THE IMPACT OF INFORMATION TECHNOLOGY ON INTERNAL AUDITING IN TANZANIAN ORGANIZATIONS: A CASE OF SELECTED ORGANIZATIONS FROM DAR ES SALAAM REGION

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THE IMPACT OF INFORMATION TECHNOLOGY ON INTERNAL AUDITING IN TANZANIAN ORGANIZATIONS: A CASE OF SELECTED ORGANIZATIONS FROM DAR ES SALAAM REGION

By

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A Dissertation Submitted in Partial/Fulfillments of the Requirements for Award of the Masters of Accounting and Finance (MSc A&F) of Mzumbe University

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CERTIFICATION

The under signed certifies that she has read and hereby recommends for acceptance by the Mzumbe University a dissertation entitled; “The Impact of Information Technology on Internal Auditing in Tanzanian organizations: A case of selected organizations from Dar es Salaam region” which has been submitted in partial fulfillment of the requirement for the Masters of Accounting and Finance (MSc A&F) of Mzumbe University.

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DECLARATION
AND
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I, Wesly Cyprian Shilla declare that this dissertation is my own original work that it has not been presented and will not be presented to any university for similar or any other degree award.

Signature……..
Date …….

DEDICATION

To my mother Mary Ikambo the woman who is the source of my courage and inspiration" Mama I dedicate this work to you in return of your concern to me. You carried me on your back, you fed me and you watched over my first uncertain steps.

ACKNOWLEDGEMENT

In the course of having this work completed, I benefited from many individuals and institutions to whom I feel greatly indebted.

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ABSTRACT

It is now an undeniable truth that Information Technology (IT) has grown to the extent of influencing almost every aspect of organizational activities. This study specifically focused on the impact IT has had on internal auditing in Tanzanian organizations.

The study is based on fieldwork that concentrated in Dar-Es-Salaam region and involved internal auditors and IT staffs, audit managers, senior management officials from 40 Corporations/organizations belonging government institutions, private companies, public companies and parastatals. The study targeted those organizations with internal audit departments and applies IT in their duties.

To illustrate some of these "impacts" 40 Tanzanian organizations with computerized Information Systems (IS) were studied. The study examined IFAC suggested IT evaluations by internal auditors, the extent to which audit is supported by IT solutions, the familiarity and applications of CAATs by internal auditors, internal auditors involvement during system development and the overall ability of internal auditors to audit computerized systems. The study also looked into the internal auditor's qualification requirements resulting from IT influence.

The study found that the practice of internal auditing in Tanzanian organizations has not so far adequately changed to cope with the increasing computerization of IS. In most of Tanzanian organizations internal auditors are well qualified and well with relevant experience except that they lack better IT knowledge and infrastructure to simplify their work. Most of internal auditors are still using the same techniques and tools when auditing computer-based applications as they used, when these were performed manually.

The researcher hence recommends that the NBAA, educational institutions, auditing firms, and Tanzanian organizations, including the Government, make stronger and coordinated efforts to minimize the possibility of economic damage through a lack of proper internal auditing of computerized IS.

LIST OF ABBREVIATIONS

AAA	-	Audit Command Language
IS	-	Information System
ISA	-	International Standard on Auditing
SAS	-	System Audit Standards
ISSA	-	International Standards on Systems Auditing
CAATs	-	Computer Assisted Audit Techniques
CATTs	-	Computer Assisted Tools and Techniques
CIA	-	Certified Internal Auditor
CIS	-	Computerized Information System
CISA	-	Certified Information System Auditor
CPA	-	Certified Public Accountants
EDP	-	Electronic Data Processing
DBMS	-	Data Base Management Systems
LDC	-	Least Developed Countries
IFAC	-	International Federation of Accountants
GAP	-	Generalized Audit Packages
GASP	-	Generalized Audit Software Packages
ISACA	-	Information Systems Audit and Control Association
NBAA	-	National Board of Accountants and Auditors
I T	-	Information Technology
MAF	-	Masters of Accounting and Finance
PC	-	Personal Computer
ISACF	-	Information Systems Audit and Control Foundation
SPSS	-	Statistical Package for Social Science
URT	-	United Republic of Tanzania
USA/US	-	United States of America

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CHAPTER ONE

INTRODUCTION AND PROBLEM SETTING

1.1 Introduction

This chapter consists of background information, statement of the problem, General Objective, Specific Objectives, research questions and Significance of the study.

1.2 Background of the Study

In most parts of the developed world IT has been in place in both accounting and financial information systems for some time now, in Tanzania it is just gaining momentum. The late coming of computerized information systems in Tanzania has its background in 1974 when the United Republic of Tanzania (URT) banned importation of computers and television sets (Government prohibition notice no.142). The ban led to most systems running manually or mechanically, a thing that was against the trend of the growing global technological culture.

It was not until 1993 that the ban was lifted (Government revocation notice no.245). The revocation order, together with the persistent fall in prices of computer hardware and software, and the worldwide popularity of computerized systems have meant that Tanzania could not afford to remain an island in this globalized IT village. The purpose of auditing and Information System (IS) is to assess that the system functions in the way it was planned. Because of the speed of technology developments and the increasing complexity of information infrastructures, auditing I S is becoming more and more difficult (Lovata, 1990).

Technology continues to change the ways in which auditors perform their duties. It has created new opportunities and risks (Bishop 1997). IT changes the rules of security, availability, reliability, and allowable margin of error (Bishop 1997)

Auditors must thoroughly familiarize themselves with revolutionary computer technology changes. Such changes impact the way accounting is practiced, the way management services are provided, the types of security and control measures

installed in computer systems, and the way auditing is conducted (Cerullo et al 1992).

Hackers and Crackers are continually working their information networks attempting to accumulate sensitive information. Auditors must thorough familiarize themselves with revolutionary computer technology changes. Today and more than ever, “many internal auditors have to act as cyber-crime scene Investigators participating in the field of forensic technology” (Diane Sears Compbell, 2002).

While studying the impact of IT on internal auditing have been undertaken in industrialized countries, little attention has gone into LDC’s work intends to undertake such a study in Tanzanian business environment.

1.3 Statement of the Problem

Due to fast changes in the growth of information technology in the business world, the internal auditors face a greater challenge to perform their duties in the computerized business environment. Since the duties performed by most of Tanzanian organizations are IT oriented, this drastic changes in IT does internal auditors keep pace with in the role and functions.

For the internal auditor, IT can be seen as a two edged sword. On one hand, IT has become a tool to assist auditors in their day to day work; on the other hand, the rapid continuing development of new IT causes continued worry about new audit risks (IIA, 1998). Indisputably, the role of the internal auditor especially in the issues of control and security in an organization is of critical importance.

Therefore, the study is set out to explore the impact IT has had on internal auditing and specifically the evaluation of IT by Tanzanian internal auditors. The study intends to assess and investigate and come up with the concrete and useful reasons and suggestions, which will eradicate the problem.

1.4 Objectives of the study

1.4.1 General Objective

i. The general objective of this study was to assess the impact of IT on internal auditing functions in Tanzanian organizations.

1.4.2 Specific Objectives

The study was guided by the following Specific objectives;

i. Explore the methodologies that internal auditors in Tanzanian organizations use in performing their duties and find out whether the methodologies are IT – based.
ii. Assess the ability of internal auditors to audit computer – based information system in Tanzanian organizations.
iii. Establish the relationship between IT-use by internal auditors and the perceived ability of internal auditors to audit computer- based information systems.

1.5 Research Questions

1.5.1 General Research Question

i. The general research question of the study was to assess the impact of IT on internal auditing functions in Tanzanian organizations.

1.5.2 Specific Research Questions

This study was set out to explore the impact of IT on internal auditing effectiveness. For this reason the study addresses the following questions:-

i. What are the methodologies that internal auditors in Tanzanian organizations use in performing their duties and are these methodologies IT – based?
ii. To what extent do the internal auditors have ability to audit computer – based information system in Tanzanian organizations?
iii. Is there any relationship between IT use by internal auditors and perceived ability of internal auditors to audit IT- base information systems?

1.6 Hypothesis of the Study

The study was signed by the following hypotheses:

i. There is no significant relationship between the number of internal auditors in an organization and their perceived ability to audit computerized IS.
ii. There is no relationship between IT used by internal auditors and the perceived ability of internal auditors to audit computer-based information

iii. There is no association between the level of computerized IS in Tanzanian organizations and the frequency of internal auditors for auditing computer based information systems in an organization.

1.7 Significance of the Study

This study is expected to have the following theoretical and practical significance:
Firstly, the study will help corporate managers in Tanzanian organizations understand the impact IT has on auditing and to challenge audit managers and give them impetus to change from the old ways of doing things. Secondly, will help to know to which extent the auditing profession has changed because of IT applications, methods and tools.

Thirdly, the study will be used as empirical literature review with scholars in understanding on the internal auditing functions in relation to IT development. And will serve as a pre-requisite for graduate student at MU.

Fourthly, recommendations from this study will have a practical implication to the internal auditors who have to keep pace with information technology change, Not only to the internal auditors but also such recommendations will be of great importance to the NBAA management who may fruitfully use these results to improve their syllabus to put much emphasis on issues related to IT- based auditing.
Further more research results will be a challenge to the NBAA management to organize several seminars and workshops to equip its professionals with current accounting practices, which are IT-based to cope with rapid technological change.

1.8 Scope and Limitation of the Study

In defining the scope of study, the following factors had limited the successful conduct of this research:

i. Due to time and cost the study only concentrate in Dar es Salaam region, hence there was limited number of organizations with internal audit departments using IT.

ii. Time frame for the research and report was also an obstacle; it need much time to gather sufficient and relevant information for the purpose of this study.

iii. Inadequately disclose of information that is relevant to the study by some respondents during data collection. Fund to cover all relevant departments involved were inadequately

1.9 Delimitations of the Study

The researcher tried to cover all the departments involved in the use of information technology by internal auditors in some selected organizations in Dar Es salaam region basing ownership (Government, Parastatal, Private and Public) Industry (Manufacturing, Education etc) the data will be sufficient to present the current situation in Tanzanian organizations. Time constrains were observed together the relevant information as described in this research. Furthermore the data collection constraints were explained in details to the respondent that their information gathered were only used to this research.

1.10 Summary

The chapter has covered the general background of the problem, the objectives and the importance of the research to be studied. The next chapter will concentrate on literature review as far as IT on internal auditing in Tanzanian organization; the chapter also has discussed the research problem and research questions as well.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The main objective of the chapter is to present a theoretical framework and relevant empirical findings related to the current study. It further expresses the conceptual framework, mathematical equation variables and the relationships between the equation variables.

2.2 Conceptual Definition

2.2.1 Information Technology

The application of computers and other technology to acquisition, organizations, storage retrieval and dissemination of information (American Library Association, 1993; Madan Lai 1994) a concept that covers all aspects of the art of science of processing data to produce information.

2.2.2 Information

According to McKay (1969) information refers to “that data which enables us to make a selection from a set of possibilities about which we are ignorant” This information can be thought of as data that has been evaluated in such a way that it alters out expectations or our view of the alternatives that are available.

2.2.3 Computer

A machine which is able to accept data in a prescribed form process the data and supply the results of the processing in a special format as information or as signals for controlling automatically some other machine or process. The term is used generally for any kind of computing devices; the main application of computer in the organization is text processing, communication and information management. (Newman 1996).

2.2.4 EDI

This is an inter-organizational system that involves “the movement of business documents electronically between or within firms in a structured machine retrievable, data format that permits data to be transferred without re-keying from a business application in one location to business application in another location (Hanse and Hill, 1989).

2.2.5 Computer Literacy

Is being knowledgeable about the computer and how it works in our daily lives. It also means being able to operate and use a computer at least to perform basic tasks (Rochester and Rochester 1991).

2.2.6 Internet

A global information network of data, voice, image, and full- motion video, it provides a virtual world of information at one’s fingertips.

2.2.7 Internal Auditing

Internal auditing is an objective, internal activity. It is part of an organizations plan for managing risk: evaluating controls: ensuring compliance with controls, laws and regulations: and governing the organization. Internal audit function includes understanding and assessing risk, evaluating the adequacy of techniques used to manage risk, providing assurance that controls the risk and ensuring that governance processes are operating effectively and efficiently, and identifying and recommending changes that could add value. Internal controls are the cornerstone for an internal auditing department. While operations management owns the controls, the internal auditing department is the expert in the area. Internal auditing can advise how to design a proper control system and provide an independent appraisal on how effective are the controls.

As defined by Vasarhelyi and Lin (1988), internal audit is the process whereby a unit within an organization verifies the integrity and accuracy of organizational information processing and reporting on a continuous or repetitive basis. The internal audit by definition is done by someone within the organization. It is

sometimes an audit of financial information and some other times an audit of non-financial organization information. It is typically for the purpose of reporting to management on inefficiencies, internal controls or potential improvements.

The role and required skills of the auditor has been the subject of much recent discussion, particularly in the wake of the revision by the Institute of Internal Auditors (IIA) of its definition of internal auditing, which now states:

> "Internal auditing is an independent, objective, assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness, risk management, control and governance process" (IIA 1998).

The definition by (IIA 1998) describes internal auditing much broader. As such it incorporates the major audit functions so for this matter it will be adopted for the purpose of this study.

2.2.8 Effectiveness

Engenbelt (2002) considers effectiveness as outcomes, consequences and results it is achieved by determining what the right thing is which must be done and doing right.

2.3 Theoretical Literature Review

2.3.1 Historical perspective on IT and Internal audit function

To understand the impact of IT on the internal audit function, first a historical perspective of how IT has developed over the last several decades from simple data input systems to complex management IS that support managerial decision making with relevant reliable and timely information. Arnold and Sutton (2002) characterize this evolution as a shift from automated systems performing only accounting functions (payroll, accounts payable, general ledger, etc) to IS that perform enterprise-wide tasks that include accounting and auditing

The history starts in the 1950s' that marked the dawn of the era of computers and technology in business. IT developments caused the internal auditing function to

i. Change the audit scope and approach,
ii. Use new auditing tools/techniques and
iii. Execute operational audits of the entire organization.

Table 2.1: The Summary of the Historical Perspective of IT and Internal Audit

YEAR	CRITICAL DEVELOPMENT	INTERNAL AUDIT IMPACT
1950s and 1960s	_In the mid – 1950s the punched cards were introduced for data storage and batch processing	_No much impact on internal auditing rather, internal auditors generally followed an audit around the computer approach because relative to inputs and outputs punched cards provided visible and readable paper audit trail.
	• In 1960s as computers became increasingly faster and more versatile, tape drives replaced punched cards and real-time on line systems were introduced.	• The new systems threatened the existence of the paper audit trail transforming it to no visual, electronically stored format.
	• Variety of new computer program called Generalized Audit Software (GAS) were introduced in late 1960s	• Assisted internal auditors with audit tasks and verifying the results of processing e.g. testing mathematical accuracy. Comparing files and summarizing data.
1970s and 1980s	By 1975 no less than 200,000 mainframe computers were in use in business	• Internal auditors' duties became so easy and much of time saved due to user friendliness of the EDP related audit techniques.
	• Proprietary GAS programs were eventually superseded by truly generalized audit software programs like ACL (in 1970s)	
	Organization began moving from mainframe computers to PC	
1990s and beyond	• Organizations began implementing Enterprise Resource Planning (ERP) systems to manage all of Enterprises Internal process e.g. sale procurement, human resources finance and accounting, production, distribution and quality control.	• Allowing for internal sharing and analysis of information Allowing for easier transfer of working knowledge, Ideas, and techniques.
	• Emergence of sophisticated management information and Executive decision support systems based on electronic document management systems, data warehouses and intranet	
	• Emergence of electronic data interchange, electronic fund transfer, video conferencing	

Source: Anord and Sutton 2002

2.3.2 Computerized Information System (CIS)/IT Environment

As per the International Standard on Auditing (ISA), a computer information system (CIS) environment exists when a computer of any type or size is involved in processing the entity's financial information of significance to the audit, whether the computer is operated by the entity or by a third part (ISA 401).

The computer information system environment does not change the overall audit objective and scope of an audit; it changes however, the processing, storage and communication of information and may affect the accounting and internal control system employed by the entity. And as such requires the change in the knowledge that the auditor has in line with the improvement in technology.

2.3.3 Audit Approaches

The development in this area has left the auditor without directly visible data traceable changes, traceable transactions, and directly verifiable computations. Clearly, the absence of source documents with more and more accounting transactions often are recorded as they occur (such as automate teller machines, E-commerce), is now becoming a general trend.

Again the backgrounds of audit problems that crop up with over-changing computer systems, three main approaches to the audit of computer systems are widely practiced.

i. Auditing around the computer "The black box" approach.
ii. Concentration of controls within and around the computer systems and
iii. More direct techniques, e. g using specialized audit software, test data and program checking.

These three lines of approach are by no means mutually exclusive and a combination of any of the two or of three may be used on a typical audit. However, it should be emphasized that reviewing and evaluating controls built into the system may require extensive programming knowledge and/or the use of test data.

When auditors tackle an engagement in which most, if not all, of a client's data are in

electronic format, they generally audit around the computer that is they print out the pertinent information and then scrutinize the printed pages. Such a procedure is acceptable as far as it goes, but in today's business world, where data are increasingly in electronic format, manual examination may not be good enough. The alternative is to use powerful software applications that audit through-rather than around-the computer, such software can audit faster raw accounting data and as much details as desired (Lanza, 1998).

The decision to use audit software as tool in auditing clearly requires a significant mind set shift by CPAs who have performed audits manually all through their professional life. Most of all, top management needs to know this and work upon it so as to upgrade the auditing work.

