AN ASSESSMENT OF THE UNIVERSAL SERVICE FUND: A CASE OF PUBLIC SCHOOLS IN KIAMBU COUNTY

BY

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UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA

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BY

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UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA

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I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than United States International University- Africa for academic credit.

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Date: __________________

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This research proposal has been presented for examination with my approval as the appointed supervisor.

Signed: _______________________
Date: __________________

Dr. Peter Kiriri

Signed: _______________________
Date: __________________

Dean, Chandaria School of Business
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ABSTRACT

The purpose for this research was to assess the implementation of the USF program in Kenya by Communications Authority of Kenya while establishing the benefits of the fund to Kenyans. The research was guided by the following objectives: to assess the benefits derived from the Implementation of USF, to determine the challenges affecting USF implementation and to identify the strategies key to successful USF implementation.

The research design adopted was descriptive research design and both Quantitative and qualitative analysis was employed to measure the frequency and magnitude of the various factors. The population of the study comprised of 89,065 public secondary schools students, 3,479 teachers from Kiambu County and 17 top management of the Communications Authority of Kenya. A sample of 47 students, 20 teachers from the public secondary schools 2 top management of CA was selected from the population. Questionnaires and interviews were conducted for the purpose of data collection. The particular descriptive statistics comprised of percentages, means and standard deviation while the inferential statistics used was correlation and reliability analysis.

The findings showed that majority of the students seemed to agree that USF increases computer literacy levels, however a good number seemed to disagree with the fact that “USF provides enhanced community broadband networks” due to the high standard deviation value which shows a bigger variety of opinion among the respondents. On average most of the respondents agreed to have benefited from USF implementation. On average, the teachers were not certain about the following benefits, USF transforming Kiambu County into a knowledge-based society.

The findings also disclosed that “Bureaucratic systems of governance and lack of qualified or interested vendors to bid for the projects would affect the implementation greatly. On average however, the students agreed that the various stated challenges would affect the
implementation of USF. Majority of the teachers strongly agreed that insufficient funds hindered the full implementation of USF. However, on average they all agreed that the stated challenges were affecting the implementation of USF in Kiambu County.

Further results indicated that USF should provide disburse the funds in a transparent manner and fund appropriate projects, the results also showed that USF should engage aggressively in promotion of broadband services nationally.

The study concluded that the implementation of USF in Kiambu County was beneficial. More importantly both the teachers and students highlighted the provision of expanded mobile network, increased number of computer literacy levels, easy and reliable access to information superhighway as some of the major benefits.

The study recommends that the USF to advocate for strengthening of government ICT policies, shift some of the branches to promote broadband internet services in rural areas, provide disbursement of funds in a transparent manner to fund the appropriate projects, allow for growth of vendors so that there is enough number when bidding for the projects and track accelerated deployment of the broadband services to be adopted for successful implementation of the USF program.
ACKNOWLEDGEMENTS

I wish to extend my deep felt gratitude to all the people who have offered their support and assistance. In particular, I thank my project supervisor, Dr. Peter Kiriri, for offering a lot of guidance and assistance in coming up with this research project report. Gratitude also to my family for their understanding and support during the many hours I was doing the project. I cannot forget also to acknowledge the reference of other writers for their work that have assisted me in coming up with the research project report. I must also thank all the respondents who participated in the survey as without their input, the research may possible have been one-sided. Lastly, I would like to thank the Almighty God for providing the resources and energy to make this research project report become a reality.
DEDICATION

I dedicate this work to my family and close friends who supported me in the completion of this project.
# TABLE OF CONTENTS

- STUDENT'S DECLARATION .................................................................................. ii
- COPYRIGHT ........................................................................................................ iii
- ABSTRACT ........................................................................................................ iv
- ACKNOWLEDGEMENT ..................................................................................... vi
- DEDICATION..................................................................................................... vii
- TABLE OF CONTENTS..................................................................................... viii
- LIST OF TABLES............................................................................................... xi
- LIST OF FIGURES............................................................................................. xiii
- LIST OF ABBREVIATIONS ................................................................................ xv

## CHAPTER ONE

1 INTRODUCTION................................................................................................. 1

1.1 Background of the Study ................................................................................ 1

1.2 Statement of the Problem ............................................................................. 5

1.3 General objective of the Study ..................................................................... 7

1.4 Specific objectives Questions ....................................................................... 7

1.5 Significance of the study ............................................................................. 7

1.6 Scope of the Study ....................................................................................... 9

1.7 Definitions of Terms .................................................................................... 9

1.8 Chapter Summary ....................................................................................... 10

## CHAPTER TWO

2 LITERATURE REVIEW ................................................................................... 11

2.1 Introduction .................................................................................................. 11

2.2 The benefits derived from the implementation of USF............................... 11

2.3 The challenges affecting USF implementation in Kenya............................. 15
2.4 Strategies key to successful USF implementation..................................................... 18
2.5 Chapter Summary................................................................................................. 24

CHAPTER THREE ...................................................................................................... 25

3.0 RESEARCH METHODOLOGY............................................................................. 25
3.1 Introduction............................................................................................................. 25
3.2 Research Design .................................................................................................... 25
3.3 Population and Sampling Design......................................................................... 26
3.4 Data Collection Methods ..................................................................................... 29
3.5 Research Procedures............................................................................................ 31
3.6 Data Analysis Methods......................................................................................... 31
3.7 Chapter Summary.................................................................................................. 32

CHAPTER FOUR......................................................................................................... 33

4.0 RESULTS AND FINDINGS.................................................................................. 33
4.1 Introduction............................................................................................................ 33
4.2 General Information ............................................................................................ 33
4.3 Reliability analysis............................................................................................... 38
4.4 Benefits derived from the implementation of USF at Kiambu County................. 49
4.5 Challenges affecting USF Implementation............................................................ 53
4.6 Strategies for successful USF implementation..................................................... 57
4.7 Correlation Analysis............................................................................................. 61
4.8 Chapter Summary.................................................................................................. 63

CHAPTER FIVE .......................................................................................................... 64

5.0 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS......................... 64
5.1 Introduction .......................................................................................................... 64
5.2 Summary............................................................................................................... 64
5.3 Discussion ............................................................................................................. 66
5.4 Benefits derived from the implementation of USF at Kiambu County.................. 67
5.5 Challenges affecting USF Implementation............................................................ 68
5.6 Strategies for successful USF implementation..................................................... 69
5.7 Conclusion ...................................................................................................... 71
5.8 Recommendations ........................................................................................... 71
5.9 Recommendations for future Studies ............................................................... 72

REFERENCES ....................................................................................................... 73

APPENDICES ........................................................................................................ 75
Appendix I: Letter of Introduction ....................................................................... 75
APPENDIX II: Questionnaire for Students ............................................................ 76
APPENDIX III: Questionnaire for teachers ............................................................ 79
APPENDIX IV: Interview schedule for CA top management ............................... 82
LIST OF TABLES

Table 3.1: Study Population .............................................................................................. 27
Table 3.2: Sample Size .................................................................................................... 29
Table 4.1: Students’ Gender Information ........................................................................ 30
Table 4.1.2: Students’ Class Level .............................................................................. 31
Table 4.1.3: Students’ Place Of Birth ......................................................................... 31
Table 4.2.1: Teachers’ Demographic Information ....................................................... 32
Table 4.2.2: Classes Taught ......................................................................................... 32
Table 4.2.3: Teachers Place of Birth ........................................................................... 33
Table 4.3: Subjects Teachers Taught ............................................................................ 33
Table 4.4: Number Of Years In Teaching ..................................................................... 34
Table 4.5: Scale Benefits Of USF Implementation On Students’ Tool ......................... 35
Table 4.6: Students’ Benefits Item Total Statistics ....................................................... 35
Table 4.7: Scale Benefits Of USF Implementation On Teachers’ Tool ......................... 37
Table 4.8: Teachers’ Benefits Item Total Statistics ...................................................... 37
Table 4.9: Students Challenges Cronbach's Alpha ....................................................... 39
Table 4.10: Student Challenges Item Total Statistics .................................................. 42
Table 4.11: Teachers Challenges Cronbach's Alpha .................................................... 43
Table 4.12: Teachers' Challenges Item Total Statistics ................................................. 44
Table 4.13: Students Strategies Cronbach's Alpha ...................................................... 45
Table 4.14: Students Item Total Statistics ................................................................. 46
Table 4.15: Teachers Strategies Cronbach's Alpha ..................................................... 47
Table 4.16: Teachers’ Strategies Item Total Statistics ................................................ 48
Table 4.17: Student Benefits Derived From The Implementation Of USF At Kiambu County Rating

Table 4.18: Teachers’ Benefits Derived From The Implementation Of USF At Kiambu County Rating

Table 4.19: Students Rating For Challenges Affecting USF Implementation

Table 4.20: Teachers Rating For Challenges Affecting USF Implementation

Table 4.21: Students Rating For Strategies For Successful Implementation Of USF

Table 4.22: Teachers Rating For Strategies For Successful Implementation Of USF

Table 4.23: Correlation Between Strategies And Benefits

Table 4.14: Correlation Between Benefits And Strategies

Table 4.25: Correlation Between Challenges And Strategies
LIST OF FIGURES

Figure 2.1: Broadband Penetration Rates.............................................................. 12

Figure 2.2: ICT Growth Model In South Africa....................................................... 14
Figure 2.3: Universal Service Fund Current Environment........................................ 15

Figure 2.4: Changing Scope Of Universal Service............................................... 17

Figure 2.5: USF Objectives............................................................................... 18

Figure 2.6: FITEL Model............................................................................... 20

Figure 2.7: National Broadband Strategies In Kenya............................................ 21

Figure 2.8: The Government ICT Strategy......................................................... 22

Figure 2.9: The Delivery Approach.................................................................. 23

Figure 3.1 Kiambu County Map...................................................................... 26

Figure 4.1: Gender Of Students ....................................................................... 34

Figure 4.2: Class Of Students........................................................................ 34

Figure 4.3: Gender Of Teachers........................................................................ 35
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCK</td>
<td>Communication Commission of Kenya</td>
</tr>
<tr>
<td>CA</td>
<td>Communications Authority</td>
</tr>
<tr>
<td>CAK</td>
<td>Communication Authority of Kenya</td>
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<tr>
<td>FCC</td>
<td>Federal Communications Commission</td>
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<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
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<tr>
<td>ITU</td>
<td>International Telecommunication Union</td>
</tr>
<tr>
<td>USF</td>
<td>Universal Service Fund</td>
</tr>
<tr>
<td>TELCOM</td>
<td>Telecommunication</td>
</tr>
<tr>
<td>USAC</td>
<td>Universal Service Advisory Council</td>
</tr>
<tr>
<td>FITEL</td>
<td>Fondo de Inversion de Telecomunicaciones</td>
</tr>
<tr>
<td>APEC</td>
<td>Asia – Pacific Economic Corporation</td>
</tr>
<tr>
<td>NBS</td>
<td>National Broadband Strategy</td>
</tr>
<tr>
<td>GSMA</td>
<td>Global Systems Mobile Association</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>OFTEL</td>
<td>The Office of Telecommunications</td>
</tr>
</tbody>
</table>
CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Of The Study

The common mission of communication regulators worldwide is to fast track growth of ICT and broadband across their resident country. The Universal Service Fund therefore came about as a strategic plan to achieve the above. According to Federal Communications Commission (2016), Universal service is the principle that all Americans should have access to communications services and it is also the name of a fund and the category of FCC programs and policies to implement this principle. In Kenya, the USF is in line with the vision and mandate of Communications Authority of Kenya, which ensured that the entire country had access to ICT services by the year 2018 CA (2009). The importance of a strategic implementation plan according to the United Kingdom cabinet office is that it provided an overview of how the strategy was implemented and a summary of the individual plans for each delivery area.

