

**THE APPLICATIONS OF INFORMATION TECHNOLOGY (IT) AND THE
PERFORMANCE OF INTERNAL AUDIT IN PUBLIC INSTITUTIONS: A CASE
OF TANZANIA ELECTRIC SUPPLY COMPANY LIMITED (TANESCO)**

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PERFORMANCE OF INTERNAL AUDIT IN PUBLIC INSTITUTIONS: A CASE
OF TANZANIA ELECTRIC SUPPLY COMPANY LIMITED (TANESCO)**

By

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**A Dissertation Submitted in Partial Fulfillment of the Requirements for Award of
the Degree of Master of Science in Accounting and Finance (MSc. A&F) of**

Mzumbe University

2014

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for the acceptance by the Mzumbe University, a dissertation entitled **The Applications of Information Technology (IT) and the Performance of Internal Audit in Public Institutions: A Case of Tanzania Electric Supply Company Limited (TANESCO)**, in partial fulfillment of the requirements for award of the degree of Master of Science in Accounting and Finance (MSc. A & F) of Mzumbe University

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I, **Monica Komba**, declare that this dissertation 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.

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DEDICATION

This dissertation is dedicated to my late dear father, Mr. Komba, for vital responsibility of forming, directing and influencing me in all circumstances to get my education.

ABBREVIATIONS AND ACRONYMS

AICPA	-	American Institute of Certified Public Accountants
CAATs	-	Computer Assisted Audit Tools
CPA	-	Certified Public Accountants
COSO	-	Committee of Sponsoring Organizations
EA	-	Electronic Auditing
EDP	-	Electronic Data Processing
IA	-	Internal Auditors
IS	-	Information System
ISACA	-	Information Systems Audit and Control Association
IT	-	Information Technology
NAO	-	National Audit Office
TANESCO	-	Tanzania Electric Supply Company Limited

ABSTRACT

The study on the applications of Information Technology (IT) and the performance of internal audit in public institutions was conducted at Tanzania electric Supply Company limited (TANESCO). The objectives of the study were; to determine TANESCO employees' perception on the use of IT during internal auditing; to analyze techniques used by TANESCO management to ensure effective use of IT during internal auditing; to determine challenges faced by TANESCO management on course of using IT in internal auditing and to assess the extent to which the use of IT in internal auditing has influenced the performance of the organization.

A case study design was used, a sample of 45 respondents was used. Data collection methods were questionnaire, interview and documentary analysis whereas data collection instruments were questionnaire, interview guide and documentary analysis schedule. Data were analysed by using SPSS.

The study found there are various techniques applied by the management to ensure effective use of IT during internal auditing. Also, the application of IT during internal audit play significance role on the performance of internal audit. The challenges include lack of objectivity, the small number of the staff and lack of critical tools to perform comprehensive audit.

The study concluded that employees were satisfied with the use of IT during internal auditing. The use of IT play critical role in improves transparency, increase efficiency and productivity. Also, there are various techniques used by TANESCO management to ensure effective use of IT during internal auditing. The study recommended that management should consider the role of education and training in improving internal auditors' functions in relation to IT applicability. Also, the companies should try to implement modern IT software that will assist internal auditing operations.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Problem

The accounting world has dramatically changed over the recent years and the pace of change is accelerating (Sprakman, 2010; Krishna *et al.*, 2011). Majority of the public institutions have morphed into professional service organizations, which have increasingly used Information Technology (IT) to obtain labor savings and are progressively developing large knowledge management services to support their professional activities (Lange and Oshima, 2008). Nowadays, IT increasing used in auditing activities in both developed and developing countries, due to cost and time saving (Jill, 2008).

In public institutions, internal audits are designed to evaluate the effectiveness of an operation's internal controls by first gathering information about how a unit operates, identifying points at which errors or inefficiencies are possible, and identifying system controls designed to prevent or detect such occurrences (Nagy and Cenker, 2002). Then, they test the application and performance of those controls to assess how well they work (Leung *et al.*, 2004).

Managers ought to routinely evaluate controls in their department's operations by following the same process. Computers and networks provide most of the information needed for auditing (Fanning and Cogger, 2012; Hoag, 2002). In order to be effective, auditors must use the IT as an auditing tool, audit automated systems and data, understand the business purposes for the systems, and understand the environment in which the systems operate. The other important uses for computers and networks by auditors are in audit administration (Bou-Raad, 2000). By seeking new uses for computers and communications, auditors improve their ability to review systems and

information and manage their activities more effectively. Automated tools allow auditors to increase individual productivity and that of the audit function (Goodwin, 2004).

