



**ST. MARY'S UNIVERSITY COLLEGE  
SCHOOL OF GRADUATE STUDIES**

**THE EFFECT OF INFORMATION COMMUNICATION TECHNOLOGY (ICT)  
ON CORPORATE TAX COLLECTION SYSTEM: CASE STUDY ON LARGE TAX  
PAYERS IN ADDIS ABABA**

**BY  
HELEN LEMMA RAMSO**

**MAY 2018  
ADDIS ABABA ETHIOPIA**



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**A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY COLLEGE,  
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**ST. MARY'S UNIVERSITY COLLEGE  
SCHOOL OF GRADUATE STUDIES  
FACULTY OF BUSINESS**

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## DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of **Abraham Gebregiorgis (Ass.Prof)**. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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## ENDORSEMENT

This thesis has been submitted to St. Mary's University College, School of Graduate Studies for examination with my approval as a university advisor.

**Abraham Gebregiorgis (Ass.Prof).**

Advisor

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**St. Mary's University College, Addis Ababa**

**May,2018**

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## ***Abstract***

*This study was conducted to assess the introduction of effect of information communication technology (ICT) on corporate tax collection system: case study on large tax payers in Addis Ababa City. The researcher uses descriptive research design to solve the study problem .data that where gathered was analysed usingdescriptive statistical method and data was analysed in concurrent manner.The study has identified benefits related to the use of ICT in tax collection from the perspective of tax administrators and taxpayers. The study has used both primary and secondary sources of data. Using random sampling method 211 large taxpayers and 98 civil servants were selected from total population of 1569, among this population 1146 were large taxpayers, 453 were ERCA Staffs, and 120 were collected from taxpayers and 60 from ERCA Staffs with rate of 58%. This study found that the use of ICT in tax collection has improved transparency; taxpayers pay into the designated banks online and obtain a receipt immediately. ERCA’s software monitors the entire process and traces payments to ensure accuracy; the banks then transfer the money to the Central Bank. The e-tax payment system was found to give the ERCA a real time, almost minute-by-minute. The findings revealed that ICT also has the potential to improve interactions between the tax authority and taxpayers, fostering transparency and accountability in the administration of company income tax collections. The results obtained indicated that using ICT facilitates the CIT collection process and predicted potential contribution to the effectiveness and efficiency in CIT collection in terms of the skills, opportunities and resources required. Furthermore, the study-identified challenges that hinder the application of ICT in tax collection are inadequacy of ICT infrastructure, lack of leadership Commitment, inefficient training facilities, poor network connection and lack of awareness. Thestudy postulates that the adoption of ICT in CIT collection is determined by perceived usefulness and perceived ease of use, attitude, intention to use and accessibility in terms of affordability and infrastructure.*



## **List of abbreviations**

CIT	Company Income Tax
ICT	Information Communication Technology
ERCA	Ethiopian Revenues and Customs Authority
GDP	Gross Domestic Product
ESRM	Electronic Sales Registration Machinery
IT	Information Technology
OECD	Organization for Economic Cooperation and Development
GMM	Generalized Method of Moments
ATAF	African Tax Administration Forum
CM	Council of Minister
EC	European Commission
ERCA	Ethiopian Revenue and Customs Authority
IMF	International Monetary Fund
VAT	Value Added Tax
TOT	Turn Over Tax

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# Chapter one

## 1. Introduction

The introductory part of the paper presents different ideas and concepts, which include the background of the study, statement of the problem, the objective of the study, research question, and significance of the study, the scope of the study, limitation of the study, and organization of the study.

### 1.1. Background of the study

Around the world, businesses continue to evolve rapidly, with momentous advancement in the field of technology and the vital role it plays in day-to-day business operations. There is an unprecedented potential for emerging technologies to reshape how work is done, how businesses grow, and how markets and industries evolve (McKinsey & Company, 2013).

State capacity to mobilize fiscal resources is accredited as being important to development. Creation of fiscal capacity entails investment in state structure to properly monitor and administer tax collection. Recent literature has given more emphasis on the political motives of the state as an important determinant of investment in fiscal capacity (Besley & Persson, 2012). The incentive of political elites to invest in fiscal capacity was decline if the cost is very high and they expect fewer returns in the future (Acemoglu, 2005). However, technological innovation could provide a platform where the cost of investment in fiscal capacity can be reduced substantially and fiscal resources can be mobilized efficiently.

The digital age is rapidly transforming the relationship between tax authorities and taxpayers. Driven by a desire for more revenue, greater efficiency and improved compliance in an atmosphere of shrinking resources, tax authorities are increasingly relying on digital tax data gathering and analysis using digital platforms to facilitate real-time or near real-time collection and assessment of taxpayer data. This move toward tax “digitization” is allowing tax authorities to collect tax data in real time or near real time; they can then use the information to respond quickly and in more targeted ways to perceived compliance risks.

Digitization is, in some cases, allowing taxpayer information to be cross-referenced and shared among governments and agencies (Ernst & Young, 2016)

As countries move toward digitizing their tax administration, their efforts can often follow a similar pattern, aligning with different levels of digitization. Of course, the move to digitization is not necessarily linear, nor should higher levels of digitization be viewed as the ultimate goal of either taxpayers or tax authorities (Ernst & Young, 2016).

This study's aim is to explore The effect of information communication technology on corporate tax collection system: case study on large tax payers in Addis AbabaThe study was highlight the benefits and challenges associated with the application of information Technology in tax collection system in Ethiopia.

## **1.2. Statement of the Problem**

A well-functioning revenue system is a necessary condition for strong, sustained and inclusive economic development. However, the revenue systems in some developing countries have fundamental shortcomings. Revenue funds the public expenditure on physical, social and administrative infrastructure that enables businesses to start or expand. The revenue system is also a central element in supporting a strong citizen-state relationship that underpins effective, accountable and stable governments. Both of these elements contribute to stronger economic and employment growth outcomes. The countries that fail to capitalize on the benefits of rapid economic growth are missing a tremendous opportunity to improve the quality of life for their citizens (Carnahan, 2015).

Ethiopia has a low level of fiscal capacity, like many developing countries. The tax revenue as a share of GDP was about 12% during the decade 2001-2011. As a result, big part of government spending during the decade 2001-2011 came from non-tax sources such as international aid and loans. Ethiopia also relied heavily on taxes on international trade accounts for 40% of tax revenue, a very high ratio even by the standards of developing countries (Ali, 2017).

Ethiopian Revenues and Customs Authority's tax collection system has been achieved significant progress since the introduction of different reforms. . Technology upgrading has been part of recent taxation reform programs with the aim of improving data management and analysis, lowering compliance costs, reducing the scope for corruption and improving

monitoring of taxpayers. One such technology is the introduction of electronic sales registration machinery (ESRM) by the Ethiopian Revenues and Customs Authority starting from 2008. Since the initiation of the reform, more than 50,000 tax-paying businesses have started using the machine with 84% of them operating in the capital city, Addis Ababa. The Ethiopian Revenues and Customs Authority recently announced that it is now preparing to scale-up the operation of the reform in other parts of the country, providing a unique opportunity to explore the impact of technological innovation on state capacity to collect taxes Ali (2017).

Previous research has widely focused on the impact of IT on economic outcomes. These studies have mostly focused on the effect of IT on private sector productivity (Brenham et al., 2002; Stiroh, 2002; Brynjolfsson and Hitt, 2000). Garicano & Heaton (2010). Two recent seminal exceptions are Lewis-Faupel et al. (2016) and Muralidharan et al. (2016), who studies the impact of IT use on public service delivery in the context of developing countries. Using evidence from Ethiopia, Mohammed et al. (2014) studied the challenges of electronic tax register machine (ETRS) to Business and its impact in improving tax revenue. Mwanikiet al. (2014) have examined the impact of management information system on revenue collection in Kenya.

Despite the widespread adoption of IT in public service delivery, commonly known as ‘e-governance’, assessment of the impact remains relatively unexplored it is noteworthy that none of the studies discussed above covers the benefits and challenges of using ICT in the tax collection system. Thus, the current study wasassesses the effect of ICT in the income tax collection system in the case of large Tax payers in A.A.

### **1.3. Research Questions**

To achieve the study’s objective, the following specific research questions were proposed:

- ✓ What are the changes brought by the introduction of ICT to the tax collection systems?
- ✓ What is really the impact of ICT on tax collection system?
- ✓ What are the challenges of ICT application in the tax collection system?

## **1.4. The objective of the Study**

### **1.4.1 General Objectives**

The main objective of the study is to investigate the impact of information technology on the tax collection system and its challenges in A.A.

### **1.4.2 Specific Objectives**

Specifically, study assumes the following objectives

- To investigate the changes brought by the introduction of ICT on tax collection systems in A.A.
- To identify the impact of ICT on tax collection system;
- To assess the challenges of ICT application in the tax collection system

## **1.5. Scope and Limitations of the Study**

This study was focuses at examining the impact of information technology (IT) on tax collection system in Ethiopia in terms of availability, utilization and transitional impact. In assessing the impact of information technology on tax collection system, particularly corporate Income Tax (CIT), this study focuses only on large taxpayers in Ethiopia, particularly in Addis Ababa. This city was chosen because Addis Ababa is a capital city where all federal government head offices are located, including the Ethiopia Revenue and Customer Authority (ERCA). ERCA has a responsibility to administer the corporate Income Tax Act through collection and assessment of tax revenues, processing of returns and information, limiting tax evasion and providing services to taxpayers.

The limitation of this study lies on the subject matter itself. ICT is a broad subject. It covers both technical and non-technical aspects. The study has not addressed the technical issues of the system as constrained by lack of expertise by the researcher and time. However, even time and expertise could be there, the level of wasingness from ERCA to open up itself for such assessment was very limited.



Moreover, the study was faced with a limiting factor from lack of willingness to provide full data (with the 'pretext' confidentiality' requirement) as well as availability of up-to-date and comprehensive primary data on the study variable. Effort was made to fill these gaps by using methodological triangulation from secondary sources, as there was also usually tendency by the interviewees to direct you to such secondary sources for further information or data.

### **1.6. Significance of the study**

The results of this study was be useful for stakeholders such as scholars, ERCA, companies, tax consultants and tax policymakers that are interested in encouraging the adoption of IT on tax collection system. It was serving as a guide to the government to plan its strategies and to improve the usage of IT on tax collection system.

This study was play a significant role in identifying the benefits and challenges brought by adoption of information technology on tax collection system to the government of Ethiopia, the ERCA, companies and tax practitioners.

### **1.7. Organization of the Study**

In Chapter two, the review is made on literature and related studies. Chapter three presents the research methodology used in carrying out the study. Chapter four is about the detail discussion and analysis based on results from data collected. Chapter five summarizes and concludes the findings of the study and forwards recommendations for ERCA and for future studies.

## Chapter Two

### 2. Review of Related Literature

#### 2.1 E-government

“E-government refers to the automation of government-to-government and government-to-citizen interactions” (Lazer, 2005). The World Bank (2007) defines e-government “as the use of ICT to transform traditional government by making it accessible, transparent, effective and accountable”. However, Sprecher (2000) describes e-government as “the production and delivery of government services through IT applications, used to simplify and improve transactions between governments and citizens (G2C), businesses (G2B), and other government agencies (G2G)”.

The generally accepted definition is that “e-government or electronic government refers to the use of ICTs by government agencies for any or all of the following reasons: Exchange of information with citizens, businesses or other government departments; speedier and more efficient delivery of public services; Improved internal efficiency; Reduced costs or increasing revenue, and re-structured administrative processes” (Chircu, 2008). Moreover, electronic government, or e-government, is defined as “the use of information and communication technologies in government to provide public services, to improve managerial effectiveness and to promote democratic values; as well as a regulatory framework that facilitates information intensive initiatives and fosters the knowledge society” (Gant, 2008:15). In general, both developed and developing countries adopted e-government because “it is cost saving, has greater accountability of the government, increases efficiency, brings shorter processing times, reduces corruption among government employees, lowers the administrative burden and as well brings greater constituency participation” (Howard, 2001; UNDESA, 2008).

“E-government denotes the application of IT to the process of government in order to facilitate the communication and interaction between citizens and businesses” (Lee et al., 2005). The term ‘interaction’ refers to government services, exchange of information, communication, transactions and system integration (Sundresan et al., 2006). “Electronic

government (e-government) is generally referred to as the use of ICT for transforming public organisations to make them more accessible, effective and accountable” (Aichholzer and Gunter, 2006; Deng, 2008; Golra, 2008; Wangpipatwong et al., 2009, and Karunasena, 2012).

