

**ELECTRONIC TAX SYSTEM AND LOCAL REVENUE COLLECTION
PERFORMANCE**

A CASE STUDY OF UGANDA REVENUE AUTHORITY

BY



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DECLARATION

I, EJIKU DAVID, hereby declare that I am the author of this paper and that any assistance I received in its preparation is fully acknowledged and disclosed in the paper. I have also cited any sources from which I used data, ideas or words, either quoted directly or paraphrased. I also certify that this paper was prepared by me specifically for the partial fulfillment for A Master's degree of Business Administration at Uganda Christian University.

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APPROVAL

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DEDICATION

I dedicated this work to my beloved wife Nahamya Brenda Ejiku, (Mrs.) and my Children Daniel & Blessing for the moral, Spiritual and Financial support that you gave me at all stages of my studies. Your support and care gave me a positive transformation in life and may the almighty God bless you abundantly.

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LIST OF ACRONYMS

AT:	Activity Theory
BPI:	Business Process Improvement
CDLS:	Computerized Drivers' License System
CMVRS:	Computerized Motor Vehicle Registration System
EBM:	Electronic Billing Machine
ETR:	Electronic Tax Register
FY:	Financial Year
GDP:	Gross Domestic Product
GSMA:	Groupe Spéciale Mobile Association.
ICT:	Information Communication Technology
IRB:	Inland Revenue Board
IRS:	Internal Revenue Service
IT:	Information Technology
ITAX:	Integrated Tax Administration System
KCCA:	Kampala Capital City Authority
KRA:	Kenya Revenue Authority
MNOs:	Mobile Network Operators
MM:	Motivational Model
PBC:	Perceived Behavioral Control
RRA:	Rwanda Revenue Authority
SCT:	Social Cognitive Theory
SMS:	Short Message Service

SPSS:	Statistical Package for the Social Sciences
TAM:	Technology Acceptance Model
TIN:	Tax Identification Number
TIS:	Taxpayer Identification System
TPB:	Theory of Planned Behavior
TRA:	Tanzania Revenue Authority
TRA:	Theory of Reasoned Action
URA:	Uganda Revenue Authority
URSB:	Uganda Registration Service Bureau
UTAUT:	Unified Theory of Acceptance and Use of Technology
VAT:	value added tax
VR:	virtual reality
ZRA:	Zambia Revenue Authority

ABSTRACT

This study was set to examine the effect of electronic tax system on the revenue collection performance of Uganda Revenue Authority. The study established the effect of internet payment/filing system on revenue collection performance, examined the effect of mobile payment/filing system on revenue collection performance, analyzed the effect of electronic billing machine on revenue collection performance, and established the relationship between electronic tax system and revenue collection performance of Uganda Revenue Authority.

A descriptive survey design, using a sample of 90 respondents was adopted. The respondents were chosen from Uganda Revenue Authority Domestic Tax Department. Simple random sampling was used to select the respondents and data was collected using well designed structured questionnaires.

Findings revealed that internet payment/filing system facilitates registration of taxpayers, this is shown by the mean value of 4.26. It was found that clients pay tax easily from anywhere by use of their mobile phone as reflected by mean value of 4.09. It was also found that the use of electronic billing machines accelerates the processing of accounting and financial documentation as reflected by the mean of 4.23. Furthermore, there is a significant positive relationship between electronic tax system and revenue collection performance ($r = 0.977$, $P < 0.01$).

The researcher recommends that URA management should ensure that there is country wide training to clients on usage of various e-tax applications for efficient revenue collection. For example, training on mobile application and EBM usage.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter, presents background to the study, statement of the problem, research objectives and questions, scope of the study, justification of the study, significance of the study and finally definition of key terms. The study seeks to examine electronic tax system and local revenue collection performance of Uganda Revenue Authority.

1.2 Background of the Study

This sub section presents the historical background, theoretical background, conceptual background and contextual background.

1.2.1 Historical background

The history of electronic tax system began in 1986 as a small test program in which only 5 tax preparers from Cincinnati, Raleigh Durham, and Phoenix agreed to participate. Since then, electronic tax system has grown to become commonplace, serving millions of taxpayers every year.

In the 1980's, processing taxes became increasingly difficult. While tax preparers started to use special computers and software to simplify their job, they still had to print all the forms and mail them to the Internal Revenue Service (IRS). The storage costs of all the paper tax forms incurred by the IRS alone were high. In addition, with the emergence of new technology in the decades preceding 1980's the IRS began to use machines and computers to process the returns. With both the IRS and tax preparers using computers to prepare and process tax returns, it made no sense having paper forms; in fact, it just increased the chances of making errors.

The early electronic tax process consisted of the tax preparer using a machine called Mitron, which was a tape reader with a modem. The tax preparer would insert the tape with the tax data and then transfer it to the IRS. At the IRS, an agent would transfer the tape into a machine called Zilog (or Zylog). Zilog S8000 was a small supercomputer, which would read the data and organize it in a way that would be convenient for the IRS's Unisys system.

In 1986 those 5 tax preparers filed around 25,000 returns using the e-file method. The success of the program prompted the IRS to move it past the test stage and expand it to more cities. In 1987,

66 tax preparers agreed to participate, filing 78,000 tax returns. To improve the system, the IRS added an electronic Direct Deposit option, so the refund money could be wired to a bank account of one's choice. In 1988, the IRS discontinued the use of Zilog S8000 and instead used IBM Series I processing system. This meant that the employee didn't have to plug the phone into the modem anymore, making the process a little simpler.

The success of electronic tax system drew attention from other tax preparers. While the attention was certainly a positive thing for electronic tax system, the method drew some skepticism. Some tax preparers were worried that this was just a method to gather and organize more data for audits. However, using the electronic tax system actually reduced the need for an audit. In addition, the chance of making an error while using electronic tax system was estimated at 1%, while the chance of making an error while filing on paper was as high as 20%.

In 1988, Maryland and Washington DC filed 60,000 tax returns. The success convinced the IRS to persuade as many tax preparers as possible to switch to an electronic tax system. However, using electronic tax system required an investment to buy the necessary computers, and many skeptical tax preparers were slow to adopt it.

In 1990 the IRS expanded the electronic tax service nationwide. That year 4.2 million returns were filed. In addition, large national tax-preparer companies started using electronic tax system. Having large tax companies agree to use electronic tax system eliminated many doubts among smaller tax companies and sped up the electronic tax system adoption process.

1.2.2 Theoretical background.

This study adopted Technology Acceptance Model (TAM) as the theoretical basis for analyzing and understanding electronic tax system and local revenue collection performance of Uganda Revenue Authority.

The theory suggests that perceived usefulness (PU) and perceived ease of use (PEOU) of IT are major determinants of its usage. PU was defined as the degree of which a person believes that using a particular system would enhance his or her job performance and PEOU was defined as the degree of which a person believes that using a particular system would be free of effort. Both PU and PEOU jointly influence citizens' intention. Davis et al (1989) assert, "A key purpose of TAM is to provide a basis for tracing the impact of external factors on internal beliefs, attitudes

and intentions”. Behavior Intention (BI) is a measure of the strength of one’s intention to perform a specified behavior. According to intention-based theories, user adoption and usage behavior are determined by the intention to use IT. It is a kind of “self-prediction” or “behavioral expectation”, indicated as one of the most accurate predictors available for an individual’s future behavior (Davis, 1989). This theory is relevant to the study as it emphasizes that using a particular system enhances performance.

1.2.3 Conceptual background

The key concepts in this study were electronic tax system which is the independent variable and local revenue collection performance of Uganda Revenue Authority which is the dependent variable.

Electronic tax system is the system that has been developed to replace the old manual system. It is a web-enabled and secure application system that provides a fully-integrated and automated solution for administration of domestic taxes. It Enables Taxpayer internet based PIN registration, returns filing, payment registration to allow for tax payments and status inquiries with real-time monitoring of accounts (Waweru 2013).

Gellis (1991), describes electronic tax system as an online platform whereby the taxpayer is able to access through internet all the services offered by a financial authority such as the registration for a personal identification number, filing of returns and application for compliance certificate.

Electronic taxation is an antagonistic process for collecting, evaluating and automating tax-related processes in order to increase productivity (Fu, Farn and Chao, 2006). E-taxation is an e government application that allows for the administration and collection of the tax. It has been used to develop information communication technologies on the automation of tax offices. Along with these developments, it has been ensured that taxpayers can submit their statements in the electronic form, computerized realizations of accruals and collections related to statements, taxpayers can collect information on income wealth and expenditures in the electronic environment, and computer audit of the tax audit is provided (Çetin, 2010)

The electronic tax system provides education and information to taxpayers through electronic registration, filing, and payment. In general, the e-tax system is a comprehensive internet portal that can be accessed 7 days a week and 24 hours a day, which provides taxpayers with a safe self-service option package, a single point of information and action, and does not require intervention by tax administration personnel (Jimenez et al., 2013). When explaining electronic taxes, online filing and tax declarations, which are generally web-based portals that allow taxpayers to pay electronically, share information about tax assessments between different government departments, and educate taxpayers on tax matters, are evaluated. E-taxation services are taxation services used in most countries and sometimes forced by customers (Dečman & Klun, 2015).

Performance refers to the extent to which an organization's goals and objectives are achieved effectively and efficiently while financial performance is a general measure of a firm's overall financial health status over a given period of time (San and Heng, 2011). According to San and Heng (2011), performance can be measured by using variables such as firm's cash flow, working capital, cost base, borrowing as well determining the firm's growth.

1.2.4 Contextual background

According to Tanzi & Zee (2002), Governments worldwide have increasingly been demanding substantially more effective use of modern technology systems for the delivery of services to citizens. Getting citizens to pay their taxes in painlessly without hissing continues to be the dream of all governments the task has however, never been simple, until when there was the introduction of the modern information technology. As early as the 1980s the world has been experiencing an unprecedented pace of advancement in the field of information technology. Such technological innovations are continually having a profound impact on the administration of fiscal systems as well as the way in the administration of taxation is concerned (Nyongesa, 2014).

According to Clegg & Greg (2010), the electronic tax system has been around, globally, for the last 30 years. Its history began in 1986 as a small test program in which only 5 tax payers from

Cincinnati, Raleigh Durham, and Phoenix agreed to participate. Since then, electronic tax system has grown to become common place, serving millions of taxpayers every year.

UN report dated 13th Sep. 2000, on Improving Tax Administration in Sub-Saharan brings out the fact that in recent years, the establishment of autonomous revenue agencies in Sub-Saharan Africa has become attractive as a perceived means to sustained revenue improvement. It was first established in Indonesia in the early 1980s, the model was introduced in Ghana in 1985, followed by Uganda in 1991. Five additional autonomous agencies have been established to date and several more are in the process of being established in Sub-Saharan Africa. Their contribution to revenue performance, however, has been varied and there has been no systematic assessment of their impact (Rocheleau & Wu, 2005).

In countries where e-filing replaces paper-based filing with no additional work required from firms, as was the case in South Africa, e-filing is associated with some savings in Tax Compliance Costs (TCC). On average 22.4% reduction in overall TCC and 21.8% reduction in hours spent for complying with VAT are associated with e-filing usage in South Africa” (Yilmaz & Coolidge, 2013).

E-filing and e-taxation payment was introduced by RRA in 2012 with functioning e-filing system in place such as Mobile declaration, Electronic Single for domestic taxpayers Window (ESW) and Authorized Economic Operator (AEO) for importers and exporters (Gupta, 2012) in order to improve on tax collection and meet the targeted budget accordingly, and this was done to enable the taxpayers to deal with RRA electronically anywhere and anytime as well as to enhance tax administration to collect tax revenue in short term and as a measure to improve on tax compliance and efficiency. It offers an option to the clients to file taxes like VAT, PAYE, Excise duty and Withholding taxes electronically on RRA’s website without having to visit a RRA premise especially if there is tax education, compliancy aspect is guaranteed.

In Uganda since the inception of Uganda Revenue Authority in 1991, tax compliance has always been increasing as evidenced by increased revenue collection, more returns filed by the due dates and few cases of tax evasion reported (Uganda Revenue Authority, 2009). The aim of tax

compliance is to reduce the tax gap which is the difference between the tax amounts taxpayers pay voluntarily and on time and what they should pay under the law (Bird, 2010). The government also benefits by meeting the target of tax to be collected while the tax administration attains efficiency and reduced costs in administering and collecting tax.

In Uganda, revenues increased dramatically in the first several years of the Uganda Revenue Authority establishment, but subsequent performance has been less encouraging. Uganda Revenue Authority for instance is one of the financial authorities in the world to conduct this Electronic tax system through the Business Process Improvement (BPI) and increase scope of electronic interaction with taxpayers to boost staff productivity and taxpayer service (Makokha, Alala, Musiega & Manase, 2014).

