ROLE OF INFORMATION TECHNOLOGY ON INTERNAL AUDITING IN
GOVERNMENT INSTITUTION IN TANZANIA:
THE CASE STUDY OF MINISTRY OF FINANCE
(INTERNAL AUDITOR GENERAL’S DEPARTMENT)

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A Dissertation Submitted in Partial/Fulfillment of the Requirements for the
Master Degree of Business Administration in Corporate Management (MBA-CM)
of the Mzumbe University

2013.
CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled The Role of Internal of Information Technology on Internal Auditing in Government Institutions in Tanzania the case of Ministry of Finance (Internal Auditor General’s Department) in partial/fulfillment of the requirements for award of the degree of master of Business Administration in Corporate Management (MBA-CM).

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I, AMINA J. KIURE, declare that this thesis is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature ______________________________

Date _________________________________

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Last but not least, my friends and my co-workers who were sharing ideas with me. They were helpful that when we combined and discussed together, we had this task done.

I wish to state hereby that, all deficiencies or errors that may be contained in this document are absolutely my sole responsibility.
DEDICATION

This dissertation is dedicated to my beloved daughters Thana and Tharya who prayed for my success in my entire academic matters.
ABSTRACT

The purpose of the research was intended to explore the Role of Information Technology on Internal Auditing function in Tanzania Government Institutions. Literature review was done to identify and define research problem gap.

The study engaged a case study design whereby subjective judgment was used as an approach because it requires fewer resources and less time consuming. Data collected was analyzed using several statistical analysis techniques to summarize and organize the data in a meaningful way.

The study found that the Role of Information Technology on Internal Auditing function in Tanzania Government Institutions is crucial; however, there are obstacles for internal auditors to perform their day to day operations smoothly by using IT. This was identified as a result of IT to be used mostly in auditing process while there is problem hinder the efficient and effectiveness usage of IT in the Government institutions.

The study concludes that; Majority of internal auditors do wish to know the application of these IT packages but they lack the appropriate knowledge or the technology required.
The researcher really hopes that output from this study shall be of practical use to Ministry of Finance (MOF)
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<thead>
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<th>Abbreviation</th>
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<tr>
<td>ACCA</td>
<td>Association of Chartered Certified Accountants</td>
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<td>CAAT’s</td>
<td>Computer Assisted Auditing Techniques</td>
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<td>CIS</td>
<td>Computerized Information Systems</td>
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<td>CISA</td>
<td>Certified Information Systems Auditors</td>
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<td>CPA</td>
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<td>DBMS</td>
<td>Database Management System</td>
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<td>DP</td>
<td>Developing Partners</td>
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<td>EDP</td>
<td>Electronic Data Processing</td>
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<td>IIA</td>
<td>Institute of Internal Auditing</td>
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<td>IS</td>
<td>Information System</td>
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<td>LDC’s</td>
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<td>NBAA</td>
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<td>SPSS</td>
<td>Statistical Package for Social Scientists</td>
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CHAPTER ONE

1.0 AN OVERVIEW OF THE STUDY

1.1 Introduction

Chapter one is an introductory chapter that highlights the whole research paper. The chapter is divided into seven parts: Part one presents background information, part two points out statement of the problem; part three and four show research objective and research questions respectively; part five put forward significance of the study and finally the limitation of study.

1.2 Background Information to the Research Problem

The fast and dramatic development of Information Technology (IT) witnessed in the past three decades has affected all sectors in the world. The view that IT is now becoming increasingly important in organizations is now widely accepted in the literature (Benjamin et al, 1984). In fact, IT is the driving force in today’s international economic environment. Some scholars even suggest that IT is now firmly on the boardroom agenda with land, labour and capital (Guest, 1994). Of any technology developed over the past 150 years - radio, television, telephone and even the car engine, IT has eclipsed all of its predecessors (Garitte, 1998). The developments in IT had experienced such rapid growth and continuous change that even statisticians cannot accurately define its benefits, or its effect on the economy (Garitte, 1998). Others predict a future where every organization, irrespective of its mission or role, will critically depend on IT on every functional area (Guest, 1994).

Analysts who have studied the advances in technology say that computing power has been doubling every 18 months, and traffic on the Information Superhighway is doubling approximately every 100 days. In addition to convenience, speed and
accessibility, the cost of doing business via the new technology is dropping, while prices in the non-technical areas are on the rise (Garitte 1998), therefore making IT even more attractive as a business tool.

The phenomenal growth, combined with affordability, has prompted more and more organizations to assess the benefits and risk of IT. Key players in organization hierarchies from chief executive officer to accountants, auditors and members of the board ought to be sorting the wheat from the chaff on IT issues. This is important because they would want to reap the greatest rewards of technological capabilities while making sure that the organization (with its assets) is secured and protected (Garitte, 1998).

While in most parts of the developed world IT has been in place in accounting systems for some time now, computerization of Accounting and Financial Systems in Tanzania is only just gaining momentum.

Both accounting and auditing are now completely interwoven and heavily dependent on electronic data processing (EDP). For the Internal auditor, IT is seen as a two edged weapon; 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 (Institute of Internal Auditors, 1998). Indisputably, the role of the internal auditor especially in the issues of control and security in an organization is of critical importance. In this age of rapid technology advance, organizations that tolerate the violations of control and security because of ignorance become vulnerable to threats. If there has ever been a need for continuous training of internal auditors, then this is the time (Park, Seong,Roy and Ashok, 1994).

The purpose of auditing an 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 IS is becoming more and more difficult (Lovata, 1990). Knowledge of many aspects of IT is required in order to analyze the quality of IS. The need for knowledgeable information system auditor and control professionals is increasing.

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

It causes businesses to introduce new services in order to remain competitive- services that could not have been provided ten years ago (Mc Namee 1995)

Auditors must thoroughly familiarize themselves with revolutionary computer technology changes. Such changes impact the way accounting is practised, the way management services are provided, the type of security and control measures installed in computer systems, and the way auditing is conducted. While studies on the impact of IT on internal auditing have been undertaken in industrialized countries, no such analysis has been attempted in wider perspective in Tanzania. This study is therefore aimed at filling that apparent gap.

1.3 Statement of the Research Problem

Government institutions are increasingly becoming dependent on IT. IT increases accuracy and speed of transaction processing, yet also increases the potential for fraud, and privacy violation and other internal control problems (Warren et al 1998). It is widely believed in Tanzania that both business firms and non profit institutions benefit very much from IT investments. Studies in Developed countries indicate that computer assisted information and telecommunications support, improve corporate decision
making and personal productivity at all levels of management (Drucker, 1988). Furthermore, such studies have shown that as dependency on IT increases, the value of assets invested in computer hardware, software and staff training increases (Yuthas, and Eining 1995). IT becomes increasingly essential for service based organizations and must be properly controlled as it keeps changing almost daily.

The complexity and changing nature of IT present challenges for the internal auditor. New forms of audit evaluation are needed to effectively monitor the use of IT within organizations. For example, there is a growing need for IT investments to be evaluated by internal auditors for their contributions in meeting the strategic goals of the organization. Also, new audit techniques must be used in “paperless” environment (Vasarhelyi and Halper, 1991). Thus, the changing role of technology in organizations is expected to effect the evaluation and techniques used by internal auditors.

In a survey that was conducted by IIA in 1998 in the United States of America (USA), it was found that many organizations feel that they have a lot of technology but there is not enough internal control. With the proliferation of portable computers and worldwide access through global networks, some auditing managers feel as if they are under siege (IIA, 1998).

IT training in Tanzania seems to be uncoordinated, with most training centers concentrating on application programs, especially word-processing and spreadsheet processing. It is doubtful if any of these institutes can provide the knowledge that is relevant to internal auditors. There is even the question of whether the CPAs (Certified Public Accountants) in Tanzania are technologically up to –date. The current syllabus puts too much emphasis on traditional financial accounting approaches (Muragu, 1999). Muragu observes that, the popular approach to accounting education and training as of now is founded on concepts and methodologies that evoked at the time of industrial
revolution. The results produced by accountant today may only be marginally relevant and quite possibly seriously misleading (Muragu 1999)

Because computer systems are so pervasive and fundamental to any institutional performance, evaluation of IT risks and controls is crucial. It is upon internal auditor to ensure that a firm’s assets including computerized systems are properly controlled and secured as a service to management.

1.4 Research Questions
The study was guided by the following research questions:

1. To what extent is auditing work performed by internal auditors in Tanzania government institutions is supported by IT solutions?
2. In which way can IT assist the internal auditing to deliver their activities?
3. What are challenges that managers and internal auditors face in applying IT?
4. What are measures that have been taken to deal with IT challenges?
5. What are stakeholders opinion on what should be done for successful adoption of IT by internal auditing function?