Moreover, by recognizing the importance of emerging environment and requirement to perform audit task effectively, auditors must recognize the key reasons to use audit tools and software, which will be further explored, in later section (Genesereth and Ketchpel, 2013).

Furthermore, internal audit is an important element of the range of resources and mechanisms available to public institutions managers to assist them to meet their responsibilities within this environment (Sprakman, 2010). Internal audit is one of a number of internal assurance and business review activities that should operate in a coordinated and complementary manner to the benefit of the organization (Ziegenfus, 2000).

1.2 Statement of the Problem

Despite the role played by internal auditors in public institutions, there is no specific guidelines are available to ensure information technology impact can be softened through audit best practices (Ahmad and Taylor, 2009; Brown, 2009). Moreover, the role of internal auditor has not been specified thoroughly and correctly to ensure necessary capability and competencies being addressed and help auditor to perform auditing task effectively (Goodwin, 2004).

Proper handling of resources, maintaining records, effective communication through adopting IT applications offered by information technology is critical to ensure completeness of audit process and benefited auditors Due to fast magnitude of IT ever-changing environment. This study intended to investigate the influence of information technology to the performance of internal Audit in public institution.

1.3 Objectives of the Study

1.3.1 General Objective

Generally, the study intended to investigate the influence of IT applications on the performance of internal audit in public institutions.

1.3.2 Specific Objectives

Specifically, the study aimed:-

1. To determine TANESCO employees' perception on the use of IT during internal auditing
2. To analyze techniques used by TANESCO management to ensure effective use of IT during internal auditing
3. To determine challenges faced by TANESCO management on course of using IT in internal auditing.
4. To assess the extent to which the use of IT in internal auditing has influenced the performance of the organization.

1.4 Research Questions

The study was guided by the following specific questions:-

1. How TANESCO employees' perceive the use of IT during internal auditing?
2. What are the techniques used by TANESCO management to ensure effective use of IT during internal auditing?
3. What are the challenges faced by TANESCO management on course of using IT in internal auditing?
4. To what extent does the use of IT in internal auditing has influenced the performance of the organization?

1.5 Significance of the Study

The study may remind the top management of the TANESCO on extent the use of IT in internal auditing has influence on the performance of the organization. Also the study provide knowledge about the challenges faced by TANESCO management on course of using IT in internal auditing

Results of this study may be utilized by board members of the public institutions and management to establish the effects of managerial competence and internal Auditing system in relation to management of public expenditure.

1.6 Limitation of the Study

The study was limited by time constraints, the time provided for conducting this study was too short compared to the adversity topic being studied. Moreover the study was encountered shortage of fund.

Insufficient information, in most cases the data collection are not sufficient to make a research effective because there is no published literature concerning the application of IT in performance of internal audit.

Response of response sometimes the respondents were not responding accurately or return questionnaire at right time something made difficult to collect information in aright time. Likewise other respondents responded negatively when an interviewed.

1.7 Delimitation of the Study

Due to lack of fund and time schedule, the researcher decided to conduct the study in Dar es Salaam. Also the researcher was able to solve the fund constraints by help of her parents who supported her financially.

The researcher was able to overcome biased answers by emphasizing on honest and assuring respondent that the researcher is solely for academic purposes, and all answers were confidential. This boost the participation of respondents to the study, moreover, the study used online source together with text books from the library to extract literature to increase sources of information.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents literature review of the study. The chapter contains theoretical literature review inline with the objectives of the study, empirical literature review, research gap and finally provides conceptual framework.

2.2 Theoretical Literature

2.2.1 Auditing and Information Technology

Nagy and Cenker, (2002), discussed on the evolution of auditing in the rapid escalation of technology, which openly contribute to information technology (IT) auditing and internal control standards and guidelines. Technology, information system (IS) and electronic data processing (EDP) have changed the way organizations conduct its business, promoting operational efficiency and aid decision-making (Krishna *et al.*, 2011).

In this essence, and in the case of United States (US) as being explored by the authors, various authoritative bodies, such as the American Institute of Certified Public Accountants (AICPA) and the Information Systems Audit and Control Association (ISACA), have issued standards to facilitate and provide sufficient guidance to auditors (Goodwin, 2004). It also highlighted the distinguishing characteristics of IT systems that should be considered by the auditor when conducting the evaluation process (Hoag, 2002).