Some researchers and practitioners view e-government simply as the use of IT, particularly the worldwide web, through the internet and smartphones to present government information and services to the public; they also consider it to be a tool to better serve society.

These definitions focus on a range of technologies that can be used, and the definitions of e-government are sufficiently broad to incorporate all forms of ICT, including mobile technology. Unlike the traditional bureaucratic model where information flows only vertically and rarely between departments, e-government links new technology with legacy systems internally and in turn, externally links government information infrastructure with everything digital. “Access to all official information and service offerings of a public agency is generally e-government’s primary focus. The most important anticipated benefits of e-government in a developing country include improved efficiency, increase in transparency and accountability of government functions, convenient and faster access to government services, improved democracy, and lower costs of administrative services” (Kamar and Ongo’ndo, 2007).

Ai et al. (2013) examined e-government and e-governance concepts and constructs in the context of service delivery. The objective of the study was to investigate the concepts and constructs of e-government and e-governance, as well as to gauge the relationship between them with regard to service delivery to citizens. The study used quantitative methods - questionnaires. “Quantitative methods are appropriate when there is a need to apply the sample data to the population in order to find patterns and current trends” (Davidson and Patel, 2003). The findings of the study revealed that the government failed to respond effectively to the needs of the citizens of Malaysia concerning quality of service delivery, as these concepts and constructs among Malaysians are still in question; e-government initiatives can only be implemented with the support and development of ICT and if the government provision is below the expectations of the services, the services provided by the government was be underutilized by the citizens. Services provided by the Inland Revenue Board Malaysia (LHDN) include online payment of individual tax, company tax, employer

tax and e-news from LHDN. However, this can only be achieved if the government looks beyond simply providing online services and focuses on portal design and functionality, which need to meet citizens' expectations. The study has the limitation of using a small sample, which included Malaysian citizens who work in the Sarawak region. The target respondents were eligible taxpayers in the public sector and the private sector in Sarawak. The current study was use a large sample and was not be limited to a region.

Nisar (2006) examined e-governance in revenue collection and administration. The objective of the study was to investigate the role of e-governance in tax administration, especially when incorporating ICT technologies. A case study of the UK government department of HM Revenue and Customs was used. The study further examined the use of internet service for self-assessment, payment and the Pay As You Earn (PAYE) service for employers. The findings revealed that substantial progress has been made over recent years in developing an effective system of e-taxation by the UK government. It also identified further requirements for the use of ICT in e-taxation and potential for future direction and initiatives. The study covered only a small portion of the problems that face company income collection, and if this study were replicated in developing countries like Ethiopia, the result might not be the same.

Lee et al. (2011) examined the wasingness towards e-government service adoption by business users. The objective of the study was to fill a research gap by addressing the following research question: Why are some businesses more wasing to adopt e-government applications to perform transactions with the government than others? The findings revealed that the wasingness to adopt e-government increased when business users perceived high-quality service provision in offline service channels. The study findings implied that technology may not successfully "push" potential users to adopt e-government services; offline service quality and the trust users place in the government that provides the service "pulls" users into adopting e-government. The study contributes to the existing research and practices in the field of e-government. Internet technology itself is not a sufficient condition for a successful transition into e-government services; instead, high-quality service provision in the traditional service channel must be present in order to ensure the wasingness and trust of the potential users to adopt the online channel of government services.

Decman et al. (2010) examined e-government and cost-effectiveness. The study focused on investment in ICT to simplify tax procedures in Slovenia. The findings revealed that ICT expenditure is higher than cost savings for the tax authority and taxpayers. Nevertheless, several other non-financial benefits are important and should be considered, such as taxpayers' satisfaction, better transparency, easier control and data processing. "There are several issues that must be considered when designing e-taxation and its implementation, such as planning and development at the information use level, as well as support for services offered to taxpayers" (CIAT, 2009). Therefore, the findings of Decman et al.'s (2010) study cannot be generalised. The current study was consider other non-financial benefits of e-government and e-taxation in developing countries, especially Ethiopia. "E-government adoption to collect company income tax is important because failures on this front can in the long run seriously hinder the process of modern governance" (Gupta et al., 2004:208). E-government is an indispensable factor in achieving the objective of e-tax.

Martini et al. (2010) examined e-services in Albania. The findings revealed that e-government in Albania is still in its early stages, and the efforts made so far towards the electronic dissemination of information have had a positive impact with respect to increased governance transparency. The study failed to indicate the method used. One of the reasons given for the low level of ICT knowledge is the lack of understanding of the benefits that ICT has to offer. This is also relevant to one of the objectives of the study under review, which is to investigate the state of company income tax with existing use of ICT in corporate income tax collection.

Overall, e-government aims to "centralize and make available a cohesive and seamless set of government services to users" (Lam, 2005: 511). Ndou (2004) and Lam (2005) revealed that the goals of e-government are to facilitate efficiency and effectiveness of government operations, thereby meeting expectations of citizens such as: cost reduction and efficiency gains, quality of service delivery to business and customers, transparency, anti-corruption, accountability, increasing capacity of government, network and community creation, which improves the quality of decision making and promotes the use of IT in other sectors of society. "E-government has developed rapidly around the world over the past decade" (Stojanovic et al., 2006; Nasim and Sushil, 2010; Hassan et al., 2011; Zhao, 2011 cited in Karunasena, 2012), and "this can be demonstrated by the fact that more than 98% of the United Nations member countries have some kind of e-government presence online" (United Nations, 2010). "The rapid development worldwide in embracing e-government is

due to the capacity of e-government for creating public values such as efficiency, accountability, democracy, responsiveness, and equity for citizens” (Nour et al., 2008; Karunasena 2012).

## **2.2. Adoption of ICT in Taxation**

The advent of the internet, digital connectivity, the explosion and use of e-commerce and e-business models in the private sector are pressuring the public sector to rethink hierarchical, bureaucratic organisational models and customers, citizens and businesses are faced every day with new innovative e-business and e-commerce models implemented by the private sector and made possible by ICT tools and applications, requiring the same from governmental organisations Ndou (2004). The use of ICT, in general, has changed the service delivery process, business models and people’s expectations of the quality and efficiency of information. Tomsett (2008) supports the view that “the administration of any adopted taxation system should be acceptable and easy for taxpayers and efficient” (Kennedy and Sugden, 2007).

According to Ho (2002), “these new paradigms thrust the shift toward the e-tax paradigm, which emphasizes coordinated network building, external collaboration and taxpayer services”. Governments worldwide are leveraging ICT in many ways to tap potential cost savings and efficiency when providing online services to citizens. Slemrod (1990) noted that the design of an optimal tax system requires consideration not only of changes in the technology of collecting taxes but also of how technology may alter the economic environment in which governments seek to collect revenue. According to Bird and Zolt (2008), “Policymakers need to consider the impact of changes in technology on both the design of specific taxes and the relative use of different tax instruments in raising revenue”.

However, Yu (2002) stated, “Electronic commerce flourished because of the openness, speed, anonymity, digitization, and global accessibility characteristics of the internet, which facilitated real-time business activities, including advertising, querying, sourcing, negotiation, auction, ordering, and paying for merchandise”. Therefore, ICT covers any product that was store, retrieve, manipulate, transmit or receive information electronically in a digital form such as radio, television, cellular phones, computer and network hardware and software, satellite systems as well as the various services and applications associated with video conferencing and distance learning.

Hai and See (2011) examined the intention of tax non-compliance. The objective of the study was to provide a literature review on factors that affect the intention of tax non-compliance behaviour among sole proprietors. The study failed to state the method used for data collection. The findings of the study revealed that the literature review helped identify gaps for future research towards behavioural tax non-compliance intention. These gaps are unapproved tax preparers, unapproved account preparers and future expected tax costs.

However, the study failed to consider IT usage. Many small business entities are still using the services of unapproved tax preparers Liew (2004). Collin et al. (1992) recommended studying the impact of unapproved tax preparers on tax non-compliance. The unapproved account preparers need not follow the tax regulations and professional ethics set by the approved accounting board. According to Jackson and Jones (1985), “if taxpayers know [the] expected cost of tax non-compliance, then it is a factor that may change taxpayers’ non-compliance decision-making”. This is why the current study was consider tax costs; if a taxpayer wishes to evade tax, they must understand what the future expected tax costs are likely to be.

Kerr (2012) examined tax return simplification. The objectives of the study were to look at the concept of a default pre-filled tax return within the Australian context and contrast this with the system of reduced filing used in the UK and New Zealand; the study would then draw similarities with New Zealand’s personal tax summary. It explored the literature on taxpayer engagement amid the concern that taxpayers may potentially engage less with the tax system if they do not have to lodge tax returns. The findings of the study revealed that the best practice in future tax administration may be a hybrid system where elements of both reduced filing and pre-filing co-exist, and people with simple tax affairs would not have to lodge tax returns and those with arrangements that are more complex was file pre-filled returns. This study highlights that policymakers should consider it worthwhile to weigh up the merit in making such changes for a short-term solution and explore the capacity for longer-term gains. To reiterate, the benchmark of a pre-filled tax return is that a taxpayer only needs to confirm their details are correct. The study failed to consider the use of IT and whether taxpayers file their tax returns manually or via automation. Although extensive research is required to determine whether revenue authorities should continue to issue refunds to the majority of taxpayers, this current study was add to this research.

Githinji et al. (2014) examined the effects of information and communication technology (ICT) on revenue collection by Kenyan counties. The objective of the study was to establish the mode of strengthening domestic resource mobilization by utilizing ICT; it also reviewed information system theories and examined the impact of management information systems on revenue collection in Kenyan counties. The study utilized ICT in relation to technological theories. Additionally, it proposed efforts to be devoted to extensions of the Technology Acceptance Model (TAM) to examine county governments and to take ICT as an important tool for delivering services to citizens and businesses in terms of revenue collection systems. The establishment of an internal control system, a management information system, guaranteed strong control of the largest taxpayers and ICT infrastructure and revenue collection in county governments and utilizing the Unified Theory of Acceptance and Use of Technology (UTAUT). The study used Hofstede (1991) and culture as a system of collectively held values, and looking at culture from this angle; it differs across continents, nations, counties, sub-counties and ethnic groups. Their study found that the most comprehensive study of national cultures has been used in some revenue collection system studies, which are discussed under revenue collection system and culture and where the ultimate intent is not to control the behaviour of people in predefined ways, but to influence them to make decisions and take actions that are likely to be consistent with the county goals. They recommended that the county governments should use ICT as an important tool for delivering services to citizens, tax collection, monitoring county project and other business operations within the counties.

Dutt (2004) examined the optimization of corporate tax collection in developing countries – with potential application to Mozambique. The objective of the study was to draw attention to the potential impact of deploying best practice tax collection projects in sub-Saharan Africa. The study used a simple and operational model, which may not allow the generalisation of the study findings. The findings of the study revealed that the Mozambican government does not have the means to generate fair taxes to fight poverty; hence, fair distribution of wealth is in danger, which could lead to further tensions between South and North Mozambique. The findings also revealed that in the case of Africa and Mozambique in particular, both a top auditing team and a flat fee structure for small businesses need to respect the principles and guarantee an immediate impact in government revenue collection. The study has some limitations, such as the model possibly being used indiscriminately throughout all sectors of the economy, regardless company size. Additionally, the small and



medium agricultural companies and the medium industrial companies were not included. The study also failed to consider the impact of ICT on tax collection.

In FIRS, “several technology-based initiatives have been implemented in the last six to seven years, which have yielded significant dividends in improved tax collection, increased taxpayer confidence in the tax system, increased efficiency in tax operations and reduction in leakages” (Omoigui-Okauru, 2011). However, “IT is being deployed rapidly in the delivery of public services even in developing countries such as Chile, Brazil and India with its consequent effect on society; some countries, including Nigeria, seem to be slower in pursuing e-Government practices” (Folarin and Olaniyan, 2009).