1.5 Research Objectives
The objectives of this research paper are divided into two parts namely general and specific objectives as stated below

1.5.1 General Objective
The broad objective of this study was to explore the role of IT on internal auditing function in Tanzania Government institutions.
1.5.2 Specific Objectives:

a) Assess how IT has influenced the internal audit function.

b) Establish how IT can assist internal auditors to efficiently deliver their activities.

c) Explore possible challenges that management and internal auditors face in applying IT in performing their functions.

d) Establish measures taken to alleviate the challenges.

e) To seek for stakeholders opinion on what should be done for successful adoption of IT by internal Auditing function.

This study explored the role IT has had on internal auditing, and specifically, evaluation of IT contribution in day to day functions carried out by internal auditors. For this reason, the study was guided with the following questions:

1.6 The Significance of Research

i. Given that no evidence showing that the research of this kind has been done in Tanzania, the research results will enable managers in Tanzanian government institutions understand the role of IT on auditing function and to which extent the auditing profession has changed because of IT applications, methods, and tools.

ii. For Auditing profession, it is important to understand evaluation used to audit IT as a first step in understanding how technology is changing the profession (Hermanson 1998). Understanding the changes in the profession attributable to IT may improve the performance of the internal audit function.

iii. Further, understanding how IT evaluations are performed by internal auditors may help educators (both academic and continuing professional educators) design course materials that are more valuable to practicing internal auditors.
This is important given that one of the major challenges facing internal auditors is the lack of trained audit specialist (Muragu 1999).

iv. It was in recognition of the multidisciplinary influence that IT has on many disciplines that the NBAA issued its auditing guideline no. 6, emphasizes how audit principles should be applied in a computer environment. The guideline states that, it is necessary for auditor to have the knowledge and skills appropriate to the environment in which he/she is auditing. Professional ethics imply that he should not undertake audit work he is not competent to perform, unless he obtains such advice and assistance as will enable him to competently carry out the task. This survey is therefore expected to throw some lights on the knowledge and skills level of internal auditors in government institutions in Tanzania.

v. The research results will also help to overcome the lack of enough empirical literature in IT auditing in the (Less Developed Countries) LDCs and in Tanzania particularly. While some authors have attempted to examine the possibility of quantifying IT investment expenditures and the problem of measuring the intangible benefits of IT, they have not addressed the question of IT evaluation in developing countries (Lubbe, 1999). This study is therefore expected to fill this existing gap.

vi. Finally, this research paper is required to be submitted in partial fulfillment of my Master degree in Business administration at Mzumbe University (MU)

1.7 Study Limitations

i. Time Constraint

Time allocated for conducting this research affected negatively the study. Only three months allocated to carry out research forced me to allocated three weeks
survey and select a small number of sampling unit from each group that will be too small to represent the whole population.

ii. Financial Constraint

Financial constraint somehow affected the study though some funds were set aside for research. From the budget, funds provided were not sufficient to carry out the survey successfully under high economic hardships, which are prevailing in our daily lives.

However, limited available funds and time were wisely used to produce a sound academic report that can also be used in non-academic arena.

1.8 Scope of Study

The survey took place in Dar es Salaam City covering three districts of Ilala, Temeke and Kinondoni. The Dar es Salaam City was chosen because it is the largest industrial and commercial centre in the country and the largest port, where all major importers in the country are based. The City occupies a unique position unlike other regions in the country, mainly urban, with 90% of its population living in the urban social setting. Given its commercial experience, the necessary data was easily available. Further, Dar es Salaam had all Ministries which get financial support from the Ministry of Finance based on national budget allocated hence the issue of data collection was not a big problem. Moreover we noted existence of more contacts with external world because of its large airport, harbour and multi-cultural interactions through dialogue and growing media facilities (e.g., films, TV) from western countries suggesting exposure to knowledge of new ideas and methods in Information, Communication and Technology (ICT).

1.9 Organization of the study

This report consists of five chapters. Chapter one introduces the research and includes, background information to the research problem, statement of the problem, research questions, research objectives, significance of the research, study limitations and scope of the study. Chapter two is about the literature review. In this, theories, and other empirical findings on the role of IT in internal audit function are presented. The conceptual framework is also featured.

Chapter three is about the research methodology. This covers extensively on research designs, sampling designs, types of data, data collection instruments, population of the
study and data analysis are presented. Chapter four and five represent research findings and a detailed discussion of the findings, conclusion and recommendations respectively.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter addresses various theories in internal auditing function in IT environment, supported with empirical studies, existence of research gap and research framework to guide the survey. The purpose of this chapter is to identify the existing literature materials which form basis for further research in terms of data collection and analysis.

2.2 Definitions of Key Terms and Concepts

2.1.1 Computer Information Systems (CIS) Environment:

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

2.1.2 Internal Auditing:

Internal auditing is an objective, internal activity. It is part of the organization’s 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 control and 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, 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.

2.1.3 Background of IT auditing

The introduction of computer technology into accounting systems changed the way data was stored, retrieved and controlled. Hence a significant effect on internal control systems employed by the entity. It is believed that the first use of a computerized accounting system was at Generic Electric in 1954. During the same time period of 1954 to the mid-1960s, the auditing profession was still auditing around the computer. At this time only mainframe computers were used and few people had skills and abilities to program computers. This began to change in the mid-1960s with the introduction of new, smaller and less expensive machines. This increased the use of computers in businesses and with it came the need for auditors to become familiar with Electronic Data Processing (EDP) concepts in business.

In 1968, the American Institute of Certified Accountants (AICPA) and the big eight (now the big four) accounting firms participated in the development of EDP auditing. The result of this was the release of Auditing & EDP. The book included how to document EDP audits and examples of to process internal control reviews.

In 1969, ISACA - formerly the Information System Audit and Control Association was formed to meet the unique, diverse and high technology needs of the growing information systems field.

In 1978 ISACA started Certified Information System Audit (CISA) program.

In 2002 Tanzania ISACA (http://www.isaca.or.tz) Local chapter was launched, to promote IT Auditing in the country including hosting CISA Examination centre. The chapter is also conducting CISA training and to date Tanzania have 54 Certified Information System Auditors (CISA)

2.1.3.1 What is Computer audit

IT Audit is the process of collecting and evaluating evidence to determine whether a computer system has been designed to maintain: data integrity, safeguard assets, allows organizational goals to be achieved effectively, and uses resources efficiently. Data
integrity relates to accuracy and completeness of information as well as to its validity in accordance with the norms.

2.1.3.2 Why computer audit

- Unique features of computer systems: Computer–based systems have certain features which are not present in manual systems. The design and installation of computer system is often extremely time-consuming and complex. This means that for more explanatory documentation must be produced and maintained than for manual systems. The computerization of various systems within an organization results in a large part of the control and operation of accounting and information systems being concentrated in the IT department. This in turn means that strict controls are required over the computer department to ensure that this concentration of work continues to flow smoothly and efficiently through the various stages.

- Creates risks to the Organization- Computer systems, whilst providing considerable benefits through their introduction, also present business with some significant risks.

  Business interruption- The degree of reliance that many organizations place on their IT activities is often considerable, to the extent that if those activities ceased to function, the entire business would be in jeopardy.

  Errors- Since one of the features of computer systems is their ability to perform a series of processes automatically with little or no human involvement, risk of errors being present in programs, and the weakness of humans to erroneous input leaves us with another major vulnerability- incorrect accounting of information.

  Fraud- The absence of trails and trend toward more automatic processing without checking of detail by managers, present us with the risk of fraud

  Development Risk- For most organizations the cost of developing, implement and maintaining new computer systems is very considerable. It is essential that businesses safeguard their investment in new technology. An enormous of money and is lost through failure in the development of new systems
2.1.3.3. Objectives of Computer audit

The objectives of IT audit include assessment and evaluation of processes that:

a) Ensures assets safeguarding-“assets” include five types of assets which comprises Data, Application systems, Technology, Facilities and People.

b) Ensures that seven attributes of data or information are maintained. These include; Effectiveness (deals with information being relevant and significant to the business), Efficiency (Provisional of information through the optimal usage), Confidentiality, Integrity (accuracy, completeness and validity), availability, Compliance and reliability of information.

Using appropriate technological tools and expertise, evaluate the adequacy and effectiveness of control systems addressed to the risks emanating from an organizations application of technology in support of its business objectives. (Paliotta 1999).

2.1.4 Internal Financial Auditor

The internal Auditor’s (Financial) primary concern is with compliance with prescribed procedures (rather than management policy) with respect to the financial accounting information, and he is therefore an integral part of the internal control system itself. Accordingly, his purpose is to periodically examine systems and procedures and documentary evidence pertaining to accounting information usually after the fact, so as to ascertain that accurate information is being produced (Gage 1974).