Software tools can assist in assessing available auditor skills and assigning the appropriate people to audit project teams (Coram *et al.*, 2008). Audit scheduling software should support assignment of auditors with critical skills as needed within an audit project, and allow such auditors to proceed to other projects once their tasks are

completed, even if the audit is not finished. Such software should also assess the impacts of schedule and priority changes, compensate for special assignments, and extend the impacts of schedule overruns to other projects remaining in the schedule (Fanning, Cogger, 2012).

Also Brown, (2009), has explored on the widespread of corporate reporting on the Internet and its implication to auditing profession. The phenomenal growth of Internet ultimately contributes to electronic, web-based Internet reporting information. The author first had revised several literature and accounting standards to understand the nature of best practice and code of conduct for web-based business reporting (Ahmad, and Taylor, 2009).

Brown, (2009), found out that there was a significant increase of companies using the internet to supply information to the public. The core activities of disclosing information are mainly on general web page attributes (line of product, business function and product promotional activities), Investor relations, and financial information; including audit reports. The author has suggested that although usage of Internet can benefits the company, reliability and verification of information disclosed has to be guarded (Coram *et al.*, 2008).

This may contributed to a potential manipulation by the company and influence users in accessing valid and reliable information. The accounting profession has to play an important role in improving the quality of information provided and assuring users about their reliability. The study suggested that specific audit procedures to be taken, for instance as recommended by auditing guidance issued in Australia and New Zealand (Goodwin, 2004). The author also suggested several security measures, for example the hosting of audited information on an auditor's web site, may provide auditors with better control, reducing audit risks and further improve the credibility and reliability of information to users (Hoag, 2002).

Ziegenfus, (2000), has aimed to understand internal audit functions, explore implication of information technology (IT) and analyze advantages of internal audit in the organizational governance. The author has explored the origin and acceptable definition of internal audit by reviewing literature, comparative analyses, and review latest research.

The definition of Internal audit has continually changed and revised decade by decade, and still we are still facing certain issues understanding of internal audit function and its position within the organization. At present, the function of internal audit includes not only of internal control effectiveness, fraud investigations or assistance to external auditors, but also identification of organizational risks, consultations to the senior management with regard to risk management, process improvement or global operations. It is vital for all members of organization (management, accountants, audit committee) to have same and adequate understanding of what internal audit is all about (Spraakman, 2010).

It is important to understand needs and expectations of internal and external decision makers towards internal audit function (Nagy *et al.*, 2002). The author has also explained that there is some independency problem faced by internal audit being as an integral part of organization. In exploring the implication of IT, the author has defined the significant benefits of IT in auditing process. Auditors aided by IT based application; Computer Assisted Audit Tools (CAATs) increased effectiveness of internal audit in the organization (Leung *et al.*, 2004). On the other hand, IT development for example, automation and computerization had increased risk of discontinuing organizations activity, data loss, network breakdown and influence business monitoring and control process. The author has reemphasized the aim of internal audit function is to monitor, evaluate and improve risk management, controls, and governance process. Unfortunately, the author has not provided enough analysis on how different corporate

governance's approaches can influence internal audit process in the organization (Otley, 2010).

As audit tools are growing more powerful and sophisticated, they are also becoming easier to learn and use. But they also must fit into a complex and ever changing environment (Lange and Oshima, 2008).

Features of audit software can easily conflict with features of other software on the computer or network, and must be carefully managed. As tools become more powerful, auditors may use features or services provided in the software that command large amounts of system resources (memory, processing cycles, communication bandwidth, and storage) and compete with other users of those resources. For example, an auditor may request access to a file with a program that will examine each record in the file and may lock other users out until the process is complete (Sprakman, 2010).

The processing could also require large amounts of network storage space at a time when it is in short supply and could cause a server to "crash." It is important to schedule such processing at times when other system users will not be delayed or prevented from performing their work. Alternatively, many audit organizations perform their audit analyses using files copied or archived from the live production files (Sarens and Beelde, 2006).

CAATTs may also be large, powerful, or specialized enough to require a dedicated server for audit purposes. A server may be needed to support the audit Web site, or just to assure the independence and security required by audit functions. And, as evidenced by the list of software tools attached to this document, there are more tools available than the amount of time an auditor may have to learn to use those tools. So the need for software specialists to support internal auditing is increasing even as the software is getting easier to use (Van Gansberghe, 2005).