Telecommunication regulators worldwide have a policy of making modern high quality communication services affordable and accessible to all parts of their home countries. According to the universal service commonly associated with governmental programs, policies, and initiatives responsible for ensuring that the poor and those in geographically isolated communities have affordable access to advanced telecommunications and information service. The concept of universal service is underpinned by the three following principles: availability- the level of service is the same for all users in their place of work or residence, at all times and without geographical discrimination, affordability- for all users, the price of the service should not be a factor that limits service access, accessibility- all telephone subscribers should be treated in a non-discriminatory manner with respect to the price, service and quality of the service, in all places, without distinction of race, sex, religion, etc. (ITU, 2013). In America, the largest source of funds is generated by raising the price of cellular service by approximately 5 percent (the percentage of cellular revenue paid into the fund) and cellular users are concentrated in urban areas.(Brock & Corbett, 2012)
The Universal Service Fund (USF) ensures that people, particularly in the rural areas have access to communication services by setting out USF programs to reach to their intended target markets. Out of a global population of 7.4 billion people, more than 4 billion people still don’t have access to the internet, with 90 percent of them in developing countries and only 1.1 billion have access to high-speed internet (World Bank Group, 2016). USF has been established in many countries across the globe but have reached different levels of effectiveness. According to research, The Universal Service Fund (USF) distributes more than $7 billion per year among participants in the telecommunication industry (Brock & Corbett, 2012).

The main goal for communication regulators is to subsidize services such as broadband networks, mobile telephone networks, and ICT applications etc. in order to make them available to the disadvantaged communities. According to previous research done by LADCOMM Corporation (2013), USF is still work in progress globally as the success rate is at a very low 25%. Colombia appears to be the country that currently epitomizes best practice in the development and administration of USFs as their funds are fully disbursed annually. The fund was established with the specific goal of investing in social telephone programs in low income urban and rural areas (Leidig, 2000).

This fund was established in most countries between the 1980s and the early 2000s, with Chile being one of the 1st countries to legally establish it and begin utilization in 1982. Unfortunately most countries have established the fund but are inactive in terms of implementation and disbursement of the funds. From the research done by LADCOMM Corporation (2013), it was revealed that out of 64 countries surveyed only 17 countries had funds that were actively being used to make communication services accessible.

In Africa, Swaziland was the first country to establish the fund in 1990, but it was not operational until 2001. This is the trend in most African countries as they have the smallest digital service market size(Ernst & Young, 2015) Sudan is one of the most successful African counties in the implementation of the USF according to figures provided by the regulator as part of ITU survey in Report on Universal Access and Service Funds in the Sub-Saharan African Region, ITU, (Sepulveda, 2010). According to the report, Sudan legalized their policy in 2001 as part of the National Strategy for Building the Information Society in Sudan and has been active ever since. Sudan’s Universal service includes; fixed line private residential
service, individual mobile cellular service, dial-up Internet access Broadband Telecentres, schools (primary, secondary post-secondary), health centers and emergency services. Their main goal is to bridge the gap and enhance capacity building.

In Kenya, The USF was legally established in 2009 but was inactive until 2015. The funds are sourced from the Kenyan communications regulator, Communications Authority of Kenya (CAK) which provided seed money in the tune of 1 billion and an additional 25% of the organizations surplus is paid annually. In addition, all TELCOM operators and media houses contribute 0.5% of their gross revenue annually (Gituku, 2016). CAK has been mandated to manage and administer the Universal Service Fund. The organization is obliged to inform the public and all stakeholders about the key aspects, considerations and principles that the Commission shall uphold in administering the Fund (CCK, 2010).

CAK has established a framework that enables the organization to educate the public on the access gap that currently exists and to inform them of their goals, The objectives they have set out in their framework are; to promote communications infrastructure and services rollout in rural, remote and under-served areas, to ensure availability of communication services to Persons with Disabilities, women and other vulnerable groups; to support the development of capacity building in ICTs and technological innovation; to support expansion of communication services to schools, health facilities and other organizations serving public needs; and finally to facilitate development of and access to a wide range of local and relevant content (CCK, 2010)

The key areas that CAK is focusing on in order to meet their objectives include; mobile telephone network expansion, community broadband networks (schools, hospitals, government offices, public libraries, and community service locations) - this will enable the public to access ICT facilities. They are also focusing on ICT content and applications as well as ICT capacity building and awareness. The Universal Service Advisory Council (USAC) is in charge of ensuring progress on the aforementioned (CCK, 2010). A few unresolved issues were mentioned in the LADCOMM research (2013) that was suggested to cause the low success rate of USF programs. They cited lack of proper legal framework, political intervention, and poor administration of funds among others.
According to Brock and Corbett (2012), the future of the universal service program is uncertain as it is difficult to estimate the fund’s economic costs and benefits. Many governments have made all efforts not only to create suitable USFs that respond to the needs of rural and other target population sectors, but to subsequently administer these funds (ITU, 2013). Continuing advancements may further reduce the technological barriers to universal service. Nonetheless, the business and economic disincentives for providing services to the poor and isolated communities were likely to remain (Oh, 2006). The USF and related programs are work in progress that is expected to bring great change in the near future.

1.2 Statement Of The Problem

Effectiveness of the USF and the progress of the implementation of the programs relates to the satisfaction level among people living in the rural areas who have not had access to modern communication services. There is need to address the access gap in Kenya and in doing so the Communications Authority of Kenya has formulated a framework with guidelines as to how the USF will function (CCK, 2010).

The problems experienced when establishing the USF majorly lie in the framework because most communication regulators lack a proper legal framework as most have ambiguous authorization, are highly bureaucratic hindering progress and have scores of oversight (LADCOMM, 2013). Political intervention also brings about delays in decision-making and the underlying factor in countries experiencing this is corruption (CAK, 2016). This is the situation in The Democratic Republic of Congo and Gabon which have legally established the fund but not functional (LADCOMM, 2013). In Kenya, a universal access study in 2004 recommended the establishment of a universal service fund (USF) in 2009, after the establishment political intervention caused a delay of six years for the fund to be disbursed (Gituku, 2016). The Kenya ICT sector performance review is yet to establish the progress of the USF. (Ndungu et al., 2009).

The knowledge gap on USF is differentially distributed through different countries due to dissimilar economies, with most developed countries such as Sweden and Switzerland having a much higher success rate than developing countries like Kenya in implementing the USF.
According to Telecommunications Authority of Trinidad and Tobago (2012), this represents communities or individuals that still do not have access to basic telecommunication services due to regulatory barriers, insufficient competitive market forces, or other factors not providing sufficient incentives for service providers to provide services to these communities or individuals.

Therefore, this study assessed the implementation of the USF in Kenya and identified areas that have benefitted from it as well as identifying the changes that have occurred since its establishment.

1.3 General Objective

The general objective of the study was to assess the implementation of the USF in Kenya by Communications Authority of Kenya and establish the benefits of the fund to Kenyans.

1.4 Specific Objectives

The study was guided by the following specific objectives:

1.4 To assess the benefits derived from the implementation of USF.
1.4.2 To determine the challenges affecting USF implementation.
1.4.3 To identify the strategies key to successful USF implementation.

1.5 Significance Of The Study

The study hoped to be of significance in mainly five areas which are the Universal Service Fund Advisory Council at CAK, contributors to the Universal Service Fund, the Kenya ICT Sector Performance Review Board, government and researchers.

1.5.1 The Universal Service Fund Advisory Council At CAK

The study was significant to the USF advisory council who has been mandated by CAK and
the government to administer and manage the fund since the council oversees the implementation of USF and also inspects the books of accounts of the fund that is in the hands of CAK. The report hope to help them have a clear image of the whereabouts of the funds once it is released and assist them identify the areas that have benefitted. It also hope to assist them establish the underserved areas that need priority.

1.5.2 Contributors To The Universal Service Fund

The study is significant to the external contributors to the USF who include; Telcom operators such as Safaricom and their shareholders, and media houses such as Standard group who make annual contributions of 0.5% of their gross revenue. They will be able to establish whether their contributions are empowering the community and to possibly consider higher contributions if positive results are depicted.

1.5.3 The Kenya ICT Sector Performance Review Board

The study is also significant to the body in charge of reviewing the performance of the ICT sector. The data collected here wished assist them to make proper recommendations to the ministry in charge of Information on what has been achieved and what more can be done to improve universal access of communication services.

1.5.4 The Government

The study is significant to the government of Kenya in making policies relating to the communication sector and in particular the USF. They would be able to modify the previous policies to what would work best in order to achieve their objectives from the findings of this study. They would also be able to establish what and who needs to be detached from the process of disbursing the USF from evaluation of the setbacks that will be outlined in this report.

1.5.5 The Researchers

The study also contributed to the findings of other scholars in implementation and the importance of The USF and how Kenya has used the USF to better lives of Kenyans. It wished to assist other researchers to have data on the USF in Kenya and establish what progress has been made in having universal access. This will also enable them to have background
information to carry out more research and use it as a reference material and a basis of identifying gaps in research. It will also be a foundation for further research on assessment of the USF since it is a continuous process.

1.6 Scope Of The Study

The study concentrated on the Communication Authority of Kenya and specifically the persons in charge of the implementation of the USF in order to identify the strategies they use, challenges they face and transparency measures used while implementing the USF.

The study also focused on rural area, particularly Kiambu County that had an approximate population of 1.623 million but was narrowed down into a few small towns in the county. It identified the benefits of the USF and also pointed out the USF programs that have been initiated in the Kiambu County since 2015. The project took about seven months to be completed.

1.7 Definition Of Terms

1.7.1 Universal Service Fund

Defining the scope of universal service and designing a system for ensuring its provision (Kim, 2002).

1.7.2 Universal Service Advisory Council

The body that oversees the utilization of the USF to ensure all under-served and un- served areas are connected (Murungi, 2011).

1.7.3 Communications Authority Of Kenya

It is the regulatory authority for the communications sector in Kenya responsible for facilitating the development of the Information and Communications sectors including; broadcasting, multimedia, telecommunications, electronic commerce, postal and courier
1.8 Chapter Summary

Implementation of USF in Kenya is a major step towards bridging the digital divide. It wished to establish what progress has been made in having universal access. The study also hoped to have a clear image of the whereabouts of the funds once it is released, assist them identify the areas that have benefitted and establish the underserved areas that need priority.

This chapter provided an introduction to the research project, explained in detail the statement of the problem, purpose of the study, scope of the study, and significance of the study as well as brought to familiarization definition of terms used in the study, the outline research objectives that formed the basis for literature review in chapter two. Chapter three provided the data collection methodology and procedures. Chapter four set out data collection and analysis sad lastly, Chapter five dealt with recommendations and conclusions.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter reviewed the studies, theories and concepts relating to the USF and its implementation in the ICT industry. This study aimed at assessing the USF fund in Kenya in order to have an indication of how successful or unsuccessful its implementation is and to establish how many have benefited from the same. This review is in three sections in accordance with the specific objectives; the benefits derived from the implementation of USF, the challenges affecting USF implementation in Kenya and the strategies key to successful USF implementation.

2.2 The Benefits Derived From the Implementation of USF

The government is committed to ensuring that all the citizens of Kenya have access to modern, high-quality communication services (CA, 2009). According to Intel (2011), the funds were initially created to ensure ubiquitous deployment of basic telephone equipment and services, however, today the funds are also being used to support ICT/broadband programs, which may include access to PCs and other digital devices, broadband Internet connections, and localized content and services. In Kenya, the funds are being utilized to establish community broadband networks, expansion of mobile telephone network and creation of ICT content and applications (CA, 2009).

2.2.1 Community Broadband Networks

Universal service fund is used to fund a wide variety of broadband programs such as; provision of digital devices including laptops, notebooks, tablets, etc. and establishment of broadband Internet access with speeds up to 10 Mbps (Intel, 2011). “Broadband can help generate jobs, growth, productivity, and long-term economic competitiveness.” (Touré, 2010). According to a recent study by Intel, community broadband networks enable rural and remote communities to overcome geographical constraints and gain access to social, political and financial information and resources. The research also states that broadband brings about wider market opportunities and greater business productivity. In the market economy, every participant
should be given an equal opportunity, however Kwon (2007) is concerned that in the era of technological convergence, many decisions do not meet such precondition and burdens considerable amount of unnecessary social costs to customers.

**Figure 2.1 Broadband Penetration Rates**

Source: (ITU, 2014)

Relating to the table above, Kwon (2007) argues that as the broadband penetration rates in many countries have increased steadily, the need for additional investments is shrinking. Therefore, the over-investment issue is in fact not so much severe as some experts anticipated.

**2.2.2 Expansion Of Mobile Telephone Network**

According to CA, (2009), The Fund works with operators to identify the boundaries of these gaps, and to determine the scope of infrastructure investment and other related costs that may require support from the USF to ensure full coverage. Kwon (2007) states that telecommunications industry is growing through convergence of previously discrete technologies due to internet protocol networks that enable data to be transmitted faster and more efficiently.