2.2 Historical Development of Auditing

The earliest records ever audited were Babylonian clay tablets about 5000 years ago. The world’s first auditor may have created the tiny marks on the tablets next to inventory entries. By the time of middle Kingdom of the Nile, the Pharaoh’s deputy was overseeing the storage of grains. Auditing was a matter of re-performing the work of others. Systems were very simple, and auditing meant observing, counting, and double checking records. In some countries where modern auditing is just now being introduced, re-performance is still the mainstay of the auditor.
Business organizations and systems continued to change and grow in size and complexity throughout the industrial age. Advances in systems thinking and the massive organization of human enterprise in response to World War II triggered a dramatic change in the practice of auditing. The old audit method used a checker checking a checker.

The modern practice of auditing internal control systems supplanted the prior technique of re-performing every step. Systems continued to be perfected. Today we use sophisticated risk modeling; statistical sampling and computer assisted auditing techniques (CAATs) as part of audit process. The IIA recognizes that internal auditors play more than just a detective role in many organizations. They are trusted and knowledgeable management consultants. They evaluate proposed controls for new system to prevent subsequent audit finding of inappropriate or missing controls. They help educate managers at all levels about control objectives and the appropriateness of control techniques. They build sophisticated control monitoring systems and they provide these systems to operating managers to add both value to the management function and systems audibility. Audibility should therefore be an integral requirement in any systems standards.

2.3 The Impact of IT to business and service delivery in General

Technology has impacted the business and service delivery environment in three significant ways (ISACA, 1998). First it has increased our ability to capture, store, analyze and process tremendous amounts of data and information, as well as changing production and service processes.

Second, technology has significantly impacted the control process, while control objectives have remained fairly constant, except for some that are technological specific, technology has altered the way in which systems should be controlled. Safeguarding
assets, a control objective, remains the same whether manual or automated system is in place. However, the manner by which we meet the control objective is certainly impacted.

Third, technology has impacted the auditing profession in terms of the knowledge required to draw conclusion and the skills to perform an audit. As already stated in the research problem, it is in this area that our research is mainly focused.

2.4 Manual systems audit Vs Computerized systems audit

“The auditor of manual systems is concerned about the inconsistency of people as they process data, while the auditor of an automated system is concerned about the consistency of computers as they process data (Davis and Perry, 1982)

2.5 A review of trends:

Three features were observed from the study (Shama, 1999)

- The tradition role of internal auditor is changing:
  It was indicated that tradition role of the auditor is due diligence, internal control, and fraud detection had changed. The main changes have occurred in the areas of internal control evaluation, implementation technology, and due diligence.

- There are new opportunities for the internal auditors:
  The opportunities include internet and intranet auditing, relationship auditing, environmental management auditing, auditing the strategic plan and facilitating organization change. Today, internal Auditors need even more skills to capitalize on these opportunities.
• **Internal auditors need new skills:**
The skills are needed especially in the areas of IT, business management trends, business process re-engineering, strategic planning, and a number of ‘soft skills’ including: skills in change management, listening, negotiating, marketing and personal type understanding (Bennet, 1999).

• **Nature and the rate of change in Information Technology**
Observations have been made by many experts and they are very clear. One is the non-linear change in Information Technology and two, the increasing rate of change in technology (Raval, 1998). Both of these have implication for internal auditors. Since the firms are busy creating new technologies, their focus is on what the new technology can do rather than how it can be controlled (Raval, 1998). Also, the rate of change in technology is unprecedented, resulting in reduced cycle for newer version of emerging technologies, new tools and techniques, and reengineering of existing processes for the internal auditors technologies and their security and control implication in a very short span of time (Raval, 1998).

### 2.6 Internal auditing in the 21st Century

Internal Auditing in the 21st century is undoubtedly going to be very different from what it has been in the past centuries. We have to reinvent internal auditing. New skills are required and new relationships need to be established to mirror the changes in organizations. Internal auditors are going to be the educators of the organizations (McNamee, 1994). Auditors will be skilled at facilitating and connecting ideas to the shared vision.
Technology is going to enable auditors to build control into development and use of systems. Auditors will guide the user of systems so that can design, test, and monitor their own controls. It is in this period that we are going to witness internal auditing finally breaking with its roots in narrow accounting and becoming an even more valued function of general management as a primary agent for transforming change (McNamee, 1994). For sure this is an opportunity for internal auditors to earn a place in this new organization. Those who can adopt and learn will prosper and those who hesitate will definitely be outsourced or replaced.

2.7 Empirical studies

2.7.1 Introduction

Auditing is an area of commercial activity that has in the past been under-researched relative to its importance in the business world. In recent years, there has been a surge of academic and professional interest in auditing research and development in USA, partly in response to pressures from outside the profession (Hope and Fraser, 1998). The pressures are now extending to other countries in the developed world.

Based on the survey findings by Pound, there is a need for improved auditor education and for the greater interaction between data processing personnel and the auditor, to the extent of respective of the professional bodies providing the joint courses. He further considered that the auditing bodies have a responsibility to initiate enquiry into the adequacy of presently available computer audit techniques, and to encourage research into ways of coping with the inevitable advances in (Development Partners) DP.

2.7.2 Studies of other Researchers

Cash, Bailey and Whinstein(2004) were particularly concerned with the problems of the audit of data base management systems (DBMS). However, they also point out ways in
which DBMS might themselves become helpful tools for the auditor both in the retrieval of data and in simulating and evaluating the client’s internal control system.

Nottingham (1976) emphasized the difficulties auditors have in detecting computer fraud and abuse after the event. Indeed he considered such detection based approach to be impracticable and noted that computer researchers have rejected the idea of detection in making a computer system more secure, and placed total emphasis on providing protection elements.

Will and Weber are more specific in their choice of subject matter. Will (1974) argued the need for an Audit Command Language (i.e. specified language for auditing) to assist in improving the power of auditing in a computerized language. Weber (1982) considers both the power of audit trail that is necessary within advanced computer based accounting systems and also certain of the design considerations that are necessary if an appropriate audit trail is to be achieved. Weber concluded that better design for audit trails can come with deeper understanding of the nature of audit trails, how they are used, and the functions needed to support audit trails, nature and sources of errors that corrupt audit trails, and the types of correction action needed when errors occur.

William (1984) surveyed the audit experience of two hundred of the largest Australian companies and reported evidence of lack of internal and external audit attention paid to computer operating systems. Few specific audit tests were carried out on the operating system; checks of system modification and modification of documentation were rare, and even with regard to checking physical control procedures in and about the computer center. William also found little evidence of any connection between control variables and the level of audit testing e.g. the existing of recent operating system modification had no apparent effect on the likelihood of checks on physical controls.
In the sections that follow we are going to summarize some specific empirical observations on how IT has influenced the internal auditing function.

Cannon and Crowe (2004) state that many of internal controls over financial data are incorporated in computer programs, processes, and procedures that are written, implemented and maintained by IT function. Accordingly, organization assets can be transferred and liabilities incurred without human action by computerized processes. The degree of automation can be such that human activities is limited to promulgated policies and rules and reviewing results.

It is also argued that internal auditors are struggling to maintain their identity and purpose as the organization they audit undergo radical changes. Total quality management, business process reengineering, globalization, and self-directed teams are dismantling hierarchical command and control structures. Advances in IT continuously render control procedure obsolete; and the value of traditional internal audit becomes seriously questioned (Tongreu, 1971)

As IT changes occur more quickly, auditors must keep pace with emerging technological changes and their impacts on their clients’ data processing system, as well as their own audit procedures (Rezaee and Reinstein, 1998)

Hermanson et al (2000) conducted an exploratory study to examine the IT related activities of internal auditors in US organizations. Information gathered from over 100 internal audit directors indicated that internal audit focus primarily on traditional IT risks and controls, such as IT asset safeguarding, application processing and data integrity, privacy and security. However, other areas such as risks related to systems development and acquisition received little attention from internal auditors. The results also revealed that several factors have been associated with internal auditors performance of IT evaluations, including the nature of audit objective, the prevalence of computer audit
specialist on the internal audit staff, and the existence of new control information system.

Rishel and Ivancevich (2003) discussed some important responsibilities for internal auditors in the IT implementation process. They argued that internal auditors’ responsibilities traditionally have been centered on risk management issues and control testing, particularly in the pre-implementation and monitoring phases of IT projects, rather than in playing an integral role in enhancing the viability of IT implementation. The study suggested that internal auditors can and should provide input with regard to system configuration in order to ensure that proper integral control are in place.

Meredith and Akers (2003) surveyed 241 chief executive officers (CEOs) to investigate their opinion on integral audits’ involvement in system development, including whether internal auditors’ independence is compromised by such involvement and whether auditors should act as consultants for system development projects. The results of the study revealed that CEOs are more concerned with the internal audit function remaining independent than with auditors acting as consultants to an organization. The respondents were essentially indifferent regarding internal audit’s involvement in the development in the planning and design phases and did not support internal audit involvement in the development, implementation, and maintenance phases. The results of the comparison of the perception between CEOs and chief audit executives (CAEs) show that there are significant difference between the groups regarding their expectations. CEOs placed more importance on independence while CAEs emphasized the need for internal auditors acting as consultants.