Some postulate that IT security, controls, and auditing consistently lag behind technology innovation and implementation. But as long as the studies have had computers, there have been those who predicted doom and spectacular losses from uncontrolled application of technology. Indeed there have been some spectacular losses, frauds and thefts. But overall the security, control and auditing communities have adapted well to new technologies using effective combinations of old and new security, control and auditing techniques (Lange and Oshima, 2008).

Auditing professionals routinely adopt and adapt the tools needed to assess the extent of risks in any environment, select the controls and data to be tested, conduct tests, evaluate the results, and provide meaningful recommendations to management at all levels in dealing with such issues as virtual offices (Nagy *et al.*, 2002).

The virtual office/workplace presents a new level of risk and exposure for corporations. This emerging concept will have significant impacts on the internal auditing profession. Virtual office increases the complexity in the tasks of assessing internal controls and security requiring new auditing procedures, tools and skills (Jain and Singh, 2011).

Traditional internal audits tend to rely extensively on face to face interviews and reviewing various data and reports. However, in a virtual office the employees or contract workers supporting a function or project may be located in numerous locations around the world. Some data and reports too may exist only in distributed or virtual office locations (Van Peurse, 2004). Auditing the virtual office or the related processes and projects will be a function of both how well audit ability is planned and provided in the new environments and how effectively the auditor can apply "virtual audit" techniques. In traditional office environments most information used to support various business functions and decisions is processed and stored at a central location or at specific offices (Sprakman, 2010).

Information technology (IT) is pushing each phase of business, increasing efficiency and productivity, allowing instantaneous communications, processing transactions in real-time, and facilitating global relationships with customers and vendors (Jill, 2008; Otley, 2010).

Best practices in conducting internal audits stem from a diverse, experienced, and skilled audit staff who possess the professional training. Leading companies capitalize on the professionalism of IA staff by assigning management trainees a rotation in the department to offer first hand insight into company operations and develop skills in recognizing and mitigating risk (Jain and Singh, 2011). Additionally, smart companies provide their audit functions with the resources and authority to effectively fulfill the department's mandate, which is defined in the audit charter created by the board, audit committee, and senior management. In this instance, the best practices for internal audit are to collaborate with the information technology department to mitigate information systems risk proactively (Huhns and Singh, 2012).

2.2.3 The Role of Internal Auditors

According to Ziegenfus, (2000), internal auditors have different roles, depending on organizations. The following are the roles of internal auditors:

Knowledge

Today, organizations are relying more on application controls than in the past to manage risk due to their inherent efficient nature, cost effectiveness, and reliability (Fanning and Cogger, 2012). Traditionally, any kind of technology-related control was tested by an experienced IT auditor, while financial, operational, or regulatory controls were tested by a non-IT auditor. Although the demand for IT auditors has grown substantially in the past few years and shows no signs of subsiding, all internal auditors need to be able to evaluate all business process controls from end to end (Ahmad and Taylor, 2009).

Internal auditors need to apply the care and skill of a reasonably prudent and competent auditor, as well as have the necessary knowledge of key IT risks, controls, and audit techniques to perform their assigned work, although not all internal auditors are expected to have the expertise of an auditor whose primary responsibility is IT auditing. In other words, every internal auditor needs to be aware of IT risks and controls and be proficient enough to determine if implemented application controls are appropriately designed and operating effectively to manage financial, operational, or regulatory compliance risks (Anderson, 2012).

Consultant or Assurance

Other than traditional assurance services, one of the greatest opportunities for the internal audit activity to add value to an organization is through consultative engagements, which can take on many forms and cover any part or business function. One example of a consultative engagement is assisting organization personnel with the design of controls during the implementation or upgrade of transactional or support applications (Goodwin, 2004).

Unfortunately, many internal auditors do not assist management with understanding how risks will change when the organization implements a new transactional or support application or conducts a major upgrade. In almost all cases, this lack of involvement is not due to a lack of desire or focus, but to the fact that internal auditors are not aware of any system development activity, or management does not want them involved (Genesereth and Ketchpel, 2013).

Also, it is important for internal auditors to be involved in these kinds of system development activities to help manage the risk the application presents, as well as make sure inherent and configurable controls are operating effectively prior to the

application's live stage. Otherwise, it will be much more costly to conduct a review after the fact, find weaknesses, and retrofit controls.

Independent Risk Assessment

Any time a new or significantly upgraded transactional or support application is implemented, two things can happen. First, many of the automated or manual controls that were in place to manage risk within the legacy environment will need to be replaced with new controls (Hoag, 2002).