In a more recent study, Chatama (2013) examined the impact of ICT on taxation by focusing on the Large Taxpayer Department of the Tanzania Revenue Authority. The objective of the study was to investigate how the use of ICT has modernized tax administration procedures and improved revenue collection at the Large Taxpayer Department of the Tanzania Revenue Authority. The study used secondary data and literature reviews. The findings revealed that the availability of ICT infrastructure and facilities at the Large Taxpayer Department is contrary to the scholarly observation of ICT use limitations in developing countries, and Large Taxpayer Department has proven to be well equipped with ICT. Also, the taxpayers’ and tax consultants’ (firms) application of ICT has affected both the design and administration of the tax system in Tanzania. In addition, the findings of the study revealed that the impacts of ICT use can be seen in a number of ways, including; reduced administrative and collection costs; decreased need for personnel; time savings for taxpayers due to fast processing; transparency in assessment, collection, and related processes; reduced tax compliance costs; reduced communication costs; and timely access to information, which results in preventing revenue losses and improving efficiency and performance in revenue collections. The study expressed that although other factors in the economy, like increased internal trade, reduced importation and more reliance on home products, may have caused the increase in revenue collection, it is worth remembering that no matter how much the economy has prospered, if there is no good tax administration, the revenue was only disappear into wrong hands and was not be reflected in collections. If this study is carried out in another developing country with a different level of infrastructure development, the result may not be the same. The study used secondary methods, but the current study on Nigeria was use mixed methods in addition to secondary methods.

Geetanjali (2011) examined ICT application in service delivery for the Inland Revenue Department, Nepal. The study used a combination of content analysis, survey through in-depth interview, questionnaires and observation to collect data. The findings showed that the average response of service providers and seekers towards the effectiveness of e-services is positive. The study revealed that organisational factors (human resources, ICT infrastructure, financial resources and attitude of service providers) are associated with the effectiveness of e-services, while customers' factors (customers' demand and customers' knowledge) are not found to be associated with the effectiveness of e-services. It also revealed that the e-services of Inland Revenue Department are effective, and the organisational factors (not the customer's factors) influence e-service delivery. Some distinct features of Nepal, such as a low level of internet penetration, poor rights, the consciousness of public customers, the patron-client relationship and a sense of fear of the revenue department, might have made customers hesitant in taking a more active role in making e-services effective. The study failed to assess the customers' roles in effective e-service delivery; the research mainly focused on a few organisational aspects, and the effectiveness of e-services in the study was looked at from the perspective of improvement in service delivery, which was again measured by time effectiveness of e-services. Additionally, the study concentrated only on the effectiveness of e-services in the present scenario. However, the current study was examine other major objectives of e-governance, like ensuring transparency, reducing corruption, reducing cost, and quality of services, which add more value to the effectiveness of e-services. E-service delivery in itself is a new phenomenon in some developing countries, and there has been scant attempts to explore the relation of organisational and customer factors with e-service delivery of an organisation. The study helps to identify the lubricating/hindering factors for delivery of services with the use of ICT to the public, and it is useful to academics and future researchers.

Muwonge (2011) examined the influence of the electronic tax filing system on tax compliance and tax collection. The objective of the study was to ascertain the extent to which e-tax has achieved its objectives and to establish the ease of use of the system and the attitude of taxpayers towards the system. The study employed a survey research design and used self-administered questionnaires. The findings of the study reveal the following: The electronic tax filing system has improved tax compliance, as it is easy for taxpayers to assess their tax obligations accurately and to file their returns on time; the attitudes of taxpayers and that of Uganda Revenue Authority (URA) staff towards the use of e-tax is

positive, as a considerable number viewed the use of the system as being good as the new system has reduced costs on the taxpayer's side; the current e-tax servers are overwhelmed by the number of users, hence the reason why they are so slow, and the e-tax filing system has the potential of increasing tax compliance and revenue collection in URA; however, a lot has to be done to avert the obstacles that may make it impossible.

The study has some limitations, such as the small sample and the results of the study cannot be generalised. Some additional factors need to be considered, primarily non-technological factors including culture, infrastructure and human resources.

Maruf (2004) examined the efficiency of the tax authority and collection of tax revenue. The objective of the study was to explore the effectiveness of the large taxpayer unit (LTU) in increasing the efficiency of the tax authority. Using secondary data and reviews of LTU's functions, the study reviewed their effectiveness in developing countries, particularly in Bangladesh. The findings revealed that countries might gain significant benefits from setting up LTU. Moreover, the experience of many developing countries shows that setting up special operations to control large taxpayer compliance has resulted in increased compliance and effective Tax Administration (TA). Many of the countries surveyed reported that establishing LTU helped them address major operational weaknesses in tax authority. The LTU has been a pilot project for the tax authority to test reforms that was later extended to other taxpayers.

### **2.2.1. Electronic-Tax**

Taxation is a fundamental activity of any national government system. Nevertheless, despite the fact that taxes have been levied for thousands of years, there remain many, often fundamental, problems in terms of how governments assess and collect the revenue that they need from individuals and companies. The institution of IT-based systems can make the taxation system of a nation diplomatic as well as far more efficient. E-tax involves the online tax filing and payment system (OTFPS). The e-tax service is an important online service that enables citizens to file taxes online (Hu et al., 2009). It is an important application that automates tax-related processes in an attempt to improve efficiency in assessing and collecting tax information (Fu et al., 2006).

Fu et al. (2006) define e-tax as “an important application that automates tax-related processes in an attempt to improve efficiency in assessing and collecting tax information”. “E-tax is a new service provided by the government to enable citizens, in particular taxpayers, to complete electronic tax filing forms and necessary payment details via the internet” (Dorasamy et al., 2010). An Electronic Tax Administration (ETA) allows tax data entry, automated processing, computation and analysis as well as the automatic production of tax reports and feedback required for risk management control” (Moore, 1999; Holniker, 2005; Partch, 1997). According to Faniran and Olaniyan (2009), “electronic governance (or e-Governance) by definition and design, aims to bridge the gap between government, citizens and businesses through the use of IT by lowering transaction costs and reducing information asymmetry, ultimately eliciting feedback from citizens while delivering public services more efficiently”.

A critical part of the collection function of ERCA in Ethiopia is enforced tax collection. There is a growing awareness of the importance of this function for ERCA. Tax collection should be considered as an important and integral part of the overall ERCA process and, in our view, it is not a function that can be readily separated from mainstream operations. Tax collection is typically a major responsibility of ERCA.

Bryman (2008) the findings of the study revealed that subjective norms are significant for non-adopters and insignificant for adopters and self-efficacy is significantly higher for adopters than non-adopters. The study was help governments to understand these factors and to formulate the corresponding measures to promote greater citizens’ use of the e-tax service and lead to better planning and implementation of the e-tax service. However, the findings need more arguments to support them, and it may have been better to use questionnaires or interviews to analyse which factors influence citizens’ adoption of the e-tax service. The current study proposes the use of questionnaires and interview as research instruments. Xuyang (2012) examined factors that influence citizen adoption of government’s e-tax service. There are some factors not analysed in this study. There are only seven articles that have a similar research field with the study, and two articles are from the same authors with less reference; therefore, the result may need more arguments to support it. It would be better to utilise questionnaires or interviews to analyse which factors influence citizen adoption of the e-tax service. Understanding these factors can help governments formulate corresponding measures to encourage more citizens to use the e-tax service and lead to better planning and implementation of the e-tax service.

Okafor (2012) examined revenue generation in Nigeria through e-taxation. In the study, the survey method was adopted. The findings of the study revealed that electronic taxation was enhance revenue generation, and a large database of the citizenry achieved through proper record keeping was enhance revenue generation. It also revealed that e-government is an indispensable factor in achieving the objective of e-taxation and IT literacy was enhance electronic Federal Inland Revenue Service (FIRS), which was significantly curb tax evasion and avoidance and reduce operational compliance cost.

Rouibah (2012) examined trust factors influencing the intention to adopt online tax payment in Kuwait. The study used the online questionnaire method, and the findings shed light on the role of customer trust and perceived enjoyment to mediate the effect of external variables (personal innovativeness, familiarity, propensity to trust and presence of third-party seal). It assists in enhancing online payment website acceptance by potential consumers in Arab countries. The study has limitations, such as the lack of a direct effect on customer trust and intention to use as well as between customer trust and perceived security. The findings of the study extend and challenge the model proposed by Kim et al. (2010), which determined that perceived trust and perceived risks mediate the effect of external factors on the intention to use Electronic Payment Systems (EPS). The method used may not be applicable in some developing countries due to lack of education and infrastructure such as electricity. Additionally, the findings may be different if the study is replicated in other developing countries.

Esteller-Moré's (2011) study, "Is the tax collector just a money machine? Empirical evidence on redistributive politics", analysed how effective personal income tax is administered in Spain and identified its determinants. The primary aim was not so much to assess the performance of Spain's tax collector, but rather to attempt to empirically infer its determinants in order to shed some light on the empirical literature on tax collection. It used the methodology proposed very recently by Wang and Ho (2010) to estimate a fixed-effect panel stochastic frontier model (an empirical specification) capable of consistently disentangling structural factors that affect the frontier structural inefficiency. The findings of the study revealed that political factors are found to play a role, and the fear of losing a parliamentary seat in a region forces the tax authorities to reduce their efficiency in ensuring tax compliance in that region. In addition, in those electoral districts where the central government obtains higher electoral support, efforts to collect taxes diminish. These non-technological factors are affecting company income tax collection.

Boylan (2010) examined prior audits and taxpayer compliance, providing experimental evidence on the effect of earned versus endowed income. The study used a questionnaire instrument to collect data. Boylan also used a set of experiments designed to examine how taxpayers respond to whether they have been audited in a prior period and whether the nature of the response depends on the amount of time and effort required to generate one's taxable income. The findings of the study revealed that taxpayer compliance is influenced by whether one has been audited in the past, but that the specific effect of prior audits depends on the amount of time and effort required to generate one's income. In addition, these results add to the body of evidence indicating that taxpayer decisions appear to be influenced by whether taxable income is earned or endowed. Finally, the results suggested that mixed findings documented in prior research on the role of prior audits could be attributed in part to systematic differences in whether taxable income was earned or endowed. This finding helps reconcile the mixed results obtained in prior experiments on taxpayer compliance, and it helps explain why the archival-empirical studies documented above largely failed to find a link between prior audits and subsequent compliance. The study has some limitations such as there were only two tax-reporting periods; it is unclear how compliance is affected by the cumulative effects of several prior periods involving an audit or lack thereof, nor is it clear to what extent behaviour observed in the second period would spill over into subsequent periods; the use of neutral terminology in the experiment likely suppressed moral and ethical considerations pertaining to compliance that are impounded in many taxpayer reporting decisions; and it is unclear whether the nature of the task in the earned income condition has any influence on behaviour. In other words, one cannot specify whether the same results would apply if the time required and the nature of the work required to earn income were different, and the experiment relies on a relatively small dataset.

Isaac and Lilian (2010) carried out a study on automation and customs tax administration using empirical evidence from Uganda with the aims of achieving efficiency and increasing revenue. The study employed a quantitative survey to empirically test the relationship between automation and tax collection efficiency based on data from the Uganda Revenue Authority (URA). The findings suggest a positive correlation between automation and the cost of tax administration, automation and effectiveness of revenue collection, while automation is negatively and significantly related to tax clearance time. The study makes a significant empirical contribution to analysing tax automation and administration cost, time

efficiency and effectiveness of revenue collection. Further research could validate the relationship between tax collection and automation in all areas of tax administration, as opposed to the partial automation of customs activities alone.

Kuznetsova (2010) examined factors affecting diffusion of tax return filing online (e-return) in Finland. The diffusion of innovations theory, Bass diffusion model (Bass Diffusion Model was developed by Frank Bass. It consists of a simple differential equation that describes the process of how new products are adopted in a population) and service process analysis was used as the theoretical base for the study, alongside the survey method. The findings revealed that the diffusion of e-return is dependent on such variables as perceived attributes of the e-return system, interpersonal communication channels, performance of related services and the extent of tax administration's promotion efforts. As with any empirical study, this research has its limitations. The primary limitation of this study lies in the fact that the data in the satisfaction survey is heavily skewed towards users of e-returns, which means that there is not enough information to analyse those who decided to file tax returns on paper. In addition, due to the nature of the survey, all respondents were self-selected and had had at least some experience with the service prior to responding to the questions, which completely excludes those individuals who decided to reject e-returns prior to using them. Another limitation comes from the novelty of the "service"; there is no historical information about user preferences. It is important that the validity of statistical inferences derived from the study be tested in the future if similar user satisfaction surveys are administered. In addition, the study failed to obtain adequate data from the log of the online service, which means that the analysis is reliant on individuals' responses to their behaviour and not facts. The model assumes stability in the system over the course of innovation diffusion, which was not happen in reality. These limitations suggest avenues for further research, and the current study of Ethiopia was consider these gaps.