Hadden et al (2003) examined the perceived IT qualifications and IT activities of the audit committees, internal auditors, and external auditors regarding IT risk management. The results of the study revealed that some organizations were able to achieve more effective IT oversight by tapping into resource of audit committee and external auditors to a greater extent. The audit committee members indicated that their IT oversight role
should be greater than what it presently is. The results suggested that although audit committees appear to provide limited oversight of IT-related, they generally believe that their committees should take a more active role in overseeing this area.

2.7.3 Research Gap
From the above, it is observed that a good number of previous studies have been implemented in developed countries but few have investigated the role of internal audit in designing and evaluating internal controls in IT environment in developing countries like Tanzania. It is believed that conducting this research in one of the developing countries like Tanzania, can thus yield fruitful results and fill the existed gap in terms of literature on this complex field. From a practical standpoint, managers and internal auditors alike stand to gain from the findings of this study.

2.7.4 The use of micros by auditors

Microcomputers have the ability to assist auditors throughout the auditing process, improving both audit efficiency and effectiveness. It is likely that every internal audit staff in the US has invested in microcomputer software and hardware to some degree, but not all auditors are making the most of their investments in microcomputer technology.

A survey was conducted of certified information systems auditors (CISA) to determine the extent to which they use microcomputers. The results indicate that the most frequent use of computers is administrative use, followed by planning use, working paper use, analysis use, and audit data base use, respectively. Some 89% of the respondents indicated that they extensively use microcomputers to prepare audit reports, engagement letters, client representation letters, and management letters. Auditors have not yet taken full advantage of the computer for analytic purposes; more than 50% of the auditors
seldom or never used microcomputer to download and analyze data from the auditee’s database.

Generally, auditors had limited their use of micros to word processing and standard spreadsheet analysis (Yang, David, 1993).

2.7.5 Internet and the auditor

The internet carries a staggering amount of data that continues to multiply uncontrollably. Can one plow through it and use the vast online information to provide value-added internal audit services. E-mail discussion lists are convenient forums for establishing and building relationships with auditors throughout the world (Lyall, 1995). Search tools for the World Wide Web are available at no cost, and allow key word searches for pages that contain relevant information. Management Review and Audit groups have developed an approach that permits effective use of these internet tools. These applications have become a daily part of their audit processes.

2.7.6 Audit Approaches

The evaluation of internal controls involves the evaluation of controls by means of internal control questionnaires. The internal control system will be more extensive than manual accounting systems due to the existence of programmed procedures and general controls in the data processing department (Wool, 1986).

Against the background of audit problems that crop up with the increasingly ever-changing computer systems, three main approaches to the audit of computer systems are widely practiced.
a) Auditing around the computer: ‘the box’ approach;
b) Concentration of controls within and around the computer systems; and
c) 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 at this juncture that, reviewing and evaluating controls built into system may require extensive programming knowledge and/or use of test data.

2.7.7 Internal controls in computer-based accounting systems:

There are basically two types of controls: application controls and general controls. Application controls are seen as necessary to ensure the completeness and accuracy of accounting record and the validity of the entries therein resulting from both the computer and manual processing. General controls are necessary to ensure the integrity of application development and implementation, program and data file, and computer operations.

2.7.8 Audit Technology and the use of CAATs:

Today, Greater importance is being placed on CAATs than in the past (Lovata, 1990). NBAA’S issuance of guideline no.6 encourages the auditor to use such techniques. EDP auditors must at least be familiar with all the available techniques, especially since many of these techniques deal with more complex computer environments auditors now face (Lovata, 1990). Electronic data processing (EDP) auditors must be proficient in the most
widely used techniques, so by isolating these, an appropriate emphasis can ensure complete understanding of these most common techniques.

Computer Assisted Audit Techniques (CAATs) are one of an auditor’s most powerful tools for analyzing data files. Performing CAATs on a mainframe was always somewhat risky (Brodie, 1990), but improvements in personal computers in both hardware and software have made CAATs on a PC totally viable and less risky (Brodie, 1990).

2.8 Conceptual Framework
A conceptual framework has been developed to capture internal auditors’ evaluation of acquired knowledge in IT general controls, IT audit productivity software, IT risks and IT application controls against improved service delivery. Although there are many unknown factors that this research planned to investigate, the framework presented below will however guide this research. The four branches feeding into integration approach for improved service delivery in the flow chart are therefore main questions which when answered the main objective of this research will be achieved.
KEY to the above Chart:
1. Encouragement to learn information technology
2. Information technology general controls knowledge
3. Information technology application control knowledge
4. Information technology audit productivity software knowledge
5. Information technology risk knowledge
6. Integrated approach for improved service delivery.

Figure 1. Conceptual Framework (Research Model) for Role of Information Technology on internal auditing function.
2.8.1 Summary Of Constructs In The Research Model
2.8.1(a) Integration Approach: The degree to which IT audit activities are incorporated as part of business process in internal audit engagements.
2.8.1(b) Encouragement to learn IT: The degree to which business auditors are encouraged to seek IT training.
2.8.1(c) IT risk Knowledge: The degree to which business auditors possess knowledge of IT risks.
2.8.1(d) IT application control knowledge: The degree to which business auditors possess IT application control knowledge.
2.8.1(e) IT general control knowledge: The degree to which business auditors possess IT general control knowledge.
2.8.1(f) IT audit productivity software knowledge: The degree to which business auditors possess IT audit productivity software knowledge (e.g. generalized audit software knowledge)
CHAPTER THREE

3.0 RESEARCH METHODOLOGY:

3.1 Introduction

This chapter presents overall research design used in the study, sample size and sampling procedure, methods of data collection, plan for data processing and analysis.

3.2 Research Design

This study was conducted through a critical review of literature, and fieldwork which involved personal interviews and a field survey. It applied an exploratory design. Exploratory research studies are also termed as formulative research studies. The main purpose of formulating a problem for more precise investigation or of developing working hypothesis from an operational point of view. The major emphasis in such studies is on the discovery of ideas and insights. This type of research design is appropriate for such studies since it is flexible enough to provide opportunity for considering different aspects of a problem under study. Inbuilt flexibility in research design is needed because the research problem, broadly defined initially, is transformed into one with more precise meaning in exploratory studies, which fact may necessitate changes in the research procedure for gathering relevant data Kothari(2008).

3.3 Population, Samples and Sampling procedure

3.3.1 Population

A population is the theoretically aggregation of study elements. It is translating the abstract concepts into workable concept. In this study groups of representative individual were selected from a population of internal auditors employed by Government institutions under the umbrella of respective ministries. The researcher visited various government institutions from both central government and local government to meet auditors in order to get information in relation to assessment of the role of IT in their day to day audit function. In most cases the population was homogeneous in terms of age, gender, education, experience and accessibility of computer services and hence it become easier in choosing them to be included in the sample.
3.3.2 Sample size

As Gupta (2002) pointed out that, a mere size alone does not ensure representativeness, thus a small sample, but well selected sample, may be superior to a large but badly selected sample. Hence the sample size should neither be too small nor too large. It should be optimum. The optimum size is the one that fulfils the requirement of efficiency, representativeness, reliability and flexibility.

Developing an accurate sampling method is an important issues when designing a study that uses surveys of data collection, Hair, (2006).

For extensive and continuous study, a small sample may be suitable, with the motive to get the feel of a problem. The researcher selected 20 individuals as respondents that are in Dar es Salaam. The sample size might appear small, but since the aim is not to come up with statistical generalization rather a theoretical generalization through the understanding of the importance of IT in auditing function, then the sample is justifiable.

3.3.3 Sampling Technique

The idea of sampling is that, by selecting some of the elements in population, it can be used to draw conclusions and generalization about the entire population. The researcher used deliberate sampling method. The same is also known as purposive or non-probability sampling. This method involves purposive or deliberate selection of a particular unit of the universe for constituting a sample which represents a universe. Since the aim of the study was to understand, learn and describe the level at which the use of IT in auditing function add value to auditors then a non-probability sampling technique was seen to be the most appropriate since the aim was not to come up with statistical generalization.

The researcher used this method since the interest was on internal audit staff employed by government institutions.

3.3.4 Data Collection design

Both qualitative and quantitative data were collected using structured questionnaires (appendix-1). A pilot survey was administered to at least 5 individuals across a wide range of expected survey population in order to allow revision and complement survey tools(questionnaires) before were full deployed for major survey. The survey was
conducted by the researcher first aimed at reducing cost and to allow the researcher to capture the emerging issues which will otherwise be lost if employed interviewer to conduct the survey. This research is the first of its kind in Tanzania, and hence the quality is of more importance for it to be replicated or expended.

