while on the other hand 51% (106) neither disagreed nor agreed to the statement confirming uncertainty.

Heads of department and ICT officers were also asked to state challenges that they faced during service delivery based on e-governance. All the five ICT officers lamented that the University experienced inadequate financial support as the major challenge. One of the ICT officers added that:

“The cost of some of these ICT resources is very high and expensive to maintain. The problem of erratic supply sometimes occur which render the most delicate equipment to malfunctioning scrap other than facilities. Henceforth, it can take longer to procure another.”

In another statement, another ICT officer complained that:

*Users sometimes interfere with the resources due to low ICT literacy...and eventually abuse the facilities. Occasionally, the users end up pick some parts of the facilities once its purpose has been achieved.*

One of the heads of department recommended that:

“...Even though the institution may purchase more ICT facilities to cater for the large number, service delivery may not be achieved until all users are introduced to basic skills and knowledge in ICT.”

The study findings confirms to Matavire and Brown (2008) who identifies access problems as part of the complexity of the digital divide. Access problems constitute
mental access, skills access, material access and usage. Also according to Ndou (2004) E-governance implementation faces issues such as; policy issues, ICT infrastructure, human capital development, change management, strategy, leadership role, and partnership and collaboration

The findings also confirms to Shapiro (2000) who suggests one of the challenges facing traditional universities intending to transform organizational structure to incorporate technological innovations in coming to terms with the process design for distance learning courses, without ignoring the organizational, managerial and financial constraints. Omekwu (2004) stated that the procurement of hardware and software as well as systems maintenance and replacement are very expensive. Womboh and Abba (2009) are of the opinion that lack of adequate bandwidth size and appropriate anti-virus and other necessary software can deny users of ICTs optimum utilization of even the facilities on ground in academic libraries.

Omoniyi (2005) lists some challenges militating against ICT utilization in libraries such as lack of adequate number of information technologists, high cost of needed hardware and software, lack of knowledge of the use of computer poor funding of tertiary institutions, non-availability or irregular power supply, poor telephone services, high cost of browsing on the net, insufficient infrastructural facilities and poor maintenance culture.

United Nations report on the World Public Sector indicates that many developing countries suffer from the digital divide, and they are not able to deploy the appropriate
infrastructure for e-Government deployment (World Bank, 2004). Same observation was made by Matavire and Brown (2008) who noted that e-Government implementations in developing countries are generally more problematic in comparison to those in the developed nations. These developing countries face many challenges for e-Government development and implementation such as: Policy issues, ICT infrastructure, human capital development, change management, strategy, leadership role, and partnership and collaboration (Ndou 2004).

4.7 Measures Put in Place to Counter the Challenges

The fifth objective sought to assess mitigation strategies taken to curb the challenges facing ICT-based e-governance in public universities. To achieve this objective, the frequency counts and the mean scores of the respondents of the strategies for the enhancement of ICT resources used were computed and analyzed from the filled questionnaires by the respondents. SA, A, D and SD were used to indicate the level of agreement or disagreement with each. Findings are as presented in Table 4.8.
Table 4.8: Measures put in place to counter challenges of e-governance in Kenyatta University

<table>
<thead>
<tr>
<th>Suggestions</th>
<th>SA</th>
<th>A</th>
<th>D</th>
<th>SD</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Purchase of ICT resources into the institutions</td>
<td>107</td>
<td>85</td>
<td>0</td>
<td>0</td>
<td>3.8</td>
</tr>
<tr>
<td>Mandatory requirement for everyone to have a personal computer/laptop by the University</td>
<td>104</td>
<td>88</td>
<td>0</td>
<td>0</td>
<td>3.8</td>
</tr>
<tr>
<td>Enhancing the wireless internet connection with the institution surroundings</td>
<td>99</td>
<td>93</td>
<td>0</td>
<td>0</td>
<td>3.7</td>
</tr>
<tr>
<td>Government policies and support to encourage E-governance in higher learning institution</td>
<td>82</td>
<td>92</td>
<td>18</td>
<td>0</td>
<td>3.5</td>
</tr>
<tr>
<td>Employment of Skilled I.T personnel to handle e-management platforms</td>
<td>87</td>
<td>101</td>
<td>4</td>
<td>0</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree.