Expansion of telephone networks however bring about security risks to a country, organizations, and everyday users as confidential data is stored on mobile phones and can be accessed by hackers and terrorists (Rosa, 2012). According to Rosa (2012), there is a lot of
information that is stored in mobile devices that requires heightened security.

2.2.3 Creation Of ICT Content And Applications

Under this program, the USF will collaborate with other organizations and projects that focus on supporting development of content and applications of value to rural and underserved communities. These may include web sites, mobile apps, educational and training materials, interactive and multimedia applications for special needs users, and other targeted ICT content (CA, 2009). According to LADCOMM (2013), this will be valuable within governments, where the full benefits of ICTs may be reaped when it extends beyond infrastructure and technology, to include ICT access in health, education, agriculture and other sectors. However, the influence of ICT remains limited due to the existence of multiple ICT policy and program initiatives, some of which are often in competition with each other and lack of institutional mechanisms to ensure compliance with model policies and frameworks as well as to monitor and evaluate implementation of ICT policy in member countries (Waema et al., 2009). One of the ICT models broadly used is illustrated below. It demonstrates collaboration of ICT in various sectors.

![A Collaborative Framework for Technology Growth & Innovation](image)

**Figure 2.2 ICT Growth Model In South Africa**

Source: Tande, (2011)
2.3 The Challenges Affecting USF Implementation In Kenya.

In a recent global study covering more than 60 countries, it was evident that the majority of USFs face significant operating and administrative challenges (Lynne, 2012). The success rate of USF was at a low of 25% as reported by LADCOMM Corporation in 2013. The diagram below illustrates the current USF environment in the world.

![Figure 2.3 Universal Service Fund Current Environments](image)

Source: Lynne, (2012)

2.3.1 Operating Challenges

Absence of adequate primary infrastructure and facilities, as well as harsh local conditions which impede or preclude project deployment (Lynne et al., 2012). Colombia and Afghanistan are countries that have experienced such challenges. In Colombia, a major satellite project was cancelled due to lack of suitable access roads and in Afghanistan; hostile terrain, climactic conditions and ongoing threats by Taliban have negatively impacted the implementation of
USFs (LADCOMM, 2013). The Trinidad&Tobago Authority, (2012) states that the access gap recognizes that intervention is still required to reach some areas and population groups that will not be served even within the most optimal, efficient and liberalized market because they may not be feasible economically or because of geographical challenges with providing the necessary infrastructure. However, the United Kingdom Cabinet office (2011) declare that, “These are problems that can be addressed with a combination of strong governance and leadership, a whole of government approach, greater transparency and enforcement controls at appropriate intervention points.”

Illiteracy and general ignorance amongst many segments of poor rural population which brings about inadequate skill level to maintain/sustain USF programs, failure to take training and education into account when rolling out telecentres and school cyber-labs are some of the operational challenges faced in countries like South Africa and Uganda (LADCOMM, 2013)

The project allocation process is one of the other areas in which fund performance can be significantly affected. Lack of qualified and/or interested vendors to bid on projects or flawed design of economic incentives for vendors to bid are all elements that can impact USF projects (ITU, 2013). Market domination by limited number of operators, as well as failed tenders due to inadequately set maximum subsidy also brings about operating challenges. This is prevalent in Mozambique and Tanzania (Lynne, et. al, 2012).

2.3.2 Administrative Challenges

USF underlying framework/rules in many countries do not support or permit use of the funds for the services required (LADCOMM, 2013). In Brazil, the funds only cover fixed line deployment and leave out broadband, which is one of the fastest growing necessities as shown in the diagram below. However, the FCC has announced plans to shift a portion of the subsidies into efforts to promote broadband Internet service in rural areas (Brock & Corbett, 2012)
Garciamurillo (2011), also states that most USFs do not cater for disadvantaged groups and centres. The table below shows how many countries out of a total of 60 included in a survey catered to disadvantaged groups.

![Figure 2.5 USF objectives](image)
Inadequate or misguided articulation of USF objectives and strategy, where countries such as Czech Republic are unable to properly set targets and level of levies for previous years’ Funds and cases in which guidelines encouraged urban rather than rural network rollout as was the situation in India (Lynne et al., 2012).

Inefficient or excessively complex decision-making, approval and governance processes affect countries such as Peru and Nigeria according to LADCOMM Corporation, 2013. Kenya has also been affected by bureaucracy that delayed the implementation of USF by six years (Gituku, 2016).

2.4 Strategies Key To Successful USF Implementation.

An effective and successful USF should be based on a legal//regulatory framework that is highly flexible in terms of service and policy as stated by LADCOMM corporation (2013). It should also be an independent structure with measurable objectives (ITU, 2013). Transparency is also important, and it should incorporate a fair process to allocate subsidy. These are the key criteria for defining a successful USF scheme and the below successful strategies have incorporated them while implementing the USFs.

2.4.1 FITEL (Fondo De Inversion De Telecommunications)

It is translated as Telecommunications Investment Fund. In Latin America, FITEL was the first successful example of a USF administration adopting innovative approaches, now widely respected, to achieve access in rural areas i.e., lowest-subsidy and technology neutral auctions (LADCOMM 2013). It handles bid for construction of network, provides funding from Universal Service Funds and regulates transport tariff at a monthly maximum of US$ 27 for 1 Mbps link (Katz, 2014).

The original FITEL model was highlighted by the ITU, World Bank, APEC and other international agencies as an outstanding solution and a good example to be followed by other developing countries (ITU, 2013). FITEL creates a list of projects that are eligible for
subsidies, by determining which projects have the greatest social benefit and allocates funds through a competitive bidding. Through this model, funds are not allocated to areas that already have access to telecommunications services (Intelecon, 2009).

This model has generally been successful in part due to its demand-driven nature, hence the use of its bottom-up approach. Also in Peru where FITEL is utilized, small operators can request subsidies for their self-initiated projects. A top-down approach can also be very successful for large scale projects with a national scope where subsidies for thousands of access points have been awarded in each auction (Stern & Townsend, 2006). The figure below illustrates the FITEL model used in countries such as Peru and Colombia.

![FITEL Model](http://www.fitel.gob.pe/archivos/FI53ed31c272ec4.jpg)

**Figure 2.6 FITEL Model**

**Source:** [http://www.fitel.gob.pe/archivos/FI53ed31c272ec4.jpg](http://www.fitel.gob.pe/archivos/FI53ed31c272ec4.jpg)

### 2.4.2 National Broadband Strategy

A pioneer in the promotion of broadband services, Finland published its National Broadband Strategy (NBS) in 2003 at a time when less than ten per cent of the Finnish population subscribed to broadband service, the overarching objective of the NBS was for the country to
become a leader in the availability and use of high-speed communications, and to provide broadband geographical coverage for all Finnish inhabitants (LADCOMM, 2013). This strategy appears to have been successful and as can be seen from the GSMA coverage map below, mobile coverage is virtually ubiquitous despite some remote and climatically hostile regions according to LADCOMM Corporation (2013). The NBS has now been incorporated in countries such as Kenya, Nigeria, South Africa and Germany.

In Kenya, the National Broadband Strategy states that is shall provide a coherent roadmap to a ubiquitous deployment of communications infrastructure and strategies that are aimed at harnessing the opportunities that shall generate significant benefits in various sectors of the economy (Ministry of Information and Communication, Kenya 2016). The key drivers in defining broadband for Kenya are summarized in the figure below. It has not been established whether this model is working for Kenya.

![Diagram of National Broadband Strategies In Kenya](image)

**Figure 2.7 National Broadband Strategies In Kenya**

Source: Ministry of Information and Communication Kenya, 2016

However, countries at different stages of ICT development tend to have different priorities and scope for their NBSs. Countries in a relatively early stage of ICT development tend to focus on infrastructure availability and measures to encourage adoption and internet take-up
whereas, countries in a relatively more advanced stage of ICT development are more likely to have a greater focus on demand-side initiatives and qualitative issues, such as security and privacy (Cullen International, 2014).

### 2.4.3 Government ICT Strategy

This was established in the United Kingdom in 2011 and describes how the government would change the ICT landscape with objectives of; reducing waste and project failure, stimulating economic growth, creating a common ICT infrastructure, using ICT to enable and deliver change and to strengthening governance (Cabinet Office, 2011). The strategy is illustrated below.

![Diagram of Government ICT Strategy](source: The Cabinet Office, 2011)

**Figure 2.8: The Government ICT Strategy**

Source: The Cabinet Office, 2011

Under this approach, the government assumes the role of funding entity through either grants, low rate loans from a development-banking source, or universal service fund allocations (Katz, 2014). According to Katz, other countries that follow the same strategy are; Argentina, Japan,
Korea, and France. This ICT Strategy requires an innovative delivery approach, strengthened governance and departments working together to unprecedented levels to deliver the key elements of the Strategy and achieve its objectives as shown in the figure below (Cabinet Office, 2011). The need to reduce operating costs whilst delivering better public services requires that government organizations work together much more effectively (Brock & Corbett, 2012).

Figure 2.9: The Delivery Approach

Source: UK Government office 2011

This approach works well in the UK as a survey recently carried out shows that segmenting customer attitudes according to their digital lifestyle attitudes will play an increasingly important role in understanding the drivers of their relationships with service providers (Ernst & Young, 2015). However, Oftel, the UK regulator decided that a fund was not necessary in
the UK because, the universal service provider and market leader in the UK, does not bear an undue burden as the national provider of universal service (Leidig, 2000).

2.5 Chapter Summary

This chapter presented a thorough and in-depth literature review on the assessment of USFs and taken into account previous related studies that have been carried out on the same. This chapter also discussed the benefits of USF, the challenges that are experienced while implementing USFs as well as the strategies that are crucial to success of USF implementation according to success stories. Being a relatively new phenomenon, minimal literature has been documented on USF implementation especially because it is an ongoing process and one of the future goals constituted in vision 2030. In Kenya, there is no documentation of benefits and challenges faced in implementation of USF; therefore this paper seeks to establish that since the USF programs were rolled out in 2015. The next chapter discusses the methodology that was used in the study.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology that was used to satiate the general objective of this paper, which is to assess the implementation of the USF in Kenya, by Communications Authority of Kenya while establishing the benefits of the fund to Kenyans. The chapter defined and explained the research design, population and sampling designs, data collection methods, research procedures and data analysis methods for the study.

3.2 Research Design

Research design is about making choices and articulating a rationale for the choices one has made (Schwartz-shea & Yanow, 2014). According to Parahoo (1997), a research design is a plan that describes how, when and where data are to be collected and analyzed. Mugenda & Mugenda (2003) have also agreed by stating that descriptive research design enables a researcher to gather, summarize, present and interpret information for purposes of clarification.

The purpose for adopting descriptive research design is to ensure that specifically in depth response is obtained in order to achieve a better understanding of the phenomenon under study. According to Gerring (2004), a case study can best be defined as intensive study of a single unit with an aim to generalize across a larger set of unit. Case studies emphasize detailed analysis of a limited number of events or conditions and their relationships. This allows for a concentrated focus on a single phenomenon, which is the assessment of the universal service fund. In this study, therefore the case study Public schools in Kiambu County enabled the researcher to adopt random sampling as a technique from the study population so as to allow the researcher to come up with knowledge that facilitates generalizations that was made about characteristics, opinions, beliefs and attributes of the entire population of the study.

3.3 Population And Sampling Design

3.3.1 Population
Ngechu (2006) defines population as items or group of things that has same features under the study. Kiambu county is the 2nd largest population amongst counties in Kenya with a population of about 1.76 million and is still under-developed and also has un-served areas in terms of ICT, therefore the target population of the study consisted of three groups. The first being public secondary schools students in Kiambu county which were 89,065 in number, the second being the teachers which were 3,479. The third target population was the 17 top management of the Communications Authority of Kenya as shown in the table below:

![Kiambu County Map](image)  
**Figure 3.1 Kiambu County Map**  
Source: Kiambu County Government (2016)

**Table 3.1: Study Population**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiambu County public secondary students</td>
<td>89,065</td>
</tr>
<tr>
<td>Kiambu County Public secondary teachers</td>
<td>3,479</td>
</tr>
<tr>
<td>Communications Authority of Kenya Top management</td>
<td>17</td>
</tr>
<tr>
<td><strong>TOTAL STUDY POPULATION</strong></td>
<td><strong>92,561</strong></td>
</tr>
</tbody>
</table>

*Source: Kiambu county government (2016) and Communications Authority of Kenya (2016).*

### 3.3.2 Sampling Design

#### 3.3.2.1 Sampling Frame

Turner, (2003) defines a sampling frame as the set of source materials from which the sample
is selected in order to provide a means for choosing the particular members of the target population that are to be interviewed in the survey. This study’s sample frame was drawn from the public secondary schools in Kiambu county as well as top management of CA who are directly involved with the implementation of the USF.