Second, the application's risk profile might change. In other words, the new application will bring about new inherent risks (in the form of how the application is configured) and risks that cannot be mitigated within the application itself, thus requiring the use of manual controls. As a result, internal auditors can assist if not lead the organization's efforts to understand how current risks will change with the advent of the new application. This is because internal auditors are skilled at providing this level of service and are uniquely positioned to do so due to their independence from management (Jain and Singh, 2011).

Design of Controls

Other valuable service internal auditors can provide during a new system implementation or significant upgrade is an extension of the independent risk assessment. More specifically, auditors can assist management with the design of controls to mitigate the risks identified during the risk assessment. The internal auditors assigned to this activity should be a part of the implementation team, not an adjunct (Genesereth and Ketchpel, 2013).

Therefore, the tasks, time, and number of internal audit resources required for the design of application controls need to be built into the overall project plan (Anderson, 2012).

Controls Testing

If the implementation team has designed and deployed controls based on the risk assessment, or without the benefit of one, internal auditors can provide value by independently testing the application controls. This test should determine if the controls are designed adequately and will operate effectively once the application is deployed. If any of the controls are designed inadequately or do not operate effectively, auditors should present this information along with any recommendations to management to prevent the presence of unmanaged risks when the application is deployed fully (Krishna *et al.*, 2011).

Application Reviews

Transactional and support applications require control reviews from time to time based on their significance to the overall control environment. The frequency, scope, and depth of these reviews should vary based on the application's type and impact on financial reporting, regulatory compliance, or operational requirements, and the organization's reliance on the controls within the application for risk management purposes (Anderson, 2012).

2.2.4 The Implication of IT on Auditing Process

Otley, (2010), has demonstrates the impact of technology convergence on the internal control mechanism of an enterprise. It is important for an auditor to be aware of the security hazards faced by financial or the entire organizational information system. The author specified the modern auditor as a complex, trained and eclectically educated person since most of the professional audit organizations expect auditors to possess skills not only in the conventional aspects of financial systems but also in the eclectic sphere of knowledge related to the information technology and management, security and forensics, sociology, and professional judgment (Ziegenfus, 2000).

International information technology (IT) security standards are identified and used to select the best technical solution for an organization's risk and security problems. Despite the technological benefits brought to security, the technology also directly impacting risk management functions throughout the organization. At this point of the convergence trend, technology can bring new capabilities and vulnerabilities to physical security and risk management. A number of factors are causing a paradigm shift in risk and security philosophy. This shift is being driven by the "convergence" of IT security methods with those of the more traditional physical security methods (Siddiqui and Podder, 2002).

The impact is being felt throughout the community, but is perhaps currently most evident at the risk management or governance level. To understand the impact technology has on risk, it is important to understand the dynamics involved when technology is added into the physical security paradigm. The study offered brief description on the difference between static and dynamic security systems and take into consideration the inherent weaknesses in security system (Jill, 2008).

Also, Spraakman, (2010), suggested the risk management components of physical security and technology to be treated as financial assets, and auditors to perform due diligence in locating the vulnerabilities of new technological components before they are fully implemented. The author has only provided a conceptual analysis of the current state of affairs and there are no specific findings presented and lack of data analysis to support the relationship of risk management, internal control and organizational vulnerabilities.

Van Gansberghe, (2005), discussed the current impact of information technology on Internal Audit department. The survey on "Internal Auditing Self-Assessment Tool" helps the author to determine the proficiency of internal auditing process, which level of technology used in organizations and the impact of technology to the organization.

Survey shows that information systems have become tools to assist auditors in their day-to-day activities and most organizations perceived themselves as equally exposed to any technology and their obligation to audit proficiently.

Coinciding with this trend, information systems are increasingly able to support remote workers and facilities. Network technology, groupware, and on-line services such as the Internet had shrink distances. However, survey showed that the heaviest use of technology is focused on workflow-related tools such as computer networks, e-mail, electronic working papers, and presentation graphics. Interrogation, automated risk analysis, decision support, and neural networks are not as heavily used. It is also noted that technologies had put information systems to a new and different use: communication, rather than computation (Huhns and Singh, 2012).

Hoag, (2002), suggested that rapid development of information technologies causes continued worry about new auditing risks. The major concern to internal auditors is the methodologies available to tackle modern information systems and technologies. The study also discussed on the differentiating factor for leaders in defining what technologies are used and how extensively they should involve. Auditing leaders also rely significantly on formal training rather than on-the-job training. Study revealed and identified level of information technologies used and examined variances of implementation of different sizes and types of organizations.