Electronic tax system forms part of the revenue collection reforms by Uganda Revenue Authority whose main motive is enhancing tax collections and increase revenue collection and thus, tax revenues have been increasing rapidly due to the country's rapid economic development accelerated by the new systems. In this regard, the planning and formulation phase of an elaborate electronic system strategy was done in the Uganda Revenue Authority Corporate Plan of 2009 and was implemented in the fourth corporate plan of 2011 (Ngotho & Kerongo, 2014).

The effect of electronic tax system on local revenue collection performance has been studied in various countries across the world. However, not much research has been covered in this area on Uganda Revenue Authority in Uganda. With reference to the ambiguities arising in previous studies as well as the absence of extensive research in this area of study in Uganda, this research seeks to find out the effect of electronic tax system on local revenue collection performance of Uganda Revenue Authority.

1.3 Statement of the Problem

Achievements of tax compliance and tax revenue targets depend partly on the taxpayers' cooperation buttressed by the tax knowledge of the tax system in place (URA, 2015). But for Uganda, tax compliance levels remain low and tax collections are below the targets set by Uganda Revenue Authority (URA). For example, according to URA data, during the fiscal year

2018/19, URA was given a net revenue target of Shs16,358.76 trillion but the net revenue collections for FY2018/19 were UGX16,617.65 trillion. This was UGX258.89 billion above the target. In the Financial Year (FY) 2017/18, the targeted revenue collection was Shs. 15,062.43 trillion but net revenue of Shs. 14,456.11 trillion was collected with a deficit of Shs. 606.32 billion. In financial year 2016/17, the net revenue collections were Shs. 12,719.63 trillion with a deficit of Shs. 457.52 Billion against a projected revenue of Shs. 13,177.15 trillion that URA was asked to collect. The targeted revenue collection for the FY 2015/16 was Shs11.3 trillion but the total net revenue collections were Shs8.1 trillion, with a deficit of nearly Shs195 billion. In the Financial Year (FY) 2014/15, URA was expected to collect Shs9.5 trillion, which she collected with the magnificent surplus of Shs139 billion, representing a revenue growth of 20 per cent. In the Financial Year (FY) 2013/14, URA was expected to collect Shs 8 trillion but the tax body closed the financial year 2013/14 with a Shs 500 billion shortfall, the biggest revenue deficit in over a decade. The Financial Year (FY) 2012/2013 was also a difficult year as URA recorded a shortfall of slightly Shs135 billion in revenue collection. The Financial Year (FY) 2010/2011 report showed that Uganda Revenue Authority collected Uganda Shillings 2.8 trillion (\$1.13 billion) in domestic taxes against an annual target of Uganda Shillings 2.9 trillion (\$1.17 billion) (URA, 2019). The above trend clearly shows that tax collections are below the targets set by Uganda Revenue Authority (URA) except in the Financial Year 2018/2019 where URA registered a surplus in revenue collection. It is against this background that the researcher sought to investigate electronic tax system and local revenue collection performance of URA.

1.4 Purpose of the Study

The purpose of this study was to examine the relationship between electronic tax system and revenue collection performance of Uganda Revenue Authority.

1.5 Specific objectives of the Study

The study was guided by the following objectives;

- i. To establish the relationship between internet payment/filing system and revenue collection performance of Uganda Revenue Authority.

- ii. To examine the relationship between mobile payment/filing system and revenue collection performance of Uganda Revenue Authority.
- iii. To establish the relationship between electronic billing machine and revenue collection performance of Uganda Revenue Authority.

1.6 Research Questions

The study attempted to answer the research questions below;

- i. What is the relationship between internet payment/filing system and revenue collection performance of Uganda Revenue Authority?
- ii. What is the relationship between mobile payment/filing system and revenue collection performance of Uganda Revenue Authority?
- iii. What is the relationship between electronic billing machine and revenue collection performance of Uganda Revenue Authority?

1.7 Justification of the Study

The results of empirical literature on the relationship between electronic tax system and revenue collection performance are contradictory. Furthermore, many of the reported studies on the relationship between electronic tax system and revenue collection performance have been conducted in developed countries. The Ugandan market is relatively under developed and therefore the traditional theories that have their origin in the developed economies needed to be tested in the Ugandan context. The reason for this study was to enable URA to improve on revenue collection performance through electronic tax system.

1.8 Scope of the Study

This section covered the content scope, Geographical scope, and the time scope.

1.8.1 Content Scope

The study focused on electronic tax system and revenue collection performance of Uganda Revenue Authority. The study also established the relationship between internet payment/filing system and revenue collection performance, examined the relationship between mobile payment/filing system and revenue collection performance and established the relationship between electronic billing machine and revenue collection performance of Uganda Revenue Authority.

1.8.2 Geographical scope

The study was carried out in Uganda Revenue Authority Domestic Tax Department. URA's headquarters located in the URA Building Complex, located at M193-M194, Kinnawataka Road, Nakawa Industrial Area in Nakawa Division of the city of Kampala, Uganda's capital and largest city. This is about 6 kilometers (4 miles), by road, east of the city center. This area was chosen for this research simply because it is where most of the information concerning domestic taxes are kept and it being the headquarters of the URA offices in Uganda.

1.8.3 Time Scope

The study considered a period of five years that is from 2011 to 2016 because it is between these periods that URA has made great strides in the implementation of the electronic tax system. This period was also adequate enough for the researcher to acquire information from the relevant literature that was necessary for proper investigation of the variables of interest.

1.9 Significance of the Study.

To the scholar and researchers: the findings of the study are expected to contribute to the existing literature about taxation especially electronic tax and the effects it causes to the tax system and the economy as a whole. That is informing the Business Community, Policy makers, Scholars, practitioners in the fields of taxation and the Public at large of the existing Electronic Tax System audits and advantages in fulfilling their tax obligations.

To the tax authority and government, the study may guide and help them plan for the next tax regime having been able to assess whether there is revenue growth or not.

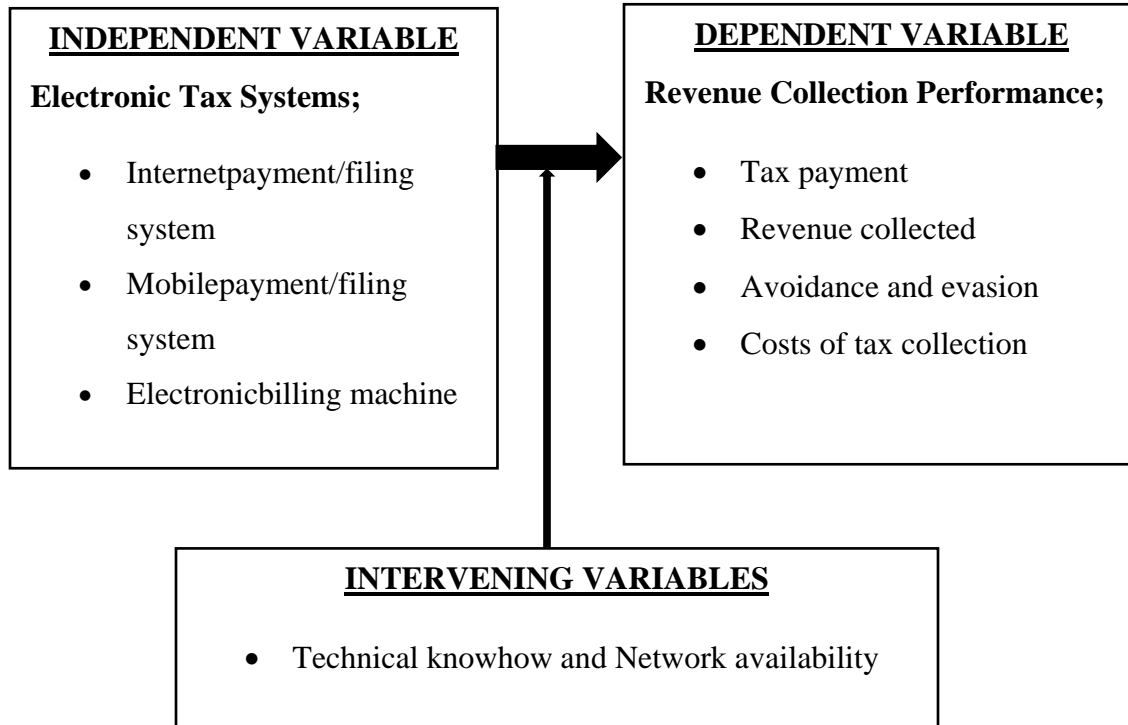
The future academicians especially Uganda Christian University students, the study may help in gaining insight about electronic tax system and local revenue collection and performance.

At the end of the study, the researcher may be able to acquire hands on skills about processing of research work and data analysis. This proficiency may enable the researcher to handle such related work with a lot of precision and proficiency.

1.10 Conceptual Framework

Figure 1: Conceptual framework

Below is a conceptual frame work showing the Effect of Electronic Tax Management System on tax collection performance.



Source: Adopted and modified basing on information from Jahirul (2011); Gabix and Landier (2008).

The relationship of the independent variable (electronic tax systems) was reviewed to establish if there was any relationship between the three factors that is internet payment/filing system, mobile payment/filing system and electronic billing machine and revenue collection performance, a dependent variable measured by tax payment, revenue collected, avoidance and evasion, and costs of tax collection. Internet payment/filing system increases the quality and quantity of information available to tax officers, enabling them to complete transactions faster and more accurately (Jahirul, 2011). Electronic Billing Machine aims at improving tax collection

and compliance, this machines are helping the government increase its tax base (Jahirul, 2011). Mobile payment/filing system enhances e-filing system (Laukkanen & Lauronen, 2015).

1.11 Conclusion of the chapter

The chapter started with an introduction which outlined the key areas covered, this was followed by the background to the study in which taxation from the Global Perspective, taxation in Sub – Saharan Africa, electronic tax System in Uganda, tax Compliance and how the electronic tax system works were discussed. The Chapter proceeded with problem statement seeking to establish why Uganda still faces the challenge of low tax revenue collection performance and tax administration. The Chapter handled the purpose of the study which is examining the effect of electronic tax system on tax collection performance of Uganda Revenue Authority. Objectives of the study were determined as well as research questions which were basically derived from the research objectives. The scope of the study was determined as content, geographical, and time. The chapter tackled justification and significance of the research. Lastly the chapter handled operational definition of key terms.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of literature that has been arranged according to the themes derived from the specific objectives and research questions. This chapter looks at some works and thoughts of some scholars and writers about the variables under review. This chapter discusses literature related to the study variables and focuses on Electronic Tax System and revenue collection performance. It analyzed empirical studies on internet payment/filing system and revenue collection performance, mobile payment/filing system and revenue collection performance, electronic billing machine and revenue collection performance and the relationship between electronic tax system and revenue collection performance. Lastly it also provided research gap and conclusion of the chapter.

2.2 Theoretical review.

Technology Acceptance Model (TAM) adopts Theory of Reasoned Action's causal links to explain individual's IT acceptance behavior. It suggests that perceived usefulness (PU) and perceived ease of use (PEOU) of IT are major determinants of its usage. PU was defined as the degree of which a person believes that using a particular system would enhance his or her job performance and PEOU was defined as the degree, which a person believes that using a particular system would be free of effort. Both PU and PEOU are jointly influence citizens' intention. Davis et al (1989) assert, "A key purpose of TAM is to provide a basis for tracing the impact of external factors on internal beliefs, attitudes and intentions". Behavior Intention (BI) is a measure of the strength of one's intention to perform a specified behavior. According to intention-based theories, user adoption and usage behavior are determined by the intention to use IT. It is a kind of "self-prediction" or "behavioral expectation", indicated as one of the most accurate predictors available for an individual's future behavior (Davis, 1989).

TAM incorporates additional theoretical constructs spanning social influence processes (subjective norm, voluntariness and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability and perceived ease of use). In terms of social influence processes, TAM indicates that three interrelated social forces: subjective norm, voluntariness and image will impinge an individual's opportunity to adopt or reject a new system. TAM also

theorizes that subjective norm will positively influence image because an important members of a person's social group at work believe that he or she should perform a behavior (e.g., using a system), then performing it will tend to elevate his or her standing within the group (Blau 1964; Kiesler 1969; Pfeffer 1982). Individual often respond to social normative influences to establish or maintain a favorable image within a reference group (Kelman, 1958).