Findings in Table 4.8 that all the strategies identified were all positively rated and accepted since none of the strategies mean score is below 2.5, the criterion mean. By implication all the strategies can be adopted for the enhancement of ICT resources use to service deliver in public university in Kenya. In ranking order; the best strategies are: purchase of ICT resources into the institutions should be increased (3.8), mandatory requirement for everyone to have a personal computer/laptop by the University (3.8), Enhancing the wireless internet connection with the institution surroundings (3.7), Employment of Skilled I.T personnel to handle e-management platforms (3.6) and government policies and support to encourage E-governance in higher learning institution (3.5).
In an interview with the Heads of department and the ICT officers, majority of the respondents suggested that the government should provide adequate funds for purchasing the necessary ICT resources which would consequently strengthen the quality of services delivered in the institution. In a statement by the one of the heads of department it was reported that;

“The ICT department should improve on maintenance of ICT equipment in all departments. In-service training on advanced ICT should also be facilitated within the institution in order to facilitate our services since most of us need to be well conversant with emerging technologies and emerging applications and software.”

One of the ICT officers complemented that:

“There should be mutual understanding within the organization in case our system is disrupted due to poor power supply. I think there is need to procure adequate infrastructural facilities and regular orientation would be done for our computer users especially in the libraries.”

The suggested interventions in the findings with the current study correlate with Bhatnagar (2003) that best way to achieve maximum benefit for ICT implementation is to have all the factors for success with no occurrence of the factors for failure. However, in real world that is not the case. Given such a situation, an action to increase the chances of success is always required. Settles (2005) notes that the process of implementing e-government solutions requires new managerial and technical skills to plan, evaluate, manage, finance and integrate information systems as part of government operations.
In agreement to the findings of the study, Ekweme (2001) enumerated some ICT facilities that should be provided to the academic libraries for a better service delivery such as telephone, fiber optics, satellite, fax, television, micro films, micro cards, facsimiles, photocopiers, microcopies, electro-copies, duplicating machine, printers CD-ROM, computers, internet etc.

According to Adegboyega, Tomasz, Elsa and Irshad (2007), Information Technology (IT) skills are technical skills necessary to implement e-government in order to facilitate smooth service delivery through improved information management. These may include basic IT literacy for all employees, and technical skills for IT specialists to design and implement technical elements: hardware, software and communication of e-government initiatives. Specific IT-skills may include: Strategy and Planning, System Development, System Implementation and Maintenance, and Service and User Support.

Nworgu (2006) opined that the national information technology policy should be revised, there should be proper coordination of ICTs policies and programmes. Longshak, Daze and Duse (2003) suggested that federal ministries of education, information science and technology, state library boards as well as governing bodies of all other special and research libraries should embark on a nationwide computerization, networking, website design and hosting of all these libraries. From these process an indispensible information resources forum would be created affording all academic, research institutions and organizations the opportunity to tap from, thus would enhance the development processes of the nation at large they added.
Okore (2005) believed that building a reservoir of ICT manpower in the libraries as well as ICT infrastructures are necessary strategies. Okore (2005) further stated that government should provide adequate funds; necessary infrastructural facilities and the national information technology policy should be implemented to enhance efficient services delivery using ICTs in the libraries.

Also, according to Ezeugwu (2006) there should be an orientation, workshops, seminars and conferences for the purpose of sharing ideas between older and younger service providers that would create a mutual understanding between the traditional service providers and those with ICTs skilled. According to Jibril (2009) government should enforce compulsory ICT training at all levels of education. Jibril (2009) described ICT as a language for survival in the world and bedrock of development of any nation and this can be done when ICT is made compulsory not only teaching and learning but also in educational administration and management.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary of the findings, conclusions, recommendations and Suggestions for further research.