Goodwin, (2004) revealed that, the concerns of auditing professional had about their profession and methodology are also explored where respondents are dissatisfied with their ability to audit new technology. The study proposed how best to leverage technology in auditing practice and achieved auditing efficiencies through the new means of technology. The study did not explored and elaborated more on the aspect of competencies and methodology acquired to leverage and absorbed the challenges faced by the auditors.

Lange, and Oshima,(2008), explained how computer assisted audit tools and techniques (CAATT) based programs can automate certain audit function in the organization. Firstly, the author has presented numerous benefits of CAATT for audit planning and reporting. It can be used to increase audit coverage, improve the integration of audit skills, strengthen independence of auditing from information system functions, and foster greater credibility and increase cost-effectiveness through the development of reusable computerized techniques (Coram *et al.*, 2008).

The author demonstrates and suggests how automated tools and techniques have improved the value, efficiency, and effectiveness of audit. Example of several aspects was included in supporting author's argument. This has been defined in "internal control over hazardous material" where the ultimate audit's objective was to review controls over the procurement, distribution, storage, and disposal of hazardous materials. With the help of CAATT based application, the auditors were able to identify the high-risk, high-materiality sites and generated transaction lists for the on-site manual review (Genesereth and Ketchpel, 2013).

This is resulting in minimization of risks associated with hazardous material and benefited the internal control process. From another perspective, the author has given an example of workforce reduction program where CAATT used to review the efficiency and effectiveness of this program. With programs such as workforce reduction system, personnel information system, and payroll system, the audit was successfully provides senior management with an assessment of the effectiveness of the program (Goodwin, 2004).

2.2.5 Risks Associated With It Software Tools and Techniques

Software ease of use may also result in the implementation of features that unintentionally weaken information security provisions. While software vendors may not be particularly open about their potential weaknesses, a growing body of web sites

document software weakness and available corrections. This provides both positive and negative opportunities (Spraakman, 2010).

As weaknesses in software are discovered and documented, the vendors of those software products develop corrections, or “patches” that may be applied until the weakness is corrected in the next formal “release” version of the software. However, many organizations do not apply such patches, for a variety of reasons. Hackers know software frequently goes unmatched, so they search for particular versions of software with known weaknesses. They may then launch an attack against that system using software developed to exploit known weakness. Such software, called a “script,” may require little or no knowledge to use (Sarens and Beelde, 2006).

The successful attack using a script may give the attacker unlimited, or “root” access to the target system. Normally root privileges are reserved for system administrators and are closely monitored. Once an attacker has root access they have virtually unlimited access to the system, and may also obtain access privileges to other systems with an established trust relationship (Ahmad and Taylor, 2009).

Another element contributing to risk in information systems and networks is the configuration of systems as they are provided by vendors. Frequently systems are initially installed with the security and control features turned off. System and network engineers and administrators must select the appropriate mix of control features they need and turn them on when the system is installed (Ahmad and Taylor, 2009).

Sometimes security and control features will conflict with features of other system components or may add considerable overhead to system processing, such as through the use of system logging. When security components conflict with operations, the typical response is to turn those components off. Unless the organization provides strong security policy administration and/or auditing, management may be unaware security

features are not being used. Therefore, frequent assessment and monitoring are important elements of information security management (Sarens and Beelde, 2006).

The role of the internal auditor in the supervisory process requires standards such as independence, objectivity and integrity to be achieved (Ahmad and Taylor, 2009). Even though the regulator and internal auditor perform similar functions, namely the verification of financial statements, they serve particular interests (Jill, 2008). The regulator works towards safeguarding financial stability and investor interests, on the other hand, the internal auditor serves the private interests of the shareholders of a company (Dunn, 2004). The financial audit remains an important aspect of corporate governance that makes management accountable to shareholders for its stewardship of a company (Brown, 2009).

The internal auditor may however, have a commercial interest too (Fanning and Cogger, 2012). The debate surrounding the role of internal auditors focuses in particular on auditor independence. It shows that the fees derived from audit clients in terms of non-audit services are significant in comparison with fees generated through auditing (Brown, 2009). Accounting firms sometimes engage in a practice called “low balling” whereby they set audit fees at less than the market rate and make up for the deficit by providing non audit services. As a result, some audit firms have commercial interests to protect too. There is concern that the auditor's interests to protect shareholders of a company and his commercial interests do not conflict with each other. Sufficient measures need to be in place to ensure that the internal auditor's independence is not affected (Ahmad and Taylor, 2009).