An individual may perceive that using a system will lead to improvements in his or her job performance (definition of perceived usefulness) indirectly due to image enhancement, over and above any performance benefits directly attributable to system use. However, when individuals know more about the system's strengths and weaknesses through direct experience, the normative influence subsides. According to Agarwal and Prasad (1997), who found that "mandating the use of a system can increase initial system utilization," enabling users to "overcome the hurdle of first-time use", but such normative pressure seems to erode over time (Ram and Jung, 1991). Job relevance is defined as an individual's perception regarding the degree that the target system is applicable to his or her job. TAM regards job relevance as a cognitive judgment that exerts a direct effect on perceived usefulness. When a task, system is capable of performing and match their job goals, people will consider how well the system perform those task, which always refers as perceptions of output quality.

Output quality used to explain significant unique variance in, perceived usefulness over and above job relevance. Since an effective system may fail to garner user acceptance if people have difficulty attributing gains in their job performance especially to their use of the system. Thus, TAM theorizes that result demonstrability defined by Moore (1991) as the "tangibility of the results of using the innovation" will directly influence perceived usefulness. Empirically, Argawal and Prasad (1997) found a significant correlation between usage intention and result demonstrability. There is extensive empirical evidence accumulated over a decade that perceived ease of use is significantly linked to intention, both directly and indirectly through impact on perceived usefulness (Davis et al., 1989& Venkatesh, 1999). The present study finds this theory very beneficial in that the theory revenue collection performance measures are used as the indicators to assess the success of the country in achieving stated strategies, objectives and critical success factors.

2.3 Conceptual review

2.3.1 Electronic tax system

Electronic tax system is the system that has been developed to replace the old manual system. It is a web-enabled and secure application system that provides a fully-integrated and automated solution for administration of domestic taxes. It Enables Taxpayer internet based PIN registration, returns filing, payment registration to allow for tax payments and status inquiries with real-time monitoring of accounts (Waweru, 2013).

According to Kun et al. (2008), for a long time, government services have been regarded as synonymous with bureaucracy in both developing and industrialized countries. The tenets of Weberian bureaucracy include such factors as organized hierarchy, development of standardized and impersonal procedures, formal division of labor and responsibility, and emphasize efficiency in all procedures. Most countries have bureaucratic state mechanisms; and while many commercial organizations are strongly inspired by the tenets of bureaucracy, their efficiency varies widely. Whatever the level of efficiency of the bureaucracy, the availability of computers to people from all walks of life has brought them better and more convenient access to public services. Additionally, through the Internet and computer technology, governments can provide services in the original positive sense of Weberian bureaucracy. In other words, e-government can facilitate public service offerings in a truly standard, impersonal, efficient, and convenient manner for both service provider (the government) and service recipient (the citizens). In some cases, a government agency can also be a service recipient of an e-government service. In economic terms, the ability of citizens to access government services anytime, anywhere helps to mitigate the transaction costs inherent in all types of government services.

According to Harold (2011), computer generated returns, transmitted electronically, generally are easier to process than paper returns; since the information on the forms doesn't have to be keyed in, number by number, by Internal Revenue Service staff into the Service's computers hence there is less chance of errors. Electronic transmittal is instantaneous, bypassing the frustrating vagaries of the postal system and the client receives confirmation within a day or two that the return not only was received by the Internal Revenue Services, but was received accurately.

However, from an American experience, electronic tax systems' biggest advantage, from the taxpayer's point of view, is that it shortens the time for refunds from an average of 12 weeks to about 3 weeks. Refunds can even be deposited directly into taxpayers' bank accounts. As an added incentive, some vendors that provide electronic filing services for tax preparers also offer a service in which clients due a tax refund can apply for an immediate bank loan equal to the expected IRS check. As a result, a client could receive the refund (less bank and preparer fees) within three days of the filing.

Different literatures points out ICT use to be extremely beneficial; Mugisha (2001) attests that, the use of ICT enhances timely access to accurate and relevant information, which is a prerequisite for good planning, programming, implementation as well as monitoring and evaluation which forms the key component in development; Suluo (20013) shows that, ICT use has led to high level organizational growth; and yet Crede(2008) reveals two facts, first; ICT has the capacity to increase productivity and create more cost effective output with the same or less inputs and second; Development of ICT applications for business use alter the approach organizations function and eventually, improve their services as well as products. What these scholars are trying to emphasize is that; the spread of ICT use in various sectors brings new opportunities for economic growth and development. New organization design, new markets, new products and improved services are being created which brings with them new sources of revenue, hence leading to increase revenue collection and performance which am also in agreement with.

In Tanzania for example, according to the Tanzania Revenue Authority (2010), after the introduction of electronic tax systems with the most central being the Integrated Tax Administration System (ITAS), Taxpayer Identification System (TIN), Computerized Motor Vehicle Registration System (CMVRS), Customs Administration System (ASYCUDA) and Computerized Drivers' License System (CDLS) by the Tanzania Revenue Authority, There are no more rooms full of clerks posting entries by hand in large ledger books as it used to be; instead there is a widespread use of computers to administer tax. In relation to above, this research was based on how all the system of Electronic tax has improved/ increased revenue collection and performance in Uganda case study being Uganda Revenue Authority Domestic tax department.

2.3.2 Revenue collection performance

Revenue collection is the act by which the government collects its taxes. These taxes are PAYE, import duty, excise duty, VAT, Agency Taxes and Exchequer Revenue. The Agency Taxes include Airport Revenue, Petroleum Development Levy, Road Transit Toll, Sugar Level, Traffic Fees, Petroleum Regulatory Levy, Merchant Shipping Fee and Railway Development Levy. Exchequer Revenue include Stamp Duty and Import Declaration Fees (Cadbury, 2012).

2.4 Internet payment/filing system and revenue collection performance

The goal of any tax authority is to establish a system of tax administration that allows for the collection of required taxes at minimum cost. A tax authority engages in many activities, such as processing returns and related information from tax payers, entering tax return data into a database, matching returns against filing requirements, processing tax payments and matching them against assessments, and issuing assessments and refunds (Geetha & Sekar, 2012). One way to boost a tax authority's efficiency is by expanding its use of information and communication technology. Such technology can facilitate a broad range of services, including registering taxpayers, filing returns, processing payments, issuing assessments and checking against third-party information.

Uganda is believed to have the highest tax gap of about 50% because of the difference between the tax that URA should collect from all eligible taxpayers in the country, and what they actually collect from the few that are compliant (Nakiwala, 2010). However, according to Onyango (2011), the 2010/2011 financial year performance report released in November, Uganda Revenue Authority collected Uganda Shillings 2.8 trillion (\$1.13 billion) in domestic taxes against an annual target of Uganda Shillings 2.9 trillion \$1.17 billion. Therefore, there is a reasonable increase in revenue collection with the adoption of E-tax services system.

Electronic filing systems increase the quality and quantity of information available to tax officers, enabling them to complete transactions faster and more accurately. According to Jahirul (2011), returns filed electronically have much lower error rates than paper returns and substantially cut the need to impose penalties and other punitive measures to foster compliance.

The more efficient handling provided by electronic returns allows tax officers to issue assessments and refunds more quickly, and taxpayers know the right way if their returns have been accepted by the tax authorities. Electronic filing lowers the cost of handling returns allowing administrative resources to be reallocated to other tasks such as auditing, customer services and tracking non-compliance (Geetha & Sekar, 2012). The benefits of e-filing and e-payment systems extend to other electronic processes in the tax authority. E-filing and e-payment allow for better and safer data storage that can be used to implement risk management system for auditing and enforcement. Automation helps establish a good system for tracking case files, which is essential for effective auditing and increases the speed and quality of data provided to auditors. In addition, e-filing systems are usually complemented by software that standardizes and facilitates processes for taxpayers, making compliance easier (Gupta, 2012).

Finally, well-designed electronic systems can lower corruption by reducing face-to-face interactions (Jayakumar & Nagalakshmi, 2016). To ensure that taxes are collected efficiently and reduce opportunities for corruption, a generally accepted principle is that tax authorities should not handle money directly. Ideally, tax officials should have little direct contact with taxpayers and so less discretion in deciding how to treat them (Geetha & Sekar, 2012). Electronic tax filing is also easy, flexible and convenient for taxpayers. E-filing makes it possible to file returns from a taxpayer's home, library, financial institution, work place, tax professional's business or even stores and shopping malls. With an integrated e-filing and e-payment system, taxes can be filed and paid online from any place. Singapore was one of the first economies to adopt electronic systems in its public administration. In 1992 the Inland Revenue Department was replaced by the Inland Revenue Authority of Singapore, which developed an integrated, computerized tax administration system.

The authority's first step was shifting from a hard-copy filing system to paperless imaging. Going electronic made administrative processes more efficient by freeing staff from unproductive paper shuffling, enabling better taxpayer service (Jahirul, 2011). The time needed to issue assessments dropped from 12–18 months to 3–5 between 1992 and 2000. This change allowed staff to work more on auditing and investigation. Automated standard taxation procedures also made the system less dependent on the subjective expertise of individual tax

officers, reducing the potential for corruption. Return processing, auditing and payment functions were separated, and officials' attitudes toward taxpayers improved.

Chile's Internal Revenue Service was the country's first public agency to adopt on-line technology well before most other public services. Electronic methods were intended to facilitate tax compliance and decrease direct interaction with taxpayers. Chile is one of the few economies that have managed to approach nearly 100% use of electronic systems. Online tax returns were submitted for the first time in 1998. Chile faced several barriers at the outset of e-filing. Taxpayers had limited Internet access, and tax preparers were reluctant to use the new system because they were unfamiliar with the technology and saw it as a threat to their profession. In addition, the revenue service's information technology system could not handle the huge congestion of tax returns, especially in the few days just before the deadline. So Chile continuously upgraded its electronic system and offered prefilled electronic forms to simplify the process for taxpayers (Geetha & Sekar, 2012). The tax authority also introduced ambitious initiatives to overcome connectivity shortages by creating a public-private network of more than 880 e-filing centers, providing more than 30,000 connectivity points. In addition, it made arrangements with internet cafes so that taxpayers could use their equipment for free and trained operators at access points. It even developed a mobile training and awareness unit that traveled to different parts of the country to help people file taxes online (Jahirul, 2011).

The use of technology to foster tax compliance by the United States Internal Revenue Service (IRS) shows that more developed economies also face challenges in increasing the use of e-filing. The IRS introduced e-filing of federal tax returns in 1986. Though this system predated Singapore's, it was initially less comprehensive (Jayakumar & Nagalakshmi, 2016). In fact, even though the number of electronic returns filed increased over time, the potential savings from that increase were partly offset by the ongoing use of paper filings for complex returns. But by 2012 the IRS achieved 80% e-filing of major returns. Initially, e-filing was not entirely paper less. Until 1999 electronic filers still had to submit signed paper documents. The IRS realized that when taxpayers switched to e-filing, the time savings partly offset the costs of processing the still-large volume of signed paper documents.

In 1999 the IRS introduced an electronic option to replace signed paper documents. In addition to lowering processing costs, e-filing has cut the time required to get refunds making more

taxpayers willing to file returns electronically. Seeking the benefits of electronic tax systems and reflecting the government's vision of leveraging online technology, Malaysia's Inland Revenue Board (IRB) launched its electronic system for taxes in 2004. IRB aimed to increase revenue collection by improving taxpayer services. The goal was to cut time and cost and to allow taxpayers to comply with tax obligations more easily, enabling IRB to maintain a good reputation with taxpayers even as it widened its tax base. With the new system, taxpayers can complete forms and provide needed payment details online instead of sending them by mail or taking them to a tax office. The online system was developed by IRB's information technology department (Jahirul, 2011).

IRB implemented a roaming public key infrastructure system that gives users secure access to sensitive information from any location without having to carry digital identification. The electronic system integrated tax filing and payment on one server a major advantage over manual procedures. For every tax filing or payment, taxpayers have to log in, select and complete the appropriate forms, sign and submit them digitally. An acknowledgment is received immediately. The e-filing system automatically calculates the necessary payment details. It also limits deductions that taxpayers are entitled to base on deduction rules enabling taxpayers to avoid mistakes that would result in penalties (Jahirul, 2011).

2.5 Mobile payment/filing system and revenue collection performance

In Africa (and many developing countries of the world), it can be argued that the journey towards mobile money has followed a "customer centric" evolution path as opposed to a "technology centric" model of innovation observed in developed nations (Geetha & Sekar, 2012). In these regions, there has been a rapidly growing internet penetration rate and mobile cellular network access within the last decade, trends which have been successfully harnessed in addressing existing problems. About 90% of the mobile customer base in Africa purchase prepaid card vouchers using cash, from retail outlets in order to top up their mobile device call credit. MNOs run their own retail outlets as well as license independent dealers authorized to sell mobile recharge vouchers to end customers (GSMA, 2012).