5.1 Summary

The aim of this study was to establish how ICT has transformed service delivery in public universities in Kenya, a case of Kenyatta University, Kenya. The study was guided by four objectives which were to: find out the status of resources used in ICT programme of service delivery in public universities; establish the status of accessibility to ICT-based service delivery in public universities in Kenya; find out the extent to which service delivery has been transformed in public universities in Kenya; identify the challenges of ICT-based e-governance in public universities; and seek for mitigation strategies on challenges facing ICT-based e-governance in public universities. The data collected was coded, analyzed and presented inform of tables, bar graphs and pie-charts in the previous chapter four. The findings of the study were as discussed below.

5.1.1 Status of Resources Used in ICT Programme of Service Delivery in Public Universities

The study established that the status of resources used in ICT was inadequate to serve the entire students populations and also there was insufficient manpower who fully understood how to use the computers despite availability of the resources and platforms
which allowed the integration of E-services into the university management systems. Hence service delivery in the institution still remained to be uncreative due to underutilization of the resources. The institution was not fully equipped with all basic ICT resources necessary for effective service delivery within the institution.

5.1.2 Status of Accessibility to ICT-Based Service Delivery in Public Universities in Kenya

The study established that accessibility to resources in the institution is very poor due to the large student’s population of the university. The study found out that the internet connection is not reliable as confirmed by 63(33%) of the students and also that there were inadequate computers in the institution that can serve the whole students population this was ascertained by 42% of the student respondents. The findings implied that consumers of the ICT facilities were eligible to access the resources through the available resources for the sake of institutional services. But the increasing demand due to large number of enrolment for services left a good number, especially those without computers and internet enabled devices not satisfied with the services. It was therefore deemed that accessibility to e-governance-based services was average.

5.1.3 Extent to which ICT has Transformed Service Delivery in Public Universities in Kenya

This was the third objective to the study which intended to find out the Extent in which ICT had transformed service delivery in public universities in Kenya. The study established that all services were not accessible by students online which was affirmed by majority of the respondents 48 %( 93) who strongly disagreed that all student services are
accessible online. On determining impact of ICT on service delivery, findings showed that IT systems has provided reliable service delivery (Mean = 4.1, Std. dev =0.8); and that ICT has facilitated effective access to services, timely delivery of the same services (Mean = 4.0, Std. dev =0.8); again respondents felt that, ICT systems has led to improved quality of service, and provided effective means of communication within public university (Mean = 4.1, Std. dev =0.8).

5.1.4 Challenges

Majority of students felt that resistance to change within the administration, Concerns about security and confidentiality and lack of skills amongst administration staff were the major challenges experienced in service delivery based on the ICT. Most ICT officers complained that the cost of some of these ICT resources was very high and expensive to maintain and the problem of erratic supply sometimes could short circuit the most delicate equipment. Despite the fact that the institution might purchase more ICT facilities to cater for the large number, service delivery might not be achieved until all users are introduced to basic skills and knowledge in ICT.

5.1.5 Mitigating Strategies

In ranking order; the best strategies were: purchase of ICT resources into the institutions should be increased, mandatory requirement for everyone to have a personal computer/laptop by the University, enhancing the wireless internet connection with the institution surroundings, employment of Skilled I.T personnel to handle e-management platforms and government policies and support to encourage ICT in higher learning institution.
5.2 Conclusions

The study concludes that the investment in ICT has a significant positive influence on the service delivery. That might be due to lower transaction costs, e.g. for information for purchasing inputs as well as distributing and providing services. Evidently, the ICT adoption influences service delivery in the learning institution. Considering how fast the world are moving in the development, procurement and of information and communication technology, public universities should make immediate step to catch up if it want to keep in track. ICT brings a lot of advantages and has a great impact on human and business daily life. Therefore, ICT development is the best choice in helping higher institution of learning stay on the track, and that is why ICT development is important for Universities’ future.

The degree to which ICT can improve universities administrative systems may be difficult to measure reliably. How new technological tools are used within the framework of existing organizational environments depends more on the will of managers and decision-makers than on institutions administrative traditions, since high standards of e-government can be found in all sectors of public administration traditions. Also, it depends on the previously acquired ICT skills by the users.