Conducting business has advanced from the "trade by barter" days to the "commodity money" era, then to a "cashless or digital" epoch referred to as electronic commerce (e-commerce) (Ovia, 2008).

### **2.2.2. Electronic-filing System**

The United States Internal Revenue Service (IRS) introduced electronic filing of tax returns in 1986. Prior to launching the project, the IRS worked closely with tax preparation software providers and tax professionals to ensure a successful launch of the programme. The IRS offered e-filing services in three cities and restricted the types of taxpayers and the types of returns that could be filed electronically, as tax preparers were allowed to file returns.

Fu et al. (2006) carried out a study on the acceptance of electronic tax filing. The study aimed to examine the factors affecting taxpayers' intentions to adopt a particular tax filing method. A review of previous studies suggests that many studies were anchored in behavioural intention and reported a strong causal link between behavioural intention and targeted behaviour (Chau and Hu, 2001). TAM (Technology Acceptance Model) and TRB (Theory of Planned Behaviour) were theoretical premises for the research model examined in the study. A nationwide questionnaire-based survey was used. The method used was justified because data collected using electronic means have similar psychometric qualities to data collected through physical procedures. The findings revealed that electronic taxpayers intended to continue using the method and those manual taxpayers' usage intentions were relatively diverse. The findings also revealed that manual taxpayers, in comparison with electronic ones, had lower education levels, were older, had less computer and internet experience, had less IS resources and were online less frequently. The confirmatory study represented a conceptual replication by re-examining theoretical models in tax filing settings. The study provided some preliminary evidence about the criteria that taxpayers used to evaluate their adoption of e-tax filing. It also provided a starting point for governments seeking ways to improve citizens' acceptance of e-tax services.

Zakaria et al. (2009) examined the e-filing system used by the Inland Revenue Board (IRB) and its perception by Malaysian taxpayers. The objective of the study was to determine factors that influence taxpayers' attitudes towards the internet for tax filing systems. The study used quantitative research methods, obtaining data through questionnaires and information from secondary data. The findings revealed that a major factor that influenced taxpayers' perceptions of e-filing systems is the perceived usefulness of the tax filing system itself. The findings also revealed that higher levels of education of taxpayers and greater experience of using IT generate positive perceptions of using the e-filing system.



The study failed to consider other important factors that influence the e-filing system practised among taxpayers in Sungai Petani Kedah; however, the current study was determine some other factors that may influence the e-payment system in other developing countries, mostly Ethiopia. The current study was also focus on the best e-payment system for citizens and refer to previous research on the needs of citizens and facilities provided by the government to its citizens.

Lai (2008) carried out a study on the electronic tax filing system and taxpayers' perspectives. A questionnaire was used to collect data. The findings revealed that e-filing has not gained momentum in Malaysia, with just one-third of respondents having attempted e-filing in 2007. In addition, the majority of the e-filers used e-filing for the sake of convenience, the speed of filing and the hope of getting a faster tax refund. These findings somewhat supported the assertion of Tan et al. (2005) that it is important for the government to embrace e-filing as one of the e-government's endeavours to restore taxpayers' trust in the e-filing system. However, tax administrators need to develop a better "user-friendly e-filing system".

Islam et al. (2011) examined factors affecting user satisfaction with the Malaysian income tax e-filing system. Data were collected using the survey method. The findings revealed that information quality and service quality significantly affected trust building, the perception of service and flexibility; information quality and accuracy contribute to user satisfaction in respect of income tax e-filing systems in the northern region of Malaysia. The implication of this study needs to be examined to form effective strategies to sustain current e-filing users by taking appropriate action(s) to improve user satisfaction among Malaysian taxpayers, in order to achieve the Inland Revenue Board of Malaysia (IRBM) goal of increasing e-filing usage in future. The findings was assist the Inland Revenue Board in formulating new strategies to improve e-filing user satisfaction and to achieve their goal of taxpayers using e-filing in the future. The study failed to consider attributes other than electronic service quality dimension factors. The current study was consider all the necessary factors affecting users' e-payment satisfaction in Ethiopia.

Gemmell and Ratto (2012) examined behavioural responses to taxpayer audits by using evidence from random taxpayer inquiries. The objective of the study was to investigate whether UK taxpayers alter their compliance behaviour in response to random audits and to evaluate the impact of an audit on future compliance, by treating taxpayers' behaviour as a

function of their perceptions of being audited and the amount of tax evasion they expect to be uncovered, using a sample of individual and business taxpayers. The system allows the study to address responses to the audit process that have only recently begun to be considered in the experimental literature, such as the impact of differences in the “quality” of audit outcomes on taxpayer responses. The findings of the study revealed that the verdict of a previous audit — in particular, whether a taxpayer is identified as “compliant” or “noncompliant” and the amount of undeclared tax yield identified — affects whether subsequent compliance increases or decreases and the extent of any increased compliance. In addition, the findings also emphasised the importance of separately testing the responses of taxpayers facing different opportunities and incentives to evade tax in order to avoid conflating their different effects. The study has limitations, such as the limited data available to assess the possible impact of replacing the UK’s random audit program with more risk-based audits.

Carter et al. (2011) examined the U.S. e-file initiative. The study objective was to propose a model of e-file diffusion that integrates acceptance factors and personal factors to assess the impact of adoption, trust and optimism on e-file utilization using a survey method. The findings revealed that performance expectancy, social influence, computer anxiety, optimism bias and trust of the government all have a significant impact on the intention to use an electronic tax filing system. The study highlights the device factors that affect the adoption of an emerging technology – electronic tax filing – and explains over 70 percent of the variance in intention to use an e-file system. The study has the limitation of limited diversity in the sample. The sample was composed of graduate and undergraduate students. The survey was used to collect data, allowing potential self-report bias from respondents. The current study was use multiple methods to collect and analyse data concerning the adoption of e-payment, mostly in Ethiopia.

### **2.3.3 E-tax payments**

An electronic payment system is a process used to collect payments via the internet, direct dial access, ATM or another electronic method. According to Ciborra (2005), “e-tax systems are to streamline revenue collection and documentation services”. However, several studies (Turner and Apelt, 2004, and Fu et al. 2006) revealed, “an electronic taxation is a form of tax assessment, collection and payment that does not require taxpayers to interact

physically with the tax authority, instead of enabling them to review, file and pay taxes via ICT”. Mugisha (2001) states 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”. Some scholars emphasized that the spread of ICT use in various sectors brings new opportunities for economic growth and development. New organisation design, new markets, new products and improved services have been created, which bring with them new sources of revenue.

Crede (1998) revealed two facts: first, “ICT has the capacity to increase productivity and create more cost-effective output with the same or fewer inputs and development of ICT applications for business use alter the approach in which organisations function and eventually improve their services as well as products”. Due to the complexity of large taxpayers, “they present a major tax compliance risk to revenue bodies, considering their critical role in revenue collection; it is the responsibility of tax administration to be ahead of large taxpayers in technology in order to curb cheating” (Suluo, 2003).

Huang et al. (2006) examined factors influencing business adoption of online tax payment services. The study used the questionnaire method. The findings of the study revealed that perceived ease of use has a positive impact on perceived usefulness; structural assurance influences trust positively; perceived usefulness, perceived ease of use and trust have a positive impact on attitude; and trust and attitude positively influence behavioural intentions. The results of the study was enable the government to increase public awareness of the technical merits of online tax services as well as to provide adequate security mechanisms to facilitate online transactions. The study shows how and what government agencies can do to motivate business users to file tax online. The study extends the application domain of TAM and suggests that TAM is applicable to explain organisations’ decisions in the adoption of web-based government services. The study further contributes to the literature on TAM by providing empirical support for the application of perceived usefulness, perceived ease of use, and attitude and behaviour intention in the context of B2G interactions. Additionally, the study contributes to the literature on TAM and trust theory by integrating both aspects in investigating business decisions in respect of online tax declaration. The study has some limitations, such as targeting business users without considering their levels of involvement in e-government services, previous e-government experience and frequency of using online tax payment systems. The study targeted

Taiwanese firms only; as a result, it cannot be applied globally. However, the current study was examine if culture plays a role on user perceptions within the e-government context in Nigeria. While the Taiwanese study focuses on the impact of structural assurance on trust only, without exploring other influential factors, the current study was further explore the impact of technological factors on user trust within the e-tax filing and payment systems in Ethiopia.

Martin et al. (2010) examined the effectiveness of electronic tax registers in processing value-added tax returns perspectives from registered VAT taxpayers. The study aimed to determine the extent to which electronic tax registers are being used by taxpayers, the problems (if any) that they encounter in using them as well as possible solutions to the problems. It also aimed to establish if electronic tax registers increased the speed, at which taxpayers processed their VAT returns and if there were any associated costs in the processing of VAT. The main instrument for collecting primary data was a questionnaire, while secondary data was obtained from the Kenya Revenue Authority regional office. Their study assists the Kenya Revenue Authority by searching for ways to improve the processing of VAT returns and finding an effective method of revenue collection to meet the country’s budget revenue targets. The findings revealed that timely filing of monthly VAT returns is attributed to the electronic tax filing system.

#### **2.4. Literature Summary and Gap**

The literature review primarily presented relevant research efforts in order to assess and identify the gaps, an explanation of how this study intends to fill the knowledge gaps, as shown below:

Identified Gaps	How the researcher intends to fill the knowledge gaps
Methods used (single)	The current study was adopt mixed methods to minimise the weakness of using a single method, and it was ensure the validity of gathered data.
<b>Some previous studies failed to state</b>	The present study was fill this gap by clearly stating the methods used in data

<b>the method used to collect the data.</b>	collection.
<b>Some studies focused on tax as fiscal responsibility without considering the use of IT for tax effectiveness and efficiency.</b>	The current study was fill the gap with an adoption of IT in Business income Tax collection.
<b>Some studies' samples are composed of graduate and undergraduate students.</b>	The current study, the views of those users (operators) who may be more knowledgeable and comfortable with technology than the average citizen may be captured.

This study was make several useful research contributions, which among other things include the areas suggested for future work and questions that are important to Business income tax collection in developing countries, especially in Ethiopia.

## **Chapter Three**

### **Research Methodology**

#### **3.0. Introduction**

This chapter looks at the research methods that can enhance the investigation of the impact of information technology on tax collection systems especially on corporate income tax in Ethiopia. Sarantakos (2007) defines methodology as the theoretical principles and framework that underpin how research is done from within the context of a particular paradigm.

#### **3.1. Research Design**

The study problem was solved using descriptive survey design. It involves either identifying the characteristics of an observed phenomenon or exploring possible correlations among two or more phenomena. In every case, descriptive research examines a situation as it is. It does not involve changing or modifying the situation under investigation, nor is it intended to determine cause-and-effect relationships. Strategies include sampling, making observations, interviewing take on a very different form when we want them to yield quantitative data (Copper and Schindler, 2010). According to Doyle (2004), descriptive survey design also included observation studies, correlational research, developmental designs, and survey research. All of these approaches yield quantitative information that can be summarized through statistical analyses.

Some of the main advantages of using survey designs to collect primary raw data from respondents are ability to accommodate large sample sizes' generalizability of results; ability to distinguish small differences between diverse samples groups; ease of administering and recording questions and answers; increased capabilities of using advanced statistical analysis; and abilities of tapping into latent factors and relationships. In contrast, the main disadvantages of survey research designs tends to focus on potential difficulties of developing accurate survey instruments; inaccuracies in construct and scale measurements of factors; and limits to the depth of the data structures. In addition, researchers can lack control over long time frames and potentially low response rates, among other problems.

The researcher believed that despite the few disadvantage of this method, it is the most suitable as it enabled an analysis of the relationship between technology and levels of tax collection systems in terms of e-tax, e-filing, e-payment. The independent variable was technology while the dependent variable was corporate income tax.

This study was designed in such way that enables the researcher to study problem more easily and clearly using quantitative and qualitative methods. It is structured to provide relevant information, both quantitative and qualitative, to sufficient level that would be essential for further processing. Quantitative data is expected to provide current stands and trends while qualitative one was be useful to understand people's feelings and expectations which have linkage to the research questions raised in Chapter one.