3.3.2.2 Sampling Technique

The sample used included randomly selected secondary students and teachers of Kiambu County in of the target population. The researcher strived to have a sample, which is a representation of the population. Turner (2003) defines probability sampling as one in which every member of the target population has a known, non-zero chance of being selected.

Purposive sampling is one of the non-probability sampling technique used to select informants in qualitative research where a researcher purposely select those informant that are relevant to the study irrespective of whether they are representative of the population or not (Hoyle et al, 2002). Non-probability sampling is a sampling technique where the samples are gathered in a process that does not give all the individuals in the population equal chances (equal probability) of being selected (Mugenda, 2003).

Purposive sampling was used in the study to select two (2) respondents of the top management of CA and in particular those that are directly linked to administering the USF. The reason being, this study required experts from the regulatory board of communications in Kenya, which is CA to provide information on the progress of the USF and data of how much they have done since its implementation. The need for the qualitative in depth data collection in this study demanded that the despondence purposively sampled.

3.2.2.3 Sample Size

This is the number of individuals to include in a research study (Eng 2003). Ombath (2009) recommends that if researchers need to draw a conclusion valid for the whole study population, they should draw a sample in a way that it is representative of that population. Eng (2003) further mentions that an appropriate sample size generally depends on five study design parameters: minimum expected difference (also known as the effect size), estimated measurement variability, desired statistical power, significance criterion, and whether a one-
or two-tailed statistical analysis is planned.

The sample population was based on Yamane (1967) formula. Mainly, this formula is used because it is not only a simplified formula of proportions but also because it takes into account the acceptable sampling error. In short, Yamane (1967) formula is a simplified formula to calculate sample sizes.

See the formula below.

\[ n = \frac{N}{1 + N (e)^2} \]

Notably, is the sample size, is the total population, and is the desired level of precision. Mainly, the formula depends on several assumptions: a 95% confidence level and \( \pi = 0.5 \) is the estimated proportion of an attribute that is present in the population (Israel, 1992). In calculating the sample size \( N=89,065 \) and \( e =0.1458 \) for students, \( N= 3,479 \) and \( e =0.2229 \) for teachers.

Students (n) = \[
\frac{89,065}{1+89,065(0.1458)^2} = 47.017
\]

Therefore sample size for students = 47

Teachers (n) = \[
\frac{3,479}{1+3479(0.2229)^2} = 20.011
\]

Therefore sample size for Teachers = 20

Note: The \( e = 0.1458 \) and \( e = 0.2229 \) as the desired level of precision selected because the population was too large. Besides, a small size sample required for convenience purposes in terms of costs and time.

The sample size was 67, which the researcher selected using cluster random sampling. Mainly, the researcher relied on this approach in order to ensure that each category of participants in
the study is proportionally represented.

Therefore the sample size of the study was 2 (two) from CA top management, 20 teachers and 47 students from the public secondary schools from Githunguri, Thika and Limuru towns.

**Table 3.2: Sample Size**

<table>
<thead>
<tr>
<th>Category</th>
<th>Study population</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiambu county public secondary school students</td>
<td>89,065</td>
<td>47</td>
</tr>
<tr>
<td>Kiambu County Public secondary school teachers</td>
<td>3,479</td>
<td>20</td>
</tr>
<tr>
<td>Communications Authority of Kenya Top management</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>92,561</strong></td>
<td><strong>69</strong></td>
</tr>
</tbody>
</table>

**3.4 Data Collection Methods**

According to Powell (1997), data collection methods are techniques that are used to gather data most commonly, but exclusively, used in research. Therefore for the purpose of getting an in depth information about the universal service fund in Kiambu county, data was collected using the combination of pre-designed questionnaire and interviews.

**3.4.1 Questionnaires**

The researcher opted to collect primary data through the use of a structured questionnaire developed by the researcher (See Appendix 1 and 2). The questionnaire was deemed the most appropriate tool for data collection due to the large sample size.
A questionnaire is simply a ‘tool’ for collecting and recording information about a particular issue of interest. It is mainly made up of a list of questions, but should also include clear instructions and space for answers or administrative details (Kirklees Council, 2011). Different sets of questionnaires were provided for students and teachers. The questionnaire administered, had closed ended questions which ensured that respondents selected answers that best describes their situation from a variety of answers given and also the questionnaire had open ended question that gave the respondents complete freedom of response and respond in their own words. The researcher was present to interpret the questions to the respondent’s and left with the questionnaires immediately they were completed.

Section A of the questionnaire captured the demographic information such as the age, gender as well as questions that captured information that would give an idea of the nature of the USF implementation with respect to what exactly they does. Section B comprised of questions that measured the benefits derived from the implementation of USF program at Kiambu County. Section C comprised of questions that investigated the challenges affecting the USF implementation and Section D of the questionnaire captured questions based on the strategies for successful USF implementation. Sections B, C, and D are close-ended questions, which are, based on a 5-point Likert scale. Where 1-Strongly Disagree, 2-Disagree, 3-Uncertain, 4-Agree, 5-Strongly Agree. The questionnaires collected baseline information that can be tracked over time to measure progress because implementation of USF is an ongoing process.

3.4.2 Interviews

According to Kothari (2004), interviews involve presentation of oral stimuli and reply in terms of oral verbal responses. Interviews were conducted through the interview schedules, because were predominantly helpful for obtaining the story behind participant’s experience.

An in depth interviews with two (2) top management of CA, who were key informants, were conducted for purposes of gaining information about the process of the implementation of USF.

3.5 Research Procedure

The researcher conducted a pre-testing to establish the reliability of the instrument by
administering two tests to the randomly selected 5 five students and 5 teachers. The results and scores from both tests were correlated. They were asked to critique the questions and identify any vague questions. The second test was the administered after a two week period. The reliability of the scale was tested using Cronbach’s alpha. Cronbach’s alpha type of reliability co-efficient value of .70 or higher is considered as usually sufficient (Muhammad, 2013). The reliability of the instrument as described as analyzed in chapter was above 0.7 which established that the instruments were reliable and therefore did not require any amendment.

The researcher personally handed out the questionnaires to students and teachers of each school sampled with the assistance from their respective head teachers. The researcher requested the respondents to fill the questionnaires in approximately 5 – 10 minutes so as not to completely disrupt normal learning. The respondents were similarly assured that their feedback would be handled in the strictest of confidence and professionalism on the part of the researcher. In addition, the researcher also obtained consent to collect data through interviews and be accorded assistance by writing a letter to CA. Two Managers from the CA were interviewed by using the interview guide that formed the basis of the questions.

The data collection stage paved way for they the analysis and reporting stage of the research that took 3 months.

3.6 Data Analysis Methods

The data once collected were examined and scrutinized to check if they were comprehensive. It was later tabulated and summarized. The study adopted descriptive analysis, which was based on mean, standard deviations and percentages to establish the extent to which the USF has been implemented in rural Kenya. Relationships between the variables were determined using Cronbach Alpha Correlation technique. Statistical Package for the Social Sciences (SPSS) was used for data entry and analysis. The data was then presented in charts, figures and frequency tables.

3.7 Chapter Summary

This chapter extensively described the research design that was used. It has also established
the population of the study, the sampling designs adopted in the study and data collection methods.

This chapter also identified the sources of data as secondary and primary. The primary source being a questionnaire that was designed based on the technology acceptance model. A brief outline of its structure was given and the steps followed to administer it been illustrated and secondary being the interviews that were conducted to the top management of the CA authority. Finally, the chapter identified the data analysis software as SPSS and indicated that descriptive statistics such as mean and standard deviation came in handy where organizing and summarizing data is concerned.

The next chapter explains data analysis, presentation and interpretation of the research findings, the chapter gives an account of the processes, techniques and procedures applied to analyze, present and interpret the data gathered using the research instruments.

CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction
This chapter explains the processes, techniques and procedures adopted to analyze, present and interpret data gathered using the questionnaires. The chapter elaborates quantitative and qualitative data analysis, cross tabulation tables, percentages and mean. This will be attained through the following specific objectives. A total number of 47 questionnaires for students and 20 questionnaires for teachers were issued and all of them were returned indicating 100 percent response rate. An in depth interview was also conducted to two persons in the Communications Authority of Kenya; their designations were Communications Authority of Kenya chairman and the manager.

4.2 General Information On Students.
This section provides the general information with regards to the respondents’ gender, name of school, level of class, current town and town of birth. The findings showed that majority of the respondents, were female students 55% (n=26) however the gender distribution was even. All the four classes of studying were represented with majority being in form 1 and Form 2 as shown in Figure 4.1.2 below. All these students were from Gathaithi secondary in Kiambu town. Majority of these students were born in Kiambu and Githunguri town, the summary is as shown in Table 4.1 below.

Table 4.1: Students’ Gender Information

<table>
<thead>
<tr>
<th>STUDENTS</th>
<th>RESPONDENTS</th>
<th>n</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER</td>
<td>MALE</td>
<td>21</td>
<td>44.7</td>
</tr>
<tr>
<td></td>
<td>FEMALE</td>
<td>26</td>
<td>55.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>47</td>
<td>100</td>
</tr>
</tbody>
</table>

TABLE 4.1.2: Students’ Class Level

<table>
<thead>
<tr>
<th>STUDENTS</th>
<th>RESPONDENTS</th>
<th>n</th>
<th>PERCENTAGE</th>
</tr>
</thead>
</table>

All respondents were equally distributed among class levels.

### Table 4.1.3: Students’ Place Of Birth

<table>
<thead>
<tr>
<th>TOWN OF BIRTH</th>
<th>GITHUNGURI</th>
<th>10</th>
<th>33.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>IKINU</td>
<td>1</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>KAJIADO</td>
<td>2</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td>KIAMBU</td>
<td>11</td>
<td>36.7</td>
<td></td>
</tr>
<tr>
<td>NAIROBI</td>
<td>1</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>THIKA</td>
<td>5</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td>MISSING</td>
<td>17</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>47</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

This table indicates that most students were born in Kiambu County, which makes them more appropriate for this study.
4.2.1 General Information On Teachers

The total number of teachers who participated in this survey was 20. Majority of the teachers (60%, n=12) who took part in this survey were male teachers. The teachers were teaching in different classes with most of them 31.6% (n=6) teaching in all the classes. Ninety five percent (n=19) of them were based in Kiambu town having been born in different parts of the country. This is as summarized in Table 4.2.1, 4.2.2 and 4.2.3 below:

Table 4.2.1: Teachers’ Demographic Information

<table>
<thead>
<tr>
<th>TEACHERS</th>
<th>RESPONDENTS</th>
<th>n</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER</td>
<td>MALE</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>FEMALE</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4.2.2: Classes Taught

<table>
<thead>
<tr>
<th>CLASS TAUGHT</th>
<th>FORM 2</th>
<th>1</th>
<th>5.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORM 3</td>
<td>3</td>
<td></td>
<td>15.8</td>
</tr>
<tr>
<td>FORM 4</td>
<td>2</td>
<td></td>
<td>10.5</td>
</tr>
<tr>
<td>FORM 1 &amp; 2</td>
<td>2</td>
<td></td>
<td>10.5</td>
</tr>
<tr>
<td>FORM 2 &amp; 3</td>
<td>2</td>
<td></td>
<td>10.5</td>
</tr>
<tr>
<td>FORM 3 &amp; 4</td>
<td>2</td>
<td></td>
<td>10.5</td>
</tr>
<tr>
<td>FORM 1, 2, &amp; 3</td>
<td>1</td>
<td></td>
<td>5.3</td>
</tr>
<tr>
<td>FORM 1, 2, 3 &amp; 4</td>
<td>6</td>
<td></td>
<td>31.6</td>
</tr>
</tbody>
</table>

Table 4.2.3: Teachers’ Place Of Birth

<table>
<thead>
<tr>
<th>PLACE OF BIRTH</th>
<th>BUSIA</th>
<th>1</th>
<th>9.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GITHUNGURI</td>
<td>2</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>KERUGOYA</td>
<td>1</td>
<td></td>
<td>9.1</td>
</tr>
<tr>
<td>KIAMBU</td>
<td>2</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>MERU</td>
<td>1</td>
<td></td>
<td>9.1</td>
</tr>
<tr>
<td>MURANG’A</td>
<td>2</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Subjects taught</td>
<td>Frequency</td>
<td>Valid Percent</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-----------</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>2</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Business studies</td>
<td>2</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Computer studies, Math’s, Chemistry</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>English literature</td>
<td>2</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>History</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>History and CRE</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Kiswahili</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Kiswahili and Geography</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>2</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Mathematics and Business studies</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Physics and Technical drawing</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Social studies and Geography</td>
<td>1</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

4.2.2 Subjects Taught

In terms of the subjects taught, the teachers were teaching various combinations of subjects with majority teaching Agriculture, Business studies, English and Mathematics. This variety helped in finding unbiased and diverse opinions from respondents with different kinds of exposure.