It seems that the advent of e-government has brought about new opportunities to enhance governance. Issues of governance such as openness, participation, accountability, effectiveness and coherence, transparency, mechanisms for consultation and participation and efficient services are present throughout the literature of multilateral institutions but not in the list of items proposed by respondents for the different sections of the questionnaire and interview schedule.
The study concludes that, unless ICT literacy is improved through in-service training with the institution, the quality of service delivery remains low even if all the ICT facilities are procured by the institutions. Adequacy is not only a contributing factor to implementations, but also skills and knowledge on ICT based on application of new technologies, innovated soft wares and applications. Basing on the facts recorded by this study, ICT still has a long way to go before being fully integrated into the higher learning institutions systems due to many challenges that are yet to be coped with.

5.3 Recommendations

- The study recommends that the institutions invest more in information technology so as to improve on the current ICT situation in the universities and increase the countries competitiveness, productivity and growth through investment in information technology. The quality of the system used is bound to dictate the level of service delivery that transforms to customer satisfaction.

- Kenyatta University plus other universities and private colleges should increase funding on resource acquisition and training of its personnel since the study identified inadequate ICT staff training and development as the main challenge encountered by the institution under study in implementation of ICT service delivery and this has a major impact affecting the quality of service delivery through use of ICT payment system.

- The institutional management should train its employees in the handling of users’ complaints and the importance of having positive attitude towards its consumers. The institution should further find out ways of motivating its employees as the study found
out that lack of motivation was hampering the quality of service delivery through use of ICT system.

- More trainings and workshops should be set for workers in the institution to enhance their knowledge and skills on ICT. Still, killed employees with past experience in ICT should be incorporated into the institutions to run the systems.

### 5.4 Suggestions for Further Studies

The study only focused on the impact of ICT on service delivery at Kenyatta University. The effectiveness of ICT adoption in the study was looked from improvement in service delivery which was again measured by efficiency, accessibility, quality of services, accountability, responsiveness and transparency in public universities governance. However, other major objectives of service delivery like reducing corruption, reducing cost and motivational procedures if studied in future research, then it would add more value to the effectiveness of service delivery in public institutions of higher learning.
REFERENCES


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APPENDICES

APENDIX I: INTRODUCTORY LETTER TO THE RESPONDENTS

Through

University of Education

Kenyatta University

Dear respondent

I am a student at Kenyatta university main campus taking M.E.D course. In partial fulfillment of the course requirement I am conducting a research on E- Governance and transformation of service delivery in public universities, a case of Kenyatta University, Kenya. With regards I request you to spare a few minutes to fill in the questionnaire as diligently as possible. The information in this questionnaire were strictly confidential and will not be used for any other purpose than for this research. Your assistance in facilitating this research were highly appreciated.

Thanks in advance.

FRANCIS CHEMION MASAI

M.E.D STUDENT, KENYATTA UNIVERSITY
APPENDIX II: INTERVIEW SCHEDULE FOR HEAD OF DEPARTMENTS AND I.T OFFICERS

Introduction

This interview is intended to collect information on E-governance and transformation of service delivery in Kenyatta University. This information were strictly confidential and will not be used for any other purpose than for this research.

PART A: GENERAL INFORMATION.

Please tick as appropriate.

1. Gender
   Male [ ]
   Female [ ]

2. What is your level of education?
   Certificate [ ]
   Diploma [ ]
   Bachelor degree [ ]
   Masters [ ]
   PhD [ ]

3. How long have you been in this position?
   1-5 years [ ]
   6-10 years [ ]
   11-15 years [ ]
   Over 16 years [ ]

4. Job position.................................................................

SECTION B: Status of resources used in e-governance programme of service delivery in public universities

5. What is your experience with the running of the University in regard to the following issues?
(a) Are there adequate computers in your University that can serve the whole students population?
Yes [  ]
No [  ]

If yes in (a) above, kindly explain to us what purpose do the computers serve in your institution?
..........................................................................................................................................
..........................................................................................................................................
..........................................................................................................................................
..........................................................................................................................................

(b) How has e-governance transformed service delivery in this university?
..........................................................................................................................................
..........................................................................................................................................
..........................................................................................................................................
..........................................................................................................................................

(c) There are various portals and websites used for different purposes in your University?
Strongly disagree [  ]
Disagree [  ]
Neutral [  ]
Agree [  ]
Strongly agree [  ]

(d) What kinds of services are delivered through the University portals?
..........................................................................................................................................
..........................................................................................................................................
..........................................................................................................................................
..........................................................................................................................................