3.3.4.1 Data Collection Methods and Source

In order to obtain reliable data, the researcher collected both primary and secondary data using interviews, questionnaires and review of records.

3.3.4.1(a) Questionnaire

This is a pre formulated written set of questions to which respondents record their answers usually within rather closely defined alternatives. Each item of the questionnaire was developed to address a specific objective and research question of the study. Respondents filled questionnaires on spot with the assistance of the researcher or researcher assistants. The questionnaires are attached in the appendix 1 as part of this research paper.

The researcher used both closed and open-ended questions to simplify as well as to enrich the information to be obtained from respondents.

3.3.4.1(b) Interview

This is a popular data collection tool in management science research. It is a direct contact between researcher and respondents. The researcher and respondent engage in oral questioning or discussion. The direct contact may be face to face interaction, through telephone or other means of technology like video conferencing. But for this study the researcher used direct contact with heads of department as it was only possible to meet them through appointments.

3.3.4.1(c) Review of Documents

Researcher used different sources of secondary data that has already been collected by other researchers. This included the review of various reports issues by government institutions in respect of IT and users manuals.
3.3.5 Data processing , Analysis and Presentation

The information generated from the fieldwork was analyzed using descriptive statistical techniques. The output included but not limited to graphs and tables. Qualitative data information collected was systematically analyzed, condensed and then clustered to produce graphs aimed at supplementing quantitative information. Findings for this research are mostly presented in figures and charts, visual results allow readers to easily understand the findings and make their own judgment without being influenced by authors’ opinion.

3.3.6 Data validity and Reliability

3.3.6.1 Data Validity

Aaker and Kumar (2006) define validity as the extent to which the instrument accurately measures what is intended to measure. Thus in order to ensure validity, a pre-test of questionnaire to test its applicability and validity to capture the required information, was conducted. After the pre-testing of questionnaire, necessary adjustments were made.

Boyd et al., (2002) observed five key areas as source of errors in the field work: (1) errors in selecting respondents; (2) non-respondents (failure to get data from selected respondents); (3) errors created by the method of seeking data; (4) errors resulting from the interviewer’s misinterpreting or misreporting answers; and (5) interviewer cheating. To minimize these problems in order to obtain quality data, the following were taken: Two University of Dar es Salaam students, graduated in marketing studies were selected. Prior to commencing field work, both interviewers undertook some training on how to administer the questionnaire. They were enlightened on the purpose of the study, how to locate and approach respondents, how to establish relationships, how to ask questions, and how to obtain, as well as record accurate answers.

The researcher took part in the field work as well. Realistic quota allocation was undertaken in each district by different type of audit staff, type of organization, and the like- plus direct supervision in the field coupled with maintaining a continuous preliminary questionnaire edit to keep control on whether interviewers were keeping to schedule and whether or not their work was generally satisfactory.
3.3.6.2 Data Reliability

The reliability of research data was conducted using Alpha (Cronbach). This is a model of internal consistency, based on the average inter-item correlation. The value of Cronbach’s Alpha was 0.8273 which indicated a very good proxy for reliability of data in terms of analysis.
CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Gender Structure of internal auditors.

On the gender side, we interviewed 38.9 percent females and 61.1 percent males (Table 4.1). The split between males and females is not equally by far signifying that the study observed big disparity on gender which is in line with other previous studies in other sectors of employment.

The study interviewed relatively more men than women because even in terms of completion of higher learning studies men are on the high side in Tanzanian context, because of socio-economic and cultural aspects which were not covered in this study.

<table>
<thead>
<tr>
<th>Variables</th>
<th>No. of Respondents</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>Female</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: Survey Data 2013*
4.2 Internal Auditors by nature of employment

20 internal auditors were interviewed during the study (Table 4.2).
The internal auditors group constitutes 40 percent auditors from central government, 40 percent from local government and 20 percent from higher learning institutions owned by the Government of Tanzania.

<table>
<thead>
<tr>
<th>Variables</th>
<th>No of Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Govt.</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Local Govt</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Higher Leaning</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Survey Data 2013

4.3 Pattern of Computer usage by nature of employment

The pattern of computer usage by nature of employment revealed that 62.5% of staff at central government used computers followed by higher learning institutions with 55% and local government used computer at the rate of 25% in their routine audit assignments as observed from field as per table 4.3.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Govt</td>
<td>5</td>
<td>62.5</td>
</tr>
<tr>
<td>Local Govt</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Higher Learning institutions</td>
<td>4</td>
<td>50</td>
</tr>
</tbody>
</table>
Source: Survey Data 2013.

Table 4.3b Ranking Auditors from Government institutions on the use of computers

<table>
<thead>
<tr>
<th>Government Institution</th>
<th>1st rank</th>
<th>2nd rank</th>
<th>3rd rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Government</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Higher learning Institutions</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Local Government</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

4.4 Determinants of high rate of usage of computer techniques in auditing assignments

Auditors were asked to rate in a scale of 1 to 5 the factors which they consider to be influencing their satisfaction, 1 being “Not at all important” while 5 being “very important”. The results are summarized in the subsequent table

4.4.1 Reliability of supply

Auditors were required to rate how important reliability of supply of computer aided techniques are important to overall performance of audit assignments. The ratings are indicated in table 4.5 below.
The results in figure 4.4.1 above indicate that 71.9% of respondents rated reliability of supply as one of the very important/important factors that influence the level of customer satisfaction in the use of computer aided techniques in auditing assignments, 15.5% rated it to be somehow important, 10% were neutral and 2.7% rated this factor not to be important at all. The results are not surprising given the importance of efficient channel of distribution to timely availability of products and ability to buy such facility.
Some wholesalers do not have enough capacity to timely deliver the products to their customers.

### 4.4.2 Product Quality

Product quality is another factor that was considered by this study. Customers were required to rate how important product quality was in determining their satisfaction and use of available techniques. The ratings are shown in the table below.

**Table 4.4.2: Product Quality**

<table>
<thead>
<tr>
<th>Variables</th>
<th>No of Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all important</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Somehow important</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Important</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Very important</td>
<td>16</td>
<td>80</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*Source: Survey Data 2013*
The results in figure 4.4.2 indicate that about 80% of the customers indicated that, product quality is one of the important drivers of customer satisfaction. None said it is not important.

Table 4.4.3 Convenience of Computer Procedures (PROCESS)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Respondents</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>9</td>
<td>45.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>Somewhat disagree</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Somewhat agree</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Survey Data 2013
In the table above, results indicate that 80% of the respondents disagree that the operating procedures in business environment do create inconvenience to them. This is an indication that they are happy with most of the operating procedures in applying computer techniques in audit functions.

**4.4.4 Computer staff courtesy and responsiveness**

The respondents were asked to assess the courtesy of the service providers (Computer section). The results are indicated in the table below. Also the graph below supports the referred table. The survey revealed that, 87.7 percent of respondents were happy with attitude of technical staff in attending audit staff in case a technical need arises.
Table 4.4.4  Employees courtesy and responsiveness (People)

<table>
<thead>
<tr>
<th>Variables</th>
<th>No of Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Somewhat disagree</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Somewhat agree</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Agree</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Survey Data 2013
Pictorial presentation below (Table 4.4.4) reflects the ratio of internal audit staff between agreeing/disagreeing on the availability of computer assisted audit techniques from channel members. The results indicate that 55% of the respondents accept that institutions in the channels of distribution to keep all the available computer aided audit techniques while 45% did not support them. The results are not surprising given the fact that some techniques are not supplied because of high cost of acquisition. Another thing is that some techniques would be available however due to insufficient knowledge in computer field may lead to not be in a position to know them.

Table 4.4.5 Availability of computer audit assisted techniques

<table>
<thead>
<tr>
<th>Variables</th>
<th>Respondents</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>Somewhat disagree</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Somewhat agree</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Agree</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100.0</td>
</tr>
</tbody>
</table>
4.5 Testing of hypotheses

The defined hypotheses were tested through linear regression analysis using the SPSS program.

Hypothesis tested

The independent variable; IT solutions is key in supporting the work performed by internal auditors. The performance of this independent variable (IT solutions) was measured using the improved work efficiency of internal auditors.

The null hypothesis (Ho) to be tested was:
Ho:

Auditing work performed by internal auditors in Tanzania Government institutions is not supported by IT solutions

The alternative hypothesis (H1) to be tested was:

H1: Auditing work performed by internal auditors in Tanzania Government institutions is greatly supported by IT solutions.

The variables, Level of performance and use of IT solutions were regressed in SPSS software. The results of regression are summarized in table 29, 30 and 31 below.