2.3.4 Internal Auditor and IT Development Challenges

The dramatic influence of IT on internal controls and the whole subject matter of internal auditing in a computerized environment have meant that the auditor requires some degree of EDP skills and knowledge. The auditor will be required to communicate with system and EDP personnel and gain their confidence so as to determine the systems and procedures in operation. This requires an understanding of the data processing principles being employed, the terminology used by these people, and a general awareness of the function- being performed, in order to ask the necessary questions intelligently. The auditor must be able to interview these technical people, review the systems and operating documentation and observe operations of the installation with some degree of understanding (Gage, 1974).

As the auditor receives information by observation, enquiry and review, he/she must be able to assimilate it and reach independent conclusions as to its usefulness and reliability. S/he must have sufficient knowledge of the structure and techniques of computer controls to form a conclusion as to the effectiveness of the control system in particular situations. To be able to test systems and procedures for compliance, the auditor must be able to examine with understanding batch control logs; error reports, console printouts and other computer produced reports or records. In

addition the internal auditor may find it appropriate to make use of test checks or audit software in carrying out such tests (Gage, 1974).

The internal auditor must have a sufficient familiarity with EDP principles and with computer control standards and techniques that s/he can make recommendations at a general level for improvements to them. S/he must also be able to assess and recommend controls in connection with proposed systems. To the extent that he may be able to make use of computer in performing his work, whether this is necessitated by the system itself or is first for the benefit of greater efficiency in his work, he must have sufficient expertise in the application of computer technology to the auditing process to be able to do this properly (Gage 1974).

The above few paragraphs are closely parallel to this study and reveal the knowledge the internal auditor needs to have in conducting his day to day duties in computer environment in the sense that without such knowledge the auditor's efficiency is reduced and as a result the auditor becomes far behind in the world of technology. This will probably hinder his contribution towards fast development of the organization.

2.3.5 The Effect of Improved Network and EDI on the Auditors

As the use of networking and interactive systems throughout the organization system becomes common place, controls become increasingly vital. The auditor will need to understand control theory, to analyze the works and to evaluate preventative measures, and to be aware of the requirements of network security and the risks of unauthorized access such as line tapping or interception. Using encryption and authentication programs will be essential for sufficient secrecy and authentication (Chambers and Court, 1999).

Systems auditors must ensure that they understand these concepts and they are in a position to advice on their implementation. The use of passwords is the minimum control for ensuring only authorized access to the network. For particularly sensitive systems, it may be necessary for the systems auditor, together with technical

specialists, to become involved in providing advice on more extensive security procedures for his companies and client's systems (chambers and Court 1991).

As already elaborated before, audit objectives remain the same when computers are in use, for computers are only tools which assist management to achieve its objectives. The potential of computer systems may make it possible for management to modify their objectives example new lines of business may become feasible and profitable due to the speed of the computer and its greater ability to store, retrieve, correlate and process information.

Clear understanding of control theory for security purpose is mandatory to the internal auditor who is directly concerned with the security of the organization's sensitive data which is vulnerable to hackers and crackers. The competence of internal auditors in this area is vital for prevention and detection of frauds. The above paragraphs are therefore relevant to the study as they support this view.

2.3.6 Audit Technology and the Use of CAATS

IT fundamentally changes the way in which organizations operate internally and interconnect with external organizations-redefining the boundaries for cooperation (Elliott, 1994). For example, Electronic Data Interchange (EDI), Electronic Funds Transfer (EFT), and Financial Electronic Data Interchange (FEDI) allow organizations to share information and increase operational efficiency. These changes are increasing the demands for assurances of computer systems, information security. Controls over the privacy of data, and quality assurance practices (Aderson, 2003) concurrently.

To meet these demands, internal auditors can use a variety of computer Assisted Audit Techniques (CAATs) which are computerized tools or techniques that increase the efficiency and effectiveness of the audit. CAATs originally supported a systems-based approach that tested controls using complicated, embedded techniques (Integrated test facilities, sample audit review life, system control audit review file) and parallel simulations-CAATs include a wide variety of Personal Computer (PC)

software tools that support a flexible, interactive, data based approach to verify data accuracy, completeness, integrity, reasonableness, and/or timeliness. Internal auditors view CAATs especially word processing, spreadsheet, and data analysis/extraction (or GAS) software, critical to the day to day operations and success of the internal audit function (Prawitt and Romney, 1996).

This paradigm views CAATs as freeing auditors from manual/routine tasks so they can focus on exercising judgment and thinking critically. For instance neural networks can be used to evaluate soft business information and data generated by management's judgments (CICA, 1999). The interactive, Real-time nature of CAATs especially GAS allows auditors to quickly evaluate results, adjust initial audit plans and test new hypotheses improving the effectiveness and efficiency of assurance and consulting services.

Internal auditors can use CAATs in financial and performance auditing to improve the efficiency, effectiveness, and quality of the audit because CAATs automate existing manual audit procedures, allow new procedures, test the entire audit population, monitor operations, and permit consistent application of audit techniques across time, auditors and engagement. CAATs especially GAS, improve the auditor's analytical abilities, widely accepted as the most effective audit technique for identifying financial statement errors (Hylas and Ashtn 1982).

Data analyses and extraction software (GAS) also provides a variety of functions to help internal auditors perform quick response audits to detect common fraud schemes perpetrated by employees. Not only has IT increased the incidence of fraud, but it has also increased average dollar amount of each fraud incident the estimates that the organizations lose as much as six percent of their annual revenue to occupational fraud (ACFE, 2002).

2.3.7 Competence of Auditors

The key competitive constraint is no longer land, labor or capital; it is and will increasingly be knowledge or intellectual capital (including competent managers, skilled knowledge workers, effective systems, loyal customers and strong brands

(Hope and Fraser, 1998) In most companies today, intellectual capital forms the greater part of their market value. In brand dealer like Coca-Cola, intellectual capital forms an incredible 96% of market capitalization leaving only 4% for the auditors to verify and report upon" Hope and Fraser, 1998.

From the above paragraph it is clearly noted that competent management, which is up to date and knowledgeable with the current change in the information technology is expected to grant reasonable support to the internal auditors' training on information technology. As such this kind of management due to its awareness on the impact of IT on internal auditing will allocate the sufficient fund for IT development for effectiveness and efficiency of internal audit function.

Heazlewood (1998) in his article about the changes that have taken place in the accounting profession says, with the continuing advancements in IT and software packages the accountant is now seen as one of a number of information suppliers to the business community. The auditor has therefore a duty of ensuring that the information supplied to the community come from trusted systems, this can only be ensured if he has enough knowledge and skills. Lanza (1998), perplexed with the way in which IT has influenced all other systems, led himself to conclude that there was no need for manual audit.

From the authors' views one can realize that the need for auditor's competence in computer environment auditing is unquestionable. The competence of the auditors in terms of complying with generally accepted standards of reporting such as independence of mind, due professional care, and compliance with generally accepted accounting principles embedded with competent knowledge on IT in this area is of significant importance to his daily activities including supplying reliable information to the community.

2.3.8 Computer Specialist as an Auditor

Internal auditors should be computer auditors, in the sense that they should be capable of auditing systems, which are computerized, not all internal auditors, will be

computer specialists. The general internal auditor must be trained to cope with computerized systems (Chambers and Court, 1999).

The specialist in computer auditing has a place in internal auditing, i.e. that of giving advice to other auditors. He may be responsible for the selection of the appropriate computer audit enquiry package or on packages for use by the internal auditing department. While, subsequently he will be available to advice on the use of these packages, all internal auditors should be competent to use them (Chambers and Court, 1999).

With the complexity of data processing it is no longer realistic to expect one person to have all the competence required to conduct all audit (Chambers and Court, 1999) However, when it comes to computer knowledge, we expect all auditors regardless of their specialization to have it.

In Tanzanian business environment it is difficult for the internal auditor to be an IT specialist as well but the internal auditor can be trained to cope with computerized systems. The lack of involvement of Tanzanian's internal auditors in system development and proper training on IT are believed to contribute to a great extent in downsizing the performance of the internal auditors in most of the Tanzanian organizations.

2.3.9 Impact of IT on Internal Auditing Functions

The amorphous public market currently business is conducted in will drive internal auditing to evolve and adapt. However, forward – looking internal auditors will seek opportunities to proactively adapt to the business world's changing demands, rather than simply reacting to them. In order to achieve this evolution, three foci must be considered, as follows: Corporate Governance, Risk Management and fraud.

2.3.9.1 Cooperate Governance

A key factor underlying the demand for better governance is IT because organizations are increasingly dependent on IT to enable business processes and activities to occur reliably (Vowler, 2003). As the backbone of e – commerce, the internet has been described as the greatest opportunity and greatest threat facing organizations (Rosenoer, Amstrong, and Gates, 1999).

At the same time that the I T's role in corporate governance is increasing, internal auditor's responsibility regarding corporate governance is also increasing. IT is critical to organizational strategy development and execution because it can directly affect "what an organization does, how it operates, how it interacts with its customers, and it's competitive" (Davis and Hamilton, 1993).

When information is placed on corporate Web sites, users visiting these sites are naturally entitled to rely on the information posted therein. However, in the presence of hyperlinks, users typically find it difficult if not impossible to locate the boundaries of financial information they read in electronic form (CICA, 1999). The issue of undefined borders opens up the question of responsibility, and hence liability for linked information.

2.3.9.2 Risk Management

Risk management is an area of paramount importance to an organization, because every company is in business to take risks, effective risk management is necessary to the progression of a business entity. Taking too little risk can be just as dangerous as taking too much risk" (CICA, 1999).

Given the pervasive impact of IT on the organization and Enterprise Risk Management, internal auditors can add substantial value to the organization if they are familiar with IT that can assist their organization in developing a sound Enterprise Risk Management program. Organizations need internal auditors to understand the system, infrastructure, programs, processes and constituents; record and evaluate controls over critical/sensitive information; assess monitoring procedures; and obtain external assurances (Parker, 2001).

"Good business is all about risk; business growth cannot occur without introducing new risks; business objectives cannot be achieved without placing assistance at risk; and business rivalries cannot be won without out-risk-taking the competition" Champman, (2001). Such risk taking is evidently necessary for businesses in globally competitive market. Internal auditors must be equally ready to mitigate the risks that their organizations need to undertake in order to be successful (Chapman, 2001).

2.3.9.3 Fraud Detection and Prevention

Globalization has opened the floodgates for fraud opportunities, with the advent of e-business and traversing of companies across uncharted territories, the vulnerability of companies to fraud has never been more prevalent. “Controls and audit usually lag behind changes in systems and operations. Decentralizing, going global, outsourcing of manufacturing and services, strategic alliances, and selling on the Internet can provide real value, but they also provide new opportunities for fraud” (Chapman, 2001).

Internal auditing has incurred increasing responsibilities due to proliferation on legal liability and the social role of computer technology in today’s business environment. The success perpetrators of white – collar crime and computer fraud, in committing and concealing the crimes depends mainly on the ignorance of the victim (David Salierno, 2001).

Internal auditors will need to respond to the new challenges facing expanding companies. “Specialized resources are needed in the areas of the business.” (David Salierno, 2001).

In general, security includes considerations such as system confidentiality (restricting access to authorized users) as well as system availability (ongoing systems resources being available for organizational use). Some of the ways in which computer online security is achieved are through encryption, Data Encryption Standard (DES), digital/electronic signatures and biometrics (Friedlob, Plewa, Schleifer, and Schou, 1997).

2.4 Empirical Literature Review

The Institute of Internal Auditing (IIA 1998) conducted a survey trying to find out what could have been the IT impact of internal auditing. In a survey in the US found that, many respondents in the internal auditing departments were dissatisfied with their ability to audit new technology. Internal audit managers were surveyed specifically about their satisfaction with auditing methodology for various information technologies, over 80% were dissatisfied or somewhat dissatisfied with their methodologies to audit IT Auditors in the financial services were found to be less dissatisfied (IIA, 1998).

The above observations reveal the reality which can even be observed in Tanzanian business environment.

Given the wide spread use of computerized accounting systems and dramatic improvements in the last two decades in terms of hardware and software capability, computer auditing is an area in which organizations large and small have a direct interest in keeping aware of technical developments and in updating and refining current audit techniques.

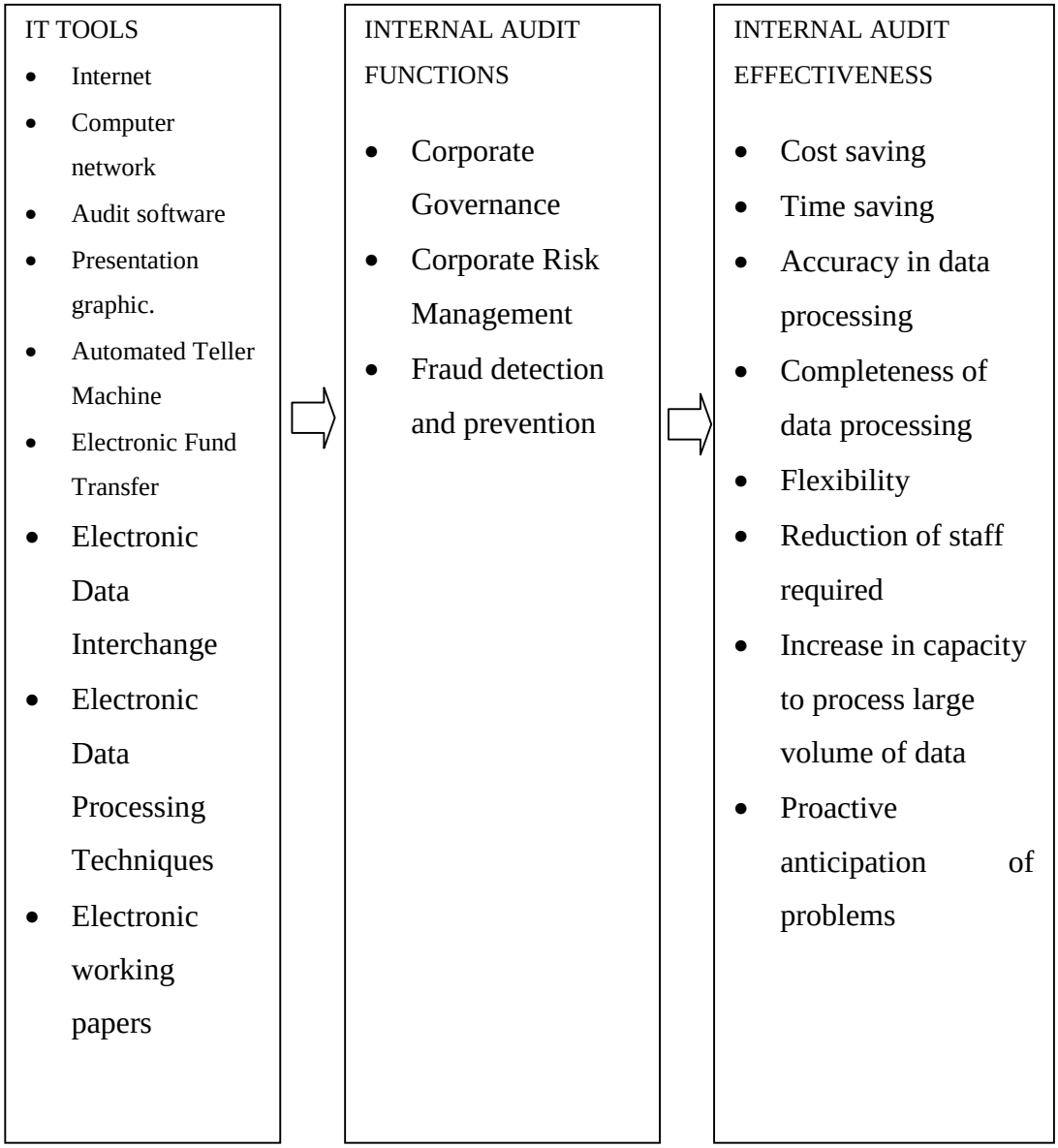
Based on the survey finding by Pound (2009), there is a need for improved auditor education and for a greater interaction between data processing personnel and the auditors, to the extent of the respective professional bodies providing the joint courses. He also considered that auditing bodies have responsibility to initiate computer auditing techniques and coping with the inevitable advance in data processing technology.

Although the above two studies were based on the heavy use of technology, on the other side this study will concentrate on relatively less complex technologies, LDC's Tanzania being one of them is characterized by significantly lower utilization of advanced IT based auditing technology. This research will deal with the Impact of Information Technology on Internal Auditing in Tanzanian Organizations.

The study has been exploratory in nature and restricted to the Dar Es Salaam area which is the commercial centre of Tanzania. As such it represents IT growth of both government and business organizations in the country In fact when studying computerization in Tanzania Dar Es Salaam is clearly the most important location with many government ministries, big companies, foreign mission and international agencies (Muhula, 1997) most of which have computerized IS.

2.5 Conceptual Framework for studying the problem

Table 2.2 Conceptual Framework: Problem Modeling



Source: Researcher's Modeling, 2014

From the literature review it can be conceptualized that IT plays a crucial role in enhancing the internal audit functions through its tools as seen in the framework in Table.2.1 It is the internal auditor who needs to be well equipped with thorough understanding of these IT tools so as to apply them in day-to-day activities. The auditor requires some training to adopt this technology. Furthermore, it is the advantage of the firm to hire the IT-competent internal auditor who will be able to

cope up with IT development. Not only that but also variety of communication tools such as e-mail, video conferencing, groupware etc are playing a great role simplifying internal auditors communication toward the fast change in communication technology. The internal auditor who is well equipped with IT knowledge is believed to perform his duties in a more effective manner

2.6 Synthesis and Research Gap

In reference to the above empirical studies most of the scholars have tried to explained the use of ICT in internal auditing in General, , but these few studies had fail to focus on different environments specifically those reflecting developing countries. Also these studies fail to show how the ability of the auditors themselves affects the use of IT in internal auditing. Even to these studies but they have failed to provide the suggestions on the appropriate suggestions with reference to African situation.