(e) How appropriate and reliable are the services delivered online to the users?
..........................................................................................................................................
..........................................................................................................................................
..........................................................................................................................................
.............................................................................................................................................
6. Tick yes or no whether you agree or disagree with the statements below. Use (✓) to tick in the provided spaces below.

<table>
<thead>
<tr>
<th>Statement</th>
<th>YES(✓)</th>
<th>NO(✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The portals are easily accessible by the users and the service providers</td>
<td></td>
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</tr>
<tr>
<td>The portals support online application for admission, accommodation by students</td>
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<tr>
<td>Financial services are offered online like payment of Universities fees and inquiries</td>
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<td></td>
</tr>
<tr>
<td>The portals allow online registration of units by students and e-learning</td>
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<tr>
<td>The portals are user friendly and easily accessible by both students and academic staff.</td>
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<tr>
<td>The portals have a higher traffic engagement and offer first and efficient services to users</td>
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<tr>
<td>The portals have greatly assisted in implementation of e-governance in the University and have reduced congestions and long queues.</td>
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<tr>
<td>University services are accessible anywhere within or outside the University as long as there is internet connection.</td>
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<tr>
<td>The servers are managed by I.T experts, thus no cases of inconveniences like breakdown or crashing of servers.</td>
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</tbody>
</table>

7. What are the challenges that e-governance service delivery faces in this institution?
   a. ................................................................................................................................
   b. ................................................................................................................................
   c. ................................................................................................................................
   d. ................................................................................................................................
   e. ................................................................................................................................
   f. ................................................................................................................................
8. What measures have been put in place to counter the challenges faced by e-governance in this institution?

a. ..............................................................................................................

b. ..............................................................................................................

c. ..............................................................................................................

d. ..............................................................................................................

e. ..............................................................................................................

f. ..............................................................................................................

“THANK YOU”
APPENDIX III: QUESTIONNAIRE FOR STUDENTS

This questionnaire is intended to collect information on how ICT has transformed service delivery in public universities; a case study of Kenyatta university. The information in this questionnaire were strictly confidential and will not be used for any other purpose than for this research.

Instructions on how to fill the questionnaire

i. Do not indicate your name anywhere in the questionnaire.

ii. Make sure that as much as possible all questions have responses.

PART A: GENERAL INFORMATION.

Please tick as appropriate.

2. Gender
   - Male [ ]
   - Female [ ]

3. Level of study?
   - Diploma [ ]
   - Undergraduate [ ]
   - Masters [ ]
   - PHD [ ]
   - Other [ ]

SECTION B: Extend of ICT transformation in service delivery

4. All students’ services by the university are accessible online.
   - Strongly agree [ ]
   - Agree [ ]
   - Moderate [ ]
   - Disagree [ ]
   - Strongly disagree [ ]
5. The table below gives statements on extends of ICT transformation in your institution. Given a scale of 1-5(1-very great extent, 2-great extent, 3-moderate extent, 4-low extent and 5-very low extent). Please indicate using (√) your agreement to the statements below.

<table>
<thead>
<tr>
<th>Statements</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ease of access to information</td>
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</tr>
<tr>
<td>2. Ability to provide services online</td>
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<td>3. Centralization of services</td>
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<td>4. Increased efficiency of activities</td>
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<td>4. Simplification of certain processes</td>
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<tr>
<td>5. Improved quality of services</td>
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<td>6. More cost efficient services</td>
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<td>7. More transparency</td>
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<tr>
<td>8. Improved access to administrators and information</td>
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</tbody>
</table>

**PART C: Accessibility to ICT service delivery in public universities**

Given a scale of 1-5, (1. Strongly disagree, 2.Disagree, 3.Neither agree nor disagree, 4. Agree and 5.Strongly disagree) Please indicate using a tick (√) to show your level of agreement with the statement about Access and Equity in ICT service delivery in public universities.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There is free internet access in the university</td>
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<tr>
<td>2.</td>
<td>There is a reliable internet connection in your institution.</td>
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<td>3.</td>
<td>There are adequate computers that can serve the whole University population</td>
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<td>4.</td>
<td>Both male and female students can easily access university e-services.</td>
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<td>5.</td>
<td>There is equity in service delivery regardless of the level of study.</td>
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</table>