In 2008, it was a popular use case for students to request payment for services or gifts in form of recharge vouchers and even hold on to a collection of recharge vouchers as stored monetary value. It was also common to receive and gift recharge vouchers as birthday presents and use

them for the fulfillment of a bevy of social obligations (Jayakumar & Nagalakshmi, 2016). Another use case that quickly became popular was the use of recharge vouchers as a medium to transfer value over huge geographical distances. Concerned consumers (lead users in this case) quickly discovered they could send “money” (recharge vouchers) to loved ones in remote villages simply by purchasing these vouchers and texting the digits via short message service (SMS) - at no extra expense. Their loved ones could either use the recharge vouchers themselves or exchange it for cash after finding an exchange partner in need (Hippel, 1986). This provided value as it addressed several problems especially peculiar to the developing nations. First, it provided an expense-free method to exchange value for both the banked and unbanked. Next, it addressed issues related to infrastructure and transfer over wide geographic distances effectively enabling location free banking (Laukkanen & Lauronen, 2015). Furthermore, it was accessible to almost anyone and provided all of this with near instant confirmation – SMS message delivery. No alternative method of value exchange provided comparative qualities. Available options were costly, risky or inaccessible.

Consumers could either send value through risky mass transit systems (public/private transportation) or make expensive bank transfers (Jayakumar & Nagalakshmi, 2016). Even today, other factors such as sparse bank branch coverage, extended waiting times for transfers and infrastructure challenges (particularly power), still make bank transfers less desirable. Thus consumers, through innovative use cases, defined the basic structure for the most successful form of Mobile Money in the third world today. Observation of these innovative use cases by customers provided the initial validation but building Mobile Money infrastructures. This basic structure which involves consumers with mobile devices, voucher distribution agents and MNOs has been formalized and constitutes the basic components of mobile money (Hippel, 1986).

In addition, prefilled online tax returns have been available since 2006, starting with tax payer’s basic information and later extended to include their incomes and reliefs. In 2012 IRB enhanced its e-filing system by introducing smartphone filing (Laukkanen & Lauronen, 2015).

2.6 Electronic billing machine and revenue collection performance

A billing machine consists of an electric typewriter, a calculator (in a modern accounting machine, a minicomputer), a programmed control device, and a unit for recording the information on an

auxiliary carrier. Billing machines are used, for example, at computer consoles, in bookkeeping departments of commercial and industrial enterprises, in banks, in large warehouses, and in construction and assembly-installation directorates. The use of such machines substantially expedites the processing of accounting and financial documentation. With the development of automated control systems, billing machines have been employed as input terminals for such systems (Jayakumar & Nagalakshmi, 2016).

The various billing machine models differ in the width of the typewriter carriage (32, 45, or 62 centimetres), the set of computational operations performed, and the degree of automation. The model VA-345M and VA-345P machines are widely used in the Soviet Union, as well as such machines as the Soemtron, which is manufactured in the German Democratic Republic (Jahirul, 2011). A device for the processing of alphanumeric documents, for example, accounts, invoice-payment demands, payrolls, and construction estimates that requires simple calculations, such as addition, subtraction, multiplication, division, and the computation of percentages. The machine also automatically prints the result of a processing operation on paper by means of a typewriter and simultaneously records the result on an auxiliary information carrier, such as a magnetic tape, a punch tape, or punch cards.

Monetary transactions at banks, retail stores, grocery stores, healthcare institutes and other places have been made easier with the use of a variety of machines. Billing and money counting are two important functions involved in these transactions (Geetha and Sekar, 2012). These functions should be done fast and with accuracy to add value to the business operations. Something like billing and currency counting machine can be easily spotted at the aforementioned places. There are portable models of these machines that can be used in a variety of applications. If you have a business or service providing store that requires money-related transactions to be done efficiently, learn about the working and benefits of machines in this regard.

Before the advent of modern day billing machine models and cash counters, the machines used for these purposes were purely mechanical. Today, there are electronically machines with improved functionality due to better working mechanism. In a cash counting machine, the lot

containing coins or currency notes is placed in a hopper (Geetha and Sekar, 2012). The machine contains electronic components like rollers and sensors that count each and every coin or note in the process. Many machines are pre-programmed to perform the designated sets of functions.

One of the most important advantages of a billing and currency counting machine is that it saves a lot of time and manual efforts. Productivity can be easily increased with these machines. A billing machine proves to be advantageous in producing the sum totals for various money transactions and to generate the bills faster and accurately. However, their advantages are not limited to those already mentioned (Geetha & Sekar, 2012). Depending upon the types of features integrated with them, these machines can detect fake and counterfeit currency notes. In addition, many models are designed to find old and damaged currency notes so that they can be separated or replaced according to the users' requirements. Going further, some billing and cash counting machines can be used to count notes with different denominations separately.

Electronic Billing Machine as an independent variable it can affect the Taxation in different ways even if Taxes depending to different thing lets us take those thing as the constants, we will see how Electronic Billing Machine aims at improving tax collection and compliance, this machines are helping the government increase its tax base (Jahirul, 2011). The tools have helped cut down time spent screening books of accounts and Auditors used to spend hours investigating and going over massive documentation, but with the EBM, audits are easily conducted and by using of Electronic Billing Machines URA is now able to catch tax evaders with less effort. The same technology is used in countries such as Sweden, Germany, Greece, Ethiopia and Kenya to combat tax evasion because every registered machine records all transactions and indicates Value Added Taxes expected to be remitted to government coffers. The use of Electronic Billing Machines discourages some taxpayers who were fond of keeping two receipt books or non-issuing tax receipts to clients, irrespective of the quantities bought, which encouraged tax evasion.

2.7 Electronic tax system and revenue collection performance

Tax collection and administration can be improved through measures such as; shifting towards an electronic tax payer registration system where a uniform Tax Identification Number (TIN) would apply regardless of whether a tax payer is registering for Personal Tax, Corporate Tax or

VAT. Simplify the tax code: Since income tax and value added tax (VAT) rates are punitive and lack in-built mechanisms that would enhance self-assessment, there is need to simplify tax laws, forms and procedures developing systems that can enhance access to third-party sources of information. Uganda Revenue Authority still lacks adequate and frequently updated information systems on registered taxpayers (Abdul & Idris, 2012).

Sagas *et al.* (2015) did an assessment of the impact of electronic tax register on revenue collection by Kenya Revenue Authority western region, Kenya. Findings from their study indicated that 75% of the respondents were of the opinion that ETR machines have helped to curb cases of tax evasion 86% of the respondents were of the opinion that ETRs have helped increase revenue collection due to their efficient nature. How this study will silently different from that because it looks at the revenue collection and performance in Uganda case study being Uganda Revenue Authority Domestic Tax Department.

Monica *et al.* (2017) in their study “Effects of Electronic Tax System on Tax Collection Efficiency in Domestic Taxes Department of Kenya Revenue Authority (KRA), Rift Valley Region’ adopted a case study research design to establish the effects of electronic tax payment on revenue collection efficiency by KRA in Rift Valley region; find out the effect of electronic tax filing on revenue collection efficiency, examined the effect of staff competency on revenue collection efficiency and to find out the level of taxpayers’ knowledge in operating electronic tax system. The main data collection tools were questionnaires that were administered to 130 respondents who included employees of KRA and tax payers. Descriptive & inferential statistics where employed as data analysis technique. Findings from the study revealed that most tax payers strongly agreed that they were able to fully access and operate e Tax system. Employee competence was a significant predictor of the tax collection efficiency (Y) with the results as ($t = -2.243$, $P = .154 > 5\%$). Taxpayers seeking clarifications on tax issues online is minimal. Handling of e-Tax issues raised by taxpayers was not satisfactory and KRA management and other staff in other departments were partially supportive of e Tax system. In relation to the above, my findings are not far from his findings only that there is still a lot needed to be tax on our tax system especially educating the public on the e tax system

Owino *et al.* (2017) in their study, “Influence of Information and Communication Technology on Revenue Collection in County Governments in Kenya: A Comparative Study of Migori and

Homa Bay County Governments”, used a correlation study research design to determine the influence of ICT system for single business permits on revenue collection; evaluate the influence of ICT system for land rates on revenue collection; establish the influence of ICT system for property rates on revenue collection and establish the influence of ICT system for bus park on revenue collection in Migori and Homa Bay County Governments, Kenya. The target population was 864 consisting of 848 revenue clerks and 16 revenue officers from which a Sample size of 86 respondents were selected using stratified random sampling technique. Primary data were collected with the use of questionnaire, and analyzed using percentages, means and regression techniques. The findings showed that a strong and almost a perfect association existed between ICT systems adopted in County Governments and the revenue collection; the application of the information communication technology systems explain up to 91.9% variation in revenue collection efficiency in the county governments. Further findings revealed that the application of these systems improves revenue collection efficiency in the county governments.

Though the major aim of Revenue Collection for most governments is to stimulate and guide the economic and social development of the country, there are several determinants for an effective realization of the exercise. As such County governments are successfully implementing E-payment to overcome the challenges of the corruption earlier experienced by the former city, municipal and county and therefore enhance optimal revenue collection. According to Balunywa *et al.* (2014), the use of Information Communication Technology (ICT), such as e-payment, would considerably increase the revenue collection as it helps tracking noncompliant revenue payers. Thus, the implementation of e-payment is paramount in ensuring optimal revenue collection. Various ICT based revenue collection applications are available for use in the modern world today. These are simply referred to as Electronic Payment (Epayment) system (Ndunda *et al.*, 2015), integrated into revenue collection. The E-payment system is accessible online through Point of Sale (PoS) terminal devices and physical agents (such mobile phones, debit cards, agents, mobile money). The E-payment is intended to help the companies using it to eliminating or reducing and minimizing corruption (some of the problems inherent in the settlement and payment process), by allowing customers to pay their bills without having to actually move to the firm premises. The customers have access to their account information and even transfer money to other accounts in the comfort of their homes (Wahab, 2012).

Otieno *et al.* (2013) study found that there is a relationship between Information Systems (IS) and both efficiency and effectiveness in revenue collection, there is a strong positive relationship between Internal Control Systems and revenue collection. However, resistance to change by the council staff was derailing the full implementation of IS. The study is useful to the present study for full integration of IS, and more specifically e-payment system, in revenue collection. A study by Wahab (2012) established that the adoption and use of the e-payment system was found to be low mainly due to the inadequate availability of point of sale terminals at shopping points among others. These are affecting the perceived ease of use even though the perceived usefulness of e payment systems is strongly present among individuals and businesses. The study recommended customer education and wide spread deployment of e-payment point of sale terminals to merchants.

There have been several studies concerning the electronic tax payments across the globe. Kalakota & Whinston (2017) did a study Benefits of a computerized integrated system for taxation in Tanzania, they argued that Taxation is often the most important source of state revenue. However, many developing countries lack effective tax administration structures and processes. Technological innovations have not filtered through to the daily working reality of tax officials. They concluded that Computerization of tax and revenue authorities can contribute to reaching the goal of good (financial) governance. It improves accountability and transparency of the revenue authorities. Nevertheless, while reforming and modernizing the tax system is an essential part of improving domestic resource mobilization, such a reform will be sustainable only in conjunction with more profound changes in the administrative and political structure of a state.

Wang (2009) did a study on the revenue productivity and some administrative factors of the Kenyan tax system for the period 2001–2008. The result of this study came up with buoyancy estimates of the total tax system as 1.26 while elasticity was 1.27. The study thus concluded that the tax system in general was both elastic and buoyant implying that tax reforms had greatly improved productivity. Discretionary tax measures had a very small effect on tax productivity implying improved efficiency. In relation to this, the current study will desire to examine revenue performance in relation to the newly introduced electronic tax system in Uganda.

Wekesa (2015) did a study on the tax buoyancy and income-elasticity of Kenya's tax system. Tax revenues from various sources were regressed on their tax bases. The study concluded that the tax system had failed to raise necessary revenues. However, the shortcomings of the study were that it never considered other important determinants of tax revenue, for instance the unusual circumstances that could have affected tax. It also never disregarded tax revenue data by source hence it was difficult to say which tax bases contributed more to the exchequer. Finally, it never considered the time series properties of the data used, however this research considered records from Uganda Revenue Authority data base from 2011 to 2016.

Muema *et al.* (2014) did a study on the productivity of Kenya's tax structure in the context of the tax reforms focusing on pre and post reform period. In the study, they assessed the buoyancy and elasticity of individual taxes and the overall tax system. Their findings suggested that tax reforms had a positive impact on the overall tax structure and on the individual tax handles, even though the impact of the reforms was not always uniform. The reforms had a bigger impact on direct taxes than on indirect taxes, suggesting that revenue leakage is still a major problem for indirect taxes. Even though the current study adopted model used by Muema *et al.*, it differs from their study in some dimension. First, this study used data of since 1963–2010. Second, nominal figures were converted to real figures. Finally, this study considered stationary of a time series data and the data regressed for the whole period of the study. My study will therefore base on the current records of Uganda Revenue Authority ranging from 2011 to 2016, the period for which electronic tax system was introduced and implemented in Uganda by Uganda Revenue Authority.