2.7 Summary

This chapter has discussed the literature review (both theoretical and empirical), variables and their relationship of this research study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction (Overview)

This chapter discusses on the methods and procedures that were applied in the research. It highlights the methods of data collection, research designs, strategy, population and sample size and method of data collection and analysis.

3.2 Research Design

A research design describes a flexible set of guidelines that connect theoretical paradigms first to strategies of enquiry and second to methods for collecting empirical materials. It provides the plan of action that links the philosophical assumptions, strategies of enquiry, and specific methods. Thus, it represents a structure that guides the execution of a research method and the analysis of the subsequent data with the view to reaching conclusions about the research problem (Denzin, 2003).

This study used mixed methods research design, with both quantitative and qualitative data collection methods. It is argued that to use only a quantitative or a qualitative approach falls short of major approaches being used in the social and human sciences. In fact, the combination of qualitative and quantitative approaches provides the most complete or insightful understanding. It thus provides a better understanding of research problems than either one approach alone. It can also provide better opportunities for testing alternative interpretations of the data, for examining the extent to which the context helped to shape the results, and for arriving at convergence in tapping a construct (Creswell, 2003).

3.3 Research Strategies

This study employed a case study approach to a research strategy its characteristic is a single case design, whereas the Dar Es Salaam region will be studied so as to examine the impact of information technology on internal auditing in Tanzanian organizations a case of selected organizations. The design is appropriate for

descriptive purpose and determination of relationship between the variables, the study employed instruments of data collection like questionnaires, focused group discussion and interview methods.

3.4 Area of Study or Survey

The area of study was restricted to the Dar es Salaam area, which is the commercial center of Tanzania. As such it represents IT growth of both government and business organizations in the country. The financial constraints as well as the time factor have also been considered in selecting the study area.

3.5 Target Population

The target population of this study is corporations that have computerized IS and have internal auditing departments, organizations that have computerized systems but lack internal audit departments were left out of the study.

3.6 Sample Size

The sample size refers to the number of items to be selected from the universe to constitute a sample (Kothari 2002. The study comprised 57 corporations/organizations belonging to various industries like manufacturing, financial institutions, education and other service organizations like insurance companies and telecommunication companies. Also different ownership style was considered in sample selection like private ownership, public ownership, government and Parastatal.

3.7 Sampling Methodologies

3.7.1 Sampling Technique

Purposive samplings were used as a sampling technique. According to purposive or subjective judgmental were used in collecting data, sampling enables the researcher to use his judgment to select cases that best enabled him to answer the research questions and to meet the objectives. This form of sample is often used when working with very small samples such as in case study research and when one wish to select cases that are particularly informative (Saunders 2000,

Nassiuma2000:pg60). Such samples cannot, however, be considered to be statistically representative of the total population. The logic on which the researcher bases his strategy for selecting cases for a purposive sample depends on the research questions and objectives.

3.7.2 Purposive Sampling

The researcher used purposive sampling to get data, which helped in a accomplishing the purpose of a research and enable a researcher to pick those respondents who were useful in data collection for research findings (Kothari, 1999).

3.8 Method of Data Collection

Primary data were collected through administering of questionnaires to the selected sample, useful secondary data were put to use whenever appropriate. The selected respondents were given questionnaires through mail or drop and collected method, where practical follow up mailings were applied. The researcher whenever possible upon collection of questionnaire tried to conduct discussion with every respondent in order to obtain very useful experiences of internal audit managers

3.8.1 Interviews in Research.

This is a popular data collection tool in management science research, in this research interview schedules were used, IT department, internal auditing and management team. The focused interview was used as the researcher was having aim in mind when conducting the interview but interviewed were free to talk whatever about the topic.

3.8.2 Documentary Review

Here various documents such as books, past internal audit reports, IT information and other supporting documents were reviewed and documented. The method were used to give the researcher reasonable assurance on the correctness of the information obtained by using the two methods above.

3.8.3 Questionnaires in Research

Information obtained from questionnaires is flexible, easy to apply, relatively inexpensive (usually) and can be far reaching. Therefore questionnaires were

administered to internal managers, internal staff, IT department, management officials, and others included in the sample, questionnaires consists both open and closed ended questions in order to expand and enrich the quality and reliability of the information obtained from the respondents.

3.9 Data Analysis and Presentation

Qualitative and quantitative data were analyzed by using the Statistical Package for Social Scientists (SPSS) so as to safeguard the drawing of conclusions concerning this study. During analysis however, the non standardized and complex nature of data, which were collected, were classified into categories before they were meaningfully analyzed. Moreover, data collected were presented in form of charts, tables, and word-reporting systems.

Thus, the process of analysis aims at determining whether data collected supports the hypotheses and the research questions formulated before going to the field to collect the information or reject them.

3.10 Reliability and Validity

3.10.1 Data Reliability

Data reliability refers to the data collected by independent collector and if the same questionnaire is administered by another person will yield the same results or is chiefly concerned with making sure the method of data gathering leads to consistent results (www.knowthis.com/marketing-research-validity-and-reliability). The study calculated the Cronbach's Alpha to test the reliability of the data. In this research Cronbach's Alpha test was used to assess the reliability of the scale where a cut-off point of 0.70 was adopted so that the corrections between items of particular scale were improved. The following test was used to check the Alpha degree:

Method 1 (space saver) will be used for this analysis

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P HA)

Reliability Coefficients

N of Cases = 40.0 N of Items = 0

Alpha = 0.7629

Source: Field Data analysis 2014

According to this study, the reliability co efficiency using Cronbach's Alpha is 0.7629 as shown in table above. According to George and Miller, this Alpha shows accepted level of reliability. So this ensures confident on the data collected.

3.10.2 Data Validity

Data validity refers to correctness and reasonableness of Data. Basically validity boils down to whether the research is really measuring what is it claims to be measuring (www.knowthis.com/marketing-research-validity-and-reliability). The stakeholders' responses were verified for correctness and reasonability. Each questionnaire obtained was checked for validity and if necessary those unfilled questions or invalid selection respondents were asked to specify what actually was the intention.

The verified questionnaire responses were then entered in window SPSS in coded form. This statistical/software package was set with some validation rules for some fields. The entries were printed and verified to ensure that only reasonable and correct entries are captured. All errors were corrected before data analysis.

3.11 Expected Results of the Study

i. The study gave a solution on which the extent IT has influenced internal audit functions in Tanzanian organizations.
ii. The study provided a framework on effectively familiar with Automated Data Processing audit techniques by internal auditors in Tanzanian organization.
iii. The study provides relationship between IT use by internal auditors and perceived ability of internal auditors to audit IT-based information systems.

The study has been exploratory in nature and restricted to the Dar es Salaam area which is the commercial centre of Tanzania. As such it represents IT growth of both government and business organizations in the country In fact when studying computerization in Tanzania Dar Es Salaam is clearly the most important location with many government ministries, big companies, foreign mission and international agencies (Muhula, 1997) most of which have computerized IS.

For purposes of practicality, subjective judgment was used in collecting data for this study Heads of internal auditing departments in the sampled organizations were asked about their experiences with auditing in IT environments.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents the field results and discussion of the findings. The chapter had been categorized into two sub sections, starting with the general characteristics of the respondents including the demographics characteristics followed by findings based on the objectives of the study.

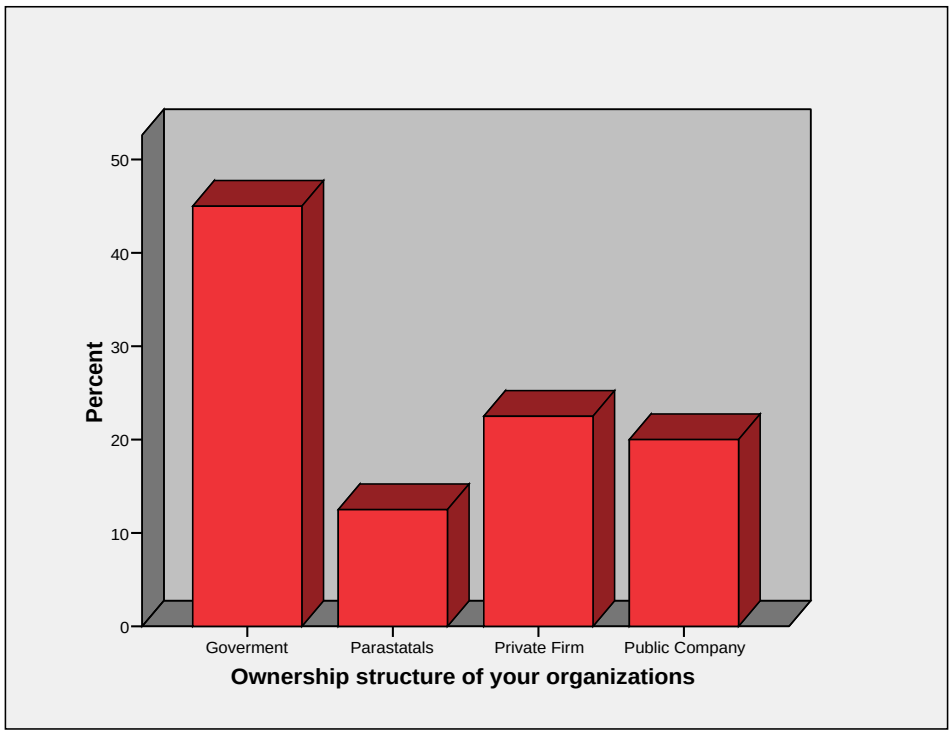
4.2 Descriptive and Inferential Findings

Descriptive statistics was employed in some cases to describe some findings also Inferential statistics to generalize population from the sample were drawn and to visualize what the data was showing and reach conclusion regarding hypotheses. The research work was conducted in Dar es Salaam. Of the 57 organizations belonging to various industries were expected to respond to the distributed questionnaires 40 showed up and provided positive and useful data for the study. Heads of internal auditing departments, audit staff and senior Management officials from other organizations could not even accept the questionnaires; hence the questionnaires were rejected at the point of distribution. Personal interviews were used to supplement data collected through the questionnaires. The response rate from the field shows that 40 questionnaires collected out of 57 questionnaires makes up to 70% general response rate which is credible for this type of data collection method as it is above expected rate of 50%

4.2.1 The Ownership Structure of the Organizations

The researcher needed to know the ownership structure of the organization under studies so as to help in categorization of the respondents. Figure 4.1 summarizes results on ages of respondents.

Figure 4.1: Distribution of respondents on ownership structure



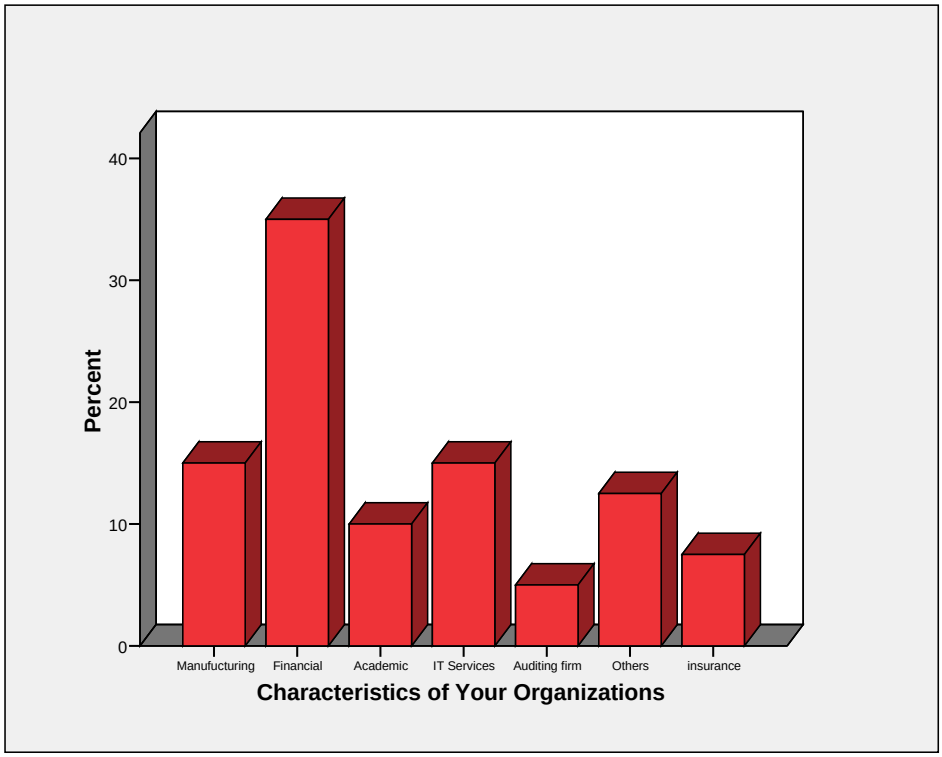
Source: Field Data analysis, 2014

Figure 4.1 shows that almost all kind of the kind of ownership were taken into consideration as 45% of all organization involved the Government institutions, 12.5% were parastatals, 22.5% were private firm, 20.0% involved Public companies. It implies that the results won't be bias to one kind of institution rather different kind of institution from both governments owned institution to private institution, which will increase the confident on the data obtained in the study.

4.2.2 Kind of the Institution under Studies

It was also necessary for the study to determine the kind of the institution under the study; this means if the data were collected from different industries such as manufacturing, financial institution, academic institutions, IT institutions or any other kind of the institutions. Figure 4.2 presents the data on the kind of the institution under study

Figure 4.2: Distribution of respondents on characteristics of organizations



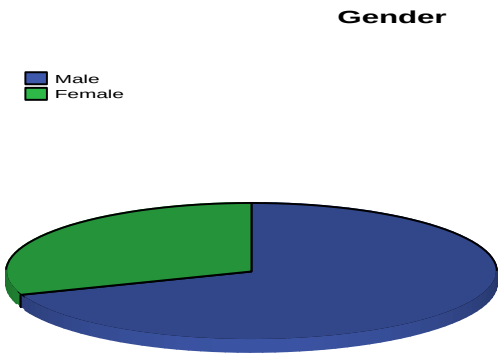
Source: Field Data analysis, 2014

From Figure 4.2, it can be seen that majority of the institution understudy involve financial institutions (35%), then 15% were manufacturing firms, 15% also were IT institutions, 10.0% are Academic institution, 7.5% are insurances companies and the rest 12.5% fall under different categories all of which are having the internal auditing department. The figure above summarizes the results of the findings.

4.2.3 The Gender of Respondent in these Organizations

The gender of respondents was also analyzed in order to check the gender constituents of the respondents. Figure 4.3 presents findings on gender of respondents.

Figure 4.3: Distribution of respondents by their Gender



Source: Field Data analysis, 2014

Figure 4.3 show that the male respondents formed majority of the target population representing (69.5%), while respondents representing 30.5 percent were females. Though the male respondents outweighed female respondents, but such findings indicate that at least each gender was given a chance to express views on the construction industry.

4.2.4 Experience in Dealing with Auditing Work

The study also sought to find out the years of experience of the Auditors, senior managements staffs and the IT officials from these organizations in the study so as to put their responses into proper perspective. The findings showed that 25 percent of respondents were those with experience less than 2 years, 45 percent of the respondents were those with experience from 2 to 6 years, and the rest of the respondents (30%) were those with experience of more than 6 years in this group of respondent. The table 4.3 below represents the categories of years of service as indicated by the respondents.

Table 4.1: Distribution of respondent on experience in auditing work

Year of experience

		Frequenc	Percent	Valid Perce	Cumulativ Percent
Valid	less than 2 y	5	25.0	25.0	25.0
	2 to 6 yrs	9	45.0	45.0	70.0
	more than 6	6	30.0	30.0	100.0
	Total	20	100.0	100.0	

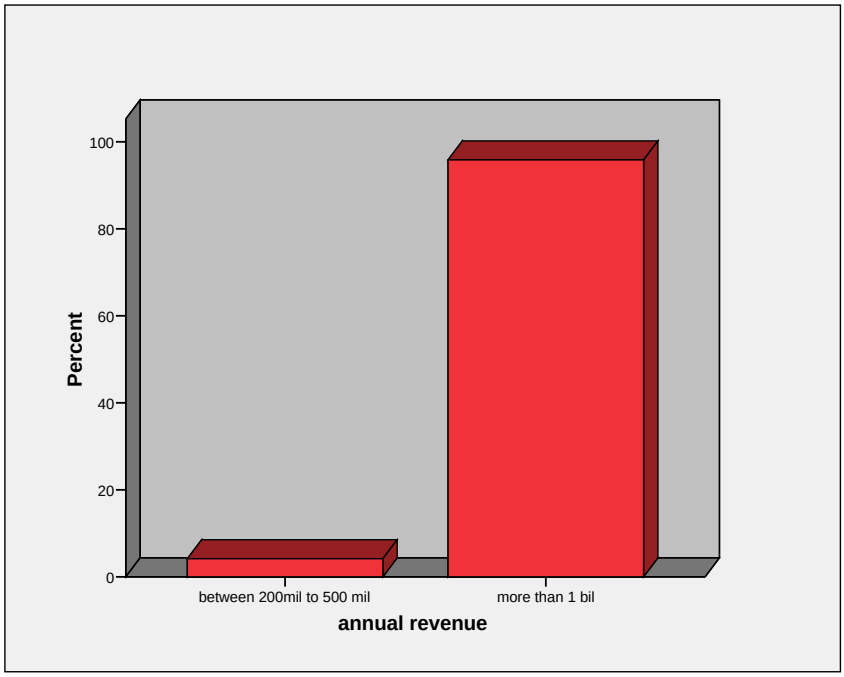
Source: Field Data analysis, 2014

Results revealed that the respondents had the experience of more than one year. It means that they were much aware on issue related to internal auditing and Information technology. That pattern increased the confidence on the data collected.