### **3.2. Research Approaches**

This study was used three research approaches where the researchers was determined their applicability. Research approach is the general framework for the study that links, knowledge claims, strategies of enquiry and specific methods. The research approach implicitly reflects the researcher attitude as to how knowledge is constructed and commands what method to be employed in the study. As noted in (Kothari, 2004) and (Dawson, 2002), there are three research paradigms; these are quantitative research, qualitative research, and mixed research.

#### **3.2.1. Quantitative research approach**

Quantitative research approach generates statistical data with large-scale survey research, using methods such as close-ended questionnaires and/or structured interviews. For the researcher conducting quantitative research implies the need to carefully operationalizing a theory and subsequently measuring it by means of variables and questions.

#### **3.2.2. Qualitative research approach**

Qualitative approach attempts to get an in-depth opinion from participants. It explores attitudes, behaviors and experiences through methods such as in-depth interview and/or focus group discussion. The data is collected from those immersed in everyday life of the

setting in which the study is framed. It is based on qualitative data, which during analysis are examined for patterns, themes, and holistic features.

### **3.2.3. Mixed research approach**

It attempts to corroborate & complement findings and takes a balanced approach to research. The data collection also involves gathering both numeric information (e.g., on instruments) as well as text information (e.g., on interviews) so that the final database represents both quantitative and qualitative information. It utilizes the strengths and overcomes the weaknesses of the two continuum approaches. For this study, the researcher used mixed research approach.

### **3.3. Target Population and Sampling Techniques**

For this study both non-probability and probability sampling methods were employed. In the non-probability sampling methods, purposive sampling technique was applied to select large taxpayers from the Addis city. In Probabilistic International Journal of Multidisciplinary Research and Development sampling, simple random sampling techniques were used to ensure equal chance and obtain representative sample of this taxpayer category to get information about the benefits and challenges of ICT application in tax collection systems and census sampling to select the staffs from the ERCA.

#### **3.3.1 Target Population**

The target population is the population that was investigated. The elements of the target population in the study are ERCA's Staff who were in charge tax collection and large taxpayers from the study area were considered as a target population to assess their perception about the current situation, extent and challenges of ICT application in efficient and effective tax collection.



### 3.3.2 Sample Size

For the nature of this research, a non-probabilistic sampling technique was employed. The sample enabled the researcher to study a relatively small number of units in place of the targeted population in order to obtain data that is representative of the whole target population. The samples for this study comprise the ERCA staff in Addis. In assessing the impact of ICT on corporate income tax collection, this study covers the activities of ERCA in corporate income tax collection, companies in relation to tax returns, tax payments, and tax practitioners, particularly in Addis. Addis were chosen because they were convenient. For determining the sample size, the researcher used Partem's (1950) formula for calculating sample size:

$$n = \frac{NZ^2 \times 0.25}{d^2 \times (N - 1) + (Z^2 \times 0.25)}$$

Where

n = the sample size required, which is statistically representative

N = the target population size

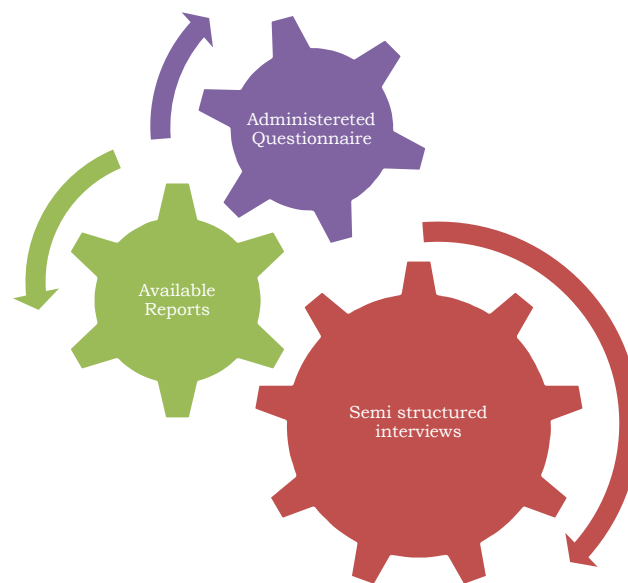
d = confidence level (0.05)

Z = number of standard deviation units of the sampling distribution corresponding to the desired confidence level.

### 3.4 Data Sources

To achieve the objectives of the study, multiple data gathering instruments was employ to collect data for the study. The study has been used both primary and secondary sources of data. Structured questionnaires and document analysis was the principal means of gathering the data use in the study. The primary data was obtain from selected experts, category-A taxpayers, and was gather through questionnaires and also from process owners, tax administrators and ICT technician through face to face interview to get reliable information about the existing situation, the benefits and the challenges of ICT application in tax collection systems in Ethiopia especially in Addis Ababa city. This study was also used secondary source of data and the researcher was review and browse different published and

unpublished materials which is obtained from journals, annual reports of the Ministry of Finance of Ethiopia, articles, journals and books to get qualitative and quantitative data about the existing situation, benefit and challenges of ICT both in the construction of reviewing literature and in finding and analysis. According to Yin (2009), “the major strength of case study data collection lies in the opportunity to use different sources of evidence collection which provides a converging line of enquiry which is described as triangulation”. As mentioned earlier, verification and validation of the result was be obtained using multiple sources. Below are the sources of data collection, using a diagram adapted from Yin (2009).



Sources of data collection

Source: Adapted from Yin (2009)

### **3.5. Data Analysis**

The gathered raw data were coded and tabulated, then analysed by using different analysis techniques. According to Kaewsonth and Harding (1992), “the process of data analysis involved several stages such as completed questionnaires that was be edited for completeness and consistency”. In this study, the data obtained was be coded and checked for any errors and omissions. The data generated through the questionnaire was analysed using descriptive statistical methods regression analysis, the researcher determined the

relationship and predictor power of the variable Alexopoulos (2010). SPSS tool was used to help the statistical analysis.

Furthermore, this study used Concurrent mixed methods designs. The three concurrent mixed methods designs identified by Creswell et al. (2003) are the following: (a) concurrent triangulation, (b) concurrent nested, and (c) concurrent transformative designs. In each of these designs, the quantitative and qualitative data are collected during the same stage, although priority may be given to one form of data over the other. The purpose of concurrent triangulation designs is to use both qualitative and quantitative data to more accurately define relationships among variables of interest. In concurrent nested designs, both qualitative and quantitative data are collected during the same stage, although one form of data is given more weight over the other (Creswell et al., 2003). Similar to sequential nested designs, concurrent transformative designs are theoretically driven to initiate social change or advocacy, and these designs may be used to provide support for various perspectives. Correlation test to establish a connection or strength of the relationship between two or more variables, the outcome of which might serve as a platform for further studies. Correlational research measures at least two variables and the plans for measuring variables are formalised prior to measurement (Graziano and Raulin, 2004).

In this study three descriptive statistical was produced in form of the frequency tables in order to provide a set of figures for the 'what' aspect of the research question and the correlation coefficients provide possible reasons for the outcomes generated by the frequency tables, answering the 'why' question, and the multinomial regression analysis determined the predictor power of the variables.

In this study, the correlation was used to determine the relationship between business income tax compliance and IT usage in the collection of business income tax. Multinomial logit regression analysis was employed for the predictor power of the variables. The regression model tests was computed and presented to establish the prediction potential contribution of IT to the effectiveness and efficiency of collecting business income tax.

According to Zikmund (2000), "the use of multinomial regression analysis is to determine how predictor variables could explain the dependent variable". There were multinomial logit regression analyses to be executed to find out the effect of independent variables (increased revenue and efficiency, positive tax compliance and compliance cost and potential

contributions) on corporate Income Tax (CIT) collections and the effect of IT on BIT net benefit. Correlation analysis tools including chi-square tests were also carried out to establish the strength of the relationship between variables.

The weighted average score was carried out on the frequency tables and analysed all responses to each key scaled question, to enable the researcher to draw a conclusion. The Likert scales was be assigned a score of 1, 2, 3, 4 and 5 respectively for options ranging from Strongly Disagree (1) to Strongly Agree (5). The frequency of responses on each scale was be multiplied by the weighting factor, divided by the total frequency of responses for the question, to arrive at a mid-position with no particularly strong opinion on the question.

# Chapter Four

## Results and Discussions

### 4.1. Introduction

This chapter covers the results and discussions of both primary and secondary data collected through a quantitative (detailed questionnaire) research instrument and subsequent semi-structured interview sessions (qualitative), in order to explore the impact of ICT on Tax collection system in Ethiopia. In this study, 180 questionnaires were returned from the 309 questionnaires that were distributed, and this represents a response rate of 58%. In this study, questionnaires were distributed for 226 taxpayer and 83 ERCA employee and 120 were collected from taxpayers and 60 from ERCA Staffs.

### 4.2 Background

Information from the questionnaires was entered into SPSS software to run the needed statistics. Figure 6.1 below shows part “I” of the questionnaire.

Demographic and background attributes such as gender, age, position, experience and educational background were discussed and are presented in the tables below.

**Table 4.1 Gender**

	Frequency	Percent	Valid Percent	Cumulative Percent
Female	70	38.9	38.9	38.9
Male	110	61.1	61.1	100
Total	180	100	100	

Source: Survey, 2018

The table above indicates that more males participated in the questionnaire survey than females. From 180 participants who responded to this survey, 61.1% were male and 38.9% were female.

**Table 4.2 Age**

	Frequency	Percent	Valid Percent	Cumulative Percent
Below 20	0	0	0	0
20 - 29	65	36.1	36.1	36.1
30 - 39	90	50	50	86.1
40 -49	25	13.9	13.9	100
50-59	0	0	0	100
TOTAL	180	100	100	

Source:  
Survey  
,  
201  
8

Tab

le 4.2 above shows that the majority of the respondents fall within the range of 30-39, which accounted for 50% of responses. In addition, the category for respondents below 20 years accounted for 0%; the 20-29 group has 36.1%; those between the ages of 40 and 49 years accounted for 13.9% and 0% were respondent 50 and above. From Table 4.2, it can be observed that most of the respondents were 18 to 49 years old. This suggests that majority of respondents in this study are at their physical best and this might have been because of employment policy of the Service. The survey also indicates that older people are inclined to be less optimistic, unlike younger respondents. Choudrie (2006) found that “age is a possible factor that can influence the adoption of new technologies such as an e-tax payment system”.

Table 4.3

	Frequency	Percent	Valid Percent	Cumulative Percent
Tax officers	32	53.3	53.3	53.3
Tax Assessment	18	30.0	30.0	88.3
IT officer	10	16.7	16.7	100.0
TOTAL	60	100.0	100.0	

Source: Survey, 2018

In terms of position, out of 60 respondents from ERCA Staffs, 53.3% were tax officers, 30% were tax assessment and 16.7% were IT officers. The above Table 4.3 Position shows the dominance of position of tax officers that means that tax officers are mostly familiar with the use of ICT in tax collections.

In order to establish how well the respondents were acquainted with the dynamics of using ICT in tax collection systems, the participants were asked to state the number of years they have worked for the ERCA. The results are presented in Table 4.4 below.

**Table 4.4 Experience**

	Frequency	Percent	Valid Percent	Cumulative Percent
0-2 years	7	11.7	11.7	11.7
3-5 years	42	70.0	70.0	81.7
6 -10 years	11	18.3	18.3	100.0
More than 10 years				100.0
TOTAL	60	100.0	100.0	

Source: Survey, 2018

Table 4.4 above indicates that the majority of the participants have served the ERCA Service in their current positions between 3 to 5 years, and 70% of the participants have more than 3 years' experience. Others have been in their positions for not more than 2 years and between 6 and 10 years (11.7% and 18.3% respectively). This indicates that the participants' working experience covered all ranges, with the majority of participants having worked for the ERCA Service for 3-5 years. Therefore, the participants have enough experience in using ICT in their daily activities, and the tax officers that participated in the survey have had substantial e-tax experience, which enables the ERCA to achieve its goal and aim to improve internal processes and operations.

**Table 4.5 Educational background of ERCA Staffs**

	Frequency	Percent	Valid Percent	Cumulative Percent
<u>Diploma</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Bachelor Degree	45	75.0	75.0	75.0
Masters	15	25.0	25.0	100.0
TOTAL	60	100.0	100.0	

Source: Survey, 2018

The levels of education of respondents were placed in two categories: Bachelor of Science degree and Master of Science degree. About 25% had a Master of Science degree and 75 %

had a Bachelor's of Science degree One observation among the respondents is that there is a high level of education. It implies that their level of education helped the respondents to use and understand the usage of ICT in tax collection and to educate taxpayers as well as interpret the tax laws and regulations appropriately. This result supported by Andreoni et al. (1998), Boame (2008, 2009) and Walsh (2012)'s findings that educated people may be better informed of tax laws, which should positively influence compliance.