Table 29: Model Summary, Hypothesis 1

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R. square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.843a</td>
<td>.710</td>
<td>.708</td>
<td>.756</td>
</tr>
</tbody>
</table>

a. Predictor: (Constant), Use of IT solutions

Table 30: ANOVA, Hypothesis 1

<table>
<thead>
<tr>
<th>Model Sign.</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>196.000</td>
<td>1</td>
<td>196.000</td>
<td>343.244</td>
</tr>
<tr>
<td>.000a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>79.943</td>
<td>140</td>
<td>.571</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>275.944</td>
<td>141</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors (Constant), Use of IT solutions

Table 31: Coefficients, Hypothesis 1

<table>
<thead>
<tr>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>B</td>
</tr>
</tbody>
</table>


From the regressed results, Use of IT solutions predicted improved performance. F1 = 343.244, p< 0.001, Adjusted R Square = 0.708 which indicates that there is a strong positive relationship between IT solutions and Improved work performance of internal auditors. The independent variable, the use of IT solutions was significant predictor of improved work performance of internal auditors in government institutions. B = 0.847, p <0.001

Conclusively, we reject the null hypothesis; therefore work performed by internal auditors is greatly supported by IT solutions and positively related to increased level of productivity level. The results show that, internal auditors get satisfied more with the support of IT solutions. This is due to reason that this factor assist in saving time, cost and increased efficiency.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter gives an analytical discussion of the findings given in the chapter four and takes into account the objective of the study. The discussion is based on the research findings. The main objective of this study was to explore the role of IT has on internal auditing. Other specific objectives were:

1) Assess how IT has influenced the internal audit function
2) Establish how IT can assist internal auditors to efficiently deliver their activities
3) Explore possible challenges that management and internal auditors face in applying IT in performing their functions
4) Establish measures taken to alleviate the challenges
5) To seek for stakeholders opinion on what should be done for successful adoption of IT by internal auditors

5.2 Summary of Findings

5.2.1 Influence and contribution of IT on internal auditors’ functions

One of the objectives of this study was to assess on how IT has influenced the internal audit function. Results from the survey revealed that IT has a big impact on the
productivity the internal audit personnel. Through the use of IT we the researcher observed that IT reduces obvious errors and free audit staff to carry out other tasks. The results of a calculation carried out by a computer are likely to be completely accurate. In addition errors that a human might make, such as typing errors, can be reduced or eliminated entirely.

IT has the ability to modify the software that controls a particular function leading to a high degree of flexibility, e.g manipulation of databases.

IT has influenced internal audit function in what ways computerized systems need to be controlled. In addition to that IT has influenced the audit function in terms of the knowledge required to draw conclusion and the skills to perform an audit.

The survey further noted that with the use of personal computers auditors throughout the auditing process had managed to improve their level of productivity. Findings revealed that a good number of auditors used computers in administration, planning of audit assignments, and assist in creating working papers for the audit and use as a database compiler for audit.

However, 95% of the respondents indicated that they mostly use computers to prepare audit reports, management letters for discussion with management and in most cases computers are used to access internet. With this in mind it appears that a good number of auditors have not taken full charge of the computer for analyzing data. More than 75% of internal auditors never applied computers to download and make analysis of the data from the database managed by the area under audit.
5.2.2 Audit Phases

During our survey on various government institutions we observed that in most cases the processes of conducting an audit in IT environment certain steps are uniformly followed. The IT audit process has to necessarily include the following phases which are themselves broken down into a number of activities and tasks as discussed below:

5.2.2.1 Planning:

a) Getting Started

- There are several matters to attend to start of a new IT audit. The first of these is to open an IT audit file.
- Next you should make contact with Auditees. You should explain not only the purpose and timing of your proposed audit, but also make sure sure the Auditee understands fully your role. He should not see you in any way as a threat, but as someone who can help him to control and manage the business better.
- Your initial contact with the Auditee Managers should discuss your anticipated commencement date, and general approach you propose to adopt for conducting your review.

b) Understanding the organization

As part of the planning process, obtain an understanding the overall environment of the entity. Some essential aspect to be understood about the organization are as follows:

- The organization’s function business (what it does and how it does) and its strategic goals and objectives.
- The major types, classes and volume of transactions and assets involved in carrying out the business
- The structure and hierarchy of the IT department
- The critical organizational units or functions involved in conducting the business
- The number of operating units or locations and their geographical dispersion and how are they linked technologically
• Nature of hardware and software used. This includes high level understanding of the hardware acquisition and maintenance process, software source (i.e. off shelf or developed in house). Details of the operating systems, application systems and database management systems used in the organization
• Criticality of the application systems used to process and control these transactions and assets
• Major spending projects or programs in progress or planned for computer systems and equipment
• The types of risks faced by transactions and assets, computer systems, organizational units, functions, projects and programs involved in the environment within which the business operates and competes
• The regulatory framework within which the business is carried out
c) Perform risk assessment
• The objective of Audit Risk Management within a computer environment is to:
  o Identify those Application systems which pose the greatest vulnerability, and hence to determine priorities for audit;
  o Identify other major threats within the computer environment, and to rank these in order of priority.

Major risks or concerns around IT systems can be grouped under three broad heads
• **Confidentiality**: Will the information in the systems be disclosed only to those who have a need to see and use it and not to anyone else?
• **Integrity**: Will the information provide the systems always be accurate, reliable, and timely? What ensures that no unauthorized modification can be made to the data or software in the systems?
• **Availability**: Will the information systems be available for the business at all times when required? Are the systems well protected against all types of losses and disasters.
The steps that can be followed for a risk-based approach to making an audit plan are:

- Inventory the information systems in use in the organization and categorize them.
- Determine which of the systems impact critical functions or assets, such as money, materials customers, decision making and how to close to real time they operate e.g. The risk of non-availability even for an hour can be serious for a billing system at a busy retail store or risk of unauthorized modification can be a source of fraud and potential losses to an online banking system.
- Assess what risks affect these systems and severity of impact on the business
- Based on the above assessment decide the audit priority, resources, schedule and frequency.

d) **Identify business control objective.**

The business control objectives will need to be defined for a each particular type of a business system. An example of the types of business control objectives which are appropriate to types of business control objectives which are appropriate to a Payroll system are as follows:

- Payments are only made to bona fide employees
- Payments are only made for work done
- Payments are only made at agreed rate
- All payroll calculations are correctly made
- Wages are paid promptly when due
- All deductions are paid over to appropriate authorities when due
- Wages data relating to staff is held confidentially
- All wages payments are accounted for

e) **Decide Audit Objective and Scope**

- Scope defines the boundaries of the audit
- Determining the scope of the audit is part of audit planning
• It addresses such aspects as the period and number of locations to be covered and the extent of substantive testing depending on the risk levels and control weakness
• The scope of audit will undergo changes as the audit unfolds

The following is an illustrative lists of some of the common audit objectives for an IT audit.

• Review of the controls of the IT system to gain assurance about their adequacy and effective;
• Evaluation of the main process involved in the operations of a given area (for instances, the main process in a billing system would be calculation of the bill amount, generation of invoices, collection of dues, tracking delayed payment/non-payment etc) or a system (eg payroll system, financial accounting system etc.)
• Evaluation of the performance of a system. For example, a billing system or inventory system or a specific programme;
• Review of the security of the IT system;
• Examine the system development process and the procedures followed at various stages involved therein.

The Business control objectives are easily conveted into Audit Objectives merely by inserting the words “To ensure that…” in front of each control objective.

f) Plan the audit

• During this step perform logical logistical planning; you need to break the audit down into small manageable tasks.
• A budget should be set for each task, and then be allocated to specific auditor. In this way, you can obtain an element of management control over audit resources.
• Actual time taken on each task may be compared against budget, and any variances investigated. Additionally, Audit Managers can identify control points for periodic review of work done to date, rather than waiting for the entire audit.
In summary Logical planning includes:

- **Manpower planning** - this would cover the identification of the personnel to carry out the audit in specific areas depending upon their expertise and allocation of responsibilities.
- **Methodology of audit** - audit software/hardware to be used, approach of evidence collection, nature of evidence to be collected etc is identified.
- **Scheduling** - the time schedule for various tasks to be undertaken has to be set out with enough flexibility for mid-stream corrections.

5.2.2.2 **Fact finding**:
This phase deals with the review of internal controls. The auditor’s operational states that:

“If the auditor wishes to place reliance on any internal controls, he should ascertain and evaluate those controls, and perform compliance tests on their operation” The principles relating to internal controls are the same in a computer environment as in any other environment, but there are additional considerations which are discussed in paper. Internal controls over computer based accounting systems may conveniently be considered under the following two main headings:- General Controls and Application controls.

1. **A Review the IT General Controls (ITGC)**
ITGC are controls which are not application-specific, but which affect the general management and procedures of the entire installation. The objectives of ITGC which may be manual or programmed, are to ensure the proper development and implementation of applications, and the integrity of program and data files, and of computer operations. ITGS ensures that the whole IT systems environment is working effectively. This in simple terms can be defined as “auditable policies and procedures are put in place by a business to help and ensure the confidentiality, integrity, and availability of IT systems and data.”
Why are IT general controls important?