4.2.5 The Annual Income of the Organization under Study

The study also checked the annual income of the organization under studies so as to know exactly the kind of the institution if is small scale, medium or large institution. The following figure summarizes the results of the finding,

Figure 4.4: Distribution of respondents on Annual revenue



Source: Field Data analysis, 2014

Though majority of the respondent did not responded to this question but the findings indicate that 95.8% of those responded to the questions their annual revenue is more than 1 billion which suggest that it large scale institutions. The figure above summarizes the results of the findings.

4.3 Findings of the Study

The following part shows results from the research based on specific objectives of the study

4.3.1 Methodologies that internal auditors in Tanzanian organizations use in Performing their duties and find out whether the methodologies are IT – Based

4.3.1.1 Planning of Internal Audit

The analysis shows the first step of internal auditing involve planning. The head of the internal audit entity, based on the requirements of the legislation, in agreement

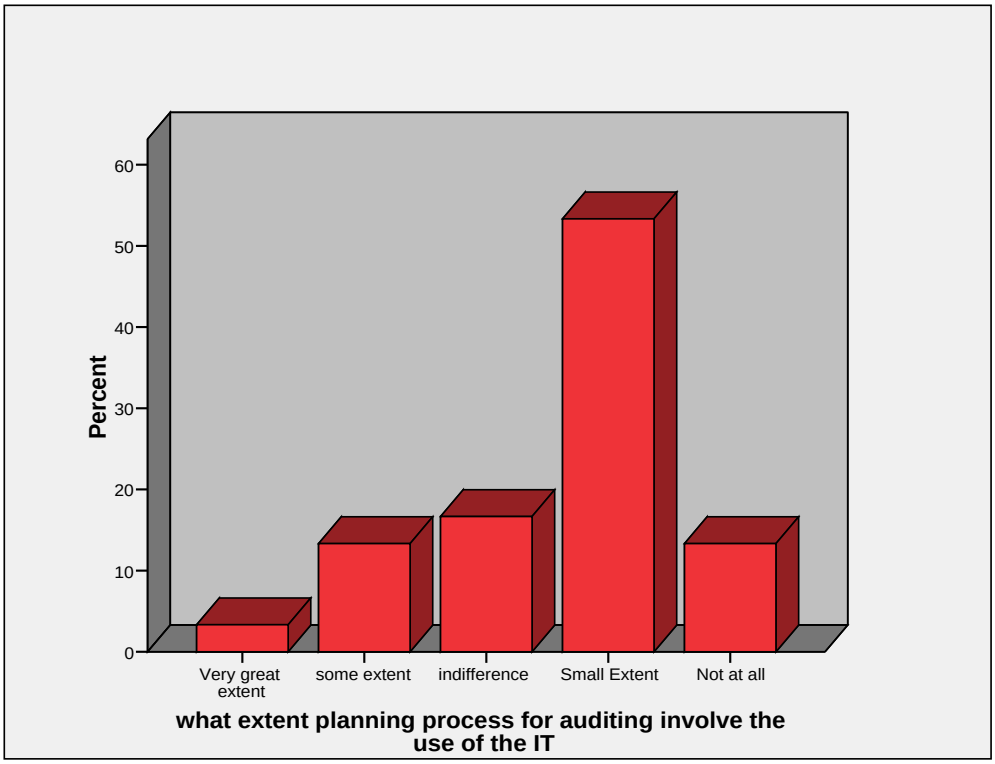
with the head of the institution and the center, should develop the strategic plan of internal audit and annual plan of internal audit.

According to the survey the strategic plan of internal audit, similar to the annual plan of internal audit, should be developed on the basis of audit risks assessments, taking into consideration of the experience of past audits, available resources (time and human resources). According to the analysis we find that the Process of development of the internal audit plan assists the head of audit entity to clarify such issues as:

(i) Allocation of human resources to the different spheres of audit – assignment of the staff based on their knowledge, skills and experience to the complex / high risk operations / systems and audits requiring relatively limited technical knowledge;
(ii) How management and supervision of the audit process will be provided;
(iii)Development of the quality assurance program etc.

The respondents were asked to mention to what extent these process involve the use of the IT, the analysis shows that, 3.3% of the respondents said to great extent, 13.3% of the respondents said to some extent,16.7% of the respondents said they don't know and the rest of the respondents 53.3% said to small extents. The figure below summarizes the results of the findings.

Figure 4.5: Distribution of respondents on planning and use of IT



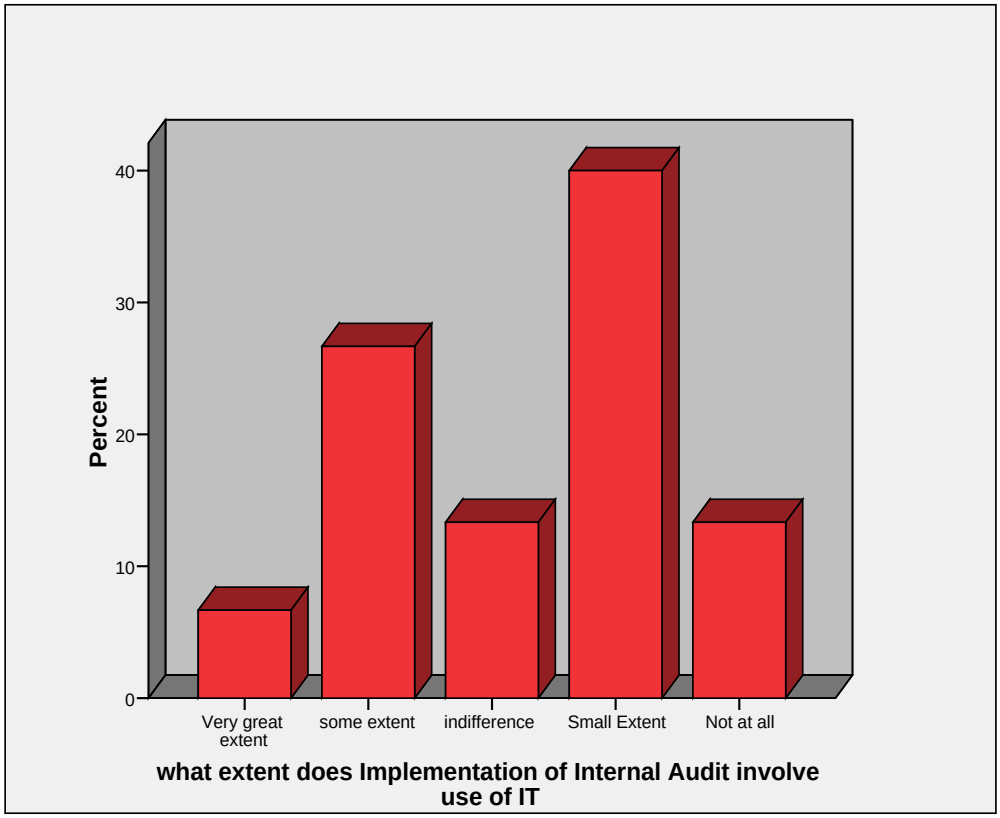
Source: Field Data analysis, 2014

4.3.1.2 Implementation of Internal Audit

The second step in most internal audits is informing of the management of the respective structural subdivision / body of the structure / institution, where audit is planned, about conducting of the audit. According to the survey done via formal letter, by which the management of the audit object is officially notified about planned audit. The mentioned always provide information about when the audit is scheduled; who is in charge of audit and why the audit is conducted (current, scheduled, upon the management's request etc.).

The findings find this process is done manually but to small extent involve the use of IT, we find during the preparation of the letter and to some organization during the sending of the letter is when the usage of IT is involved. According to the survey only 33.4%of the respondents said the process involve use of IT, but majority of the respondents 40.0% said to small extent the process involve the usage of IT. The figure below summarizes the results of the findings.

Figure 4.6: Distribution of respondents on auditing Implementation and IT use



Source: Field Data analysis, 2014

4.3.1.3 Study of the Object within the Internal Audit Scopes

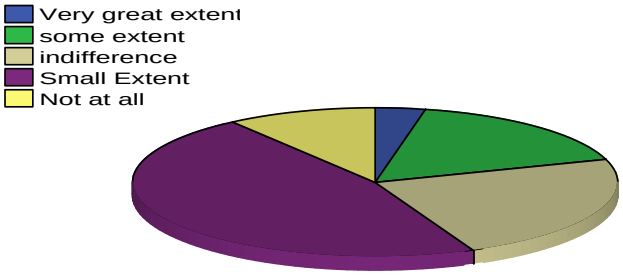
The analyses find that the third step involves studying of the Object within the Internal Audit Scopes. These studies are of great significance for clarification of the direction of audit efforts, specific spheres and scale; this is the first stage, which is implemented in the site of audit. It was found those internal auditors are not allowed to commence audit of the documents or observation over some activities without specific goal or objectives. Study at the object allows the auditor:

a) Familiarization with different systems;

b) Examine various system control structures and control risk in the spheres of audit.

The analysis also finds that the usage of IT in this process is in very small extent. The analysis shows that 46.7% of the respondents said to small extent the process involve the use of IT, 23.3% of the respondents said to they don't know and only 20.0% of the respondents mentioned that the process involve the use of IT.

Figure 4.7: Distribution of respondents on Study of the Object within the Internal Audit Scopes



Source: Field data analysis, 2014

4.3.1.4 Use of the Audit Programs for Internal Audit

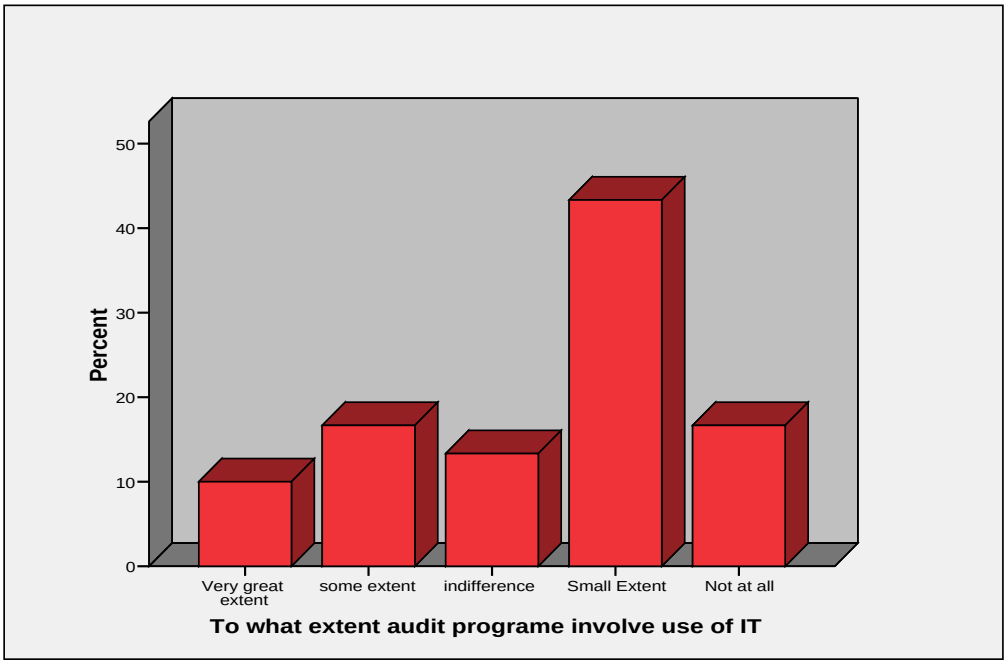
Internal audit shall be organized and implemented consistently, for the purpose of minimization of the arbitrary or useless procedures.

For assistance and guidance the internal auditors shall use so called audit programs to perform audit procedures consistently and effectively at a time of implementation of the similar audit. Term "program" denotes the number of audit procedures, which are similar to the computer programs and contain instructions, which, each time, in the course of the process, pass one and the same program instructions.

E.g. computer program, providing calculation of salaries, contain the instructions for reading of the files of the cards recording the worked days, position benefits of the employed, seeking of the information saved in the other file and calculation of the aggregate salaries. For each employee one and the same stages are repeated, with the exclusion of cases where the program specifies the overtime work. Similarly, the audit program contains the set of predetermined stages to be implemented by the internal auditor.

The respondents were asked they are efficiency use auditing programme in their auditing work, the analysis shows that to small extent the usage of audit programe is involved in the process. The analysis shows that only 10.0% of the respondents said they use it in great extent, 60.0% of the respondents said to small extents, 16.7% of the respondents said they don't use it at all. The figure below summarizes the results of the findings.

Figure 4.8: Distribution of respondents on auditing program and IT use



Source: Field Data analysis, 2014

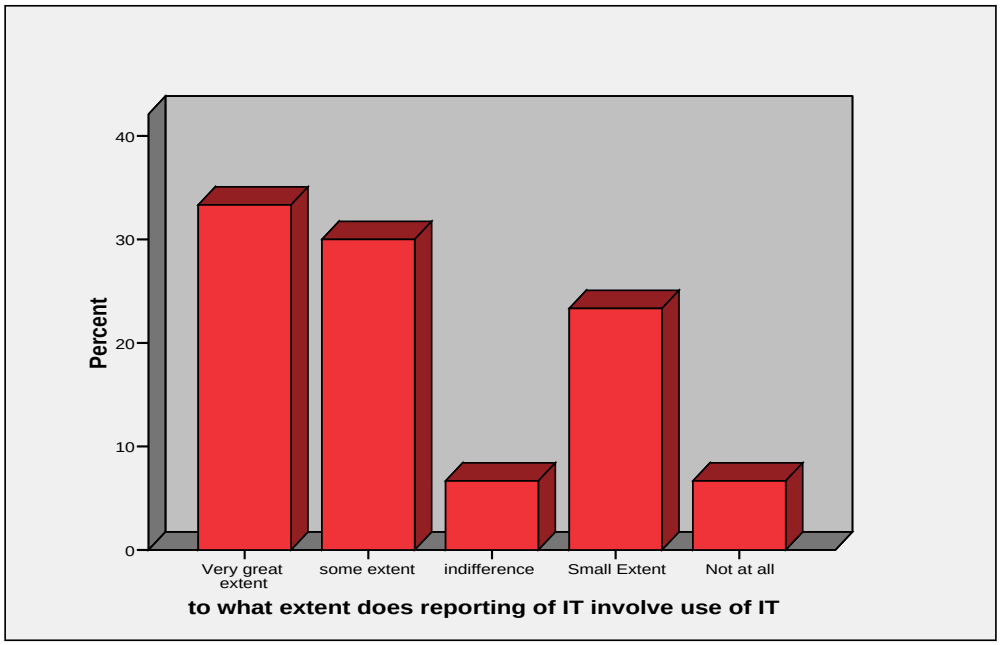
4.3.1.5 Programs Used in Auditing

The researcher also asked the programs that are used to those who said they use in the analysis shows that different companies and institutions use different IS/ programmes The following were the result showing by some of the organizations under studies. Tanzania Petroleum Development Corporation using METRIC STREAM, Twiga Cement using EXACT PEAK SCALE, National Microfinance Bank use FLEXCUBE, ACL, TEAMMATE, Public Service Pension Fund use SMART STREAM, TEAMMATE, Controller and Auditor General office EPICOR, ACL,TEMPLETE, Internal Auditor General widely using IDEA audit analysis, EPICOR, TEAMMATE.

4.3.1.6 Reporting of Internal Audit (Conclusion)

Internal audit report is the final result of the work performed by the internal auditor. The respondents were asked to mention if they use IT in reporting Auditing. The analysis shows at least majority of the respondents agree on this 63.3% that they use and only 23.3% of the respondents said they use in small extents the figure below summarizes the results of the finding.

Figure 4.9: Distribution of respondents on auditing Reporting



Source: Field Data analysis, 2014

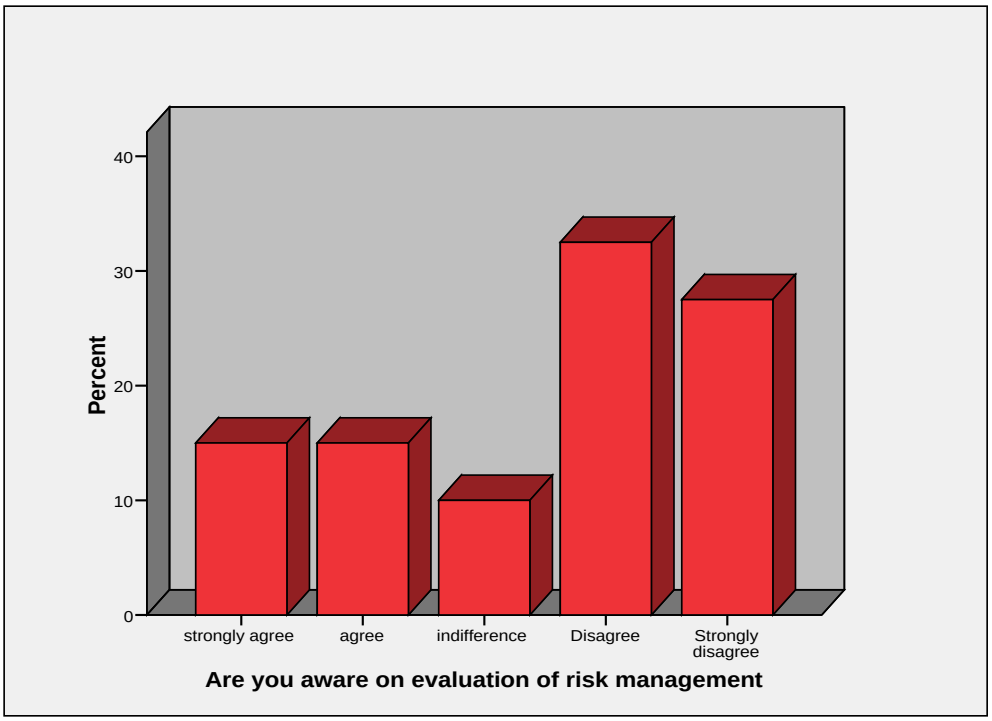
4.3.2 Awareness of common Electronic Data Processing Audit techniques by internal auditors

The respondent were asked to mention the level of usage of the common internal auditing IT technique in auditing work so as to performs internal audit's task, efficiency and effectiveness. The following were the results of the findings.