Table 4.3: Subjects Teachers Taught
4.2.3. Number Of Years In Teaching

The survey results revealed that most of these teachers 20% (n=40) and 15% (n=3) had taught for only one year and for 4 years respectively. The least percentage, 5%, having taught for more than 5 years. This is as summarized in Table 4.4 below.

Table 4.4: Number Of Years In Teaching

<table>
<thead>
<tr>
<th>Number of years in teaching</th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>20.0</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>10.0</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>10.0</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>15.0</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>10.0</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.3 Reliability Analysis for the instruments

Reliability analysis was conducted to measure sufficiency of the tool used to assess the various items. Cronbach’s alpha type of reliability co-efficient value of .70 or higher is considered as usually sufficient (Muhammad, 2013). The results in the tables below show Cronbach’s alpha of well above 0.7 implying that the instruments were sufficiently reliable for measurement. As most item total correlations were reasonably high, the construct validity of the instruments was
considered reasonable (Taylor, 2014). This was even further demonstrated by further analysis of identifying the scale when the item is deleted.

4.3.1 Scale: Benefits Of USF Implementation At Kiambu County For Students
The 10 items used to measure the benefits derived from USF implementation in Kiambu from the students’ survey were sufficient having recorded a Cronbach’s alpha value of 0.75 as shown in Table 4.5. Further demonstrated by scaling the effect of the alpha value (0.75) when individual items are deleted, the results showed that deletion of any item would reduce the Cronbach’s value significantly (see Table 4.6) therefore rendering all those items significant in measuring the benefits of USF implementation in Kiambu County.

Table 4.5: Scale Benefits Of USF Implementation On Students’ Tool

<table>
<thead>
<tr>
<th>Reliability Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach's Alpha</td>
</tr>
<tr>
<td>.750</td>
</tr>
</tbody>
</table>

Table 4.6: Students’ Benefits Item Total Statistics

<table>
<thead>
<tr>
<th>Item-Total Statistics</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>USF provides enhanced community</td>
<td>39.978723</td>
<td>12.152</td>
<td>.274</td>
<td>.330</td>
<td>.653</td>
</tr>
<tr>
<td>Broadband Networks</td>
<td>USF Provides Expanded Mobile Telephone Network</td>
<td>39.361702</td>
<td>14.323</td>
<td>.365</td>
<td>.302</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------</td>
<td>-----------</td>
<td>-------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>USF Provides Enhanced Fast Internet Speed</td>
<td>39.765957</td>
<td>13.053</td>
<td>.337</td>
<td>.370</td>
<td>.621</td>
</tr>
<tr>
<td>USF Increases Computer Literacy Level</td>
<td>39.255319</td>
<td>15.368</td>
<td>.117</td>
<td>.471</td>
<td>.656</td>
</tr>
<tr>
<td>USF Allows Easy Accessibility to Computers</td>
<td>39.553191</td>
<td>14.296</td>
<td>.303</td>
<td>.491</td>
<td>.629</td>
</tr>
<tr>
<td>USF Allows Easy and Reliable Access to Information Superhighway</td>
<td>39.595745</td>
<td>14.333</td>
<td>.237</td>
<td>.455</td>
<td>.640</td>
</tr>
<tr>
<td>USF Transforms Kiambu County into a Knowledge Based Society</td>
<td>39.808511</td>
<td>12.245</td>
<td>.464</td>
<td>.416</td>
<td>.589</td>
</tr>
<tr>
<td>USF Improves the Quality of Education and Life in the Community</td>
<td>39.659574</td>
<td>13.490</td>
<td>.345</td>
<td>.495</td>
<td>.619</td>
</tr>
<tr>
<td>USF Creates Environment that</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

35
is conducive and interactive for learning

4.3.2 Sufficiency Of The Teachers’ Survey Tool

Reliability analysis was again conducted for the tool administered to the teachers, the results showed a Cronbach’s value of 0.72 (Table 4.7) which was sufficient. Further individual item analysis revealed that the variable “USF improves the quality of education and life in the company” would increase the Cronbach’s alpha value from 0.72 to 0.746 when deleted as shown in Table 4.8. Therefore, during analysis that individual item was omitted.

Table 4.7: Scale Benefits Of USF Implementation On Teachers’ Tool

<table>
<thead>
<tr>
<th>Reliability Statistics</th>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.720</td>
<td>.722</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 4.8: Teachers' Benefits Item Total Statistics

<table>
<thead>
<tr>
<th>Item-Total Statistics</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>USF provides enhanced community broadband networks</td>
<td>37.625000</td>
<td>11.317</td>
<td>.691</td>
<td>.913</td>
<td>.557</td>
</tr>
<tr>
<td>USF expands mobile telephone network</td>
<td>37.000000</td>
<td>16.933</td>
<td>.617</td>
<td>.929</td>
<td>.627</td>
</tr>
<tr>
<td>USF provides Created ICT Content and its application</td>
<td>36.937500</td>
<td>21.663</td>
<td>-.380</td>
<td>.840</td>
<td>.730</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>USF provides enhanced Fats internet speed</td>
<td>37.000000</td>
<td>16.533</td>
<td>.576</td>
<td>.821</td>
<td>.624</td>
</tr>
<tr>
<td>USF increases Computer literacy level</td>
<td>37.000000</td>
<td>18.267</td>
<td>.251</td>
<td>.540</td>
<td>.671</td>
</tr>
<tr>
<td>USF allows for easy access to computers</td>
<td>37.437500</td>
<td>13.996</td>
<td>.479</td>
<td>.920</td>
<td>.626</td>
</tr>
<tr>
<td>USF allows for easy and reliable access to information superhighway</td>
<td>36.937500</td>
<td>20.063</td>
<td>-.042</td>
<td>.821</td>
<td>.706</td>
</tr>
<tr>
<td>USF transforms Kiambu County into a Knowledge based society</td>
<td>37.500000</td>
<td>13.067</td>
<td>.780</td>
<td>.870</td>
<td>.548</td>
</tr>
<tr>
<td>USF improves the quality of education and life in the company</td>
<td>36.750000</td>
<td>21.267</td>
<td>-.230</td>
<td>.446</td>
<td>.746</td>
</tr>
<tr>
<td>USF provides created environment that is conducive and interactive for learning</td>
<td>37.062500</td>
<td>16.329</td>
<td>.650</td>
<td>.834</td>
<td>.615</td>
</tr>
</tbody>
</table>

4.3.3. Scale: Challenges Affecting USF Implementation In Kiambu
The items selected to measure challenges affecting the implementation of USF at Kiambu County were sufficient for both the students’ and teachers’ surveys. As evident by the Cronbach’s alpha value of 0.775 in the students’ survey and 0.809 in the teachers’ survey as shown in Table 4.9 shown below.

**Table 4.9: Students Challenges Cronbach's Alpha**

<table>
<thead>
<tr>
<th></th>
<th>Reliability Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cronbach's Alpha</td>
</tr>
<tr>
<td>Students’</td>
<td>.775</td>
</tr>
<tr>
<td>Teachers’</td>
<td>.809</td>
</tr>
</tbody>
</table>

**4.3.4 Scale: Strategies For Successful Implementation Of USF**

Items measuring the appropriate strategies for implementing USF also were sufficient however, in the students survey the variable “USF to lobby for financial support from government through grants and loans” when deleted would increase the alpha value from 0.701 to 0.714 as shown in Table 4.11 which deemed it insignificant and therefore, excluded in the analysis.

**Table 4.10: Strategies For Successful Implementation Of USF In Kiambu County**

<table>
<thead>
<tr>
<th></th>
<th>Reliability Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cronbach's Alpha</td>
</tr>
<tr>
<td>Students’</td>
<td>.701</td>
</tr>
<tr>
<td>Teachers’</td>
<td>.757</td>
</tr>
<tr>
<td>Item</td>
<td>Item Description</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>USF</td>
<td>to fast accelerated deployment of the broadband services</td>
</tr>
<tr>
<td>USF</td>
<td>to ensure effective collection and management of universal services</td>
</tr>
<tr>
<td>USF</td>
<td>to provide for disbursement of funds in a transparent manner to fund the appropriate projects</td>
</tr>
<tr>
<td>USF</td>
<td>to target more strategic locations such as public libraries among others</td>
</tr>
<tr>
<td>Action</td>
<td>Score1</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>USF to engage in aggressive promotion of broadband services nationally</td>
<td>39.58</td>
</tr>
<tr>
<td>USF to advocate for strengthening of government ICT policies</td>
<td>39.60</td>
</tr>
<tr>
<td>USF to lobby for financial support from government through grants and loans</td>
<td>39.60</td>
</tr>
<tr>
<td>USF to allow for establishment of strong governance and leadership structures for USF programs</td>
<td>39.81</td>
</tr>
<tr>
<td>USF to allow for the growth of vendors so that there should be enough number when bidding for the projects</td>
<td>39.72</td>
</tr>
</tbody>
</table>
USF to shift some of the branches to promote broadband internet services in rural areas

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>USF to fast accelerated deployment of the broadband services</td>
<td>39.4444444</td>
<td>15.791</td>
<td>.469</td>
<td>.859</td>
<td>.732</td>
</tr>
<tr>
<td>USF to ensure effective collection and management of universal services</td>
<td>39.4444444</td>
<td>16.614</td>
<td>.538</td>
<td>.869</td>
<td>.720</td>
</tr>
</tbody>
</table>

4.3.4.1 Teachers’ Strategies Item Total Statistics

“USF to shift some of the branches to promote broadband Internet services in rural areas” which indicated a rise in the Cronbach’s alpha value from 0.757 (Table 4.10) to 0.794 as shown in Table 4.12 was excluded in the analysis.

Table 4.12: Teachers’ Item Total Statistics On Strategies For Successful USF Implementation
<table>
<thead>
<tr>
<th>Function</th>
<th>Score 1</th>
<th>Score 2</th>
<th>Score 3</th>
<th>Score 4</th>
<th>Score 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>USF to provide for disbursement of funds in a transparent manner to fund the appropriate projects</td>
<td>39.722222</td>
<td>16.448</td>
<td>.537</td>
<td>.644</td>
<td>.720</td>
</tr>
<tr>
<td>USF to target more strategic locations such as public libraries among others</td>
<td>39.277778</td>
<td>17.271</td>
<td>.550</td>
<td>.647</td>
<td>.722</td>
</tr>
<tr>
<td>USF to engage in aggressive promotion of broadband services nationally</td>
<td>39.388889</td>
<td>16.605</td>
<td>.599</td>
<td>.797</td>
<td>.713</td>
</tr>
<tr>
<td>USF to advocate for strengthening of government ICT policies</td>
<td>39.166667</td>
<td>17.912</td>
<td>.530</td>
<td>.693</td>
<td>.728</td>
</tr>
<tr>
<td>USF to lobby for financial support from government through grants and loans</td>
<td>39.388889</td>
<td>17.075</td>
<td>.408</td>
<td>.689</td>
<td>.740</td>
</tr>
<tr>
<td>USF to allow for establishment of strong governance and leadership structures for USF programs</td>
<td>39.166667</td>
<td>18.500</td>
<td>.409</td>
<td>.799</td>
<td>.741</td>
</tr>
<tr>
<td>USF to allow for the growth of vendors so that there should be enough number when</td>
<td>39.555556</td>
<td>18.967</td>
<td>.288</td>
<td>.599</td>
<td>.753</td>
</tr>
</tbody>
</table>
bidding for the
projects

| USF to shift some of the branches to promote broadband internet services in rural areas | 39.444444 | 19.556 | .059 | .551 | .794 |

4.4 Benefits Derived From The Implementation Of USF At Kiambu County

The survey needed to assess the benefits that arose from implementing USF at Kiambu County. To achieve this a few parameters were rated on a five point Likert scale, where 1 was “strongly disagree”, 2 was “disagree”, 3 was “uncertain” and 4 and 5 were “agree” and “strongly agree” respectively.