Agimo (2014) looked at the Impact of electronic tax systems on Tax Administration in Nigeria. He argued that the dwindling global fortune occasioned by the fall in the price of crude oil, the major source of wealth for Nigeria shifted the attention of the government and major stakeholders in the country to the revenue generated locally. But the daunting task of boosting the Internally Generated Revenue necessitates the adoption of electronic tax systems technologies to drive Tax administration and concluded that electronic tax systems plays an important role in the increase of internally generated revenue in Nigeria by ensuring compliance thereby boosting productivity and economic activities in the country. It is a change agent for accelerated growth and poverty reduction in Nigeria and the whole of African continent at large.

The major recommendation from their study was that necessary laws and regulations have to be passed by the appropriate authorities to reduce or abolish import taxes on information technology hardware such as computers, Servers, printers, biometric scanners and other devices.

Andarias (2016) while commenting on the essence of technology noted that, technology is an important tool if properly used; otherwise it can as well become a problem that needs solving, rather than the solution. The technology used in tax administration entails the use of computer, internet and software applications. Technology is only regarded as efficient when handled by well-trained personnel and if embedded in the workflow of the organization. Good technology needs only to be applied in tax administration if it satisfies some basic principles which also include; reducing life of tax, improving efficiency and reducing errors in procedures, increasing multi-tasking levels of tax officers and facilitating taxpayers in complying with tax regulations. In the reduction of the „life-time of the tax“, proper technology needs to ensure that the time period between the date a property or service become liable for tax and the payment of this tax or rate is reduced to the minimum. All technological advances in automation processing, mass data processing and elimination of administrative challenges fall in this category.

Technology in tax administration needs to also aim at enhanced efficiency and also the reduction of errors in procedures, gathering of data automatically, as well as avoidance of duplication, storage of images of documents, integration of aerial photography and digital plans with identification data of property (Geetha & Sekar, 2012). Additionally, good technology needs to increase the multitask-level of personnel, as well as the integration of all procedures in a single information system.

Technology use is a key for the tax administration activity given that large set of data must be processed. But the technology needs not be considered the objective, quite opposite it needs to be regarded as a means to gain efficiency and also cost reduction in overall tax administration. Effective tax administration is therefore desired by the tax authority and the taxpayers. For the taxpayers, it comes with numerous advantages such as less paperwork, rationalization as well as simplification of ancillary tax obligations, elimination of tax audits on companies, expedition of procedures controlled by tax administration and enhanced competitive edge with decrease in tax evasion. Jenkins (2011) also emphasizes that indeed the tax system can never work better than its tax administration, but even the best tax administration would certainly fail to turn a bad tax

system into a well-operating one. He also warns that the existence of many ambitious tax reforms did not succeed because of the inefficient tax administration. In the absence of permanent reorganization of the tax administration and almost daily improvements in the methods of its management, it is not possible to expect that tax reforms will be successfully realized (Quintana, 2016). This therefore means that tax reforms have a close correlation between successful tax policy and efficient tax administration. In other words, there is no good tax policy without efficient tax administration (Jenkins, 2014).

Finally, technology needs to facilitate the task of taxpayers when complying with their tax obligations, as it aids in increasing accessibility to information, widening range of means of payment, reducing need for tax-payers to visit tax office, and by reduction in the time taken by taxpayers waiting for assistance. All these activities described are simply aimed at enhancing compliance (Laukkanen & Lauronen, 2015).

2.8 Empirical Studies

The present study reviewed various global, regional, and local studies on effects of electronic tax system on revenue collection performance. For instance, a study by Ndunda *et al.* (2015) revealed that level of tax payment (compliance) affected optimal revenue collection. The study a regression model, which established a marginal relationship between tax compliance and revenue collection. It was established revenue clerks and tax officials were corrupt and the staff lacked adequate training facilities and opportunities led to inexperienced employees in the County Government. The recommendations by the study were that county governments needed to increase competence of revenue clerks and other County officials and attract skilled and competitive employees for the purpose of increasing revenue collection performance. The study fell short of identifying other systems for improvement of revenue collection, which the current study sought to establish.

A study by Kinuthia and Akinnusi (2014) found that the barriers to e-commerce development were; Economic, Social, Telecommunications infrastructure barrier, legal/political, individual and organizational barriers. The first three variables are positively but moderately correlated with each other, while with the exception of telecommunications infrastructure, others are poorly correlated with individual and organizational barriers. As expected, the latter two correlate moderately with each other. The regression analysis suggests that telecommunications

infrastructure barriers hold the key to unlocking the expansions of e-commerce in Kenya, as a decrease in this area would have multiplier effects on the other barriers. The study recommended that the government has a vital role to play in reducing the first four barriers, which are all external to organizations, while at the organizational level, organizations should set (ecommerce) goals and objectives that are well spelt out; build human organizational capital structures to facilitate good working relationships and provide training on e-commerce to minimize resistance and blocking of new changes in organizations.

Nyongesa (2014) recommended decentralized ICT based tax collection systems and offices in the sub-counties in adoption of diversity strategies in revenue collection role in Mombasa County. Among other strategies was; the remission of cash to the nearest bank and not to the cash offices, improved tax rates, widened the tax base, devolution of tax base to county government departments, improved controls on management of cash. However, the use of automation of revenue collection system would widely increase the revenue collection. The study recommends that the County Government of Mombasa needs to automate its revenue collection, through partnering with the regional banks whereby the tax payers will be given option of paying county fees through mobile money or branded credit cards via new revenue collection system. The study also recommends the development of revenue management capacity by training qualified personnel, established proper revenue management mechanisms), so as for the County to provide quality services to the people.

Muema *et al.* (2014) indicated that Nairobi county and the parking industry were generally ready to adopt the mobile parking management system, although as with any technological adoption it was bound to face some barriers which could be overcome. A study by Kinyanjui and Kahonge (2013) revealed that the use of e-payment by mobile phone based technology in mobile parking increase parking fees collection. However, there is need to develop an application to control traffic flow, allocation and availability of parking space within the streets of Nairobi, which is a major concern to every motorist.

Otieno *et al.* (2013) study found that there is a relationship between Information Systems (IS) and both efficiency and effectiveness in revenue collection, there is a strong positive relationship between Internal Control Systems and revenue collection. However, resistance to change by the council staff was derailing the full implementation of IS. The study is useful to the present study

for full integration of IS, and more specifically e-payment system, in revenue collection. Wahab (2012) established that the adoption and use of the e-payment system was found to be low mainly due to the inadequate availability of point of sale terminals at shopping points among others. These are affecting the perceived ease of use even though the perceived usefulness of e-payment systems is strongly present among individuals and businesses. The study recommended customer education and wide spread deployment of e-payment point of sale terminals to merchants.

Kayaga (2010)'s study showed that new technology alone is not sufficient if the government does not recognize the need for skilled tax officials. The scholar further avers that, effective tax administration requires qualified tax personnel with requisite skills to maintain these systems and operate them to their fullest potential. A study by Simiyu (2010) established that, tax officers accepted bribes when offered to reduce tax liability and demand for bribes when they visited, a situation that hugely affected revenue collection in Nairobi County, Kenya. Gikandi and Bloor (2010) found that some factors tended to inhibit the adoption of e-commerce in Kenya. These include; lack of resources, constant change in technology, time available to develop systems, the lack of spread of accessibility and use of Internet by the general population, especially in the rural areas. Organizational, governmental and developmental issues were also identified as constraints to the adoption of e-commerce in the banking sector in Kenya. The study observed that e-banking introduced new risks requiring new risk management strategies, including Internet security, customer and legal related issues. The study concluded by emphasizing the role of Kenya Government in achieving a secure environment for e-banking activities by; putting in place clear laws, rules and regulations and providing relevant technical training to the regulatory authority to empower them to enforce the laws effectively.

Rocheleau and Wu (2005) found that some of the most challenging e-government applications involve allowing citizens and other customers to conduct financially related transactions electronically with governments on a 24-hour, 7-day a week basis. Generally, usage rates are low, demonstrating that there is a gap between the potential and reality of this form of e-government. Statistical tests showed that convenience fees have a negative effect on usage rates. The governments can affect usage rates by providing incentives to employ online transactions and/or penalties for making payment by manual methods. Governments may also improve their

usage rates by making their websites and applications accessible and easy-to-use as well as by extensively marketing these applications.

2.9 Conclusion of the chapter

From the Literature review, several researchers seem to concur that there is a relationship between electronic tax systems and revenue collection performance. These conclusions were however confirmed or dispelled after empirical evidence was obtained from the research.

2.10 Research Gap

Several scholars and researchers like Dennis and Ventry (2016); Rosenberg (2017); and Richardson and Sawyer (2011) offer analysis on factors that facilitate successful adoption of tax compliance and enhancement. However, the geographical and social context of these studies as well as the time they were conducted create a gap thereby being unable to offer a contextually relevant assessment of taxation and revenue collection systems in Uganda. Still, those studies did not focus on the electronic tax system and local revenue collection performance and how it impacts on URA hence the research gap in terms of literature.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents how the study was conducted. It comprises of research design, study population, sample size, sampling techniques, data collection methods, data collection instruments, quality control, procedure of data collection, data Analysis, measurement of the variables, ethical issues, and finally limitations to the study.

3.2 Research design

According to Kothari (2004) a research design is the arrangement of conditions for collection and analysis of data in a manner to combine relevance to the research. It is a conceptual structure within which research is conducted.

This study adopted a descriptive survey design. This was aimed at understanding and explaining the effect of electronic tax system on revenue collection performance. Both qualitative and quantitative methods were used because they supplement each other. The qualitative approach was mainly used to describe subjective assessments, opinions, and behaviors of the respondents as expressed from interviews. The quantitative approach helped in generating numerical data, which was statistically manipulated to meet required objectives through descriptive statistics

such as frequencies and percentages. A combination of qualitative and quantitative data helped in analyzing many findings and outcomes to create an in-depth research.

3.3 Study Population

The targeted population is whole population in which the research is based on (Kothari, 2004).

For the purpose of this study, the target population comprised of 120 staff of Uganda Revenue Authority. These included senior managers, middle managers and other staff.

3.4 Sample Size

Sample is a smaller group or sub-group obtained from the accessible population (Mugenda and Mugenda, 1999). This subgroup is carefully selected so as to be representative of the whole population with the relevant characteristics. The sample size comprised of 90 staff of Uganda Revenue Authority. This was determined as per Krejcie and Morgan's (1970) table of determining sample size from a given population.

Table 3.4.1: Sample size

Category	Population	Accessible Sample Size	Sampling Techniques
Senior managers	16	11	Purposive
Middle managers	23	17	Purposive
Other staff	81	62	Random sampling
Total	120	90	

Source: *Krejcie and Morgan (1970)*

3.5 Sampling technique

The researcher used purposive and simple random sampling techniques to select and obtain respondents. Here, 62 staff of Uganda Revenue Authority were randomly selected and 28 senior and middle management staff were purposively chosen for key information purposes because of their positions. This helped the researcher to select the respondents depending on their knowledge, experience and opinions.

3.6 Data collection methods

This study used both quantitative and qualitative data collection methods. Quantitative data was collected using questionnaires that were filled by the middle managers and other staff and qualitative data was obtained from key informant interviews with the senior management staff.

3.7 Data Collection Instrument

The researcher used questionnaire and interview guide to collect data from the respondents.

3.7.1 Questionnaire

The questionnaire was structured into sections seeking personal information, questions about the independent variable and the dependent variable. The questionnaire was supplied to 90 employees of URA. The questionnaire was used because it is the main method of data collection (Kothari, 2011) in addition to being cheap and time saving.

The questionnaire was used to collect quantitative data from the employees of Uganda Revenue Authority in accordance with the research questions, hypothesis and research objectives. The responses to questionnaire were interpreted using a five point Likert mean range scale that were interpreted as; Strongly agree = 5 (very high) with mean range of 4.20 – 5.00; Agree = 4 (High) with mean range of 3.40 – 4.19; Undecided = 3 (Medium) with mean range of 2.60 – 3.39; Disagree = 2 (low) with mean range of 1.80-2.59, Strongly Disagree = 1 (very low) with mean range of 1.00 – 1.79.

Responses from the officer in charge of cooperative at a sector level were obtained by taking them through the interview guide to obtain qualitative information.

3.7.2 Interview guide

This involves presentation of oral verbal stimuli and reply in terms of oral verbal responses (Brew and Lucas 2009). Interviews, specifically semi-structured interviews, was chosen because of their flexibility to explore themes that dig deeper to answer the research question. This method allowed new ideas to be brought up and explored during the interviews. The choice to conduct interviews was based on practical reasons such as respondents' availability.