4.3.2.1 Evaluation of Risk Management

The analysis shows that majority of the respondents disagree on this, the analysis shows that 15% respondents strongly agree on this,15% respondents just agree, 10% respondents were indifference with this, and majority of the respondents 60% disagree on this (27.5% strongly disagree and 32.5% just disagree) the figure below summarizes the results of the findings.

Figure 4.10: Distribution of respondents on Evaluation of risk managements

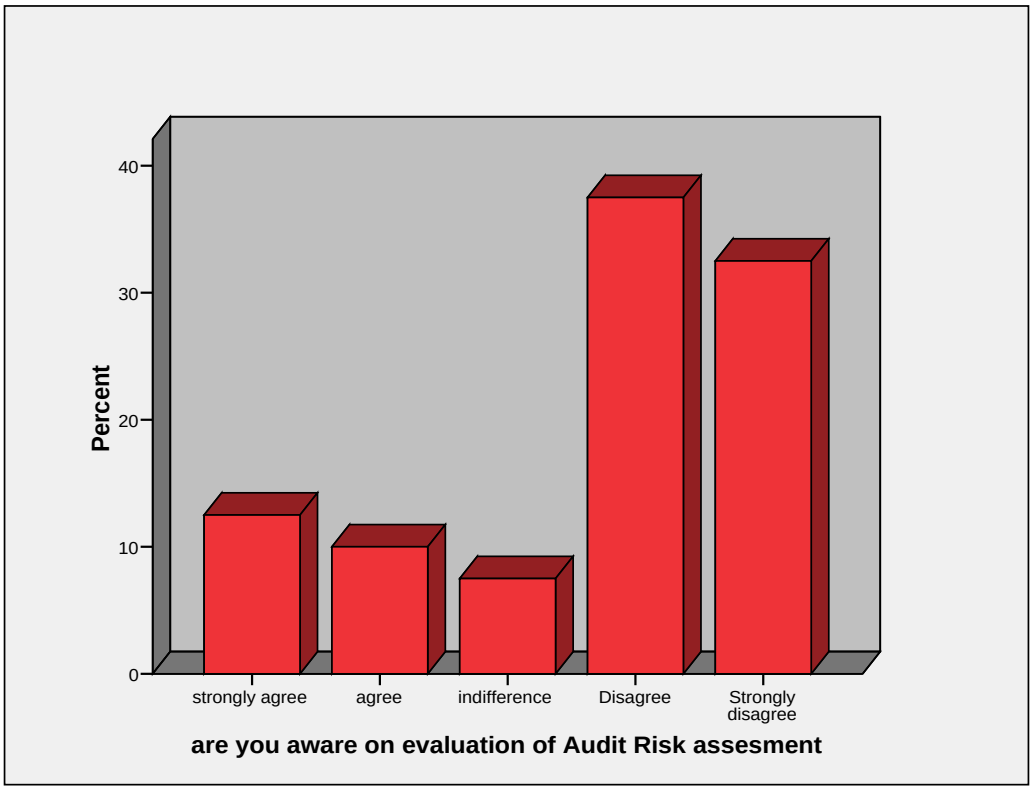


Source: Field Data analysis, 2014

4.3.2.2 Evaluating Audit Risk Assessments

The analyses showed that majority of the respondents are not satisfied with this. It was revealed from the study that 12.5 percent of the respondent strongly agreed, 10.0% the respondents just agreed, 7.5% of the respondents were indifferent with the findings, and the rest of the respondents (70 %%) disagreed. The figure below summarizes the results of the findings.

Figure 4.11: Distribution of respondents on evaluating risk assessment

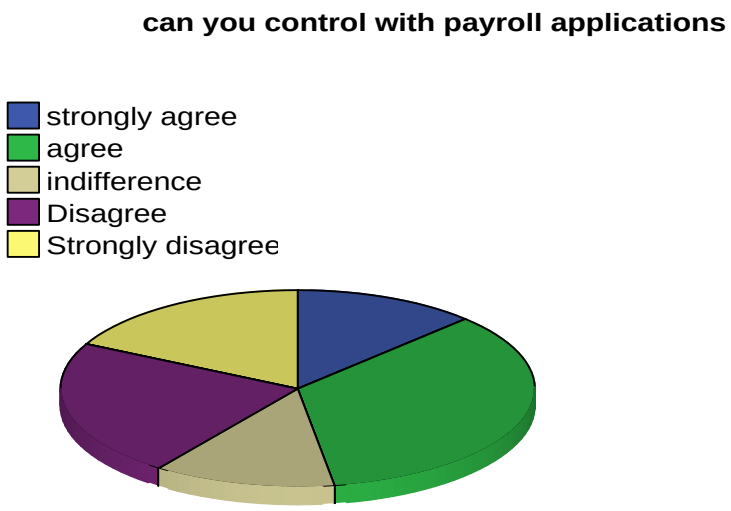


Source: Field Data analysis, 2014

Control within payroll applications

The analysis shows that 47.5% of the respondents agree with this,(12.5% strongly agree, 35% just agree), 12.5% of the respondent were indifference, 22.5% respondents disagree on this and the rest of the respondents 17.5%strongly disagree on this as shown in the figure below.

Figure 4.12: Distribution of respondents on control payroll applications

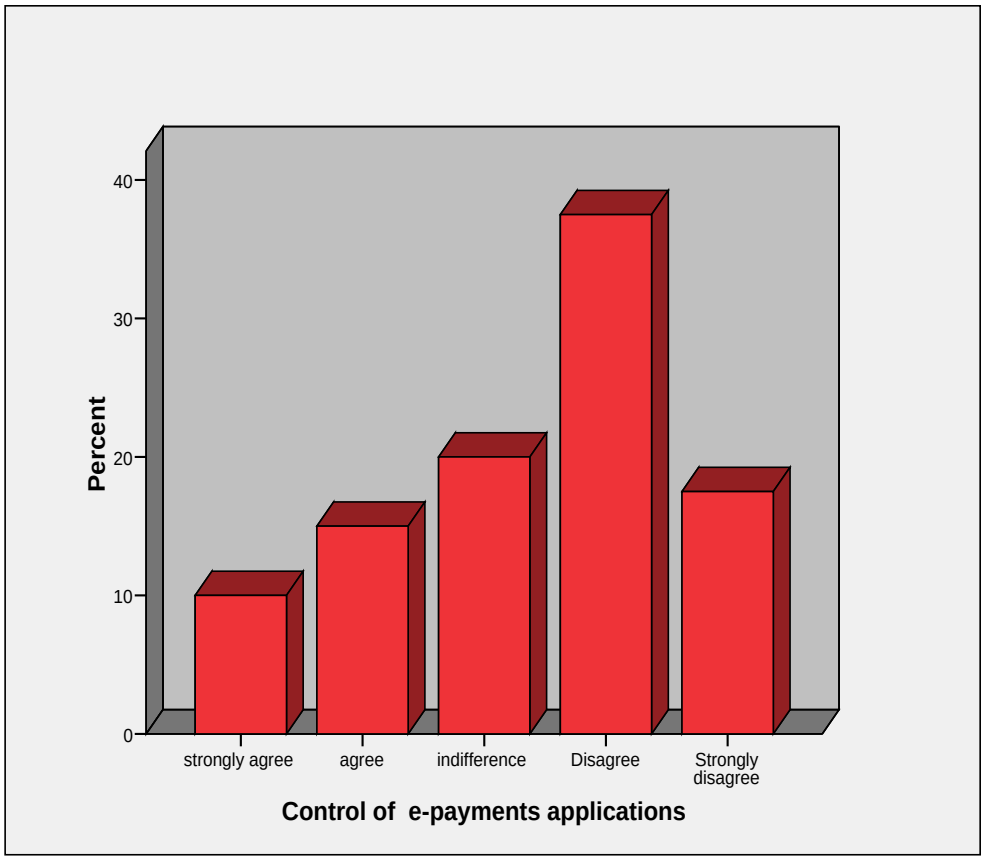


Source: Field Data analysis, 2014

4.3.2.4 Control of e-payments applications

The analysis also shows that majority of the respondents are not satisfied with this as 55% of the respondents disagree, 20.0% of the respondents were indifference with the finding and only of the respondents agree on this 10% strongly agree and 15% just agree.

Figure 4.13: Distribution of respondents on control of e payments

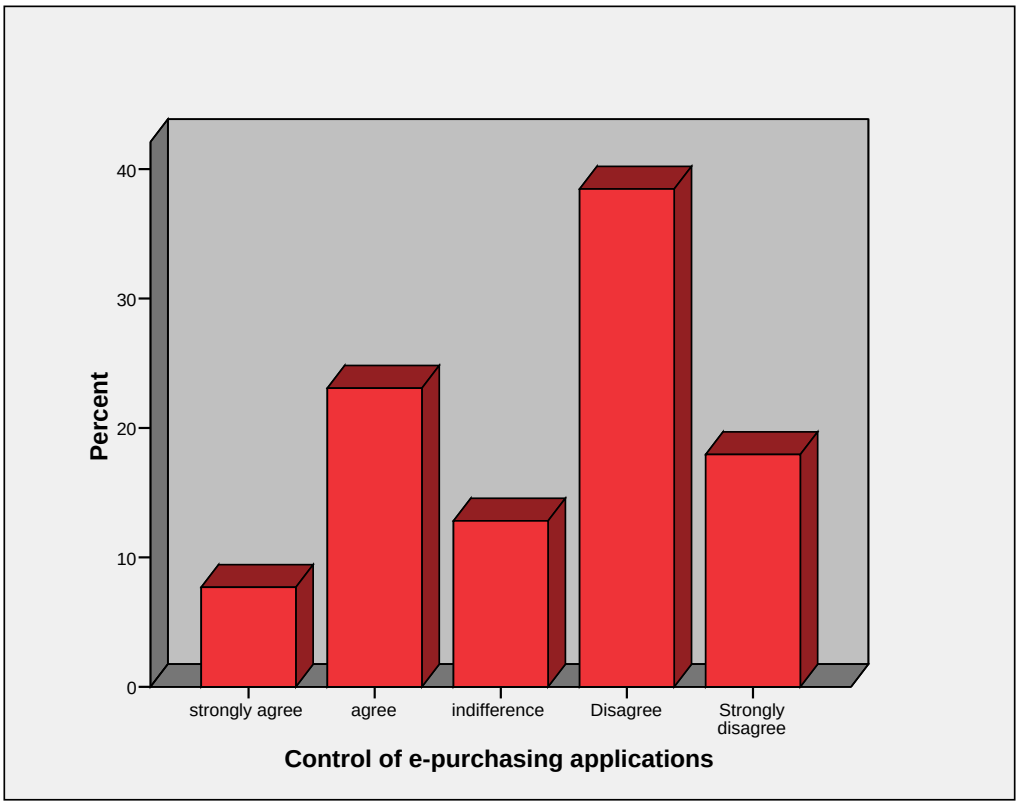


Source: Field Data analysis, 2014

4.3.2.5 Control of e-purchasing applications

The analysis shows that majority of the respondents disagree on this, 17.5% strongly disagree, 37.5% just disagree, 12.5% were indifference with the finding, 22.5% respondents agree and 7.5% strongly agree on this. The figure below summarizes the results of the findings.

Figure 4.14: Distribution of respondents on Control E purchase Applications

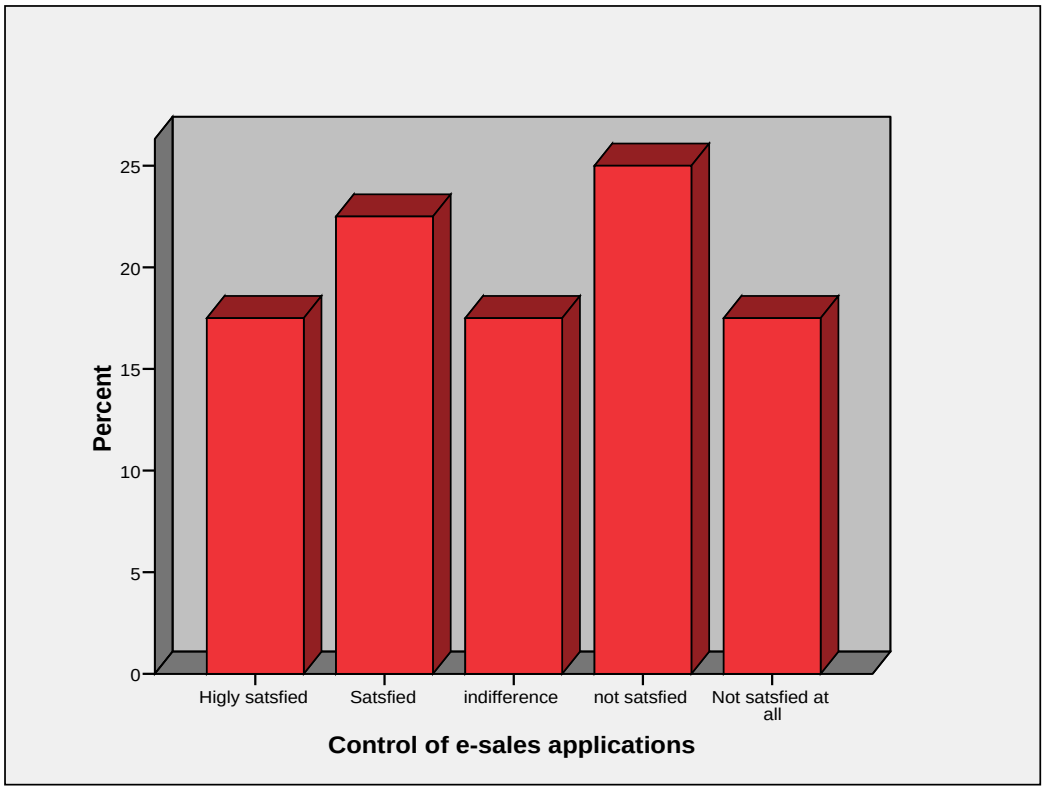


Source: Field Data analysis, 2014

4.3.2.6 Control of e-Sales applications

The analysis shows that 17.5% of the respondent agrees on this strongly, 22.5% respondents just agree, 17.5% respondents were indifference with the findings, 25.0% of the respondents disagree and the rest of the respondents 17.5%strongly disagree on this. The figure below summarizes the results of the findings.

Figure 4.15: Distribution of respondents on control e sales applications

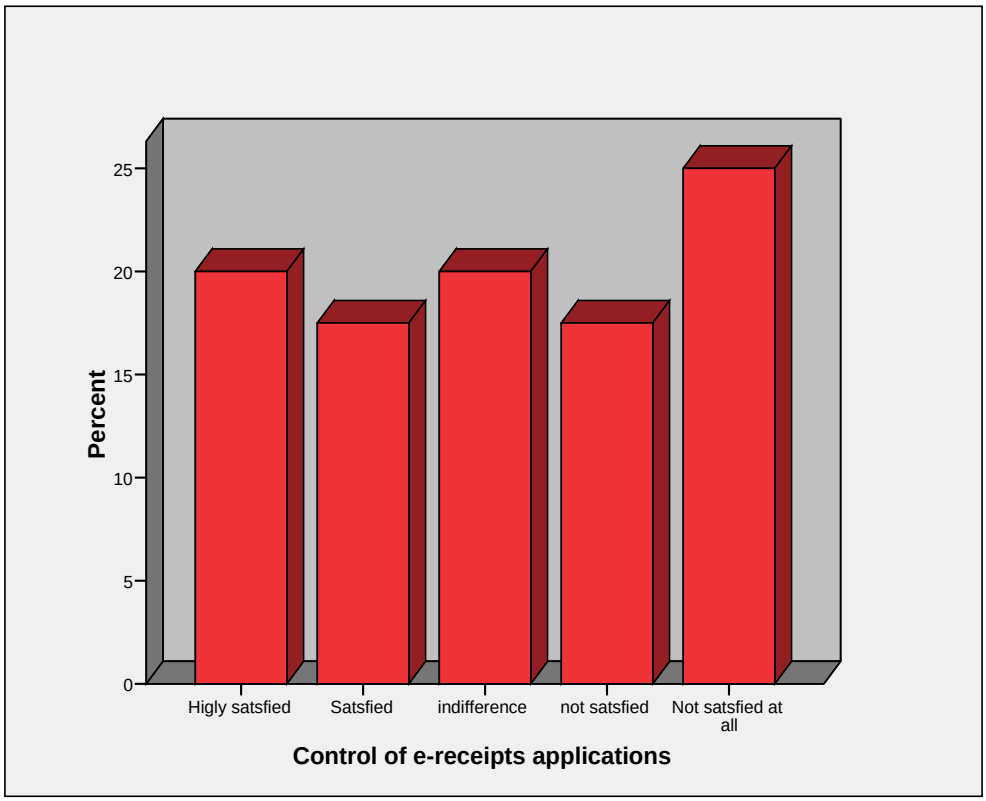


Source: Field Data analysis, 2014

4.3.2.7 Control of E-receipts Applications

The analysis shows that 20% of the respondent agrees on this strongly, 17.5% respondents just agree, 20.0% respondents were indifference with the findings, 17.5% of the respondents disagree and the rest of the respondents 25% strongly disagree on this. The figure below summarizes the results of the findings.