2.2.6 The Characteristics of a Successful Internal Auditor

Strong technical and ethical characteristics are fundamental to audit success (Ziegenfus, 2000). These are not new to anyone and should be considered a baseline set of characteristics that is expected of all auditors. Throughout the auditor's career, she/he

must possess a strong ethical foundation and avoid any temptation to “let it pass” when a deeper review of an issue may reveal error or fraud (Sprakman, 2010).

As important as technical and ethical characters are, these are only fundamental to success. Good auditors also possess the following additional characteristics (Sarens and Beelde, 2006).

Vision and Instinct

As an auditor gains experience in working with numerous clients in multiple industries, a good auditor gains the ability to instinctively understand what the client’s business is all about (Van Peurse, 2004). While carrying out the audit, he/she is able to determine a picture of any issues at the business and to translate them into what they might mean in the future.

Able To See the Big Picture

Auditors need to be able to understand the client’s business and industry. This requires the ability to quickly frame a picture of the client’s business, the organization and key attributes within it. A good auditor is able to sort out connections and linkages within the organization to focus the audit approach. The ability to see this big picture is very important to the planning stages of the audit. Putting the audit plan together requires an appreciation and an understanding of the organization and what constitutes a logical approach to the audit (Ziegenfus, 2000).

People Skills

The audit profession is not all about ticking and tying; it’s about people (Nagy and Cenker, 2002). Auditors need to have exceptional people skills. They need to have the ability to deal with all types of clients in all types of client situations. In certain cases, client personnel have a fear of the auditor because they don’t like someone looking over their shoulders. So the auditor must have the ability to put client personnel at ease and be

able to empathize from the client perspective. It is also important for the auditor to show respect for the client. After all, it is the client who is paying for the audit (Siddiqui and Podder, 2002).

Decision Making Ability

Once the audit evidence is accumulated, the auditor needs to determine what is relevant and what is not. Making these decisions is, at times, not easy as there is so much information is accumulated and tying it all together can be a challenge. Decision making can be hard. Most every decision involves some conflict or tradeoff. The challenging part is to select the best decision given the information that you have gathered to assist with the decision. There is a tendency to put off the decision by concluding that you need more information, only to again later conclude that you need even more information (Karapetrovic and Willborn, 2000).

Leadership

Great leaders have the desire to help others succeed. An auditor that is a leader finds solutions to complex problems at the client and has the ability and skill to assist in getting the solutions implemented. A good auditor must strive to become a successful leader. Leadership characteristics can be taught but leadership must be earned day in and day out. Leadership is seen by the client as the auditor being a teacher and/or a trusted confidant. An audit staff member sees a leader as a mentor and coach (Lwiza and Nwankwo, 2002).

Superior Communication Skills

Superior communication skills allow auditors to have connection and rapport with others on the staff, managers, partners, and clients (Goodwin, 2004). The technological world in which we live today can negatively impact the audit staff's ability to become an effective communicator, especially when e-mail becomes a substitute for face-to-face communication with audit clients. A good auditor recognizes the importance of face-to-

face communication and strives to make it the primary mode of communication. It is essential that all auditors work to make verbal communication a priority rather than a last resort (Arena and Azzone, 2009).

2.2.7 Overview of the Concept of Internal Auditing

Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes (Ahmad and Taylor, 2009).

Internal auditing is conducted in diverse legal and cultural environments; within organizations that vary in purpose, size, complexity and structure; and by persons within or outside the organization. While differences may affect the practice of internal auditing in each environment, conformance with The IIA's International Standards for the Professional Practice of Internal Auditing (Standards) is essential in meeting the responsibilities of internal auditors and the internal audit activity. If internal auditors or the internal audit activity is prohibited by law or regulation from conformance with certain parts of the Standards, conformance with all other parts of the Standards and appropriate disclosures are needed. If the Standards are used in conjunction with standards issued by other authoritative bodies, audit communications may also cite the use of other standards, as appropriate. In such a case, if inconsistencies exist between the Standards and other standards, internal auditors and the internal audit activity must conform to the Standards and may conform with the other standards if they are more restrictive (Brown, 2009).

The Standards employ terms that have been given specific meanings. Specifically, the Standards use the word must to specify an unconditional requirement and the word

should where conformance is expected unless, when applying professional judgment, circumstances justify deviation (Jill, 2008).

It is necessary to consider the Statements and their Interpretations as well as the specific meanings to understand and apply the Standards correctly. The structure of the Standards includes Attribute, Performance and Implementation Standards (Anderson, 2012).