- IT general controls are the foundation upon which an accounting system and other financially significant systems operate.
- IT general controls help to ensure the integrity, accuracy, and completeness of financial data in the systems.
- Without strong IT general controls, reliance upon IT-dependant controls systems (i.e., reports) and processes within a business process would be difficult.

Review of the computer general controls will include review of the following before performing tests on the application controls:

- Systems development
  This includes, Initiation, analysis, and design; Construction; Testing; Data conversion; Implementation; Documentation and training. Segregation of duties. These controls ensure that systems are developed, configured, and implemented to achieve management’s application control objectives.
- Computer Operations
  This covers among other things, Batch processing, Interface processing, monitoring of computer processing, Backups, and Computer centre operations. These controls ensure that production systems are processed completely and accurately in accordance with management’s control objectives, and that processing problems are identified and resolved completely and accurately to maintain the integrity of financial data.
- Program changes
  These controls refer to elements like, Specification and authorization; Construction; testing; Implementation; Documentation and training; Segregation of duties and Report integrity.
  These controls are present to ensure that changes to programs and related infrastructure components are requested, authorized, performed, tested, authorized, performed, tested, and implemented to achieve management’s application objectives. This means changes to systems and data do not adversely affect their integrity, availability or confidentiality.
Access to programs and data
These controls deal with Application security administration; Operating system security administration; Network/construction security administration; Application logical security; Operating system logical security; Network logical security, Application powered accounts; Operating system powerful accounts; Network powerful accounts; Database administration and Direct data access via Application/Application/Operating system/Utilities. These controls are in place to ensure that only authorized access is granted to programs and data upon authentication of user’s identity. This means that systems and data are protected from invalid changes.

Review of the computer general controls can be carried out using Control Objectives for Information and Related Technology (COBIT) which is an industry recognized framework for evaluating the effectiveness of ITGC. By addressing high level control objectives, the auditor can ensure that adequate internal control system is in place for IT environment.

Based on the above, note details of any general controls identified during your review which have a bearing on the application audit. Also note details of any relevant weakness identified during your review.

2. Audit application controls
Application controls are particular to an application and may have a direct impact on the processing of individual transactions. The objective of application controls, which may be manual or programmed, are to ensure the completeness and accuracy of the accounting records and the validity, authorization of the entries made therein resulting from both manual and programmed processing.

In order to identify these controls and review them the reviewer should first understand:
• What does the application software do; what business function or activity does it perform.

• For application reviewer, the IT auditor’s knowledge of the intricacies of the business is as important, if not more so, as the technical knowledge. Therefore the first step in an application review is to understand the business function/activity that the software serves.

Application controls may be divided into: Input controls/Master Standing Data File controls; Processing controls; and Output controls

• **Input controls/ Master Standing Data File controls**

Evaluate input control to ensure that procedures and controls reasonably guarantee that; the data received for processing are genuine, complete, not previously processed, accurate and properly authorized. In addition to this such controls need to ensure that data are entered accurately and without duplication. Input control is extremely important as the most important source of error or fraud in computerized systems is incorrect or fraudulent input. Controls over input are vital to the integrity of the system. The aspects that you should evaluate are: All prime input, including changes to standing data, is appropriately authorized. For online systems, the ability to enter data from a terminal is adequately restricted and controlled. Also evaluation should be done to ensure that there is a method to prevent and detect duplicate processing of a source document as well as all authorized input has been submitted or, in-line system transmitted and there are procedures for ensuring correction and resubmission of rejected data. To evaluate input controls one is supposed to use the following techniques. These include, Authorization technique, completeness of input data, data input validation technique, duplication checks, matching technique, dealing with rejected input technique

• **Authorization Technique**
Computerized applications may be able to permit staff to enter and authorize transactions directly in the system. This can be achieved by setting up password access controls to data input devices and data entry permission, e.g., data input screens. Financial applications may be able to check that a transaction has been approved by a person with the appropriate level of authority by checking their log-in ID against a predefined transaction approvals list.

To place reliance on the automated controls the IT auditor would need to determine that the appropriate levels of authority have been set up and that they have been working for the whole accounting period transaction cycle. This would involve: looking at access control matrices, obtaining printout of users permissions, reviewing audit logs of changes in permission.

- **Completeness of input data Technique**
  
  Determine if the accounting records are complete and that there are no material omissions. To do this you should review the controls which ensure that input is complete. These include: Batch controls, hash totals sequence numbering, terminal transaction log, the use of pre-numbered data input forms. IT applications may have in-built controls which automatically checks that data input is accurate and valid. Validation may also be achieved by manual procedures such as double checking input documents or review by a supervisor.

- **Duplicate Checks**
  
  The increase in the number of transactions that need to be processed has played a large part in the computerization of accounting and business critical systems. Unfortunately, the increased volume of transactions has resulted in end user staff being less likely to remember transactions they have previously processed. This increase the risks that duplicate transactions will occur and remain undetected. To address this risk, some applications may be able to detect duplicate transactions e.g. by comparing new transactions with transactions previously posted to the same account. Make use of Computer Assisted Audit Techniques (CAATs) to detect the duplicate records in any transactions file.
• **Matching**

This control checks and compares one transaction record against data contained in another related transaction. Where data is found to differ an exception report is produced. For example, the data entered when goods are received are automatically compared to the supplier’s invoice and the purchase order data on the system. Where a mismatch is found the computer produces an exception report. The organization should then take steps to identify the cause of the discrepancy.

• **Dealing with Rejected input**

Determine what happens to reject transactions. It is important that, where data is automatically checked and validated at data entry, there are procedures for dealing with transactions which fail to meet the input requirements. There are alternative methods of dealing with input transaction which fail validity tests:

a) Rejected by the system- Where transactions are rejected outright, the organization should have procedures in place to establish control over these rejections and ensure that all data rejected will subsequently corrected, re-input to and accepted by the system.

b) Held in suspense- In this case it is critical that users recognize the placing of items in suspense as a prompt for action. It is essential that all items held in suspense are corrected and ultimately successfully processed. Where items are held in suspense the auditor should review the procedures for identifying, correcting and clearing these transactions.

• Processing controls
• Output control

Output controls ensure that all output is Complete, Accurate and Correctly distributed. A well-controlled system for input and processing is likely to be completed undermined if output is uncontrolled. Reconciliation carried out at the end of the output stage can provide very considerable assurance over the completeness and accuracy of earlier stages in the complete cycle. Under this sections we have two major types of controls:
a. File integrity controls – An organization’s financial and information system hinge upon the integrity of its master file and the data therein. If the files are incomplete or become corrupt or unreadable due to some deliberate or accidental event, the organization may suffer serious (and in some instances, critical) loss and damages. The objective of master file integrity controls are ensure that: the likelihood of master file data being corrupted is minimized; any loss or corruption is is immediately identified.

b. Audit trail requirements – Each application must allow transactions (including those which correct errors) to be traced in the following ways:
   - Forwards through the system from the initiating document or entry to the final destination or ultimate output. For example, a bank deposit should be traceable through the teller’s receipt records, to the branch daily summaries, and ultimately to the customer’s ledger account.
   - Backwards from the final destination to the transaction’s initiation document. For example, the make-up of an individual’s wages cheque should be capable of being traced back to clock cards or the authorization of his basic pay.

3. **Undertake preliminary control evaluation**

   You need to analyze each control, first by identifying its inputs and output. Once you have done this, you should ask the following questions in respect of each significant input and output to that key control:
   - How is completeness established over this input\output
   - How is accuracy established over this input\output.
   - How is this input\output authorized
   - Is the process performed in a timely manner
   - Is everything secured against unauthorized access
   - Is there adequate separation of duties
When you have analyzed each key control process, you should note down details to substantiate your conclusion. At this point may find an ABSENCE of control. If this is the case, since there no controls to test, you should report the facts and implications immediately to management and consider drafting out some additional substantive tests to ascertain if the absence of control has caused material losses or errors.

**Audit Testing**

**Drafting audit programme tests**

Your audit documentation should by now contain details of all controls which are relevant to the audit objective, and any identified absences of control. From these details, you must now prepare an audit programme of tests to test the correct working of the controls which exist. Controls supporting the business control objectives are Key controls, and are treated more thorough than other controls. Key controls are the foundation of the business, and it is imperative that they tested in detail. Accordingly you should compile a series of tests covering the period under review, and details the work to be performed on your audit test schedules.

The bulk of these audit tests will initially be Compliance Tests. These are tests designed to ensure that general system of controls on which the auditor wishes to rely have operated satisfactorily throughout the period under review. Compliance tests will normally be prepared to cover the bulk of the clerical and computer controls which you have identified. They also cover other control such as segregation of duties, supervision and independent spot checks.