Figure 4.16: Distribution of respondents on control e receipt applications



Source: Field Data analysis, 2014

4.3.2.8 Control of Identity

The analysis shows that majority of the respondents disagree on this, the analysis shows 17.5% respondents strongly agree on this,12.5% respondents just agree, 27.5% respondents were indifference with this, and majority of the respondent 40%disagree on this (20% strongly disagree and 20% just disagree) the figure below summarizes the results of the findings.

Table 4.2: Distribution of respondents on Control of identity

Control of Identinty

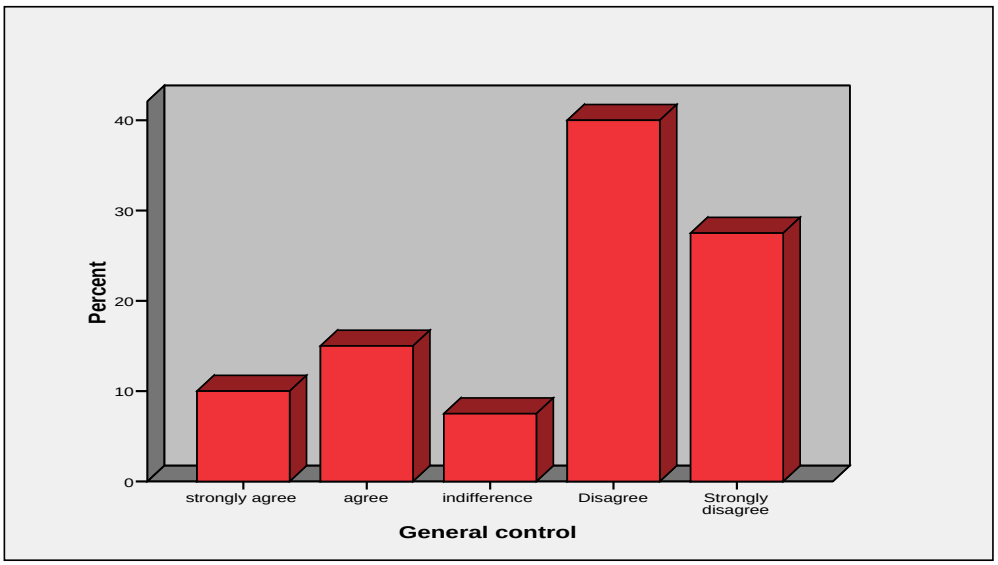
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Higly satsfied	7	17.5	17.9	17.9
	Satsfied	5	12.5	12.8	30.8
	indifference	11	27.5	28.2	59.0
	not satsfied	8	20.0	20.5	79.5
	Not satsfied at all	8	20.0	20.5	100.0
	Total	39	97.5	100.0	
Missing	System	1	2.5		
Total		40	100.0		

Source: Field Data analysis 2014

4.3.2.9 General control

The analysis shows that majority of the respondents disagree on this, the analysis shows that 10% respondents strongly agree on this,15% respondents just agree, 7.5% respondents were indifference with this, and majority of the respondent 67.5%disagree on this (27.5% strongly disagree and 40% just disagree) the figure below summarizes the results of the findings.

Figure 4.17: Distribution of respondents on General control

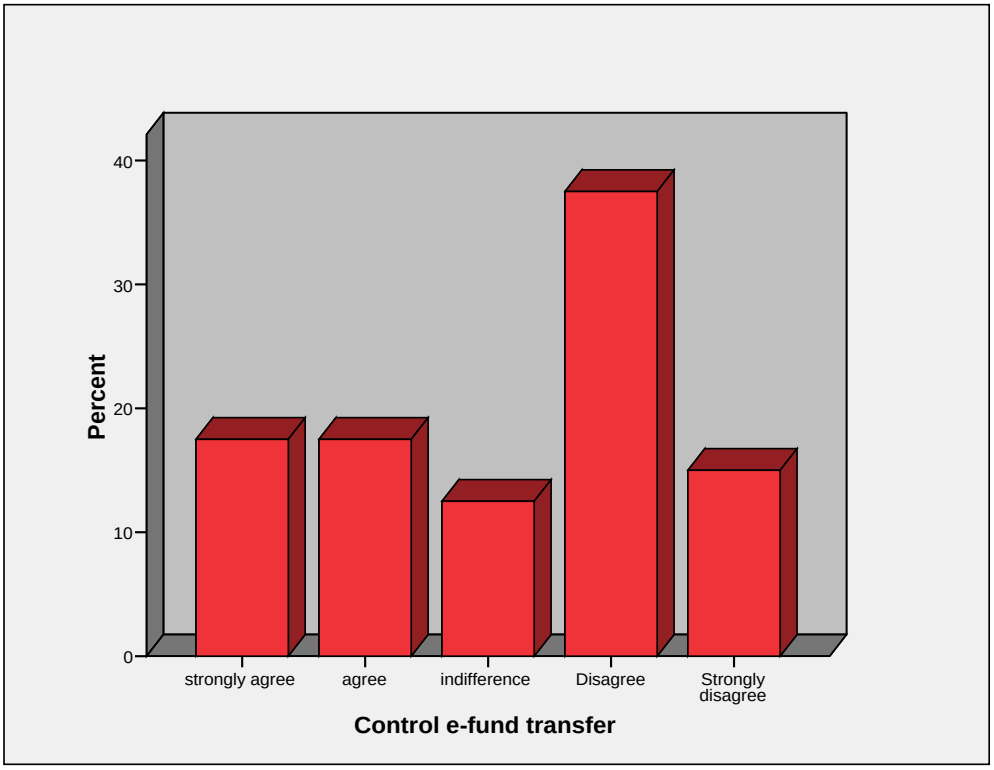


Source: Field Data analysis 2014

4.3.2.10 Control E-fund Transfer

The analysis shows that majority of the respondents disagree on this, 15% strongly disagree, 37.5% just disagree, 12.5% were indifference with the finding, 17.5% respondents agree and 17.5% strongly agree on this. The figure below summarizes the results of the findings.

Figure 4.18: Distribution of respondents on Control e fund transfer



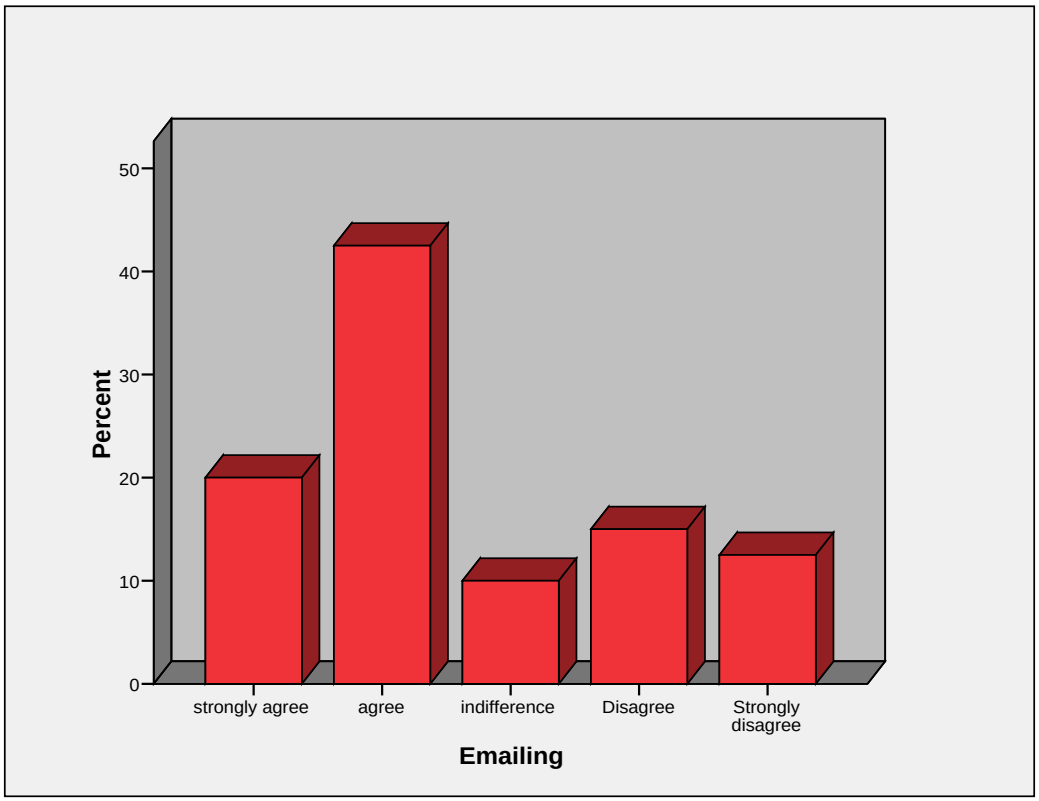
Source: Field Data analysis 2014

The analysis further reveal that Emailing, Electronic data interchange, Electronic working paper, Computer networking are the main electronic activities used by internal auditors in different organization no matter its government or its private institution or public company.

4.3.2.11 E-mailing

The analysis shows majority of the respondents 65%agree on this (20% strongly agree, 42.5% just agree), 10.0% of the respondent were indifference with this, 15% of the respondents disagree and the rest of the respondents 12.5% strongly disagree on this. The figure below summarizes the results of the findings.

Figure 4.19: Distribution of respondents on emailing



Source: Field Data analysis 2014

4.3.2.12 Electronic Data Interchange (EDI)

17.5% of the respondents agree strongly on this, 37.5% respondents just agree, 10.0% respondents were indifference with this, 15.0% of the respondents disagree and the rest of the respondents 20.0%strongly disagree on this, the figure below summarizes the results of the findings.

Table 4.3: Distribution of respondents on electronic data interchange

Electronic data interchange

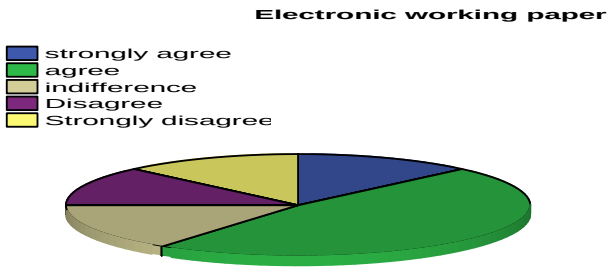
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	7	17.5	17.5	17.5
	agree	15	37.5	37.5	55.0
	indifference	4	10.0	10.0	65.0
	Disagree	6	15.0	15.0	80.0
	Strongly disagree	8	20.0	20.0	100.0
	Total	40	100.0	100.0	

Source: Field Data analysis 2014

4.3.2.13 Electronic Working Paper

The respondents also mentioned that this is one of their main duties using IT, 12.5% of the respondent strongly agree on this, 47.5% of the respondents just agree, 15.0% of the respondents were indifference with the findings, 12.5% of the respondents disagree and the rest of the respondents12.5% strongly disagree on this. The figure below summarizes the results of the findings

Figure 4.20: Distribution of respondents on electronic working paper



Source: Field Data analysis 2014

4.3.2.14 Computer Network

The analysis shows majority of the respondents 45.0% agree on this (15% strongly agree, 30.0% just agree), 30.0% of the respondent were indifference with this, 17.5%

of the respondents disagree and the rest of the respondents 7.5%strongly disagree on this. The figure below summarizes the results of the findings.

Table 4.4: Distribution of respondents on Computer network

Computer network

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	6	15.0	15.0	15.0
	agree	12	30.0	30.0	45.0
	indifference	12	30.0	30.0	75.0
	Disagree	7	17.5	17.5	92.5
	Strongly disagree	3	7.5	7.5	100.0
	Total	40	100.0	100.0	

Source: Field Data analysis 2014

4.3.2.15 Area benefiting Mainly Main from Usage of ICT in Auditing

Interviewees were also asked to mention specific areas of audit task that are Benefiting from the use of ICT. The responses are tabulated below in order of Priority.

Table 4.5: Benefiting of IT in Auditing

	Number of case	**%**
Interrogation and Analysis of Data	32	80%
Communicating	26	65%
Reporting	25	62.5%
Recording and Documenting	31	77.5%
Planning	15	37.5%
Controlling	36	90.0%
Risk Assessment	34	85%
Data Storage	29	72.5%
Selection of Samples	18	45%
Testing Sampled Data	19	47.5%
Transaction Monitoring	36	90%

Source: Field Data analysis 2014

During the interview with internal audit manager in one of the financial institution mentioned that

"Given today's growth in ICT the evaluation of system integrity, privacy and security become more important. Uncontrolled networks or loosely controlled ones increase business risk by enhancing the possibility of problem such as legal liability through theft of personally confidential or bank confidential data, interruption through loss of network communications, internal and external data tempering, and destruction of data though infection with virus. All these call for increased security in IS/IT. These can be done only if IS in my department functioning well and the evaluation considers management support and risk management in banking involve chain any tempering system control. Six years ago when I joined this bank the IS/IT were used, competence of risk department team has quite advance as increasing the pace of IT and fraudsters interfere the system and global business operation. Though not as much as efficient and effective in automated risk analysis, control self evaluation tools in internal control and in particular in fraud prevention and detection. Some of us are comfortable with the technology we use. I was already a certified accountant but I was not used to the paperless work. As you can see for yourself that everybody in this room has a computer, without it there is no job done simple."

Another bank manager from other bank mentioned that;

Banks have numerous daily transactions that are being generated by bank staff, bank customers and third party. These are made possible by the use of online real-time technology. Going through these transactions one by one manually is impossible with the time and manpower available. The only visible option is to deploy appropriate software that is capable of interrogating and analyzing data as they occur"

So generally the findings of the study reveals lack of training among the auditors is one of the main challenges that make them fail in adopting the use of ICT in their audit work. Most of the respondents complained that they had not being given knowledge to use ICT in their work in a way that it makes them difficult in adopting it.

The study also find that in some of the organization auditors had not given authorities to some of the functions in a way that it is controlled by other group of people. Some of the functions are supposes to be controlled by the auditors, but these auditors complained that they have being not authorized to access some of the function so as to help in their auditing.

Evidence gathered from questionnaire and interview analyses shows that the use of ICT in internal control has had positive impact on detection of fraud, especially in a batch transaction environment. This is consistent with the work of Matsumura and Tucker (1992) which found that a strong internal control is consistent with a high fraud detection rate. In their study, Matsumura and Tucker (1992) found that "auditors are expected to better detect fraud when penalties for not detecting fraud are increased, when testing requirements are increased, or when clients' internal controls are strong.

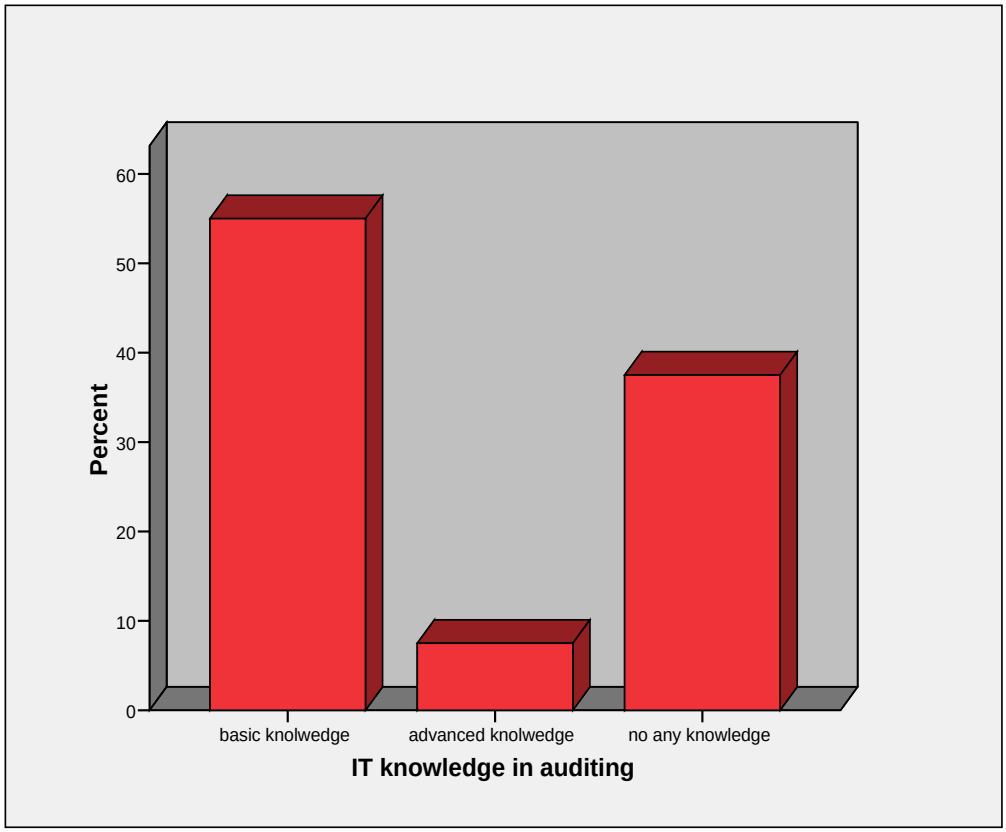
The study found strong evidence to show that Internal Auditors' perceived benefits of ICT tools and techniques include increased internal control efficiency; improved information quality; improved fraud prevention; improved fraud detection; improved operational efficiency, increased ability to compete and improved customer services. This is similar to perceived usefulness which was defined by Davis et al. (1989, 320) as "the degree to which a person believes that using a particular system would enhance his or her job performance.