The following section discusses demographic characteristics of the interviewees.

**Table 4.6 Demographic Characteristics of the Interviewees**

		Frequency	Percentage
Gender	Female	8	40.0
	Male	12	60.0
Position	Tax officers	10	50.0
	Tax assessment	6	30.0
	ITOfficers	4	20.0
Experience	3-5 years	16	80.0
	6 -10 years	4	20.0
Educational Background	Masters	2	10.0
	Bachelor Degree	18	90.0

Source:Survey, 2018

Table 4.6 above shows the demographic profile of ten tax officers, six-tax assessment, and four IT officers who were interviewed: 60% were male, 40% were female, and the majority of the interviewees have served more than three years, which suggests that they are experienced. This suggests that the interviewees would be quite familiar with the influence of ICT in their operations, the level of understanding of ICT, the type of infrastructure available, the constraints encountered, and the current and likely future impacts of ICT on the tax collection.

### **4.3. ICT and Tax Collection Systems**

Information from the questionnaires was entered into SPSS software to run the needed statistics. Figure 4.2 below shows section "Part I" of the questionnaire – the awareness of the use of ICT in Tax collection systems.



In order to establish the awareness of the introduction and acceptance of the use of ICT in tax collection, respondents were asked if they agreed with the introduction of ICT in Tax collection, the use of ICT be beneficial in tax collection systems, the introduction of ICT in tax collections systems reduce cumbersome manual procedures and the ICT in tax collection introduce a new cumbersome procedure as shown in Table 4.7 below

**Table 4.7 ICT and Tax Collection Systems**

		Frequency	Percent	Valid Percent	Cumulative Percent
Do you support introduction of ICT in tax collection	Yes	176	97.8	97.8	97.8
	No	4	2.2	2.2	100.0
	TOTAL	180	100.0	100.0	
Can the use of ICT be beneficial in tax collection systems	Yes	178	98.9	98.9	98.9
	No	2	1.1	1.1	100
	TOTAL	180	100	100	
Can ICT in tax collections systems reduce cumbersome manual procedures	Yes	176	97.8	97.8	97.8
	No	4	2.2	2.2	100.0
	TOTAL	180	100.0	100.0	
Can ICT in tax collection introduce a new cumbersome procedure	Yes	96	53.3	53.3	53.3
	No	84	46.7	46.7	100
	TOTAL	180	100	100	

Source: Survey 2018

As shown in Table 4.7, 97.8% of the respondents agreed and 2.2% disagreed with the introduction of ICT in tax collection systems. This indicates that the attitude of ERCA staff and large taxpayers towards ICT in tax collection systems is good and beneficial. It may be attributed to either the level of training that ERCA management has provided or the participants' individual efforts to acquire skills and knowledge. "Understanding how and why people accept or reject an information system has proven to be one of the most challenging issues in information system research", (Delone, 1992). The next section analysed and discussed the benefits of using ICT in tax collection systems.

In order to establish the benefits of using ICT in tax collection, the respondents were asked if they agreed that the use of ICT in tax collection is beneficial, as shown in Table 4.7 above.

98.9% of the respondents indicated that the use of ICT in tax collection is beneficial, while 1.1% of the respondents disagreed based on Table 6.8 shown above. The results from Table 6.8 above implied that it is easier to use ICT in tax collection than the manual procedure.

The findings of this study are similar to various policy blueprints produced over the years that argued that “ICT was essential to increase transparency and accountability of government agencies, reduce transaction costs in service delivery and enhance participation of citizens, businesses and civil society in the workings of governments” (Otieno et al., 2013). The findings of this study are similar to the findings of other scholars such as Vasudevan (2007), who observed that “automating customs administration leads to increased collection of duties and taxes due to the uniform application of laws and regulations; the automated calculation of tax dues; and built-in security.” Previous scholars such as Dabholkar, (1994), Mick, and Fournier (1998), as cited in Lai et al. (2004), found that “a combination of positive and negative beliefs about technology underlies the domain of technology.” Dabholkar (1994) found that “individuals simultaneously harbour positive (favourable) and negative (unfavourable) beliefs about technology; however, the positive beliefs propel individuals towards new technologies, while negative beliefs may hold them back”. Dorasamy et al. (2010) found that “taxpayers have intentions to use e-tax systems as they perceived that the tax submission method via internet is more convenient and perceived readiness towards using technology is paramount to their belief for using e-tax systems”. In the next section, the reduction in cumbersome manual procedures because of the use of ICT in tax collection was be analysed and discussed.

In order to establish the reduction in cumbersome manual procedures, the respondents were asked if they agreed that the introduction of ICT in tax collection has reduced cumbersome manual procedures as shown in Table 4.7 above. Table 4.7 shows that 176 respondents, representing 97.8%, mentioned that they agreed with the introduction of ICT. This indicates that the system has reduced delays in all processes and operations regarding tax collection.

The findings of this study, as shown in Table 4.7 above, indicate that the introduction of ICT in tax collection has reduced cumbersome manual procedures and thereby improved the relationship between the ERCA and taxpayers. ICT enhances efficient and effective utilization of resources; improves establishment of information and service delivery; reduces the cost

incurred in enforcing compliance of tax collection; reduces transaction costs for the taxpayers through online products and services; provides a forum for taxpayers' (companies) participation in tax activities; and ensures that services are available to taxpayers over a wide range of access tools commonly used by citizens and businesses. The questions on new cumbersome procedures related to the use of ICT in tax collection were discussed in the next paragraph.

In order to establish that ERCA members of staff and large taxpayers have acquired the necessary ICT skills to do their work faster in comparison to manual procedures, the participants were asked to indicate if the use of ICT in tax collection has introduced a new cumbersome procedure, as shown in Table 4.7 above.

Table 4.7 shows that 96 respondents out of 180, 53.3% disagreed that the use of ICT in tax collection has introduced a new cumbersome procedure. However, 46.7% of the respondents did feel that the use of ICT in tax collection has introduced a new cumbersome procedure and this may be because of other factors. It indicates that ERCA staff and taxpayers has acquired the necessary skills and knowledge, improved interaction between tax authority and taxpayers and fostered transparency and accountability in administration of tax collections.

The 46.7% in Table 4.7 above suggests that there are other factors that may influence the adoption of the use of ICT in tax collection such as age, gender, educational background, cultural factors, management influence, and political situation. The results of this study contradict the results of the previous studies such as Kun et al. (2008), which stated that "the e-tax system in Turkey could only be used by Certified Public Accountants given the complexity of the system"; Muwonge (2011) identifies that, in "Uganda, which is an exceptional case due to the government's commitment to the development of cyber infrastructure because the system was designed to be used by nationals whether professional tax consultants or not". In relation to the findings of this study, Victor-Nyambo (2009), as cited in Chatama (2013), found that ICT helps to maintain consistent record keeping, timely access to such records and fast processing of returns, which together improved the performance of tax revenue. Other scholars, such as Mugisha (2001), attest that the use of ICT enhances timely access to accurate and relevant information, which is a prerequisite for good planning, programming, and implementation. It also enhances monitoring and evaluation, which forms the key component in development.

Evidence shows that the effective use of ICT tools to support e-government (e-tax) services heavily depends on the availability of affordable, reliable, relevant technology infrastructures, skilled manpower and a well-developed national ICT policy Kamar ( 2009).In the next section, Changes brought by introduction of ICT in tax collection systems is analysed and discussed.

#### 4.4. The adoption of ICT and revenue generation

**Table 4.8 Calculated WAS for Questions II1; II 2; II 3; II 4, II 5**

		SA	A	N	DA	SA	WAS
II1	ICT minimises errors	110	64	2	1	3	817/180
		61.11%	35.56%	1.11%	0.56%	1.67%	4.54
II2	ICT facilitates income tax collection process	87	91	0	1	1	802/180
		48.33%	50.56%	0.00%	0.56%	0.56%	4.46
II3	ICT allows using available data more effectively	45	15	0	0	0	285/60
		75%	25%	0%	0%	0%	4.75
II4	ICT helps to file company income tax (CIT) returns	116	61	0	2	1	829/180
		64.44%	33.89%	0.00%	1.11%	0.56%	4.60
II5	ICT facilitates faster payments of CIT than manual system	145	29	1	3	2	852/180
		80.56%	16.11%	0.56%	1.67%	1.11%	4.73

Source: Case study result, 2018

The above table shows the calculated WAS on a Likert scale of five questions regarding the contribution ICT in the tax collection system. Question II1 (ICT minimises errors in tax collection) show that the use of ICT in CIT collection has minimised errors in CIT return processing where 61.11% of respondents strongly agree and 35.56% agree. According to the ERCA Staffs the adoption of ICT in tax collection plays a big role to minimize errors during tax declaration while many calculation done automatically by the system.

As can be inferred from the above table on question II2 (Using ICT facilitates the company income tax collection process), 48.33 of the respondents strongly agreed and the rest 50.56% of the respondents agreed that ICT has a benefit for saving time of taxpayers to complete tax payment process .while the remaining 0.56 % disagree and 0.56 strongly disagree on facilitation of ICT in tax collection process .That question generated the lowest WAS of 4.46.

As indicated in Table 4.8 above, 75% of the respondents agreed very much on the effect of ICT for availing Data in more effectively and remaining 25% agreed. On this question about knowing if ICT allows using available data more effectively all respondents were agree on it why it generated high WAS of 4.75.According to the response of civil servants the improvement of ICT brought is significant because of the application of software program that helped to easily store and use a large amount of taxpayer's data and file in a well-organized manner. It also improved the system of data processing and presentation.

The above Table confirms that 64.44% strongly agreed, 33.89% agreed, 1.11% disagree, and 0.56% strongly disagree about the contribution of ICT for company income tax return. As seen in table 4.8, the question II5 for looking if ICT facilitates faster payments of CIT than manual system the 80.56 of the respondents strongly agree, 16.11% agree, 0.56 do not know, 1.67 disagree and remaining 1.11 strongly disagree.

The above results corroborate the findings of Zhou and Madhikeni (2013) and Muthama (2013), who reported that automated systems have been proven capable of introducing massive efficiencies to business processes that can result in increased revenue collections. The finding of this study is very similar to that of Chatama (2013), who found that in 1996, the Tanzania Revenue Authority used to collect US\$ 25 million per month, but the collection rose to US\$300 million per month in 2007; e-tax also enhanced efficiency, data security and even transparency of processes, the release of staff from unproductive work, and the possibility of electronic transfer and exchange of data with government and nongovernmental institutions (e-government). Through e-tax, there is promotion of equity, communication with taxpayers,

#### 4.4. The impact of ICT on tax compliance and the cost

Table 4.9. ICT on tax compliance and the cost

		SA	A	N	D	SD	WAS
		5	4	3	2	1	
II6	ICT enhances voluntary compliance	47	10	2	1	0	283/60
		78.33%	16.67%	3.33%	1.67%	0.00%	4.72
II7	ICT reduces costs of running and maintaining revenue agencies	53	7	0	0	0	293/60
		88.33%	11.67%	0.00%	0.00%	0.00%	4.88
II8	ICT reduces the costs of legislative enactment relating to the tax system	43	15	1	0	1	279/60
		71.67%	25.00%	1.67%	0.00%	1.67%	4.65
II9	ICT ensures greater level of compliance and tax revenue increase	35	19	3	2	1	265/60
		58.33%	31.67%	5.00%	3.33%	1.67%	4.42
II10	ICT enables quick detection for non-payment of CIT	52	8	0	0	0	292/60
		86.67%	13.33%	0.00%	0.00%	0.00%	4.87
II11	ICT increases revenue collection	44	10	3	2	1	274/60
		73.33%	16.67%	5.00%	3.33%	1.67%	4.57
II12	E-tax system reduces processing time and shortened responding to taxpayers queries	54	6	0	0	0	294/60
		90.00%	10.00%	0.00%	0.00%	0.00%	4.9

Source: survey, 2018

### ***ICT enhances voluntary compliance***

We can observe in above table 4.9, the strongly agreed and agreed categories, and the majority (78.33% and 16.67%) of respondents in Table 4.9 above shown that ICT enhances voluntary compliance while 3.33% and 1.67% of the respondents disagreed or Neutral categories that ICT enhances voluntary compliance of company income tax collection.