The respondents were interviewed on impact of Electronic Tax system on revenue collection and performance. The interviews were structured, meaning that there was a list of pre-determined questions to be asked to the respondents. In both face to face and oral interviews, the questions

were the same and were asked in a manner that ensures the least bias in the response. The researcher also used Interview guides and Focus discussion group guide to collect the qualitative data.

3.7.3 Review of Secondary Data

Secondary data was collected from articles, newspapers, text books and Journals. These were accessed through desk research, visiting various libraries and the internet. The secondary data was useful in enabling the Researcher learn more about the Electronic Tax Systems in Uganda and was further used for cross referencing in the discussion of the study findings.

3.8 Validity and Reliability

To ensure that the questionnaire seeks data in line with the study objective and gives consistent results, the researcher first tested for the validity and reliability of the research instrument.

3.8.1 Validity

According to Creswell (2014), validity measures the degree to which the research or study achieves what it sets out to do. The research instrument was validated in terms of content and face validity. The revenue collection experts determined whether the sets of items can accurately measure the performance of revenue collection. The Experts were requested to comment on the representativeness and suitability of questions and give suggestions on the structure of the tools. The instruments were also scrutinized by the research supervisor to judge the items on their appropriateness of content, and to determine all the possible areas that needed modification so as to achieve the objectives of the study. This helped improve the content validity of the data that was collected.

	Expert Rater No. 1		
	Items Rated 1 or 2 or 3 ^a	Items Rated 4 or 5 ^b	Total
Expert rater No. 2			
Items rated 1 or 2 or 3 ^a	2	0	2
Items Rated 3 or 4 ^b	0	8	8
Total	2	8	10

S-CVI, content validity index for the scale.

*After Waltz et al. (2005), p. 155.

^aRatings of 1= Strongly Disagree; 2=Disagree; 3=Not Sure

^bRatings of 4=Agree; 5=Strongly Agree.

3.8.2 Reliability

According to Kothari (2011), reliability establishes the consistency of a research instrument in that the results it achieves should be similar in similar circumstances and so the same research respondents using the same instrument should generate the same results under identical conditions. The researcher measured the reliability of the questionnaire to determine its consistency in testing what they were intended to measure. The test re-test technique was used to estimate the reliability of the instruments. This involved administering the same test twice to the same group of respondents who have been identified for this purpose. To test reliability of the questionnaire, 40 questionnaires were piloted and the responses input statistical software and the result of the reliability test produced. The researcher determined Cronbach's Alpha or reliability coefficient which estimate the internal consistencies of data in measuring a given construct. This is in conformity with the views of Fink (2003) in Saunders *et al.*, (2009) and Dillman (2007) who stated that for most students, questionnaire, the minimum number for pilot is 10 although, large surveys between 100 and 200 responses is usual.

Variables	Cronbach Alpha Coefficient
Internet payment/filing system	0.878
Mobile payment/filing system	0.856
Electronic billing machine	0.815

Instrument for reliability test

Source: Primary Data 2018

3.9 Procedure of Data Collection.

The researcher obtained and used a letter of introduction from the Dean of faculty of Business and Administration of Uganda Christian University to collect data from the respondents as evidence that the research was purely for academic purposes. The process started with the

distribution of questionnaires with the accompanying letter to the respondents who filled in and returned the questionnaires.

3.10 Data Analysis.

The data was analyzed both quantitatively and qualitatively as seen below;

3.10.1 Quantitative data analysis

In analyzing the data, the researcher's main aim was to establish whether the answers to the research questions were provided. In this case, the researcher used SPSS version 20 to analyze the data since it saves time and gives correct results of the findings and tabulation was applied using frequencies and percentages in the Validation of the statistical findings.

3.10.2 Qualitative data analysis

In this section, content and narrative analysis were done. Under content analysis, verbal or behavioral data was categorized to classify, summarize and tabulate the data. Narrative analysis was done through reformulation of stories presented by respondents taking into account context of each case and different experiences of each respondent. Narrative analysis was also used to revise the primary data got by the researcher from the field through interviews.

3.11 Measurement of the variables

The variables were measured by defining concepts. For instance, the questionnaire was designed to ask for responses about electronic tax system and local revenue collection performance. These were translated into observable and measurable elements so as to develop index of the concepts. The researcher categorized the data collected in an orderly form using the 5-point Likert scale that was used on the questionnaire as indicated below where; 1= Strongly disagree, 2= Disagree, 3= Not sure, 4= Agree, 5= Strongly agree. Socio economic attributes like age, sex, employment period/duration of service, academic levels were measured at nominal and ordinal scales depending on the variables.

3.12 Ethical issues

The researcher ensured that no respondent suffered the effects of the research activities. The researcher ensured confidentiality, the respondents' participation was willingly, and the purpose of the research was declared to the respondents. The researcher also secured a letter of introduction from the University which provided appropriate identification of the researcher and

the purpose of the research. The researcher also followed the necessary protocols and adhered to the ethical guidelines of the University regarding this research.

3.13 Limitations to the Study

The researcher found hardships in accessing the primary data because the targeted respondents could not be found in one place. However, the researcher made an appointment with the respondents at an appropriate time in order to get the required information for the study.

The researcher faced financial constraints in the carrying out of the study coupled with the short period within which the research had to be conducted. Here, the researcher solicited for financial boost from sponsors of the program and ably manage the cost.

3.14 Conclusion of the chapter

The chapter started with an introduction which outlined how the study was conducted, this was followed by research design used in the study, which was a descriptive survey design. The Chapter proceeded with study area and population under the study, sample size and sampling techniques which included purposive and simple random sampling techniques. The chapter handled data collection instruments which included questionnaire and interview guide. Data quality control was ensured through validity and reliability of the instruments. The chapter tackled procedure of data processing, analysis and discussion. Measurements of the variables was done using Likert scale. Lastly, the chapter handled ethical issues and anticipated constraints that were encountered in the process of data collection.

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND ANALYSIS OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents data analysis, interpretation and presentation of research findings. The chapter presents characteristic of respondent's background followed by presentation of study objectives. This chapter also includes the findings by the researcher through use of questionnaires and interviews, presentation of data in table forms, and computation of the response rate.

4.2 Background Characteristics of Respondents

The findings regarding respondents' characters are revealed in the following tables; gender, age, education levels, marital status, and finally period of service in the business.

4.2.1 Gender of the respondent.

Gender was considered as a variable in this study since the researcher wanted to find the gender of the respondents. This was coded into two i.e. male and female and the findings on this are tabulated in table 1 below;

Table 1: Gender of the respondents

Gender	Frequency	Percent
Male	37	41.1
Female	53	58.9
Total	90	100.0

Source: Primary Data 2018

The above table indicates that majority of the respondents 53 (58.9%) were female and 37 (41.1%) were male. Uganda Revenue Authority being entrusted by the Government of Uganda to collect Revenue deals with money most of the time and hence prefers employing more women than men because women are assumed to be more trust worthy

than men when it comes to money issues. Women are also assumed to be more courteous than men when dealing with customers, that is, they have good customer care.

4.2.2 Age of the respondents

Age was considered as a variable in this study since the researcher wanted to find out the age group of the respondents. This was coded into four i.e. between 21 and 30, between 31 and 40, between 41 and 50, 51 and above and the findings on this are tabulated in table 2 below;

Table 2: Age of the respondents

Age	Frequency	Percent
Between 21 and 30	21	23.3
Between 31 and 40	36	40.0
Between 41 and 50	22	24.4
51 and above	11	12.3
Total	90	100.0

Source: Primary Data 2018

The above table shows that 36(40%) representing majority of the respondents were between the age of 31 and 40, 22(24.4%) were between 41 and 50, 21(23.3%) were between 18 and 25, while only 11(12.3%) were 51 years and above. This implies that most respondents were between the age of 31 and 40 meaning that Uganda Revenue Authority Domestic tax department is mostly managed by this age group since they are the majority. This is simply because that is the age the person is active to provide service to the public hence feet to work in Uganda Revenue Authority.

4.2.3 Education level of the respondents

This was a key variable in this study since the researcher wanted to find out the respondents with the highest level of education. This was coded into six that is to say: None, Certificate/Diploma, Bachelor, Masters, PhD, others and the findings on this are tabulated in table 3 below;

Table 3: Education level of the respondents

Education level	Frequency	Percent
None	1	1.1
Primary	3	3.3
Secondary	9	10.0
Diploma	14	15.6
Bachelor	55	61.1
Masters	8	8.9
Total	90	100.0

Source: Primary Data 2018

The above table indicates that majority of the respondents 55(61.1%) attained Bachelors, 14 (15.6%) attained Diploma, 9(10%) attained Secondary, 8(8.8%) attained Masters, 3(3.3%) attained Primary, while only 1(1.1%) did not attain any level of education. This implies that majority of the respondents attained Bachelors while only few did not attain any level of education. This is because for one to be taken in such a position, he/she must have attained at least a bachelor's degree, However, PHDs and Masters holders are few because people with such qualifications occupy Managerial positions. Uganda Revenue Authority Domestic Tax Department therefore has more degree holders more than those who attained other levels of Education.

4.2.4 Marital status of the respondents.

Marital status was considered as a variable in this study since the researcher wanted to find out marital status of the respondents in Uganda Revenue Authority, Domestic Tax Department. This was coded into four, that is to say: Single, Married, Divorced, Widowed and the findings on this are tabulated in table 4 below;

Table 4: Marital status of the respondent

Marital status	Frequency	Percent
Single	35	38.9
Married	47	52.2
Divorced	2	2.2
Widowed	6	6.7
Total	90	100.0

Source: Primary Data 2018

Results from the above table indicates that majority of the respondents were married 47(52.2%) followed by those who were single 35(38.9%) while 6(6.7%) were widowed and only 2(2.2%) were divorced. This implies that Uganda Revenue Authority Domestic Tax Department is dominated by those who are married. Reason being people who are employed earn some income and therefore they are able to take care of the family hence many of them are married.

4.2.5 Length of service in organization.

Length of service in organization was considered as a variable in this study since the researcher wanted to find out how long the respondent has served in the organization. This was coded into four i.e. between 1 and 3 year, between 4 and 6 years, between 7 and 9 years, 9 years and above and the findings on this are tabulated in table 5 below;

Table 5: Length of service in organization.

Length of service	Frequency	Percent
Between 1 and 3 year	15	16.7
Between 4 and 6 years	38	42.2
Between 7 and 9 years	26	28.9
9 years and above	11	12.2
Total	90	100.0

Source: Primary Data 2018

On assessment of length of service of respondents in the organization, results from the above table revealed that majority of the respondents have worked in the organization for a period of four to six years 38(42.2%), 26(28.9%) have worked for a period between seven and nine years, 15(16.7%) have worked for a period between one and three years while only 11(12.2%) have worked for a period of nine years and above. The implication here is that most respondents have worked in Uganda Revenue Authority Domestic Tax Department for more than one year.

4.3 Internet payment/filing system and revenue collection performance

This was one of the key objectives of the study and the researcher wanted to find out the effects of internet payment/filing system on revenue collection performance. In order to achieve this, the researcher asked several questions and the respondents were requested to indicate their level of agreement and disagreement on these effects. The responses on this are indicated in table 6 below;

Table 6: Internet payment/filing system and revenue collection performance

	Minimum	Maximum	Mean	Std. Deviation
Internet payment/filing system facilitates registration of taxpayers	1.00	5.00	4.26	.636
Internet payment system facilitates the filing of returns	1.00	5.00	3.78	1.032
Internet system helps in issuing assessments and checking against third-party information	1.00	5.00	3.93	.929
Internet payment system increases the quality and quantity of information available to tax officers, enabling them to complete transactions faster and more accurately	1.00	5.00	3.75	.993
Internet payment system allows tax officers to issue assessments and refunds more quickly	1.00	5.00	4.32	.592
Well-designed electronic systems can lower corruption by reducing face-to-face interactions	1.00	5.00	4.16	.692
<i>n = 90</i>				

Source: Primary Data 2018

The results on table 6 indicates that the highest mean value is 4.32, which indicates that respondents strongly agreed that internet payment system allows tax officers to issue assessments and refunds more quickly. The highest standard deviation is 1.032, which indicates that respondents had variation in responses regarding the claim that internet payment system facilitates the filing of returns.

The study found that internet payment/filing system facilitates registration of taxpayers. This is shown by the mean of respondents as computed by the system as 4.26. Nevertheless, the corresponding standard deviation of 0.636 suggests that respondents had variation in responses on the claim that internet payment/filing system facilitates registration of taxpayers. However, this could also be interpreted to imply that respondents might not have clearly understood the dimensions of internet payment/filing system in this context. The results in this section are in line with Geetha & Sekar (2012) who stated that, one way to boost a tax authority's efficiency is by expanding its use of information and communication technology. Such technology can facilitate a broad range of services, including registering taxpayers.