**PART D: Challenges of ICT in public universities and their mitigating strategies**

Given a scale of 1-5, (1. Strongly disagree, 2.Disagree, 3.Neither agree nor disagree, 4. Agree and 5.Strongly disagree) Please indicate using a tick (√) to show your level of agreement with the statement about Challenges of ICT in public universities.
## Challenges

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Disagree Nor Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Resistance to change within administration.</td>
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<td>2. Concerns about security and confidentiality</td>
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<td>3. Lack of political will and drive.</td>
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<td>4. Lack of skills amongst administration staff</td>
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<td>5. Lack of high level championship.</td>
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<tr>
<td>7. Concerns about risk and frauds.</td>
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</table>

What are your suggestions on how to improve ICT service delivery in your institution?

a. ........................................................................................................

b. ........................................................................................................

c. ........................................................................................................

d. ........................................................................................................

e. ........................................................................................................

f. ........................................................................................................

“Thank you for your time”
APPENDIX IV: UNIVERSITY PERMISSION LETTER

KENYATTA UNIVERSITY
OFFICE OF THE REGISTRAR (RESEARCH, INNOVATION AND OUTREACH)
Email: registrar-rios@ku.ac.ke

FROM: Registrar (RIO)  DATE: 25th August 2015
TO: Francis Chemion Masai  REF: KU/REGRIO/REGISTRAR/5/VOL.1/75
   School of Education
   Reg. No. E55/21387/2012

SUBJECT: Data Collection at Kenyatta University

Your letter to the Vice Chancellor dated 20th August 2015 on the above subject refers.

This is to notify you that your request to collect data for research project entitled ‘E-
Governance and Transformation of Service Delivery in Public Universities in Kenya. A case of
Kenyatta University, Kenya.’ was considered and approved.

It is noted that all the data collected will be anonymised and used purely for academic
purposes only and not for any other purpose whatsoever. Further, you are expected to
submit a copy of your thesis to the University upon completion of your studies.

Thank you.

Dr. Vincent Onywera Ph.D, ISAK 2
Registrar Research, Innovation and Outreach

cc Vice Chancellor
    DVC (Academic)
    DVC (RIO)

| VOO/hr |

Kenyatta University: Transforming Higher Education...Enhancing Lives
APPENDIX V : AUTHORIZATION LETTER FROM NACOSTI

NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote.

Ref. No.
NACOSTI/P/15/4890/5022

18th March, 2015

Francis Chemion Masai
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “E-
governance and transformation of service delivery in Public Universities in
Kenya. A case of Kenyatta University, Kenya,” I am pleased to inform you
that you have been authorized to undertake research in Kiambu County for a
period ending 31st December, 2015.

You are advised to report to the Vice Chancellor, Kenyatta University, the
County Commissioner and the County Director of Education, Kiambu
County before embarking on the research project.

On completion of the research, you are required to submit two hard copies
and one soft copy in pdf of the research report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: DIRECTOR GENERAL:CEO

Copy to:
The Vice Chancellor
Kenyatta University.

The County Commissioner
Kiambu County.

The County Director of Education
Kiambu County.
APPENDIX VI : RESEARCH PERMIT FROM NACOSTI

THIS IS TO CERTIFY THAT:

MR. FRANCIS CHEMION MASAI
of KENYATTA UNIVERSITY, 46-50203
kapsokwony, has been permitted to
conduct research in Kiambu County

on the topic: E-GOVERNANCE AND
TRANSFORMATION OF SERVICE
DELIVERY IN PUBLIC UNIVERSITIES IN
KENYA, A CASE OF KENYATTA
UNIVERSITY, KENYA.

for the period ending:
31st December, 2015

Applicant’s
Signature

Director General
National Commission for Science,
Technology & Innovation

Permit No.: NACOSTI/P/15/4890/5022
Date Of Issue: 18th March, 2015
Fee Received: Ksh 1,000