The findings agree with Russel (2010), who suggested that improving tax compliance needs to have long-term reform efforts, that starts with strengthening the organization as well as management of the revenue agency, implementing robust collection systems notwithstanding building capacity in core tax administration functions (registration, filing and payment enforcement, debt collection, audit, taxpayer services, and processing of appeals). Gordon (2010), further argues that the technology issue for tax authorities is regarded to be different to that of their taxpayers. There indeed appears to be a general acceptance that technology is likely to play a very essential role in tax management and as such most authorities have invested heavily in the recruitment for or developing their computer audit capabilities.

### ***ICT reduces costs of running and maintaining revenue agencies***

As indicated in above table 4.9, the 88.33 strongly agree while remaining 11.67% agree that ICT reduces costs of running and maintaining revenue agencies that confirmed by calculated WAS of 4.88. In the same line of argument, work conducted by Isaac and Lilian (2010) found that the adoption of automation in URA was aimed at achieving efficiency and increased revenue, and the evidence suggests a positive correlation of automation and the cost of tax administration, automation and effectiveness of revenue collection.

### ***ICT reduces the costs of legislative enactment relating to the tax system***

As the above Table 4.9 reveals that, 71.67% of the respondents strongly agreed, 25% agreed, 1.67% do not know, and the 1.67% strongly disagreed about the success of ICT for reducing the costs of legislative enactment relating to the tax collection system.

The study also agrees with studies on the operating costs of taxation, compliance costs for taxpayers and administrative cost for revenue authorities have flourished in recent years (Evans, 2003). Technology use is key for the tax administration activity given that large set of data must be processed. Nevertheless, the technology needs not be considered the objective, quite opposite it needs to be regarded as a means to gain efficiency and cost reduction in overall tax administration. The tax authority and the taxpayers therefore desire effective tax

administration. 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 (1991) 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 was be success fully realized (Quintana, 2006).

***ICT ensures greater level of compliance and tax revenue increase***

As the above Table 4.9 reveals that, 58.33%of the respondents strongly agreed, 31.67%agreed, 5.00% do not know, 3.33% disagree and the 1.67% strongly disagreed about if *ICT* ensures greater level of compliance and tax revenue increase.

The findings affirm that indeed a higher rate of compliance helps the government to collect the same revenue with either lower tax rates and/or a reduced tax authority budget. It means that a high response is likely result from a combination of the two; however, it can be assumed that the government simply reacts to a higher than-expected compliance rate. Firstly, an increase in compliance results from a higher probability of detection (Alma, et al., 2010). A reduction in the tax authority budget on the other hand results in the probability of detection back to its original level. In the event that increase in the audit rate is the reason behind the higher likelihood of detection, the budget cut comes into play to completely restore the initial situation, with the only gain being the reduction in administrative expenses. A higher rate of tax compliance rate can well be explained by a shrewder selection of taxpayers for audit (Hunter and Nelson, 2006). It means therefore that improving the selection of taxpayers for audit provides helping collecting the same amount with lower administrative costs. It also minimizes the dispersions that can exists in the effective tax rate given that it focuses the audit efforts on individuals considered which most likely to evade. In the same reasoning, the effective tax rate among taxpayers with a lower probability of evading is likely to decrease. Finally, higher rates of tax compliance can be largely explained by a rise in non-compliance costs. The tax administration can as well increase compliance in the event that it can be more responsive to taxpayers“ needs (Thurman, 2010).



### ***ICT enables quick detection for no-payment of CIT***

As indicated in Table 4.9 above, 86.67% of the respondents strongly agreed and remaining 13.33% agree on the effect of ICT for quick detection for no-payment of CIT.

Additionally findings affirmed that All the tax information systems including data bases need to be integrated and also have available the tools required to combat tax non-compliance; facilitate tax compliance and satisfy information requirements at the operational, managerial and internal control levels for the effective management of a modern Tax Administration (Allink and Kommer, 2000).

### ***ICT increases revenue collection***

As the above Table 4.9 reveals that, 73.33% of the respondents strongly agreed, 16.67% agreed, 5.00% do not know, 3.33% disagree and the 1.67% strongly disagreed about if ***ICT*** increase revenue collection.

The results corroborate the findings of Zhou and Madhikeni (2013) and Muthama (2013), who reported that automated systems have been proven capable of introducing massive efficiencies to business processes that can result in increased revenue collections.

### ***E-tax system reduces processing time and shortened responding to taxpayers queries***

The above Table 4.9 shows that, 90.00% of the respondents strongly agreed and remaining 10.00% agreed that E-tax system reduces processing time and reshortened responding to taxpayers queries.

In addition, Azmi and Kamarulzaman (2010) found that various research studies such as Hoffman et al. (1995), Alba et al. (1997) and Peterson et al. (1997) have discussed several benefits of online systems to consumers, among them are that the internet allows consumers to conduct transactions with a few mouse clicks, and this convenience can serve as a key driver of e-tax adoption. Additionally, online systems provide many aspects of “convenience” to taxpayers (that is time to file, place to conduct the filing, ease-of-use, information searching and online transactions) at a degree that is not available through traditional channels. Other scholars, such as Turner and Apelt (2004), posit that the concept of electronic tax payment originated in the USA, although other technology-enabled nations have moved quickly to utilize the modality, including Australia, Canada, England, Germany, India, Singapore and Taiwan. Centeno et al. (2004) revealed that online e-tax payment systems help governments

cope efficiently with tax losses and tax evasion on the part of their citizens, which tends to increase tax revenues; at the same time, users of the system also benefit in terms of time and cost saving, resulting in simpler and easier tax payment processes. Mugisha (2001) identifies 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. This forms the key component in development. Some scholars emphasize that the spread of ICT use in various sectors brings new opportunities for economic growth and development. New organisation design, new markets, new products and improved services are being created, which bring with them new sources of revenue. Crede (1998) reveals two facts: first, ICT has the capacity to increase productivity and create more cost effective output with the same or less inputs, and development of ICT applications for business use alters the approach to organisations' functions and eventually improves their services and products. Due to the complexity of large taxpayers, they present a major tax compliance risk to revenue bodies, considering their critical role in revenue collection; it is the responsibility of the tax administration to be ahead of large taxpayers in technology in order to curb cheating (Suluo, 2003).

#### 4.5 The challenges of ICT application in the tax collection system

Table 4.10 the challenges of ICT application in the tax collection

		SA	A	N	D	SD	WAS
		5	4	3	2	1	
II13	ICT infrastructure and facilities are accessible to all members	8	22	7	18	5	190/60
		13.33%	36.67%	11.67%	30.00%	8.33%	3.17
II14	staff are trained and educated on E-tax filing and payments system	17	28	7	3	5	229/60
		28.33%	46.67%	11.67%	5.00%	8.33%	3.82
II15	Staffs are committed to lead all changes brought by adoption of ICT in tax collection systems	13	27	5	10	5	213/60
		21.67%	45.00%	8.33%	16.67%	8.33%	3.55
II16	Network connection has enabled staff to handle more taxpayers	8	14	11	18	9	174/60
		13.33%	23.33%	18.33%	30.00%	15.00%	2.90

Source: survey, 2018

### ***ICT infrastructure and facilities are accessible to all members***

Above table 4.10 shows the 13.33% strongly agree, 36.67% agree, 11.67% do not know, 30.00% disagree while remaining 8.33% strongly disagree that ICT infrastructure and facilities are accessible to all members.

The results corroborate the findings to (Lishan, 2008), Ethiopian ICT infrastructure is one of the lowest in the world and the development of a broad-based national ICT policy in Ethiopia began in early 1997. The average tele density of Ethiopia on respect of fixed line is found so low at about 1.2. According to (Aman, 2010) [2], Conforming to the African picture, the mobile converge appears better and is reported to be about 4.4. The data of the Ethiopian telecommunication corporation (ETC), which is sole telecom International Journal of Multidisciplinary Research and Development services provider of the nation, tells us that Internet subscription is 0.056 where Internet usage is reported by ITU to be 0.42 in 2008. Concerning usage, the study commissioned by the Ethiopia ICT Development Authority (EICTDA), which is the public administrative agency, tells us that the proportion of Ethiopians living in Ethiopia who have ever used the Internet ever since it is launching in 1998 is just 7.74% of the total population. Speaking of broadband interest subscription, the whole country or nearly 73 million has just 1898 broadband subscribers and that puts the proportion per 100 inhabitants at 0.0026. Similarly, the number of computers per 100 inhabitants is as low as just 0.31, while the percentage of people who have ever used computer is just 3.12 of the total population. Another survey on different governmental offices or the federal and regional levels shows that only 27% of public servants are availed computer and 13% availed printers. According to the (ITU world telecommunication/ICT/indicator data) report on Nov, 2015 the Ethiopian average ICT user reaches to 1.1,1.5,1.9 and 2.9 per100 inhabitants in the year 2011,2012,2013 and 2014 respectively. From the ITU report on July, 2014 Ethiopia has a share of 0.06% ICT usage from the world ([www.internetlivestats.com](http://www.internetlivestats.com)).

### ***Staff are trained and educated on E-tax filing and payments system***

As indicated in the above table 4.10, 28.33% strongly agree, 46.67% agree, 11.67% do not know, 5.00% disagree and the remaining 8.33% strongly disagree.

One of the critical challenges in the application of process of ICT based Tax administration is shortage of skilled human resource. Technical skills for the implementation of ICT infrastructure as well as for using and managing ICT based Tax administration are necessary.

Thus, the development of human resource is very important for the success of improved ICT based Tax administration, in increasing employee productivity, transparency and government efficiency and effectiveness.

***Staffs are committed to lead all changes brought by adoption of ICT in tax collection systems***

The above table 4.10 indicates, 21.67% strongly agree, 45.00% agree, 8.33% do not know, 16.67% disagree and remaining 8.33% strong disagree about if Staffs are committed to lead all changes brought by adoption of ICT in tax collection systems. Leadership is one of the main driving forces for the application of ICT on TA activities. In order to effectively implement the ICT policy and program the administrative and political leaders should be committed on the issue because if the leader goes the organization goes however, if the leader sleeps the organization sleep. Therefore, government officials and workers should have common understanding and awareness about the use of IT with in the management body of each infrastructure uses by taking action on allocating adequate budget for purchasing ICT equipment and for training facilities.

***Network connection has enabled staff to handle more taxpayers***

Based on statistics in above table 4.10, 13.33% strongly agree, 23.33% agree, 18.33% do not know, 30.00% disagree while the remaining 15.00% strong disagree about if Network connection has enabled staff to handle more taxpayers.

To solve the problem of network connection, the network of the system should be improved by collaborative work of the ERCA and Ethio-telecom to increase the speed of execution. To make the service delivery more transparent the revenue office has to provide information on-line to the customers (taxpayers) and stakeholders by using broadband-networked internet. Moreover, the ERCA should improve internet connection to create on-line taxation service delivery with the cooperation of different stakeholders.

The next chapter considers conclusions and makes appropriate conclusions and recommendations for ERCA.

#### **4.6. Findings in Relation to Research Objectives**

The aims and objectives of the study provide valuable knowledge regarding the impact of ICT on tax collection in Ethiopia. This section discussed a self-appraisal of this study, and the relevant question to answer here is the following: “Have the research objectives been met as stated in 1.4 above?” The answer to this question is, “Yes”.

**Objective 1:** To investigate the changes brought by introduction of ICT on tax collection systems; in chapter 4, this current study examined the first objective through the introduction of ICT has enhanced company income tax collection and improved revenue generation. This was done by exploring the changes brought by introduction of ICT on tax collection using data analysis surveyed from field. The findings revealed with strong support that the level of effectiveness of revenue collection realized increased with the use of ICT in company income tax collection, as discussed in of chapter 4. It also found that e-payment addressed and reduced trapped funds and frauds in the collection system. It found that the use of ICT in CIT collection prevents tax evasion, prevents corrupt practices of tax officials inherent in manual transactions processing and minimizes the issue of diversion of government funds to individual accounts. It also led to improvement in the revenue base of the government. Additionally, all the taxes collected on a daily basis by the ERCA are placed in the Central Bank. The result indicated that the use of ICT in company income tax collection has improved revenue generation by allowing tax data entry, automated processing, computation and analysis, as well as automatic production of tax reports.