The analysis results in table 6 reveal that to some extent, internet payment system facilitates the filing of returns as reflected by a mean value of 3.78. However, there is variation in the response rates of the respondents regarding the claim that internet payment system facilitates the filing of returns as revealed by a standard deviation of 1.032. The above findings are in line with Geetha & Sekar (2012), who stated that one way to boost a tax authority's efficiency is by expanding its use of information and communication technology. Such technology can facilitate a broad range of services, including filing returns. To support the above findings, one of the respondents interviewed asserted that;

KII "Filing of returns are made easier and quickly through internet payment".

The results as reflected in table 6 show a mean of 3.93. This implies that the respondents agreed on the claim that internet system helps in issuing assessments and checking against third-party information. However, a standard deviation of 0.929 raises concerns regarding the claim that internet system helps in issuing assessments and checking against third-party information. The figure of standard deviation further reveals that the respondents had varied opinion about the internet system helping in issuing assessments and checking against third-party information. The results are in line with Geetha & Sekar (2012), who revealed that information and communication technology can facilitate a

broad range of services, including issuing assessments and checking against third-party information.

The study found that respondents agreed that internet payment system increases the quality and quantity of information available to tax officers, enabling them to complete transactions faster and more accurately. This is indicated by the mean value of 3.75 which shows that they agree about the claim. However, the corresponding standard deviation also revealed a value of 0.993. This shows that there is a clear variation in the responses provided by the respondents about the claim that internet payment system increases the quality and quantity of information available to tax officers, enabling them to complete transactions faster and more accurately. The above finding agrees with Jahirul (2011)'s assertion that E-filing systems increase the quality and quantity of information available to tax officers, enabling them to complete transactions faster and more accurately. Re-turns filed electronically have much lower error rates than paper returns and substantially cut the need to impose penalties and other punitive measures to foster compliance.

Study findings revealed that respondents strongly agreed that internet payment system allows tax officers to issue assessments and refunds more quickly as reflected by the mean value of 4.32. However, a standard deviation of 0.592 suggests varied responses regarding the claim that internet payment system allows tax officers to issue assessments and refunds more quickly. The above findings agree with Jahirul (2011)'s assertion that the more efficient handling provided by electronic returns allows tax officers to issue assessments and refunds more quickly, and taxpayers know right away if their returns have been accepted by the tax authorities. To support the above findings, one of the members interviewed had this to say;

KI II "Through internet payment, tax assessments and refunds are always made faster".

Study findings revealed that respondents strongly agreed that well-designed electronic systems can lower corruption by reducing face-to-face interactions as reflected by the

mean value of 4.16. However, a standard deviation of 0.692 suggests varied responses regarding the claim that well-designed electronic systems can lower corruption by reducing face-to-face interactions. This agrees with Jayakumar & Nagalakshmi (2016)'s assertion that well-designed electronic systems can lower corruption by reducing face-to-face interactions. To ensure that taxes are collected efficiently and reduce opportunities for corruption, a generally accepted principle is that tax authorities should not handle money directly.

4.4 Mobile payment/filing system and revenue collection performance

This was one of the key objectives of the study and the researcher wanted to find out the effects of mobile payment/filing system on revenue collection performance. In order to achieve this, the researcher asked several questions and the respondents were requested to indicate their level of agreement and disagreement on these effects. The responses on this are indicated in table 7 below;

Table 7: Mobile payment/filing system and revenue collection performance

	Minimum	Maximum	Mean	Std. Deviation
Mobile payment system provides an expense-free method to exchange value for both the banked and unbanked.	1.00	5.00	3.93	.997
Clients pay tax easily from anywhere by use of their mobile phone	1.00	5.00	4.09	1.015
Mobile payment system is easily accessible by anyone	1.00	5.00	3.96	.966
Clients check tax statement easily from anywhere by use of their mobile phone	1.00	5.00	3.82	.979
Clients get alert message easily on their mobile	1.00	5.00	4.40	.709
<i>n = 90</i>				

Source: Primary Data 2018

Table 7 indicates that the highest mean value is 4.40, which indicates that respondents strongly agreed that clients get alert message easily on their mobile. The highest standard deviation value is 1.015, which indicates that respondents had variation in responses

regarding the claim that clients pay tax easily from anywhere by use of their mobile phone.

Results from the above shows a mean of 3.93, which indicates that the respondents agreed that mobile payment system provides an expense-free method to exchange value for both the banked and unbanked. However, a standard deviation of 0.997 shows a significant variation in the response rate regarding the claim that mobile payment system provides an expense-free method to exchange value for both the banked and unbanked. The above findings are in line with Laukkanen & Lauronen (2015), who established that mobile payment system provided value as it addressed several problems especially peculiar to the developing nations. First, it provided an expense-free method to exchange value for both the banked and unbanked. Next, it addressed issues related to infrastructure and transfer over wide geographic distances effectively enabling location free banking.

Study findings revealed that respondents strongly agreed that clients pay tax easily from anywhere by use of their mobile phone. This is revealed by a mean of 4.09, although the standard deviation of 1.015 seems to suggest variation in the responses generated for the test. To support the above findings, one of the respondents interviewed had this to say;

KI III “Tax payers can easily pay tax anywhere at their convenience using mobile phones”.

From the survey, as reflected in table 7, it can be presumed that respondents agree that mobile payment system is easily accessible by anyone, this is revealed by a mean value of 3.96, although the standard deviation of 0.966 under the same test revealed a significant variation in responses generated.

Table 7 above, revealed that the respondents strongly agreed that clients check tax statement easily from anywhere by use of their mobile phone as reflected by the mean value of 3.82. However, a standard deviation value of 0.979 reveals a significant variation in the responses from the respondents on the same, implying that they have different opinions about the claim that clients check tax statement easily from anywhere by use of their mobile phone.

Results from table 7 further revealed that majority of the respondents strongly agreed that clients get alert message easily on their mobile as reflected by mean value of 4.40. However, a significant standard deviation of 0.709 reveals a variation in the responses of the respondents, implying those respondents are equally not sure as to whether clients get alert message easily on their mobile.

4.5 Electronic Billing Machine and Revenue Collection Performance

This was one of the key objectives of the study and the researcher wanted to find out the effects of electronic billing machine on revenue collection performance. In order to achieve this, the researcher asked several questions and the respondents were requested to indicate their level of agreement and disagreement on these effects. The responses on this are indicated in table 8 below;

Table 8: The effects of electronic billing machine on revenue collection performance

	Minimum	Maximum	Mean	Std. Deviation
The use of electronic billing machines accelerates the processing of accounting and financial documentation	1.00	5.00	4.23	.723
Our monetary transactions have been made easier with the use of electronic billing machines	1.00	5.00	4.31	.839
Our billing and currency counting machine saves a lot of time and manual efforts.	1.00	5.00	4.26	1.096
Our productivity increases with billing machines	1.00	5.00	4.09	.625
Our billing machine produces the sum totals for various money transactions and generates the bills faster and accurately.	1.00	5.00	3.65	1.082
Our Electronic Billing Machines are able to catch tax evaders with less effort	1.00	5.00	4.16	.449

Our Electronic Billing Machine improves tax collection and compliance	1.00	5.00	3.73	.982
<i>n = 90</i>				

Source: Primary Data 2018

The findings on table 8 indicates that the highest mean value is 4.31 , which means that respondents strongly agreed that their monetary transactions have been made easier with the use of electronic billing machines. The highest standard deviation value is 1.096, which indicates that respondents had variation on the claim that their billing and currency counting machine saves a lot of time and manual efforts.

Results from the above table indicate that respondents agreed that the use of electronic billing machines accelerates the processing of accounting and financial documentation. This is shown by a mean of 4.23. However, a standard deviation of 0.723 is a clear manifestation of varied responses from respondents as far as processing of accounting and financial documentations are concerned. This is in line with Jayakumar & Nagalakshmi (2016) who asserted that Billing machines are used, for example, at computer consoles, in bookkeeping departments of commercial and industrial enterprises, in banks, in large warehouses, and in construction and assembly-installation directorates. The use of such machines substantially expedites the processing of accounting and financial documentation. With the development of automated control systems, billing machines have been employed as input terminals for such systems.

The results in table 8 above reveal that respondents strongly agreed that their monetary transactions have been made easier with the use of electronic billing machines as shown by a mean value of 4.31. This implies that respondents were sure on the claim that their monetary transactions have been made easier with the use of electronic billing machines. However, a significant standard deviation of 0.839 shows variation in responses as far as responses to this test was concerned. The above findings are in line with Geetha and Sekar (2012) who stated that monetary transactions at banks, retail store, grocery stores, healthcare institutes and other places have been made easier with the use of a variety of

machines. Billing and money counting are two important functions involved in these transactions.

The results in table 8 suggest that respondents strongly agreed that their billing and currency counting machine saves a lot of time and manual efforts. This is revealed by a mean of 4.26. However, a significant standard deviation of 1.096 suggests that there were varied responses as far as this test is concerned. The above findings rhythm with Geetha & Sekar (2012), who asserted that one of the most important advantages of a billing and currency counting machine is that it saves a lot of time and manual efforts.

From the information revealed by table 8, respondents believe that their productivity increases with billing machines. This is revealed by a mean value of 4.09. However, a standard deviation value of 0.625 under the same test revealed varied responses from the respondents interviewed. This implies that productivity increases with billing machines. The above findings are in line with Geetha & Sekar (2012), who stated that Productivity can be easily increased with billing machines.

From table 8, it can be revealed that billing machine produces the sum totals for various money transactions and generates the bills faster and accurately. This is shown by a mean value of 3.65 although the standard deviation of 1.082 under the same test revealed varied responses from the respondents. The above findings rhythm with Geetha & Sekar (2012), who stated that a billing machine proves to be advantageous in producing the sum totals for various money transactions and to generate the bills faster and accurately. However, their advantages are not limited to those already mentioned.

From the information collected from respondents according to table 8, it is clear that Electronic Billing Machines are able to catch tax evaders with less effort. This is revealed by a mean value of 4.16. However, a standard deviation of 0.449 reveals varied responses from the respondents interviewed over the same test. The above findings agree with Jahirul (2011), who established that Electronic Billing Machines have helped cut down time spent screening books of accounts and Auditors used to spend hours investigating and going over massive documentation, but with the EBM, audits are easily conducted and by using of Electronic Billing Machines, URA is now able to catch tax evaders with less effort.

Table 8 reveals that respondents agree that their Electronic Billing Machine improves tax collection and compliance. This is revealed by a mean value of 3.73. The significant standard deviation of 0.982 reveals that there were varied responses from the respondents interviewed. This is in line with Jahirul (2011)'s assertion that Electronic Billing Machine aims at improving tax collection and compliance, this machines are helping the government increase its tax base.

4.6 The relationship between internet payment/filing system and revenue collection performance

Table 9: The relationship between internet payment/filing system and revenue collection performance

Correlations			
		INTERNET PAYMENT/FILING SYSTEM	REVENUE COLLECTION PERFORMANCE
INTERNET PAYMENT/FILING SYSTEM	Pearson Correlation	1	.850**
	Sig. (2-tailed)		.000
	N	90	90
REVENUE COLLECTION PERFORMANCE	Pearson Correlation	.850**	1
	Sig. (2-tailed)	.000	
	N	90	90

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

Source: Primary Data 2018

The results from table 9 indicate that internet payment/filing system has positive high correlation to revenue collection performance equal to .850 and the p-value is .000 which is less than 0.01. This means that there is a significant relationship between internet payment/filing system and revenue collection performance.

4.7 The relationship between mobile payment/filing system and Revenue Collection Performance

Table 10: The relationship between mobile payment/filing system and revenue collection performance

Correlations			
		MOBILE PAYMENT/FILING SYSTEM	REVENUE COLLECTION PERFORMANCE
MOBILE PAYMENT/FILING SYSTEM	Pearson Correlation	1	.890**
	Sig. (2-tailed)		.000
	N	90	90
REVENUE COLLECTION PERFORMANCE	Pearson Correlation	.890**	1
	Sig. (2-tailed)	.000	
	N	90	90

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

Source: Primary Data 2018

The results from table 10 above indicate that mobile payment/filing system has a significant positive correlation to revenue collection performance equal to .890 and the p-value is .000 which is less than 0.01. This means that there is a significant positive relationship between mobile payment/filing system and revenue collection performance.