4.4.1 Students View On Benefits Derived From USF Implementation

The findings showed that the students felt they had greatly benefited from USF implementation in Kiambu County due to increased computer literacy levels and provision of expanded mobile telephone network, this being demonstrated by a mean of 4.745 and 4.635 respectively being the highest mean values. On overall, USF implementation was beneficial since the students agreed that all the stated benefits had been as a result of USF Implementation. Figure 4.1 shows the students rating of benefits acquired as from USF Implementation in Kiambu County.
4.4.2 Teachers View On Benefits Derived From USF Implementation

The survey also required the teachers to rate the extent to which the USF implementation had benefited them. Majority of teachers agreed strongly that USF provided enhanced Fast Internet speed; USF has expanded mobile telephone network as well as allowing easy access & reliable access to information superhighway. This is as shown in Figure 4.2 below.
4.4.3 CA Chairman And Manager Interview

The CA top managers agreed that Kiambu County was a beneficiary of the Education Broadband Project with 45 schools being considered in the first year of USF implementation and this was to enable children learn how to use computers at an early age, enhance application of national documents in rural areas through e-citizen portal and provide Mpesa in areas that previously had no network.

4.5 Challenges Affecting USF Implementation

The survey identified possible challenges that would affect the USF implementation and it needed the students to rate the extent to which these challenges affected the implementation of USF. This was again done on 5 Point Likert Scale, where 1 was “strongly disagree”, 2 was “disagree”, 3 was “uncertain” and 4 and 5 were “agree” and “strongly agree” respectively.
4.5.1 Students Views On Challenges Affecting Successful Implementation Of USF

According to students, the main challenge affecting USF Implementation was Bureaucratic systems of governance with a 4.702 mean. The other main challenge stated by the students was, lack of qualified or interested vendors to bid for projects slowing the growth and implementation of USF (mean 4.66). They however, seemed to agree on overall that the listed challenges actually hindered successful implementation of USF.

![Students' challenges in the USF Implementation]

Figure 4.3 Students’ View On Challenges Affecting Implementation Of USF

4.5.2 Teachers’ Views On Challenges Affecting Successful Implementation Of USF

The main challenges facing successful implementation of USF according to the teachers was insufficient funds (mean 4.625), lack of adequate infrastructure (mean 4.529) as well as bureaucratic systems of governance (mean 4.529). Comparing results from both surveys it was
therefore evident that bureaucratic systems of governance were the main challenge as highlighted by both groups.

![Teachers' rating on challenges facing USF Implementation](image)

**Figure 4.4 Teachers’ View On Challenges Facing USF Implementation**

- Insufficient funds hinders full implementation of USF programs
- Lack of adequate infrastructure and facilities negatively affects the implementation of USF
- Bureaucratic systems of governance hinders USF management and implementation
- Lack of support from National and county government affects the USF implementation
- Lack of clear objectives for USF mission in the county hinders the effective implementation of USF
- Unavailability of strong governance and leadership structures affects the implementation of USF in the country
- High level of illiteracy and general ignorance hinders the implementation of USF
- Lack of legal framework and regulations affects the implementation of USF
- Lack of qualified or interested vendors to bid for projects slows the growth and implementation of USF

**4.5.3 CA Chairman and Manager Interview**

The CA management alluded that Voice infrastructure project tender was a restricted to NFP Tier 1 operators which led to some of the projects being located in areas with rampant insecurity issues which might have negatively affected the monitoring and evaluation process.
Decision making on Education Broadband Project was taking too long due to collaboration between CA and MOEST, while sustainability of the education broadband project was also a big challenge unless the Ministry of Education committed to support the project beyond the Authority’s support. The delay of funds from ICT shareholders, lack of electricity in some areas, incitement by politicians and inaccessibility due to bad roads were some of the challenges reported.

### 4.6 Strategies For Successful USF Implementation

The survey recommended possible strategies for successful USF implementation and it needed both students and teachers to rate the extent to which these challenges affected the implementation of USF. This was again done on 5 Point Likert Scale, where 1 was “strongly disagree”, 2 was “disagree”, 3 was “uncertain” and 4 and 5 were “agree” and “strongly agree” respectively.

#### 4.6.1 Students Views On Strategies To Successfully Implement USF

The students felt that USF should shift some of its branches to promote broadband Internet services, engage in aggressive promotion of broadband services nationally and provision for disbursement of funds in a transparent manner when funding appropriate projects. The summary is as shown in the figure 4.5 below.
**Figure 4.5: Students’ Suggestions On Strategies To Successfully Implement USF**

4.6.2 Teachers Views On Strategies To Successfully Implement USF

Advocating strong government ICT policies (mean 4.611), establishment of strong governance & leadership structures for USF implementation (mean 4.611), Targeting more strategic locations such as public libraries (mean 4.5) would also go a long way in helping implement USF successfully according to the teachers. From the both survey findings, establishing good governance, leadership and policies would effectively help in USF implementation. See Figure 4.6 below.
4.6.3 CA Chairman And Manager Interview

The CA reported that there is a USAC - Universal Service Advisory Council drawn from stakeholders who are mandated with giving strategic direction and advising the board on the projects USF undertakes. There are policy guidelines on implementation of the fund namely, KICA, 2008, USF regulations, USF framework, while currently the Authority is developing USF operating manual for 5-year USF implementation strategy.

Also there is a review on the National Broadband Strategy, which gives specific projects that need to be carried out to enable Universal Access to become a reality by the year 2020. The CA also reported that following the access gap study it is prudent to engage with energy shareholders to connect electricity in areas of need and discuss with the government to improve road network in rural areas.

4.7 Correlation Analysis
4.7.1 Correlation Analysis Between Strategies And Benefits

Correlation value of 0.628 indicated a high positive relationship between the strategies adopted for the successful implementation of USF and the benefits that would be derived from the implementation of USF at Kiambu County. The significant figure 0.000 on Table 4.24 is less than 0.01 therefore; further demonstrating a strong correlation between the two variables indicating that effective strategies put in place in USF Implementation will lead to more benefits arising from USF implementation.

Table 4.24: Correlation Between Strategies And Benefits

<table>
<thead>
<tr>
<th>Correlations between Strategies and Benefits</th>
<th>Strategies for successful USF implementation</th>
<th>Benefits derived from the implementation of USF at Kiambu county</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategies for successful USF implementation</td>
<td>Pearson Correlation 1</td>
<td>.628**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>43</td>
</tr>
<tr>
<td>Benefits derived from the implementation of USF at Kiambu county</td>
<td>Pearson Correlation .628**</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>43</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

4.7. Correlation Analysis For Between Challenges And Strategies

Correlation analysis was done to establish if there was any existing relationship between challenges affecting USF implementation and the strategies for successful USF implementation. The findings showed that there was a very low positive relationship between the two selected variables as identified by the correlation value 0.03. Demonstrated even further by significant value of 0.03, which is greater than the P value 0.01 testing at 99%
confidence level. This indicates that the strategies put in place to implement USF will curb some of the challenges affecting successful implementation of the same.

**Table 4.36: Correlation Between Challenges And Strategies**

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Challenges affecting USF implementation</th>
<th>Strategies for successful USF implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges affecting USF implementation Pearson Correlation</td>
<td>1</td>
<td>.030**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.052</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Strategies for successful USF implementation Pearson Correlation</td>
<td>.494**</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.030</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>16</td>
<td>18</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

**4.8 Chapter Summary**

The study analysed 69 questionnaires, which were the major source of primary data used in this study, hence data editing was used as applied as the first step of qualitative analysis. This part displayed the discoveries and the examination of the information of the study. The data obtained from the questionnaires was critically examined to detect errors and the questions that were not answered properly; all the mistakes were corrected and poorly answered questionnaires were exempted from analysis process. This increased accuracy, consistency and reliability of the gathered facts.

Data completeness and uniformity was maintained and this facilitated application of other data analysis techniques like coding, data organization, data classification and tabulation. Coding was the second step of qualitative analysis; this involved assigning the collected data in the questionnaires numerical values where the response rate of each respondent’s category was determined, the respective response rates in each category were added together to present the
total response rate, the percentage of each respective category response rate was calculated out of the total response rate which was 69 respondents. Coding ensured efficient analysis since it reduced the gathered data into small number of classes, which contained the most important information. These findings represent a complete view of all the respondents.

Chapter five discusses and summarizes the 60 findings of the study and finally gives conclusions and recommendations for improvement or practice.
CHAPTER FIVE

5.0 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter consists of four sections, namely summary, discussion, conclusions, and recommendations respectively. The first section provides a summary of the important elements of the study which includes the study objectives, methodology and the findings. The section, which follows, offers a discussion of the major findings of the study with regards to the specific objectives. The third Section offers a discussion as well as the conclusions based on the specific objectives, while making use of the findings and results that were obtained in chapter four. The last sub-section provides the recommendations for improvement that are based on the specific objectives. It also goes ahead to offer various recommendations for further studies.

5.2 Summary

The general objective of this study was to assess the implementation of the USF in Kenya by Communications Authority of Kenya while establishing the benefits of the fund to Kenyans. The specific objectives of this study were to: (i) assess the benefits derived from the implementation of USF; (ii) determine the challenges affecting USF implementation (iii) and, identify the strategies key to successful USF implementation.

The research design that was adopted was descriptive research design and both Quantitative and qualitative analysis was employed to measure the frequency and magnitude of the various factors. The population of focus in this research was assessment of the universal service fund. In Public secondary schools in Kiambu County of study. The sampling technique employed was random cluster sampling by randomly selecting 47 students and 20 students from the public secondary schools that comes from different towns in the county to represent the population so as to enable the researcher collect adequate information. Purposive sampling was also employed to select two (2) respondents of the top management of CA and in particular those that are directly linked to administering the USF. The reason being, the study required experts from the regulatory board of communications in Kenya, which is CA to provide information on the progress of the USF and to provide data of how much they have done since its implementation.
Primary data for the research was collected through use of questionnaires that comprised both closed and open-ended questions that sought to assess the implementation of the USF in Kenya by Communications Authority of Kenya. Respondents were required to respond to questions developed from the three research objectives which did provide substantial data for analysis to derive conclusions. The data was analysed using SPSS Statistics in terms of percentages, mean, as well as correlation and reliability presented in form of tables and figures to elicit the findings in light of the three research objectives.

Correlation value of 0.628 indicated a high positive relationship between the strategies adopted for the successful implementation of USF and the benefits that would be derived from the implementation of USF at Kiambu County.

The findings showed that there was a positive relationship between the two selected variables as identified by the correlation value 0.494. It was also evident that there existed a low positive relationship between the strategies put in place for successful implementation of USF and the benefits derived from implementing USF at Kiambu County.

The benefits of the USF were evident from the findings of this study which showed that enhanced broadband networks in Kiambu County and fast internet speed allowed the Students and teachers who are also living in that area to access the global village therefore get more knowledge from mentors all around the world. This generally improved the mind-set of everyone in the school. The expansion of mobile networks compared to 10 years ago has enabled the students and teachers to communicate with other people in different parts of the country through mobile phones which were previously not required for everyday life. Generally, the computer literacy for the school community in Kiambu has improved, as they are able to use Microsoft word to create formal documents, Excel for mathematics as well as Graphics programs. This has enabled the students to pursue their passion alongside the subjects taught in class.

From the findings of the study; the students, the teachers and representatives from CA all had different suggestions as to which challenges affected the implementation of the USF the most. According to the students, the bureaucratic systems of governance interfered most with the USF implementation as well as lack of qualified and interested vendors, which is slowing the
growth of the USF. The teachers felt that there is insufficient funding into the USF projects and lack of adequate infrastructure to carry out USF projects. The CA on the other hand reported that delay of funds from the ICT shareholders such as mobile network providers was one of the biggest challenges they faced while rolling out the USF. The lack of electricity in some rural areas also hindered implementation of the USF because there is no support for connectivity in those areas. Inaccessibility of areas due to bad roads was also a challenge in implementing the USF.