4.3.3 The Relationship between IT use by internal auditors and perceived ability of internal auditors to audit IT- base information systems

4.3.3.1 IT Knowledge in Auditing

the analysis were asked to mention if they have enough knowledge on IT in auditing activities, the analysis shows that most of them they have just Basic knowledge on this, the analysis shows that 55.0% of the respondents have basic knowledge, 7.5% had advanced knowledge and 37.5% of the respondents had no knowledge on IT in auditing. The figure below summarizes the results of the findings

Figure 4.21: Distribution of respondents on IT Knowledge in auditing



Source: Field data Analysis 2014

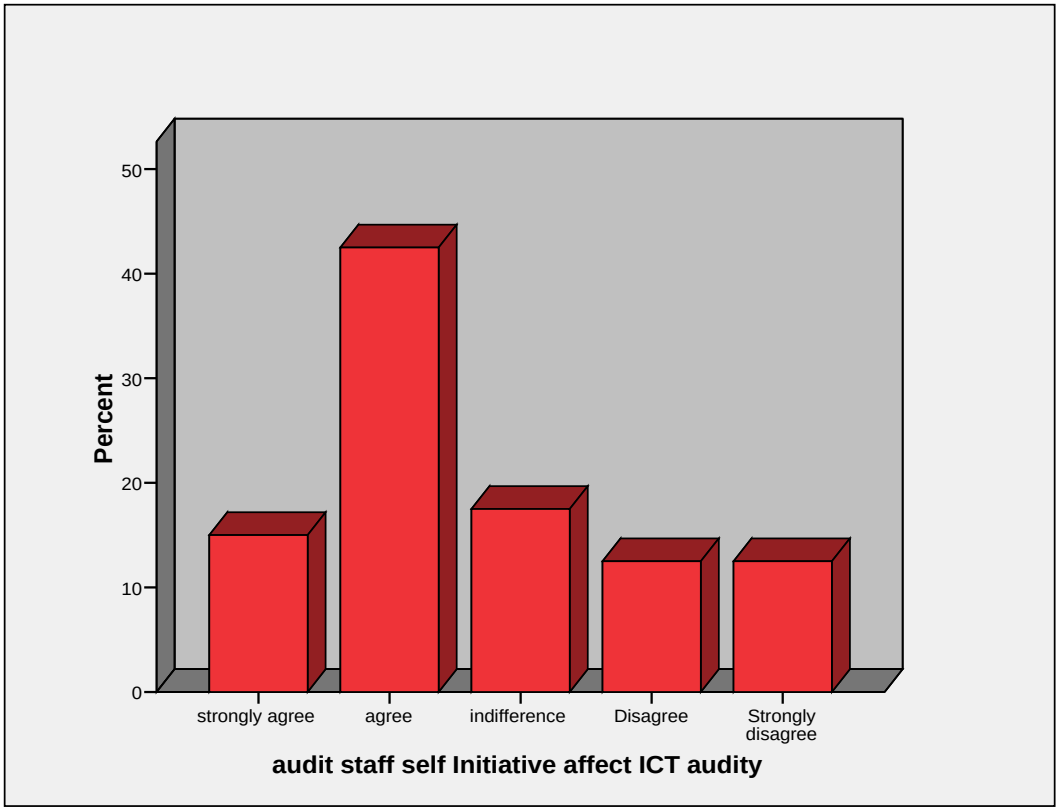
Furthermore It was revealed that most of the internal auditors they use general auditing IT knowledge they get while studying their professional studies in auditing certified Public Accountant (CPA) course offered by the National Board of Accountants and Auditors. The course is found in module E of the examination series where by the auditors take '**Auditing** course relating to the use of IT in auditing. But when the respondents were asked if these courses are enough for them it was revealed that most of them just said its just basic course.

4.3.3.2 Audit Staff Self Initiative

the study also asked the respondents on the staffs self initiatives whether is affecting the IT audit usage, the findings reveal that majority of the respondents agree that this affects the level of IT usage in auditing, the analysis shows that 15.0% of the respondents agree on this strongly, 42.5% of the respondents just agree, 17.5% of the

respondents were indifference with the findings, 12.5% of the respondents disagree on this, 12.5% of the respondents sternly disagrees on this. The following figure summarizes the results of the findings

Figure 4.22: Distribution of respondents by their age groups

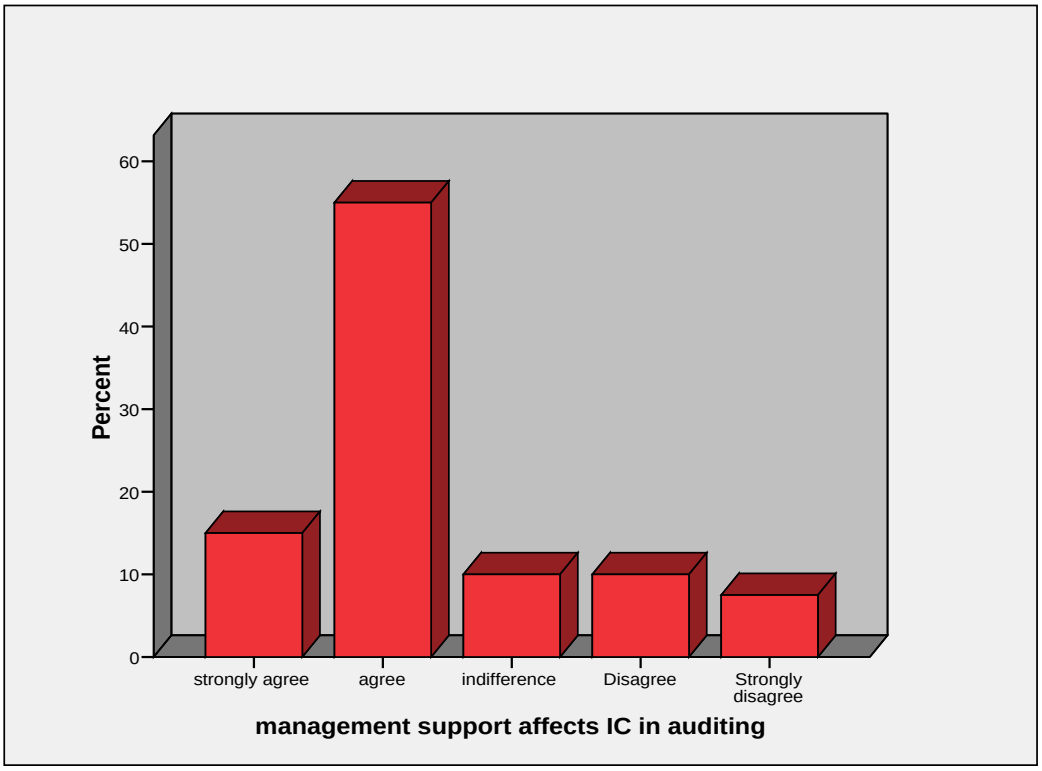


Source: Field Data analysis 2014

4.3.3.3 Management Support

the respondents also mentioned that this affects in great extent the usage of IT In auditing, the analysis shows that majority of the respondents 70.0% agree on this with 15.0% strongly agree on this, 55% of their respondents' just agree, 10% of the respondents were indifference with the finding while 20.0% of the respondents disagrees on this, the figure below summarizes the results of the findings

Figure 4.23: Distribution of respondents on managements supports



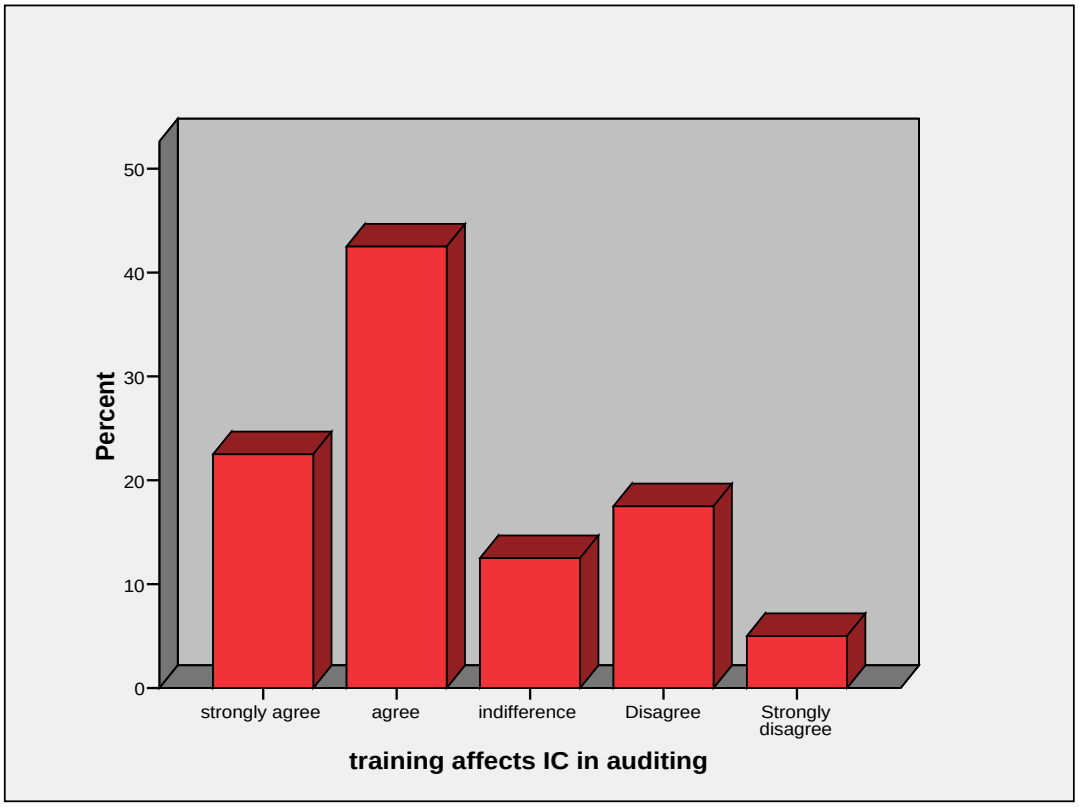
Source: Field Data analysis 2014

The audit managers were also asked to give their views as to whether internal auditors in their departments adopt new technologies slower than other parts of the organizations. Most of the respondents contended that internal auditors adopt the new technologies slower than staff in other parts of their respective organizations. Above 60% of the audit managers held this view. Top management in these organizations has been taking the audit department as not so important to warrant substantial IT investment. One will therefore find heavy IT investment in other departments along with sidelining of audit department. In the discussion held with few selected respondents it was noted that the reason behind slow adaption of information technology by internal auditors is lack of regular training on new technologies, which is the result of lack of top management support on this matter.

4.3.3.4 Training

The respondents also mentioned that there is lack of training to facilitate the usage of IT in internal auditing. The analysis shows that 22.5% of the respondents strongly agree on this, 42.5% of the respondents just agree, 12.5% of the respondents were indifference with the findings, 17.5% of the respondents disagrees on this, while only 5.0% of the respondents strongly disagree on this. The table below summarizes the results of the findings

Figure 4.24: Distribution of respondents on training



Source: Field Data analysis 2014

Furthermore when the management were asked on why there is limited training on the IT usage, one top management official put it this way: “As long as we have the IT department and enough specialists therein we don’t see as to why we should spend unnecessarily in training auditors in IT issues.” Most audit managers interviewed believe that inadequate training programmes the lack of top management support have been the greatest obstacles to IT use by internal auditors. Above 60% of

them did not believe that high training costs were responsible for this. It is therefore expected that once management acknowledges the importance of the internal audit department, will be given appropriate assistance so that the skills and knowledge of the auditors are upgraded in line with the increased IT use.

4.3.3.5 Preferences for Training on Information Technology to Internal Auditors

Furthermore the researcher surveyed on the kind of training preferred by different organization from the field it was learnt that most of Tanzanian organizations rely significantly more on the job training for those few who provide such trainings compared to the formal training. This fact was obtained during discussion with few selected respondents who said they normally get trainings.

In support of the above contention the survey found that 55% of the organizations visited offer either on site or offsite training for few technology that is introduced in the organization to internal auditors and 10% offer neither on-site nor offsite training for any technology.

Table 4.6: Distribution of respondents on Preferences for Training on Information Technology to Internal Auditors

	Frequency	Percent	Cumulative Percent
For most technology	5	12.5	12.5
Moderately	9	22.5	35.0
For few technology	22	55.0	90.0
Not at all	4	10.0	100.0
Total	40	100.0	

Source: Field data analysis 2014

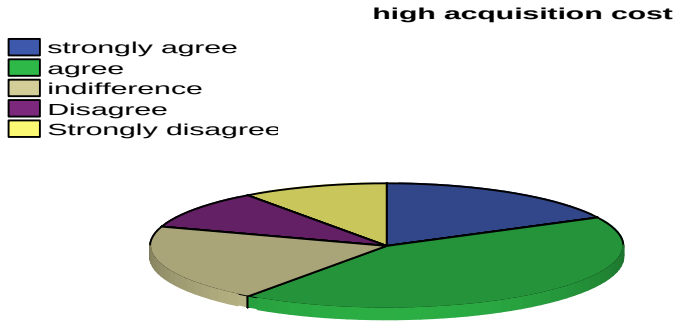
This finding is in line with the reasons given as the obstacle for internal audit's use of technology i.e. inadequate training programs for internal auditors whereby 82.5% of the respondents assigned this as one of the obstacles for internal auditor's use of technology.

In general it can be said that Tanzanian organizations are offering very little training for their internal auditors, because as it can be observed in table 4.4 above, most of the respondents about 65% are not satisfied with training programs available in their organizations.

4.3.3.6 High Acquisition Cost

The respondents mentioned that high acquisition cost being one of the main factors that cause most them not adopting the usage of IT in auditing. The analysis shows 17.5% of the respondents strongly agree on this, 42.5% of the respondent just agree, 20.0% of the respondent were indifference, 10.0% of the respondents disagree on this and, 10.0% of the respondents strongly disagree on this. The figure below summarizes the results of the findings.

Figure 4.25: Distribution of respondents on high acquisition cost



Source: Field Data Analysis 2014

The study find that there is high cost of acquisition of Auditing software and it had been found that large financial organizations such as banks are financially capable of meeting the huge cost required for audit automation. Apart from this, they have large branch networks different areas that make the business manually uncontrollable. Smaller organizations on the other hand, cannot acquire sophisticated audit software because of cost and size. This is explained by the

TLM model in that “the extent of audit automation is contingent upon the size of an organization”.

The study found, however, that fraud prevention and detection by Internal Auditors with the use of ICT tools and equipment are not contingent upon their personal characteristics such as Internal Auditors’ education, experience and gender. This result appears to be contrary to the result of similar prior studies, for example Omoteso (2006) found in his study of impact of ICT tools and techniques on auditing that auditors’ use of ICT techniques is contingent upon personal characteristics. However his study was biased more towards External Auditors than Internal Auditors.

The study found that Internal Auditors’ performance and reporting and operational independence are correlated with the use of ICT tools and techniques. This is evidenced with operational and reporting independence. Internal Auditors are able to communicate, disseminating reports with transparent can do with all internal and external stakeholders including top management and the audit committee. The implication of this is that the established ways of getting things done are being changed by the use of ICT with consequent impact on internal structures of organization. Thus the structure process has impacted the internal audit department structure, task structure and allocation of individual responsibility.

This is also explained by TLM model that predicts “...changes in the nature of auditors’ roles and outputs and audit organizations”. It is also consistent with the work of Tapscott and Ticoll (2003) as they predict that transparency will become an important basis for gaining and maintaining required trust and collaborative relationships with internal and external stakeholders, and that the role of ICT will progressively become more prominent in attaining corporate transparency.

4.4.4 Hypotheses Testing

Chi square test has many applications and is particularly useful in testing whether observed frequencies in a sample distribution differ significantly from frequencies which could be expected to rise from some hypothesis. Chi square test are concern which establishing whether the discrepancy between the observed statistics and expected statistics are, in fact statistically significantly or whether they may be attributed to chance sampling errors or variations in the data.

Based on these regard and the formulated hypothesis on this study then the Chi square test were found to be the most appropriate test of the formulated hypothesis. The following subsection analyzes the testing of hypothesis using chi square test.

4.4.4.1 Testing Hypothesis One

The hypothesis states that '*There is no significant relationship between the number of internal auditors in an organization and their perceived ability to audit computerized IS.* This hypothesis is going to be set as the nullifying hypothesis and hence called null hypothesis (Ho). Since there is a possibility of rejecting this null hypothesis then there were needs to develop another hypothesis opposite to null hypothesis which will be only accepted if null hypothesis is going to be rejected, so the formulated hypothesis is called Alternative hypothesis (Hi). So the two hypotheses are as follows.

Hi; There is significant relationship between the number of internal auditors in an organization and their perceived ability to audit computerized IS

The main aim of this hypothesis is to test on whether the number of internal auditors affects the perceived ability of usage to use IT in auditing.

Table 4.7: Hypothesis One Chi- Square Tests

Test Statistics

	number of internal auditors in an organization does not affects the ability to audit computerized IS
Chi-Square [a]	3.500
df	4
Asymp. Sig.	.478

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 8.0.

Source: Field Data analysis 2014

From the table 4.7 above the calculated chi square value is 3.500, the degree of freedom is found to be 4 and the level of significant to be .478 which provide the minimum expected cell frequency of 8.00 which means the accepted cell region to be between 0.00 to 8.00 which means if the calculated cell frequency fall within this region then the null hypothesis is going to accepted and alternative hypothesis to be rejected.