**Objective 2:** To identify the impact of ICT on the revenue generation; The second research objective was to evaluate the impact of ICT on compliance and the cost incurred in enforcing company income tax collection compliance and to evaluate the impact of ICT for tax administration on side of taxpayers. This was done by using the analysis of opinions from respondents. It found that the use of ICT in company income tax has reduced transaction costs for the ERCA, in terms of cost incurred in enforcing company income tax compliance. It has made it much easier for the tax authority to provide company income taxpayers’ services and facilitate proper and fair taxation; taxpayers are operating within the regulations of the tax systems, which have increased company income tax compliance. It found that the e-tax payment system has made it possible for the ERCA to monitor lapses in the collection of

company income tax process, identify individual companies who were skimming revenue and reduce the number of fraudulent submissions. Using ICT in company income tax collection in Ethiopia enables tax authorities to identify and address non-compliance. The findings revealed that 86.67% of the respondents of the surveys agreed that the use of ICT in company income tax collection in Ethiopia has detected non-compliance. The analysis also indicated that 90% of the respondents stated that the use of ICT in company income tax collection has reduced cost incurred in enforcing the compliance of company income tax compliance in Ethiopia, and corruption has been reduced since there is no regular contact and negotiation between taxpayers and tax officers. Taxpayers can pay all types of taxes without moving from one tax office to another. These factors used to cause low compliance before the use of ICT to collect company income tax. The analysis and findings in chapter 4, section 4.4 indicated that 78.33% of the respondents of the surveys agreed that ICT usage in the company income tax collection has enhanced voluntary compliance. This study found also that the adoption of ICT in tax collection present different benefits includes; save time to complete tax payment, saving money and energy to complete tax assessment, make the tax payment system fast and convenient, increase transparency intermesh of access of information, and increase the efficiency and effectiveness of service delivery on the side of taxpayers. Whereas on the side of Revenue office, increase quality and quantity of tax related information, reducing tax evasion and fraud, improve tax revenue assessment and collection, effective taxpayers data encoding and for using SIGTAS software and cash register machine are the major benefits identified by the study. This objective has been met.

**Objective 3:** To assess the challenges of ICT application in the tax collection system

The third and final research objective was addressed in chapter 4, by rigorously evaluating the challenges in the application of ICT in Tax collection. Study found major challenges that limit the application of ICT in the office. Inadequate ICT infrastructure provision in the office is the major challenges for effective application of ICT for effective tax administration. Specially, computer and fixed phone are not adequate in the office. Lack of leadership commitment is another challenge and city administrators are not active and reluctant to allocate adequate budget and inefficient to bring better solutions for the existed problems. As the findings, insufficient training facilities are another major challenge in the application of ICT in the office and as a result, the skill of ICT users is quite in adequate. The study found that, there is a problem regarding on network connection and poor network connection is a series problem because it creates slow motion in systems and affects the service delivery of tax assessment

and collection, and it delays in decisions making of taxpayers complain. Furthermore, since ERCA uses SIG Tax Database for all purpose including VAT and e-tax the database most time is too busy because of high traffic that cause taxpayers to not declare on time.



## **Chapter Five**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter is made up of four sections, namely summary, discussion, conclusions, and recommendations following that order. The first section presents a summary of the study, which includes the study objectives, methodology as well as the findings. The second subsequent section presents a discussion of the major findings of the study. The third section offers conclusions based on the specific objectives, with the help of the findings and results obtained in chapter four. The final sub-section presents the recommendations for improvement based on the specific objectives. It also offers the recommendations for future studies.

#### **5.2 Summary**

The purpose of the study was to establish the impact of adopting ICT in tax collection systems in Ethiopia. The study was guided by the following research questions: What are the changes brought by the introduction of ICT to the tax collection systems? How is really the impact of ICT on tax collection system? What are the challenges of ICT application in the tax collection system?

To achieve the above, the study adopted a survey research design in order to obtain the data that is necessary, which in essence facilitated the collection of the private data as a way of getting into the research objectives. The total population of interest for the study was consist of ERCA staffs in Addis Ababa that are 423 and Large Taxpayers in Addis Ababa who currently total 1,146. Large taxpayers as opposed to large or small taxpayers are suited for the study because of their opercula characteristics.

### **5.3 Discussion**

The ERCA has benefited from the use of ICT in tax collections in the following ways: it has shortened lengthy and cumbersome manual procedures; ICT usage has minimised errors in return processing and in assessment; processing time and response time to taxpayers queries have been reasonably shortened; all computers at ERCA are connected through the local area network; with the introduction of ICT, revenue collection performance was in most cases more than 100%; and the use of ICT in tax collection reduces the cost of legislative enactment relating to the tax system and cost incurred in enforcing compliance of company income tax.

The study also found that the use of ICT in tax collection facilitated efficiency and effectiveness of company income tax collection operations, thereby meeting the target of revenue generation and efficiency gains; quality of service delivery to taxpayers; transparency, anticorruption and accountability; an increase in the capacity of the ERCA; network and community creation; and improvements in the quality of decision making. The use of ICT in tax collection has made it much easier for the ERCA to monitor lapses in the collection process, identify individuals who were skimming revenue and reduce the number of fraudulent clearances.

### **5.4. Conclusion**

The findings of this study revealed that use of ICT in company income tax collection has blocked the leakages in tax systems such as tax evasions, corrupt practices of tax officials and the issue of diversion of government funds to individual accounts; it has also increased company income tax compliance. Additionally, the study has shed more light on the usage of ICT in company income tax collection and identified the benefits and challenges of the e- tax payment system to ERCA and Taxpayers. It improves their attitudes towards e-tax as a means to file tax returns undoubtedly.

## 5.5 Recommendations

The following were the recommendations for improvement and further studies. These recommendations were drawn from the findings.

✓ ERCA needs to involve Large Taxpayers while developing its systems to ensure that they take care of the needs of both the Authority and the Large Taxpayers. This was also ensure that they are user friendly and are efficient to bring advantage over manual systems and enhance tax collection.

✓ The study acknowledges the role that technology plays in enhancing tax compliance among the Large Taxpayers and recommends that ERCA should sensitize the Large Taxpayers on the systems it has in place and how they was be of advantage to them in terms of increasing their compliance levels.

✓ ERCA should Provide Sufficient and good ICT infrastructure like computer and internet connection in the office for better application of ICT for satisfaction of customers (taxpayers).

✓ Leadership is one of the main driving forces for the application of ICT on TA activities. In order to effectively implement the ICT policy and program the administrative and political leaders should be committed on the issue because if the leader goes the organization goes however, if the leader sleeps the organization sleep. Therefore, government officials and workers should have common understanding and awareness about the use of ICT with in the management body of each infrastructure uses by taking action on allocating adequate budget for purchasing ICT equipment and for training facilities.

✓ One of the critical challenges in the application of process of ICT based Tax collection system is shortage of skilled human resource. Technical skills for the implementation of ICT infrastructure as well as for using and managing ICT based Tax collection are necessary. Thus, the development of human resource is very important for the success of improved ICT in tax collection, in increasing employee productivity, transparency and government efficiency and effectiveness. Therefore, it is recommended that the ERCA should prepare and provide practical and sufficient ICT related training to the staffs to make them more competent and confidential on their work.

## **5.6 Suggestions for Future Research**

This study was limited to the number of respondent and unable to see the comparison of the manual company income tax collection system with that of E-tax but other directions for future research are the impact of ICT value added tax (VAT).

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# Appendix

**QUESTIONNAIRE**  
**FOR LARGER TAXPAYERS**

Kindly answer all the questions by ticking in the boxes or writing in the spaces provided

1. Gender? Female  Male

2. What is your age? 20 and Below   
21-29   
30-39   
40-49   
50-59   
60 Above

3. What is your current position in the Company?.....

4. How many years' experience have you had in your current position?

Below 2 years   
3-5 Years   
6-10 Years   
Above 10

5. What is your qualification?.....

...

6. Do you agree with the introduction of ICT in company income tax collections?

Yes  No  Don't know

7. Can the use of ICT be beneficial in CIT collections? Yes  No  Don't know

8. Can introduction of ICT in CIT collections reduce cumbersome manual procedures? Yes  No  Don't know



10. Can ICT in CIT collections introduce a new cumbersome procedure?

Yes  No  Don't know

**Which Sector does your company fall into:**

	Sector	Tick
1	Agriculture	
2	Wholesalers	
3	Banks	
4	Insurance	
5	Domestic Excise	
6	Manufacturers	
7	Government Bodies	
8	Construction	
9	Service	
10	Oil & Transport	

Kindly state your level of agreement or disagreement with the following statements by putting a tick against that which best describes your position. The scale ranges from Strongly Agree (5), Agree (4), Uncertain (3), Disagree (2) and Strongly Disagree (1)

		1. Strongly Disagree	2. Disagree	3. Neither Agree nor Disagree	4. Agree	5. Strongly agree
1	Using ICT to Complete Tax Payment reduces time					
2	ICT to improve efficiency and convenient tax payment system					
3	ICT helps for Saving Money and Energy to Facilitate Tax					

	Assessment					
4	ICT Increases Transparency in terms of Access of Information					

**QUESTIONS**

**For Tax Administrators**

## Demographic Profile

**Kindly answer all the questions by ticking in the boxes or writing in the spaces provided**

1. Gender? Female  Male
2. What is your age? 20 and Below   
21-29   
30-39   
40-49   
50-59   
60 Above
3. What is your current position?.....
4. How many years' experience have you had in your current position?
- Below 2 years   
3-5 Years   
6-10 Years   
Above 10
5. What is your qualification?.....  
...
6. Do you agree with the introduction of ICT in company income tax collections?
- Yes  No  Don't know
7. Can the use of ICT be beneficial in CIT collections? Yes  No  Don't know
8. Can introduction of ICT in CIT collections reduce cumbersome manual procedures? Yes   
No  Don't know

10. Can ICT in CIT collections introduce a new cumbersome procedure? Yes



No



Don't know



**Part II: The ICT and Tax collection Systems**

Kindly state your level of agreement or disagreement with the following statements by putting a tick against that which best describes your position. The scale ranges from Strongly Agree (5), Agree (4), Uncertain (3), Disagree (2) and Strongly Disagree (1)

Note:

**1. Changes brought by introduction of ICT in tax collection systems**

		1. Strongly Disagree	2. Disagree	3. Neither Agree nor Disagree	4. Agree	5. Strongly agree
		(1)	(2)	(3)	(4)	(5)
1	The use of ICT has minimised errors in company income Tax return processing					
2	Using ICT facilitates the company income tax collection process					
3	ICT allows using available data more effectively to improve forecasting of fiscal revenue					
4	Using the ICT helps to file company income tax (CIT) returns					
5	The ICT system facilitates faster payments of CIT than manual system					

## 2. The impact of ICT on tax collection systems

		1. Strongly Disagree	2. Disagree	3. Neither Agree nor Disagree	4. Agree	5. Strongly agree
1	ICT enhances voluntary compliance					
2	Using ICT to collect tax revenue (CIT) reduces costs of running and maintaining revenue agencies					
3	The use of ICT in CIT collections reduces the costs of legislative enactment relating to the tax system					
4	IT in CIT collections ensures greater level of compliance and tax revenue increase					
5	ICT enables quick detection for non-payment of CIT					
6	Using ICT in collection of CIT increases the overall revenue collection					
7	E-tax system reduces processing time and					

reasonably shortened responding to taxpayers queries					
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**The challenges of ICT application in the tax collection system**

		1. Strongly Disagree	2. Disagree	3. Neither Agree nor Disagree	4. Agree	5. Strongly agree
1	The ICT infrastructure and facilities are accessible to all members of staff					
2	All members of staff in ERCA are trained and educated on E-tax filing and payments system					
3	E-tax system has enabled ERCA staff to handle more taxpayers in a given period compared to manual system					
4	E-tax system has enabled ERCA staff to handle more taxpayers in a given period compared to manual system					
5	There are					



	expectations of improvement with the ICT in CIT collections in the future					
6	IT also has the potential to improve interaction between tax authority and taxpayers, fostering transparency and accountability in administration of company income tax collections.					

7. Which area do you anticipate future improvements to be implemented concerning the e-tax system in collections of CIT?

.....

.....

.....

.....

.....

8. Do you face any challenge through the use e-tax system in collections of CIT as a tax officer? Yes  No

If it is Yes, what are some of the challenges?

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.....

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