**Perform audit tests:** This step involves conducting the tests you designed in Task 3a above, and evaluating the results. Compliance tests, as we have already seen, are designed to determine whether or not the control are operating in accordance with prescribed manner. Whatever method of testing is appropriate, you should document in detail the work you have undertaken and the results of tests.
Undertake interim control evaluation: Sometimes on conducting your Compliance tests, you will find that on the face of it, the control has failed. For instance, you may find an invoice that has apparently not been authorized, an error in accounting that has not been picked up, or a malfunction in a validation program. You have now been put that all is not well, and you must therefore react accordingly. Your first problem is to decide whether this is an isolated error, or whether it is indicative of a wholesale control breakdown. You must therefore undertake some further Weakness tests. If your Weakness tests shows up no further errors, you are entitled to assume that this is indeed an isolated error. If however, your tests indicate further errors have occurred, you put on full alert that the control has definitely failed. Your concern now is to determine the extent and materiality of any resultant loss. To this end, you will thus need to conduct possibly extensive substantive testing.

Perform supplementary audit tests: This task involves performing:

- Any additional Weakness test arising as a result of your compliance tests having thrown up a potential breakdown in a key control.
- Any required Substantive tests due to an absence in control.

Final evaluation and Reporting

Undertake final control evaluation

You should now review the results of your audit testing. Your audit tests will have indicated whether each control is working satisfactorily, and hence whether it can be relied upon. You can then judge whether the audit objective has been achieved. At the same time, you should note down any control failure on Weaknesses schedule.

It is at this stage that the Audit Manager should undertake a critical review of IT Audit file, in order to satisfy himself that satisfactory level of audit work has been conducted. Each schedule and working paper should be examined, signed and dated. He should ensure that all audit standards have been properly applied, and the IT Audit file would
withstand critical appraisal by third party with little or no knowledge of the details of the audit undertaken.

The Audit Manager will compile a list of notes and queries for discussion with the Auditor concerned with performing the audit. These should all be cleared up before discussing findings with the Auditee.

**Discuss Findings**

Your list of control weaknesses should be used as a basis for discussion with the Auditee regarding your findings. Assuming you agreed the Business Control Objectives and their significance with the Auditee during the previous phase, you can now explain to him your conclusion as whether or not Control Objectives have been met.

This is largely a question of fact, since you will have all the evidence to hand in your working papers. You should therefore have little difficulty in establishing the need for remedial action, as the Auditee has already agreed that matters covered by the Business Control Objectives are of prime importance to the business.

At the conclusion of your audit, you should report your findings formally to the management. The objective and scope of your audit will normally be explained in your report together with your assessment of the system’s reliability.

Control weaknesses will be explained and the potential impact of those weaknesses. Hopefully, any remedial action required as result of your audit findings will already have been agreed and put in hand by the Auditee. Thus your formal report to top management should be a low key affair, merely indicating the work you have done, your findings and the fact that corrective action has been taken and will be effective by a given date.

**Conclusion and follow-up**
At the conclusion of the review, the Audit Manager should tie-up all the loose ends on the IT Audit file, and prepare any follow-up points for future. This would be particularly relevant in respect of checking that agreed control improvement have actually been effected within the given time-scales.

Other matters to attend to would include finalizing system notes, signing off any remaining schedules and working papers, resolving any outstanding queries, and thanking the auditee for his help and cooperation

5.2.3 Challenges that management and internal auditors face in applying IT in performing their functions.

The survey observed that the audit function most of the government institutions lack trained specialist to assist in reviewing and evaluating controls built into system which may require extensive programming knowledge and use of test data. Further observation revealed that most internal auditors had trained on application programs, such as word processing for report writing and spreadsheet processing to accommodate various computations and schedules to support work done.

It was further established that many organizations feel that they have a lot of technology but with less internal controls to managed company assets. In addition managers complained that most organizations had insufficient facilities to accommodate ever changing audit environment.

A good number of stakeholders were in doubt if the available higher learning institutions are capable in providing the knowledge which is relevant to internal auditors. This raises a concern if even CPA’s in Tanzania are technologically up to date.
5.3 Conclusion

The main objective of this study was to find out the role of IT in internal auditors function to assist internal auditors working with government institutions to improve their level of productivity and reduce the operational costs in the long run. The main focus was on evaluating the current position of IT packages offered by different companies in the market, investigating if users are aware on what is available and are satisfied with the current service offered by suppliers of IT solutions. The results of the study showed that majority of internal auditors do wish to know the application of these IT packages but they lack the appropriate knowledge or the technology required is missing due to lack of initiatives from auditors. This is true as nobody is ready to ask for something which he/she has never met before in training institutions.

Majority of internal auditors also indicated that given chance to use IT solutions then, quality, reliability of the technology and the cost will be important criteria in assessing the value of the technology to use.

From auditing point of view, it clear that the above comments are valid to some extent to meet customer expectations and satisfaction.

5.4 Recommendations:

1. Internal Auditor General and Institute of Internal Auditors should introduce workshops/Continuing professional education to cater for training internal auditors
2. IIA should design course materials that are more valuable to practicing internal auditors
3. 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 type of security and control measures installed in the computer system, and the way auditing is conducted.

5.5 Area for Further Studies

As a way of building upon the study findings, it is recommended that the following area should be explored:

Training

In this study, factors other than the role of IT in audit function were not covered to gain a full understanding of other factors that might also be contributing to the falling of the use of IT facility is training.

It is suggested a research in relation to the training of the same by NBAA, Higher learning Institution and IIA be conducted.
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Dear Respondent:

The objective of this questionnaire is to examine the impact of information technology on Internal Auditing in Government institutions in Tanzania. The success of the exercise therefore depends very much on your assistance. For this reasons you are humbly requested to spare few minutes of your valuable time to complete this questionnaire. Information you provide will be treated in a strict confidence and to be used for academic purposes only. Do not write your name since identity is not required.
The purpose of this survey is to gather data and information on how information technology has an impact on internal auditing function in Government Institutions.

The following set of statements relate to your feelings about the impact of IT in the field of Internal Auditing. For each statement please show the extent to which you believe the role of IT as described by the statement. Please tick the most appropriate number of your choice. There is no right or wrong answer, all we are interested in is a number that shows your perceptions about the role of IT.

If you have any doubts or would like further information please contact me through phone number

Thank you,

Amina Kiure
QUESTIONNARE

Part I Personal Data:
Name of Respondent: (Optional) -----------------------------------------------

Age Group: 21-30( ), 31-40( ), 41-50( ), 51-60( ) 61 or above ( )

Gender: Male ( ) Female ( )

Rank staff category: Head of Unit ( ) Manager ( ) Supervisor ( ) other

Are you a computer literate Yes ( ) No ( )

Part II
1. Which of the following describes geographical location of your office in Dsm city (check one)
2. Mention your common use of computer in work assignments

a) ………………………..

b) ……………………….

c) ……………………….

d) ……………………….

e) ……………………….

3. In case you have only one way of using computer, give reasons for having only one way of computer usage?

..................................................................................................................................................
..................................................................................................................................................

4. What professional qualification you have in discharging your auditing duties?

CPA ( ) ACCA ( ) Diploma in accounting ( ) other (Please specify) ( )

5. Please mention the benefits of IT services in relation to your audit activities?

1. ...........................................................................................................

2. ...........................................................................................................

3. ...........................................................................................................

4. ...........................................................................................................

5. ...........................................................................................................

6. Please mention 3 things that you like most and you dislike in relation to application of IT services?
Things you like most
(a) ........................................................................................................
(b) ........................................................................................................
(c) ........................................................................................................
(d) ........................................................................................................

Things you dislike
(a) ........................................................................................................
(b) ........................................................................................................
(c) ........................................................................................................
(d) ........................................................................................................

Part III.
10. Please indicate to what degree you agree with the following statements regarding the use of IT in internal auditing function (Check one box for each statement) and note:-

IT services ........

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<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neutral</th>
<th>Somewhat agree</th>
<th>Agree</th>
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<tr>
<td>a) Do not deliver services to our satisfaction</td>
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<td>b) Do not provide convenient procedures to none technical audit staff</td>
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<td>c) We are happy with IT solutions towards our needs.</td>
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<td>d) I like and trust the different</td>
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Part IV: CHALLENGES AND SOLUTIONS

Directions: List down your concerns and suggestions regarding the use of.

13. What are the most common challenges that you have encountered when using IT facilities in your routine work?

   a. ............................................................................................................
   b. ............................................................................................................
   c. ............................................................................................................
   d. ............................................................................................................

14. What solutions do you suggest to solve problems you have mentioned?
   a. ............................................................................................................
   b. ............................................................................................................
   c. ............................................................................................................
   d. ............................................................................................................