The strategies that were highlighted following the research that were key for implementation of the USF are; disbursement of funds in a transparent manner in order to fund appropriate projects, aggressive promotion of broadband services nationally. The ministry of information should also advocate for strengthening of government ICT policies so that the USF is labelled a priority in our country. Another key strategy is strong governance and leadership structures for USF programs that have been initiated. A review of the National Broadband strategy is also important in order to prioritize on specific USF projects in order to hasten universal access. Engaging with the government and energy shareholders to provide electricity connectivity in areas of need as well as improvement of road network is also a strategy that the communications regulator should consider while implementing the USF.

5.3 Discussion
This section presents a discussion of the findings of the study.

5.3.1 Benefits Derived From The Implementation Of USF At Kiambu County
According to Boateng (2012), in the developed world, the ICT revolution has affected every sphere of life and has been of immense benefit to the people. In India for example, information exchange by electronic means has revitalized the role of extension services in providing information, education and decision making assistance to agricultural producers. The use of ICTs could therefore complement the conventional extension methods in rural areas in Kenya just like India. Ngahu (2009), contends that the Universal Service Fund (USF) is meant to
support ICT infrastructure development, capacity building and innovations, expansion of communications services to schools, health facilities.

According to Gituku (2016), up to 15 areas in Kenya have been upgraded in terms of ICT good examples being Voi and Western Kenya. The benefits of these programs are highly evident as the students grow up more confident due to their newly acquired computer literacy and can compete for employment with those who have been in urban areas with full access to ICT. The reason for engagement with students mostly is because they are seen as the leaders of the next generation therefore they can utilise their skills to make a better future for those in the rural areas as well as in the urban areas.

The study revealed that the USF implementation rolled out Voice Infrastructure services in 202 sub-locations and Education Broadband Connectivity project in approximately 896 secondary schools spread out in all 47 counties so as to revolution Kenya and particularly in the rural areas. Boateng (2012) discussions further contends with the study that USF subsidizes setup and management of a wireless broadband network for specified rural and remote areas in a country provides new opportunities for business growth and improved education, healthcare, and other services.

The study also revealed that there was a coverage gap that was bridged with the implementation of the USF. This has enabled the residents of Kiambu to communicate with others around the nation. This has led to local tourism, growth of their business, which are mostly agriculture related as well as enriching of personal knowledge. According to CA (2009) priority is to be given to the largest un-served populations in remote areas of the country in targeting coverage gaps in mobile networks.

From the findings, the study revealed that majority of the students seemed to agree that USF increases computer literacy levels, however a good number seemed to disagree with the fact that “USF provides enhanced community broadband networks” due to the high standard deviation value which shows a bigger variety of opinion among the respondents. On average most of the respondents agreed to have benefited from USF implementation. On average, the
teachers were not certain about the following benefits, USF transforming Kiambu County into a knowledge-based society, USF allowing easy access to computers and USF providing enhanced community broadband networks. Therefore, the study is clearly in agreement with the International Telecommunications Union (ITU) Switzerland (2013), which reported that benefits of USF implementation is underpinned by targeted and comprehensive training and other educational programmes designed to ensure self-sufficiency in areas such as the operation of community centres and, in addition, to facilitate the use of telecommunication technologies by population segments who have previously had little or no access to telecommunications of any kind. According to the report, examples of countries such as Colombia, Dominican Republic and Indonesia have improved their educational system by virtue of prioritizing education as a key beneficiary of USF implementation.

In contradiction to the study, Telecommunications Union (ITU) Switzerland (2013), reports that USF successful implementation allows for correlated wide array of direct economic benefits such as global competitiveness, total factor productivity growth, and increases in GDP. Through Broadband technologies, USF Implementation enables rural and remote communities to overcome geographical constraints and gain access to regional and worldwide social, political, economic, and financial information and resources.

The study also agreed with the Intel report (2011), which reported that USF had improved the knowledge base in India by lowering the cost of digital devices an Internet access to Engineering and science students. And that in Morocco, universal service funds have largely focused on the educational system, where students and teachers now have digital devices with localized content, as well as broadband Internet access and ICT training. The funds have also been used to equip multimedia centres at schools around the country nearly half the teachers in Morocco have access to laptops and broadband Internet access. The program also provides localized computer content and training to help teachers integrate ICT in their classrooms. Funded by the country’s USF, the program had enhanced teachers’ ICT-related skills, leading to improvement in the quality of learning for students.

Though, from the CA Interviews, the study established, that the authority has rolled out the implementation of Voice infrastructure Projects, Education Broadband Connectivity Projects and Upgrading educational amenities such as libraries, schools by providing computers so as
to allow school children learn how to use computers at an early age, enhance application of National IDs and other national documents in rural areas through e-citizen portal and provision of M-pesa in areas that previously had no network.

The study revealed that around 202 sub locations voice gaps have been closed in Kiambu, which contends, with Telecommunications Union (ITU) Switzerland (2013), that broadband Internet access have closed voice gaps around the world provided to serve remote and rural regions.

5.3.2 Challenges Affecting USF Implementation

The study showed that “Bureaucratic systems of governance and lack of qualified or interested vendors to bid for the projects would affect the implementation greatly. On average however, the students agreed that the various stated challenges would affect the implementation of USF. Majority of the teachers strongly agreed that insufficient funds hindered the full implementation of USF which contradicts Lynne et al., (2012) argument that the underlying legal frameworks for USF Implementation in many jurisdictions seem to have not been well thought out or conceived from the outset (e.g., not technology neutral or service flexible, excessively bureaucratic, insufficient oversight, etc.) and this has resulted in a number of ineffective or severely constrained as well as legally challenged USF implementation by posing a major challenge to the introduction of rural and non-commercially viable broadband through the USF.

Lynne et al., (2012), though agree slightly with the study by arguing that most jurisdictions lacks proper sustentative analysis regarding the actual USF implementation and that the levies and taxes established for most USF are too high hence hindering the effective implementation of the USF programmes. This was revealed by study through CA interview which observed that USF had challenges in identification of projects to fund, the decision on how much money the service providers would contribute from their revenue, timely and consistent collection of levies from the licensees.

Both the study and Lynne et al., (2012), agrees that lack of electricity in some areas, inaccessibility due to bad roads are key challenges to the implementation of USF programmes.
In many cases, lack of roads or alternate access solutions for some of the remote service areas; limited or no availability of suitable buildings or shelters to house telecommunication equipment becomes a major challenge and Unavailability of reliable power sources has curtailed deployment of telecommunication network equipment. The nature of the remote and often difficult areas to be covered by USFs means that there are bound to be situations that impede or totally prevent USF projects from moving forward. These include factors such as hostile terrain, severe climatic conditions and precarious political situations (e.g., avalanches, political unrest, civil unrest, terrorist or insurgent activity, etc.). In such situations, there is little to be done other than to ‘wait it out’ until the situation becomes less problematic.

The study also revealed that the Voice infrastructure project was a restricted tender to NFP Tier 1 operators such that it led to some projects being located in areas with rampant insecurity issues which might negatively affect the monitoring and evaluation process. In terms of education broadband project, the study established that decision-making was taking long due to the collaboration of the project between CA and MOEST.

Sustainability of the education broadband project is also a challenge because the ministry of education does not support it and the persistent incitement by politicians for personal reasons in the scope project, which delays the funds from ICT shareholders.

Telecommunications Union (ITU) Switzerland (2013) contributed that to the study, that there is significantly delayed execution of many projects or frozen or suspended projects due to poor or non-existent project management, lack of human resources at to maintain, support and educate inhabitants because the maintenance contract with the government covers only the first year of deployment and no allowances have been made for on-going support and that many governments have sought alternative financing mechanisms to stimulate broadband growth and deployment of the Universal service funds and digital inclusion for all yet the process requires regulatory or legislative changes to increase the scope of the USF either to happen too slowly or not at all.

5.3.3 Strategies For Successful USF Implementation
International Telecommunications Union (ITU) Switzerland (2013), pointed out that a clear definition of the overall USF strategy is needed in order to ensure that USF funds are put to the use for which they were intended, and to achieve desired levels of oversight and governance. They also report that USFs are typically funded via some form of contribution mechanism from telecommunication service providers/operators. In the majority of cases, the operator contributions are in the form of a levy based on a percentage of annual operating revenues. The manner in which the fees are disbursed and subsequently utilized varies significantly from Jurisdiction to jurisdiction and an equitable project allocation process needs to be preceded by an equitable fund contribution process.

The study therefore established the CA as an agent of USF, carried out an ICT Access Gap Study, which sought to identify ICT infrastructure and service access deficiency in the country, and recommends for the closing of voice and data gaps. In collaboration with the Kenya national library services, the Authority identifies areas that have dilapidated libraries. Then they refurbish them and as well as connect computers for the public’s use. For purpose of transparency, the study revealed that the authority procured a Canadian firm to perform an access gap study that identifies areas with no network and those with little network to establish our priorities.

The study therefore strongly, established that for USF to provide and disburse funds in a transparent manner, and then it should engage aggressively in promotion of broadband services nationally. The students seemed to greatly vary in opinions on USF accelerating deployment of the broad band services, (67%). Sixty seven percent of the teachers who took part in this survey agreed that for successful implementation of USF, it should fast track accelerated deployment of the broadband services, advocate for strengthening of government ICT policies and allow establishment of strong governance and leadership structures for USF programs. On average however, the teachers agreed that if the strategies were well put in place, then it would lead to successful implementation of USF at Kiambu County.

The finding revealed that there is a USAC- Universal Service Advisory Council drawn from stakeholders who are mandated with giving strategic direction and advising the board on the projects USF undertakes. There are policy guidelines on implementation of the fund namely,
KICA, 2008, USF regulations, USF framework and currently the Authority is developing the USF operating manual for the 5-year USF implementation strategy which needs to be fully implemented and put into use. And a review on the National Broadband Strategy which gives specific projects needed to be carried out to enable Universal Access to become a reality by the year 2020 and Following the access gap study in choosing the areas to begin with, the USF should engage with energy shareholders to connect electricity in areas of need and discuss with the government to improve road network in rural areas.

Lynne et al., (2012), also agree with the study and contributes that, with the number of USFs already in effect globally, there is an ever-increasing and pressing need to carefully address the structural and operational shortcomings of a number of existing USFs with a view to reforming and improving these USFs so that the funds can achieve the goals originally envisaged by their creators: namely, accessibility and affordability for all and, more recently, to respond to the growing need for broadband access around the globe. In addition, it is critical that the issue of the widespread lack of disbursement of already collected USF contributions be tackled and resolved so that the money can be put to good use. In addition to the pressing need to effect these operational changes, consideration must also be given to how to avoid a possible repetition or resurgence of these constraints in the future. The further pointed out that there are two fundamental factors that need to be addressed in order to undertake corrective action or remedies for existing funds: 1) demonstration of the political will to effect change and improvement; and 2) ability to tackle the legislative and/or regulatory changes required in most cases in order to carry out any changes or improvements. Until such actions are initiated, there are few prospects for moving forward with the changes so urgently needed. Once the push for change is underway, the blueprint elaborated below can also serve as a model for USF reform.

5.4 Conclusion

5.4.1 Benefits Derived From The Implementation Of USF At Kiambu County
International Telecommunications Union (ITU) Switzerland (2013), elaborates that, Twenty-five years ago, no one would have possibly envisaged the rapid development of or demand for wireless communications and mobile broadband nor would they have foreseen the mushrooming need for increasingly life enhancing applications such as education, etc., or the need for greater attention and remedial action in the area of digital inclusion. Therefore, there is need for continuing emphasis on the flexibility in the implementation of any USF plan. However, based on the findings of this study, it is clear and evident that the implementation of USF at Kiambu County was beneficial. More importantly both groups highlighted provision of expanded mobile network, Increase in computer literacy levels, easy and reliable access to information superhighway as some of the major benefits.

5.4.2 Challenges Affecting USF Implementation

According to International Telecommunications Union (ITU) Switzerland (2013), the operational plan presented focuses on the underlying structure, conditions and governance needed to ensure that the USFs can be as well-managed and effective as possible in responding to the universal service technologies, services and applications in need of funding. However, it is important to stress that no plan can foresee or encompass all future developments that might take place as regards the conditions impacting the requirement for and the nature of universal service; in other words, one should anticipate that the vision of what USFs entail will undergo constant evolution and change.

With this in mind, there were challenges encountered in the implementation of USF, some of the identified challenges were; Bureaucratic systems of governance that hindered USF lack of adequate infrastructure and facilities, high levels of illiteracy and general ignorance, delay of funds from ICT shareholders as well as the government and lack of qualified vendors with an interest to improve that state of ICT in the country.