Since the calculated chi square value of 3.500 falls within the accepted region of 0.00 to 8.00 then this means the null hypothesis is accepted and alternative hypothesis is rejected. This implies that the number of auditors in any organization does not have any influence in usage of IT in internal auditing

4.4.4.2 Testing Hypothesis Two

The aim of this hypothesis is to check on whether there is relationship between the ability of the auditors to use IT and the usage of IT in auditing. The bully hypothesis represented by Ho is tested and is as follows.

Ho; There is no relationship between IT used by internal auditors and the perceived ability of internal auditors to audit computer-based information.

In testing the null hypothesis the alternative hypothesis is created so as to be accepted in case null hypothesis is rejected. The alternative hypothesis is the negative of null hypothesis and is represented by Hi and is as follows

Hi; There is relationship between IT used by internal auditors and the perceived ability of internal auditors to audit computer-based information.

The alternative hypothesis is only going to be accepted only if null hypothesis is going to be rejected. The following table summarizes the chi square test for the hypotheses testing.

Table 4.8: Hypothesis Two Chi square tests

Test Statistics

	Auditors ability to use IT affect does not the level of usage of IT in auditing
Chi-Square[a]	15.500
df	4
Asymp. Sig.	.004

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 8.0.

Source: Field Data analysis 2014

From the table 4.8 above the calculated chi square value is 15.500, the degree of freedom is found to be 4 and the level of significant found to be .0004 which provide the minimum expected cell frequency of 8.0 This means that, the accepted cell region will be between 0.00 to 8.0 which means if the calculated cell frequency fall within this region then the null hypothesis is going to accepted and alternative hypothesis to be rejected.

Since the calculated chi square value of 15.500 falls outside the accepted region of 0.00 to 8.00 this means the null hypothesis is rejected and alternative hypothesis is

accepted which means the There is relationship between IT used by internal auditors and the perceived ability of internal auditors to audit computer-based information.

4.4.4.3 Testing Hypothesis Three

The hypothesis states that '***There is no association between the level of computerized IS in Tanzanian organizations and the frequency of internal auditors for auditing computer based information systems in an organization'*** This hypothesis is going to be set as the nullifying hypothesis and hence called null hypothesis (Ho). Since there is a possibility of rejecting this null hypothesis then there were needs to develop another hypothesis opposite to null hypothesis which will be only accepted if null hypothesis is going to be rejected, so the formulated hypothesis is called Alternative hypothesis (Hi). So the two hypotheses are as follows

Hi; there is association between the level of computerized IS in Tanzanian organizations and the frequency of internal auditors for auditing computer based information systems in an organization

The main aim of this hypothesis is to test on whether there is relationship between the level of computerization in Tanzanians Organizations and the frequency of internal auditors for auditing Computer based Information system in an organization.

Table 4.9: Hypothesis Three Chi-Square

Test Statistics

	level of computerization had no impacts with usage of IT in auditing
Chi-Square[a]	8.250
df	4
Asymp. Sig.	.083

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 8.0.

Source: Field Data analysis 2014

From the table 4.9 above the calculated chi square value is 8.250, the degree of freedom is found to be 4 and the level of significant to be .083 which provide the minimum expected cell frequency of 8.00 which means the accepted cell region to be between 0.00 to 8.00 which means if the calculated cell frequency fall within this region then the null hypothesis is going to accepted and alternative hypothesis to be rejected.

Since the calculated chi square value of 8.250 falls outside the accepted region of 0.00 to 8.00 this means the null hypothesis is rejected and alternative hypothesis is accepted which means the level of computerization also affects the usage of IT in auditing. .

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a conclusion of the study and provides some recommendations based on the findings analyzed in the preceding chapter. The discussion is focused on the responses obtained from the respondents and the hypotheses tested.

5.2 Summary

Recall, the study sought to assess the impact IT has had on Internal Auditing in Tanzanian organizations, the study explore the perceived ability of internal auditors to audit computerized application systems, methodologies used when performing audit, the central finding from the study is that IT plays a very important role to support internal audit function in Tanzanian organizations.

The research work was conducted in Dar es Salaam. Of the 57 organizations selected, 40 returned useful responses. Head of internal auditing department, auditing staff, IT officials Senior Management officials in organizations were asked to fill in questionnaires. Personal interviews were used to supplement data collected through the questionnaires.

Due to the confidentiality of the data not all organizations were ready to provide the level of detail that appeared desirable for this study. In the financial industry for example, where IT has been in place for some time and relatively longer than in other industries cooperation was rather limited, example some questionnaires were incompletely filled. Reasons given for this uncooperative behavior ranged from lack of proper records or lack of time to search for the requested information.

Apart from this difficulty in collecting the primary data, there was also a considerable lack of relevant empirical literature. This can be attributed to the complex nature of IT and is still insufficient use in developing countries, particularly in Tanzania.

The analysis shows that the internal audit involve different methodologies, it was revealed that the first step of internal auditing involve planning in which the strategic plan and periodic plan of internal audit is formulated. The study finds that this stage involves small use of IT. In the second step in most internal audits is informing of the management of the respective structural subdivision / body of the structure / institution, where audit is planned, about conducting of the audit it was also found that most of the auditors don't use IT in this step.

The most widely used IS and standard software were found to be IDEA, EPICOR, TEAMMATE and were found to be applied in government department and agencies, With regard to this increased IT- use in government it is worrying that the internal audit departments are mostly not involved with and prepared for this computerization process. While accountants have been trained in the use of the software, no adequate training has been provided to the internal auditors. So generally the study finds that the methodologies of the internal audit involve to small extent the use of IT.

Regarding the Awareness of common Electronic Data Processing Audit techniques by internal auditors, the study finds that the core auditing work most to the auditors are not aware on use IT in auditing them or even some time they don't get authority to access those functions. The functions which were found to have challenges involve Evaluation of risk management, Evaluating Audit Risk Assessments, Control within payroll applications, Control of e-payments applications, Control of e-purchasing applications, Control of e-sales applications, Control of e-receipts applications, Control of Identity and even controlling Control e-fund transfer

It was found that the heaviest use of technology by most internal auditors is focused on workflow tools such as Emailing, Electronic data interchange, Electronic working paper, Computer network, data encryption, biometrics and even Recording and Documenting rather than auditing tools example file interrogation, automated risk analysis, decision support system, control self evaluation tools.
So by nature of the findings it shows the common auditing activities do not involve use of IT while IT is used in normal daily activities.

The analysis further reveal that IT knowledge in auditing, Audit staff self Initiative, Management support, Training, and High acquisition cost being the main challenge affecting most of the internal auditors in their ability to use IT.

5.3 Conclusion

The study has explored recent developments in IT in Tanzanian organizations and how these developments have affected the internal auditing profession. It also discussed the literature relating to IT auditing as well as key questions in assessing IT and auditing computerized information systems. The findings of the research has been to reveal how the internal audit departments in Tanzanian organizations lags behind in effectively using IT and properly auditing IT-based systems.

From the discussion of the findings it was clearly observed that several factors, which contributed to the hindrance of internal auditor's use of technology, were seen to be interwoven. As such it was clear that the lack of top management support seemed to be a critical problem because it is from this factor whereby other factors were brought into existence.

For instance the inadequate training programs, internal auditors' involvement in information systems development and poor allocation of budget to internal audit department were the result of lack of top management support. To change this requires that top management in the organizations be adequately trained and advised on the significant role of internal auditors in helping to attain organizational objectives.

From the above explanations it can be noted that for the betterment of internal audit departments in Tanzanian organizations most of the obstacles for the internal auditors' use of technology can be solved only by tackling to solve the problem of lack of support from top management because it seems to be the source of several problems as identified in the paragraph above.

The usage of IT in audit departments in Tanzanian organizations has not yet progressed to the level of sophistication. Where used IT helped internal auditors to

automate some of their office work, rather than their auditing tasks such as file interrogation, automated risk analysis, control self evaluation tools, decision support systems.

Training internal auditors on how to use technologies, which directly support their functions, is the only solution to this widespread problem. It is now the time that managements of these organizations need to wake up and give priority to this problem to secure internal audit sections in their organizations.

The controls and security measures cannot be properly included in Information Systems without the IS auditors involvement from the initial stage.

IS auditors should be involved in system development processes from the moment information systems are mere ideas in the information system user's mind.

Internal auditors will find themselves increasingly replaced if can't cope perform audit work in computerized environments. This is a risk to the organization because it is the internal auditor's task to secure and safeguard as far as possible the assets of the organization.

5.4 Recommendations

To be able to test systems and procedures for compliance, internal auditors must be able to examine batch systems, real time systems and online systems, error reports, console printouts and other computer produced reports and records.

Firstly, there is a need for well-educated information systems auditors. Technology has impacted upon the auditing profession in general in terms of the knowledge required to draw conclusions and the skills to perform an audit.

Secondly, The directors and audit committees must also rely on the work of Internal Auditors for the assessment of internal control therefore it is imperative for the Internal Auditor to be independent from the influence of line managers.

This study has found that the use of IT tools and techniques in internal control has positive impact on Internal Auditors' operating and reporting independence.

Thirdly, given the current situation with regard to the impact of IT in today's Tanzanian organizations which increasingly depend on IT, is clear that the demand for IS auditors will soon exceed the supply. This is still not recognized by the management in most of the organizations and auditing profession to bridge the gap between demand and supply of qualified IS/IT auditors.

Increasing organizations' effectiveness, efficiency, productivity as well as reducing their exposure to IT-based risks, the pool of IS/IT competent auditors must be increased

Fourthly, Training of accountants who ultimately become Internal Auditors must be redesigned to include modules on the effective usage of sophisticated software and equipment. For the accountants and auditors to be professionally relevant in future they must equip themselves with relevant technical expertise necessary for effective operations of knowledge-based systems. Such skills are needed for data extraction and analysis to evaluate key risk indicators.

This is necessary if the use of non-audit professionals who are currently engaged as IS/IT professionals helping auditors for data mining and analysis is to be reduced or eliminated. As the need to leverage on technology to improve audit effectiveness is being felt, Internal Auditors called for the incorporation of IT audit within traditional audit programmes. It is expected that as more and more technology is being used for internal control and internal audit functions the lines separating IT and non-IT audits will continue to disappear. This is in agreement with the findings of PricewaterhouseCoopers (2012).

As varieties of technology become available to strengthen internal control for the internal auditors there is the need to stay ahead of fraudsters in order to be effective. This calls for conducting audits on a targeted basis. In this way Internal Auditors will be able to harness technology to focus on risky areas and increase the possibility of early signals for problem areas. This is more relevant in financial

institutions and telecommunication where alternative channel banking getting more popular and less educated customers are being encouraged using it. Internal auditors have to act as cyber-crime scene Investigators participating in the field of forensic technology (Diane Sears Compbell, 2002).

The need to have a strong Association of Internal Auditors must be also taken into considerations. The business sector of the economy is dominated by NBAA members operate in Government ministries and parastatals. At the moment the challenges facing External Auditors are quite different from those of Internal Auditors. The NBAA present arrangement may not adequately address the needs of Internal Auditors who are faced with challenges of over-changing technology, although issued a subject in a module (Auditing in a Computerized Environment) and recently new syllabus Final level Audit and Assurance C_2 code P18 a sub section IT Audit much more needs to be done both at theoretical and practical levels. So the Board should provide in deep workshops to the auditors so as to improve their ability to use IT in auditing. It is also suggested to establish a unit within NBAA, specifically concerned with standards and guidelines in Information System Auditing.

The need for local professionals to associate with and benefit from experiences of international members worldwide is felt more now than ever. The importance of internal control and Internal Auditors in corporate governance cannot be over emphasized. The position and functions of Internal Auditors may be much more valuable to the existence of businesses in future than that of External Auditor.

The study has shown that security and controls in most Tanzanian organizations is inadequate/pathetic there is a need for the auditing profession bodies to re-evaluate their courses to ensure that remain current, competitive and focused in meeting the needs of employers who hire the internal auditors.

5.5 Area for Further Research

The shortcoming of this study is that it adopts a conventional approach, as opposed to more proactive research methods and in-depth study to suggest any

practical implication to auditors at large. While it is important to note there is no generic model for technology tools applicable to all organizations, it is also important to recognize the increasing dependence on technology to accomplish and/or support virtually all auditing activities. The study stress that this shortcoming is common in the benchmarking literature, and one important research question is how to incorporated risk of emerging technology in shaping business controls, and audit approaches and techniques. Furthermore the following areas can also be taken into consideration for further research;

a) The effectiveness of the efforts by the organization in enhancing the use of ICT in internal auditing
b) The impacts of adoptions of ICT in internal auditing with reference to the external auditing by organizations
c) The Assessment of audibility of specific popular information system packages and investigations of the effect of the CAATs on the quality efficiency and effectiveness of Auditing process and reports.
d) Investigation into the auditability of popular Information system packages.

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APPENDICES

QUESTIONNAIRE

The researcher is conducting a study on "The impact of information technology on internal auditing in Tanzanian organizations a case of selected organization from Dar es Salaam region". This information is for academic purpose only. In this regard therefore, you are kindly requested to answer the questions below so as to help the researcher to accomplish his academic requirement. The answers will be kept completely and entirely confidential.

PLEASE TICK WHAT APPLIES

1. What is the ownership structure of your organization?

Governments depart. (Institution)	Parastatal	Private firm/Co.	Public Company

2. What is the industrial characteristic of your organization?

( ) Manufacturing

( ) Service

- Financial, Banking or Insurance services
- Education
- IT Services
- Auditing services, consultancy services
- Other, specify _____

3. What is the number of full time employees in your organization?

Between 50 - 100	Between100 - 200	Between200 - 500	Above 500

4. Please provide the annual revenue of your organization (In Tsh)

50M or Less	50M – 200M	200M – 500M	500M – 1b	Above 1b

5. (a) Kindly provide the number of audit staff in each respective level of education in your organization

   i. Doctorate degree_____
   ii. Masters degree _____
   iii. Postgraduate diploma_____
   iv. Bachelor degree/Advanced diploma_____
   v. Some college education_____
   vi. High school education_____
   vii. Non-high school education_____
   viii. CPAs----------
   ix. ACCA_____
   x. Partial qualified_____(Mention If Foundation stage, Intermediate, Module E provided by NBAA)
   xi. Other professionals, specify_____
   xii. Total number of Internal auditors_____

   b) How many, of your internal auditors have attended any of the following specialized trainings.

   (i) Principle of computer programming and software_____
   (ii) Principles of system analysis and design_____
   (iii) Computer applications_____
   (iv) Computer auditing_____
   (v) Computer Control_____
   (vi) Others, specify_____

6. Do you agree that the audit department in your organization receives much attention from top management regarding the budget allocated for IT development? Please show your level of agreement.

Strong agree	Agree	Moderate agree	Uncertain	Not agree at all

7. Kindly indicate the purpose for which you use personal computers in your departments?

Purpose	Tick the appropriate purpose
(i) Storing data	
(ii) Retrieving data	
(iii) Processing data	
(iv) Sending/Receiving reports	
(v) Coding computer programs	
(vi) Displaying graphic output	
(vii) Producing reports	
(viii) Responding to enquiries	
(ix) Other, please mention.	

8. Kindly indicate the information system you are using in your organization

Tally	Quick book	Pastel	Bank	Others specify
				……

9. Kindly mention the duties of internal auditors in your organizations

……

……

……

…….

10. Please indicate the extent of auditor's involvement in the development of computerized systems in your organization

Very strong	Strong	Moderate	Uncertain	Not at all

11. Indicate whether you strongly agree, agree, completely disagree, that internal auditors in your organization adopt new technology slower than other parts of the organization.

Strongly agree	Agree	Moderate agree	Uncertain	Strongly disagree

12. To what extent are you satisfied with internal auditors' ability to audit newly introduced IT-based information system? Tick the appropriate:

Extremely satisfied	Satisfied	Moderately satisfied	Uncertain	Extremely dissatisfied

13. Kindly indicate which technologies is internal audit section currently using in your organization and to what extent?

Technology in use	Very highly used	Highly used	Moderately used	Uncertain	Not used at all
E-mail					
Electronic Data Interchange					
Electronic working papers					
Data Encryption					
Computer networks					
Other, please specify …….. …….					

14. How much are you satisfied with internal audit's use of technology? Please indicate your level of satisfaction

Extremely satisfied	Satisfied	Moderately satisfied	Uncertain	Extremely dissatisfied

15. How much do you agree that the following factors facilitated the use of technology by internal audit? Please indicate your degree of agreement.

Factors	Strongly agree	Agree	Moderately agree	Uncertain	Strongly disagree
(i)Corporate culture					
(ii)Training program available					
(iii)Staff knowledge					
(iv)Audit staff self initiatives					
(v)Please other factors……					

16. Which of the following have been significant obstacles to internal audits use of technology? Please show your degree of agreement.

	Strongly agree	Agree	Moderately agree	Uncertain	Strongly disagree
High acquisition cost					
Lack of knowledge					
High training cost					
Lack of management support					
Inadequate training program					

17. Does your organization offer either onsite or offsite classroom training for technologies that auditing personnel are exposed to?

( ) For all technology

( ) For most technology

( ) Moderately

( ) For few technology

( ) Not at all

18. Which audit software package do you use in your organization (if any) please circle the relevant.

Pay roll master	Platinum	Bank master	Tally	Others specify please…….

19. How much are you comfortable with the level of technology in your Organization?

( ) Very comfortable

( ) Somewhat comfortable

( ) Indifferent

( ) Somewhat uncomfortable

( ) Very uncomfortable

20. Kindly estimate the level of computerized application systems in your organization in percentage form. Example

Banking information system-100%

Financial information system-80%

Accounting information system-10%

Manufacturing information system-0% etc

Thank you very much for your Cooperation"