4.8 The relationship between electronic billing machine and revenue collection performance

Table 11: The relationship between electronic billing machine and revenue collection performance

Correlations			
		ELECTRONIC BILLING MACHINE	REVENUE COLLECTION PERFORMANCE
ELECTRONIC BILLING MACHINE	Pearson Correlation	1	.781**
	Sig. (2-tailed)		.000
	N	90	90
REVENUE COLLECTION PERFORMANCE	Pearson Correlation	.781**	1
	Sig. (2-tailed)	.000	
	N	90	90

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

Source: Primary Data 2018

The results from table 11 indicate that electronic billing machine has positive correlation to revenue collection performance equal to 0.781 and the p-value is .000 which is less than 0.01. This means that there is a significant positive relationship between electronic billing machine and revenue collection performance.

4.9 The relationship between Electronic Tax System and Revenue Collection

Performance

This was considered in this study and the researcher wanted to find out the relationship between electronic tax system and revenue collection performance. A Pearson's correlation test was run to show the relationship between electronic tax system and revenue collection performance. The level of acceptance of the relationship was when $P=0.005$ and below. The results on this are indicated in table 9 below;

Table 12: The relationship between electronic tax system and revenue collection performance

Correlations		
	ELECTRONIC TAX SYSTEM	REVENUE COLLECTION PERFORMANCE
ELECTRONIC TAX SYSTEM	1	.977**
Pearson Correlation		.000
Sig. (2-tailed)		
N	90	90
REVENUE COLLECTION PERFORMANCE	.977**	1
Pearson Correlation	.000	
Sig. (2-tailed)		
N	90	90

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

Source: Primary Data 2018

Results from table 12 revealed that there is a significant positive relationship between electronic tax system and revenue collection performance ($r = 0.977$, $P < 0.01$). The p value was 0.000 implying that there is a significant relationship between electronic tax system and revenue collection performance. Also there was 0.977 implying that increasing use of electronic tax system will increase revenue collection performance by 97% implying a positive relationship between the two variables.

4.10 Multiple Regressions

Table 13: Regression Analysis

Variable	Standard Coefficients (B)	t-test	Sig	R ²	Adj. r ²	F	Sig. F
		2.166	0.031	0.214	0.201	35.910	0.000
Internet payment/filing system	0.2709	2.058	0.000				
Mobile payment/filing system	0.1982	3.521	0.000				
Electronic billing machine	0.1527	2.710	0.000				

Source: Primary Data 2018

Table 13 illustrates that, Electronic Tax System, through its dimensions; internet payment/filing system, mobile payment/filing system and electronic billing machine explains the variation in the dependent variable up to 20.1 % as denoted by adjusted R² value in the table. Similarly, considering the dimensions of electronic tax systems in this study, internet payment/filing system seems to provide better explanation in the variation in the dependent variable by a standardized coefficient of 0.2709 followed by mobile payment/filing system 0.1982, and electronic billing machine 0.1527 respectively. The results seem to re-enforce the correlations established under the correlation table 12. This finding further confirms the explanation given under the correlation analysis.

This study found a significant positive relationship between electronic tax system and revenue collection performance. The results also indicate that application of internet payment/filing system, mobile payment/filing system, and electronic billing machine positively affects revenue collection performance.

4.11 ANOVA**Table 14: ANOVA Table**

Model		Sum of Squares	Df	Mean Squar	F	Sig.
1	Regression	6.943	4	1.736	26.352	.037 ^b
	Residual	.132	2	.066		
	Total	7.075	6			

a. Dependent Variable: Local revenue collection

b. Predictors: (Constant), Internet payment/filing system, Mobile payment/filing system, Electronic billing machine, Electronic tax system

Source: Primary Data 2018

Table 14 reports the summary ANOVA and F statistic which reveals the value of F (26.352) is significant at 0.05 confidence level. The value of F is large enough to conclude that the set of independent variables (Internet payment/filing system, Mobile payment/filing system, Electronic billing machine, and Electronic tax system) are the major factors influencing local revenue collection in Uganda Revenue Authority.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents summaries of study findings as per the study objectives, conclusions based on those findings and recommendations based on both the study findings and other relevant literature considered necessary and vital to be used in future to improve the study situation.

5.1 Summary of major findings

This section shows summary of the major findings in accordance with research objectives and questions.

5.1.1 The relationship between internet payment/filing system and revenue collection performance

The study found that there is a significant relationship between internet payment/filing system and revenue collection performance ($r = 0.850$, $P < 0.01$). This means that internet payment/filing system contributes positively to revenue collection performance.

5.1.2 The relationship between mobile payment/filing system and Revenue Collection Performance

The study found that there is a significant positive relationship between mobile payment/filing system and revenue collection performance ($r = 0.890$, $P < 0.01$). This means that mobile payment/filing system contributes positively to revenue collection performance.

5.1.3 The relationship between electronic billing machine and revenue collection performance

The study found that there is a significant positive relationship between electronic billing machine and revenue collection performance ($r = 0.781$, $P < 0.01$). This means that Electronic Billing Machine contribute positively to revenue collection performance.

5.1.4 The relationship between electronic tax system and revenue collection performance

The study found that there is a significant positive relationship between electronic tax system and revenue collection performance ($r = 0.977$, $P < 0.01$). This means that if there is

electronic tax system, revenue collection performance will increase since there is discipline and close monitoring of the tax collection.

5.2 Conclusions

The study established that there were several effects of internet payment/filing system on revenue collection performance such as facilitating registration of taxpayers, allowing tax officers to issue assessments and refunds more quickly and lowering corruption by reducing face-to-face interactions. Therefore, there is a significant relationship between internet payment/filing system and revenue collection performance.

The study found that clients pay tax easily from anywhere by use of their mobile phone, mobile payment system is easily accessible by anyone, and clients get alert message easily on their mobile. Therefore, there is a significant positive relationship between mobile payment/filing system and revenue collection performance.

The study also found that the use of electronic billing machines accelerates the processing of accounting and financial documentation; electronic billing machines make monetary transactions easier; and billing and currency counting machine saves a lot of time and manual efforts. Therefore, there is a significant positive relationship between electronic billing machine and revenue collection performance.

There is a significant positive relationship between electronic tax system and revenue collection performance.

This study therefore concludes that internet payment/filing system, mobile payment/filing system, electronic billing machine and electronic tax system contribute positively to revenue collection performance.

5.3 Recommendations

The study recommends that URA should adopt the use of internet payment system to allow tax officers to issue assessments and refunds more quickly and lower corruption by reducing face-to-face interactions. URA and clients should subscribe to reliable internet providers for effective and efficient service delivery. URA should also employ skilled personnel with more experience on network management in order to ensure the reliability of network.

The study also recommends that URA should adopt the use mobile tax payment systems so that clients can pay tax easily from anywhere by use of their mobile phone. This also helps the clients to check tax statement easily from anywhere by use of their mobile phone.

EBM should be provided to different business enterprises across the country for easy accessible by customers, so that quick service and convenience is maintained hence improving revenue collection. At the same time constantly serviced should be ensured in order to provide reliability of the services.

URA management should keep on upgrading their electronic tax system in order to have an up to date system for effective service delivery. URA management should ensure that there is country wide training to clients on usage of various e-tax applications for efficient revenue collection.

5.4 Recommended Areas of future research.

To the future researcher, more research should be done on the following areas;

Effects of network reliability on electronic tax system

Effect of technical knowhow on electronic tax system

Effect of attitudes and culture on electronic tax system

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APPENDIX 1: QUESTIONNAIRE
QUESTIONNAIRE ON ELECTRONIC TAX SYSTEM AND REVENUE COLLECTION
PERFORMANCE

Dear respondent,

I am **Ejiku David**, a student of Uganda Christian University Mukono, pursuing a Master's Degree in Business Administration. As a requirement in partial fulfillment for the award of the above mentioned course, I am required to carry out a field research study on **“Electronic Tax System and Revenue Collection Performance”**. I therefore request you to take a few minutes of your precious time and answer the questions below. Your responses will be used for academic purposes only and will be treated with utmost confidentiality. Thank you.

SECTION A: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

1. Sex:

Male ☐ Female ☐

2. Age:

21-30 Years ☐ 31-40 years ☐ 41-50 years ☐ 51 - Above ☐

3. Level of Education

None ☐ Primary ☐ Secondary ☐ Diploma ☐ Bachelor ☐
Masters ☐

4. Marital status

Single ☐ Married ☐ Divorced ☐ Widowed ☐

5. How long have you been in this organization?

⁷⁰

1 -3years ☐ 4- 6 years ☐ 7-9 years ☐ Over 9 years. ☐

SECTION B: THE EFFECTS OF INTERNET PAYMENT/FILING SYSTEM ON REVENUE COLLECTION PERFORMANCE

Under the following sections, please tick according to your level of agreement using a scale of; 1= Strongly Disagree, 2= Disagree, 3= Not sure, 4= Agree, 5= Strongly agree

INTERNET PAYMENT/FILING SYSTEM	5	4	3	2	1
Internet payment/filing system facilitates registration of taxpayers					
Internet payment system facilitates the filing of returns					
Internet system helps in issuing assessments and checking against third-party information					
Internet payment system increases the quality and quantity of information available to tax officers, enabling them to complete transactions faster and more accurately					
Internet payment system allows tax officers to issue assessments and refunds more quickly					
Well-designed electronic systems can lower corruption by reducing face-to-face interactions					

SECTION C: THE EFFECTS OF MOBILE PAYMENT/FILING SYSTEM ON REVENUE COLLECTION PERFORMANCE

Under the following sections, please tick according to your level of agreement using a scale of; 1= Strongly Disagree, 2= Disagree, 3= Not sure, 4= Agree, 5= Strongly agree

MOBILE PAYMENT/FILING SYSTEM	5	4	3	2	1
Mobile payment system provides an expense-free method to exchange value for both the banked and unbanked.					
Clients pay tax easily from anywhere by use of their mobile phone					
Mobile payment system is easily accessible by anyone					
Clients check tax statement easily from anywhere by use of their mobile phone					
Clients get alert message easily on their mobile					

SECTION D: THE EFFECTS OF ELECTRONIC BILLING MACHINE ON REVENUE COLLECTION PERFORMANCE

Under the following sections, please tick according to your level of agreement using a scale of; 1= Strongly Disagree, 2= Disagree, 3= Not sure, 4= Agree, 5= Strongly agree

ELECTRONIC BILLING MACHINE	5	4	3	2	1
The use of electronic billing machines accelerates the processing of accounting and financial documentation.					
Our monetary transactions have been made easier with the use of electronic billing machines.					
Our billing and currency counting machine saves a lot of time and manual efforts.					
Our productivity increases with billing machines					
Our billing machine produces the sum totals for various money transactions and generates the bills faster and accurately.					
Our Electronic Billing Machines are able to catch tax evaders with less effort					
Our Electronic Billing Machine improves tax collection and compliance					

SECTION E: THE RELATIONSHIP BETWEEN ELECTRONIC TAX SYSTEM AND REVENUE COLLECTION PERFORMANCE

Under the following sections, please tick according to your level of agreement using a scale of; 1= Strongly Disagree, 2= Disagree, 3= Not sure, 4= Agree, 5= strongly agree

The relationship between electronic tax system and revenue collection performance	5	4	3	2	1
Tax collection and administration can be improved through an electronic tax payer registration system					
ETR machines have helped to curb cases of tax evasion					
ETRs have helped increase revenue collection due to their efficient nature					
The implementation of e-payment is paramount in ensuring optimal revenue collection					
E-payment allows customers to pay their bills without having to actually move to the firm premises.					
E-payment enables customers to have access to their account information and even transfer money to other accounts in the comfort of their homes					

Thank you for your time.

APPENDIX 2: INTERVIEW GUIDE
AN INTERVIEW ON ELECTRONIC TAX SYSTEM AND REVENUE COLLECTION
PERFORMANCE

Dear respondent,

I am **Ejiku David**, a student of Uganda Christian University Mukono, pursuing a Master's Degree in Business Administration. As a requirement in partial fulfillment for the award of the above mentioned course, I am required to carry out a field research study on **“Electronic Tax System and Revenue Collection Performance”**. I therefore request you to take a few minutes of your precious time and answer the questions below. Your responses will be used for academic purposes only and will be treated with utmost confidentiality. Thank you.

1. How long have you been in this organization?
2. In those years, have you seen any form of electronic tax system?
3. If yes, which ones from the time you have been in this organization?
4. What are some of the effects of internet payment/filing system on revenue collection performance?
5. In what ways does mobile payment/filing system influence revenue collection performance?
6. What are some of the effects of electronic billing machine on revenue collection performance?
7. What is the relationship between Electronic Tax System and Revenue Collection Performance?

Thank you for your time and cooperation.

APPENDIX 3: TABLE FOR DETERMINING SAMPLE SIZE

Table for Determining Sample Size from a Given Population

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

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