5.4.3 Strategies For Successful USF Implementation
The world bank report (2014), reports the best criteria that should be used in identifying the areas that require support should be based on the demand for the ICT services in rural areas, data on the results of rural ICT interventions should be collected, compiled, analysed, and disseminated on a regular basis, and should be used to inform policy decision making for awarding the benefits. The report further states that Public Internet access facilities available at telecenters, public libraries and library-like institutions should be leveraged to become hubs of village innovation through networking rural businesses and communities and the practices should be adopted to achieve greater long-term sustainability for rural ICT interventions.

With this in mind, the study reveals that the strategies required for successful implementation of USF are: transparency of funds disbursed, aggressive promotion of broadband services, strengthening of ICT policies, review and implementation of the National Broadband strategy in line with vision 2030, collaboration of communication regulators with energy shareholders and government in order to improve electricity connectivity and road networks.

5.5 Recommendations

5.5.1 Recommendations For Improvement

5.5.1.1 Benefits Of The Implementation Of USF At Kiambu County

The study recommends that the following strategies to be adopted to bring about benefits of successful implementation of the USF program. The communications regulator should improve on the current broadband networks by encouraging more service providers to offer their broadband services in order to create competition, which in turn brings better value to the consumers. This way the USF will track accelerated deployment of the broadband services. Mobile network providers should also be encouraged to expand their coverage to go deeper into remote areas so that more people can access services such as M-pesa, which will also bring about growth of businesses in rural areas. The government should also deploy more teachers teaching computer subjects to the rural areas so that the students may benefit from them because the equipment cannot solely fulfill these objectives.

5.5.1.2 Challenges Affecting USF Implementation
The study makes the following recommendations to counter the challenges faced while implementing the USF. The disbursement of funds should be done in a transparent manner to fund the appropriate projects. Vendors should be encouraged to participate in the bidding process for the projects. This can be done by creating awareness to the public for them to participate and in turn allow for growth of vendors. To avoid delayed funding, deadlines for payments should be introduced and defaulters charged interest for the same to ensure that the ICT shareholders comply in order for the implementation to run smoothly. The government should also prioritize in building infrastructure in rural areas in order to create opportunities for development. This includes road network and electricity grids.

5.5.1.3 Strategies For Successful USF Implementation

The recommendations made for improvement of USF implementation strategies are as follows; the communications regulator in charge of the USF should engage in aggressive promotion of broadband services nationally, advocate for strengthening of government ICT policies, strive for implementation of the Access gap study priority projects, implementation of the National Broadband Strategy before the year 2020 in preparation for the VISION 2030 objectives. They should also put in place adequate M&E framework to track the projects performance.

5.5.2 Recommendations For Future Studies

This study recommends that future researchers could replicate this study in other Counties that do not share similar characteristics with the mainly semi urbanized Kiambu County in order to ascertain whether the study would yield similar findings using similar specific objectives. It would be of great interest to find out whether public secondary schools in a rural setting would place similar importance to convenience given that they would naturally be less acclimatized to modern conveniences and instead prefer a more rustic, natural, and no frills existence. The study also recommends that future researchers could perform a follow up study on the access gap and fair selection of areas of the project to ensure that the information is always up to date.
References


Ministry of Information and Communication. (2016). Draft the National Broadband strategy


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**APPENDICES**

**Appendix 1: Letter of Introduction**

**RE: Request To Collect Research Data**

Dear Respondent,
I am a graduate student at United States International University pursuing Masters in Business Administration (MBA). I am carrying out research on “An assessment of the universal service fund: A case of Public Schools in Kiambu County” which is in partial fulfillment of the requirement of the Degree of Masters in Business Administration (MBA) at United States International University-Africa. This is an academic research and confidentiality is strictly emphasized, your name will not appear anywhere in the report and the research will only be used for academic purposes. Kindly spare some time to complete the questionnaire attached.

Yours sincerely,

Judy Ngene
(Researcher) USIU-Africa

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**APPENDIX II: Questionnaire for Students**

**SECTION A: GENERAL INFORMATION**

1) Gender of Respondents

   Male [ ]  Female [ ]

2) Name of Your School *(Optional)* ................................................. Form  ...............................
SECTION B: Benefits derived from the implementation of USF at Kiambu County

Kindly indicate the extent to which you have benefited from the implementation of the USF.

Kindly (✓) tick appropriately on a scale of 1-5. 1-Strongly Disagree, 2-Disagree, 3-Uncertain, 4-Agree, 5-Strongly Agree

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<td>1</td>
<td>USF provides enhanced community broadband networks</td>
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<td>2</td>
<td>USF provides expanded mobile telephone network</td>
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<td>3</td>
<td>USF Creates ICT content and its applications</td>
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<td>USF provides enhanced Fast internet speed</td>
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<td>5</td>
<td>USF Increases computer literacy level</td>
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<td>6</td>
<td>USF allows easy accessibility to computers</td>
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<td>7</td>
<td>USF allows easy and reliable access to information superhighway</td>
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<td>8</td>
<td>USF transforms Kiambu County into a knowledge based society</td>
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<td>9</td>
<td>USF improves the quality of education and life in the community</td>
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<td>10</td>
<td>USF creates environment that is conducive and interactive for learning</td>
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SECTION C: Challenges affecting USF Implementation

Kindly indicate the extent to which the following challenges are affecting the implementation of USF.

Kindly (√) tick appropriately on a scale of 1-5. 1-Strongly Disagree, 2-Disagree, 3-Uncertain, 4-Agree, 5-Strongly Agree

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<tr>
<td>1. Lack of adequate infrastructure and facilities negatively affects the implementation of USF</td>
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<td>2. High level of illiteracy and general ignorance hinders the implementation of USF</td>
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<td>3. Insufficient funds hinders full implementation of USF programs</td>
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<td>4. Lack of legal framework and regulations affects the implementation of USF</td>
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<td>5. Lack of clear objectives for USF mission in the county hinders the effective implementation of USF</td>
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<td>6. Bureaucratic systems of governance hinders USF management and implementation</td>
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<td>7. Lack of support from the National and county government affects the USF implementation.</td>
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<td>8. Unavailability of strong governance and leadership structures affects the implementation of USF in the country</td>
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9. Lack of qualified or interested vendors to bid for projects slows the growth and implementation of USF

10. Insufficient funds to support broadband growth negatively affect the implementation of USF

SECTION D: Strategies for successful USF implementation

What is your level of agreement with the following statements concerning the strategies for successful implementation of USF?

Kindly (√) tick appropriately on a scale of 1-5. 1-Strongly Disagree, 2-Disagree, 3-Uncertain, 4-Agree, 5-Strongly Agree

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<td>1.</td>
<td>USF to fast track accelerated deployment of the broadband services</td>
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<td>2.</td>
<td>USF to ensure effective collection and management of universal services</td>
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<td>3.</td>
<td>USF to provide for disbursement of funds in a transparent manner to fund the appropriate projects</td>
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<td>4.</td>
<td>USF to target more strategic locations such as public libraries among others</td>
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<td>5.</td>
<td>USF to engage in aggressive promotion of broadband services nationally</td>
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<td>6.</td>
<td>USF to advocate for strengthening of government ICT policies</td>
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<td>7.</td>
<td>USF to lobby for financial support from government</td>
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through grants and loans

8. USF to allow for Establishment of strong governance and leadership structures for USF programmes

9. USF to allow for growth of vendors so that there should be enough number when bidding for the projects

10. USF to Shift some of the branches to promote broadband internet services in rural areas

THANK YOU FOR YOUR TIME!!

APPENDIX III: Questionnaire for Teachers

SECTION A: GENERAL INFORMATION

1). Gender of Respondents

Male [ ] Female [ ]
2). Name of Your School (Optional) ……………….Class level you teach …………

3). Current Town…………………………………………………………

4). Town of Birth…………………………………………………………

5) What subjects do you teach…………………………………………………………

6) How many years have you taught in the school………………………………

**SECTION B: Benefits derived from the implementation of USF at Kiambu County**

Kindly indicate the extent to which you have benefited from the implementation of the USF.

Kindly (√) tick appropriately on a scale of 1-5. 1-Strongly Disagree, 2-Disagree, 3-Uncertain, 4-Agree, 5-Strongly Agree

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<td>5</td>
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1. USF provides enhanced community broadband networks

2. USF Expands mobile telephone network

3. USF provides Created ICT content and its applications

4. USF provides enhanced Fast internet speed

5. USF increases computer literacy level

6. USF allows for easy access to computers

7. USF allows for easy and reliable access to information superhighway

8. USF transforms Kiambu County into a knowledge based society
9. USF improves the quality of education and life in the community

10. USF provides created environment that is conducive and interactive for learning

**SECTION C: Challenges affecting USF Implementation**

Kindly indicate the extent to which the following challenges are affecting the implementation of USF. Kindly (✓) tick appropriately on a scale of 1-5. 1-Strongly Disagree, 2-Disagree, 3-Uncertain, 4-Agree, 5-Strongly Agree

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly Agree</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of adequate infrastructure and facilities negatively affects the implementation of USF</td>
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<td>2</td>
<td>High level of illiteracy and general ignorance hinders the implementation of USF</td>
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<td>3</td>
<td>Insufficient funds hinder full implementation of USF</td>
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<td>4</td>
<td>Lack of legal framework and regulations affects the implementation of USF</td>
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<td>5</td>
<td>Lack of clear objectives for USF mission in the county hinders the effective implementation of USF</td>
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<td>6</td>
<td>Bureaucratic systems of governance hinders USF management and implementation</td>
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<td>7</td>
<td>Lack of support from the National and county government affects the USF implementation</td>
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<td>8</td>
<td>Unavailability of strong governance and leadership structures affects the implementation of USF in the</td>
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</tbody>
</table>
9. Lack of qualified or interested vendors to bid for projects slows the growth and implementation of USF

10. Insufficient funds to support broadband growth negatively affect the implementation of USF

### SECTION D: Strategies for successful USF implementation

What is your level of agreement with the following statements concerning the strategies for successful implementation of USF? Kindly (√) tick appropriately on a scale of 1-5. 1-Strongly Disagree, 2-Disagree, 3-Uncertain, 4-Agree, 5-Strongly Agree

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Uncertain</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>USF to fast track accelerated deployment of the broadband services</td>
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<td>2.</td>
<td>USF to ensure effective collection and management of universal services</td>
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<td>3.</td>
<td>USF to provides for disbursement of funds in a transparent manner to fund the appropriate projects</td>
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<td>4.</td>
<td>USF to target more strategic locations such as public libraries among others</td>
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<td>5.</td>
<td>USF to engage in aggressive promotion of broadband services nationally</td>
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<td>6.</td>
<td>USF to advocate for strengthening of government ICT policies</td>
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<td>7.</td>
<td>USF to lobby for financial support from government through grants and loans</td>
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</table>
8. USF to allow for Establishment of strong governance and leadership structures for USF programmes

9. USF to allow for growth of vendors so that there should be enough number when bidding for the projects

10. USF to Shift some of the branches to promote broadband internet services in rural areas

THANK YOU FOR YOUR TIME!!

APPENDIX IV: INTERVIEW SCHEDULE FOR CA TOP MANAGEMENT

RE: Request To Collect Research Data

Dear Respondent,
I am a graduate student at United States International University pursuing Masters in Business Administration (MBA). I am carrying out research on “An assessment of the universal service fund: A case of Public Schools in Kiambu County” which is in partial fulfillment of the requirement of the Degree of Masters in Business Administration (MBA) at United States International University-Africa. This is an academic research and confidentiality is strictly emphasized, your name will not appear anywhere in the report and the research will only be used for academic purposes. Kindly spare some time to participate in this interview.

Yours sincerely,

Judy Ngene
(Researcher) USIU-Africa

Interview Questions

i. How long have you been in the communication industry

ii. How many rural towns so far have you upgraded in terms of the ICT since the establishment of USF?

iii. What criteria do you use to identify areas that benefits from the USF and those that will get priority?

iv. What are the USF Programs that have been rolled out so far?

v. Approximately, how much universal service funding is disbursed for each program?

vi. What benefits has the implementation of USF brought to the community and specifically Kiambu County?

vii. While implementing the USF program, what challenges have you encountered that have affected the project’s full implementation?

viii. In encountering the above challenges, what strategies have been used while implementing the USF?

ix. What are your recommendations for future successful implementation of USF?
THANK YOU FOR YOUR TIME