Attribute Standards address the attributes of organizations and individuals performing internal audit services. The Performance Standards describe the nature of internal audit services and provide quality criteria against which the performance of these services can be measured. The Attribute and performance standards apply to all internal audit services. The Implementation Standards expand upon the attribute and performance standards, providing the requirements applicable to assurance (Ahmad and Taylor, 2009).

Code of Ethics is to promote an ethical culture in the profession of internal auditing. A code of ethics is necessary and appropriate for the profession of internal auditing, founded as it is on the trust placed in its objective assurance about risk management, control and governance. The Institute's Code of Ethics extends beyond the definition of internal auditing to include two essential components which are: Principles that are relevant to the profession and practice of internal auditing; Rules of Conduct that describe behavior norms expected of internal auditors. These rules are an aid to interpreting the Principles into practical applications and are intended to guide the ethical conduct of internal auditors. The Code of Ethics provides guidance to internal auditors serving others. 'Internal auditors' refers to Institute members and those who provide internal auditing services within the definition of internal auditing (Anderson, 2012).

This Code of Ethics applies to both individuals and entities that provide internal auditing services. For Institute members, breaches of the Code of Ethics will be evaluated and administered according to The Institute's Disciplinary Procedures. The fact that a particular conduct is not mentioned in the Rules of Conduct does not prevent it from being unacceptable or discreditable and therefore, the member liable to disciplinary action (Jill, 2008).

Integrity, Principle of the integrity of internal auditors establishes trust and thus provides the basis for reliance on their judgment. Internal auditors exhibit the highest level of professional objectivity in gathering, evaluating and communicating information about the activity or process being examined. Internal auditors make a balanced assessment of all the relevant circumstances and are not unduly influenced by their own interests or by others in forming judgments (Nagy and Cenker, 2002).

This participation includes those activities or relationships that may be in conflict with the interests of the organization. Shall not accept anything that may impair or be presumed to impair their professional judgment. Shall disclose all material facts known to them that, if not disclosed, may distort the reporting of activities under review (Nagy and Cenker, 2002).

There are four major types of internal audits, financial, operating, compliance and information technology - it is not unusual to incorporate elements of each when we review a business process or department on any of the campuses. In addition, internal auditors are sometimes asked to perform special reviews (Sprakman, 2010).

Financial audits involve the evaluation of internal control processes over revenues and expenses, and the accuracy of their reporting in accordance with laws, regulations and internally developed policies and procedures. In addition, the safeguarding of the

University's assets, as well as the fair presentation of its rights and obligations may be the subject of financial audits (Sprakman, 2010).

Operational audits examine the use of the university's resources to evaluate whether those resources are being used in the most efficient and effective way to fulfill the university's mission and objectives. These are sometimes called performance audits. An operational audit may include elements of both a financial and compliance audit (Van Peurse, 2004).

Compliance audits review both financial and operating controls and transactions to see how well they conform to established laws, standards, regulations and procedures. In addition the audit might identify gaps between regulations and university procedures, and in turn, would suggest training and follow-up programs to ensure personnel are adequately informed about compliance requirements (Nagy and Cenker, 2002).

Information Technology audits evaluate the internal controls related to the management of information technology environments and related infrastructure, applications and data. Typical areas assessed include: governance with related policy and process documentation; security (physical and logical over information, applications and infrastructure assets); change management; monitoring; and business continuity/disaster recovery. Controls are evaluated based on industry organizations and audit standards such as ISO 27002 (International Organization for Standards), ISACA (Information Systems Audit and Control Association) and related COBIT (Control Objectives for Information and related Technology), and IIA (Institute of Internal Auditors), GTAG (Global Technology Audit Guides), as well as adherence to laws and regulations (Otley, 2010).

Sometimes internal auditors are asked to perform Special reviews by the campuses.

Campuses may request specific reviews of: a department's internal controls, situations involving conflicts of interest, or financial irregularities (Van Peurse, 2004).

The California State University, Northridge Office of The Internal Auditor follows Standards set forth by for the Institute of Internal Auditors, and generally accepted governmental auditing standards. A variety of audits are performed in the review of campus programs and resources (Sprakman, 2010). These audits include:

Operational Audits: These audits examine the use of resources to determine if resources are being used in the most effective and efficient manner to fulfill the University's mission and objectives. An operational audit includes elements of the other audit (Sprakman, 2010).

Financial Audits: These audits review accounting and financial transactions to determine if commitments, authorizations, and receipt and disbursement of funds are properly and accurately recorded and reported. This type of audit also determines if there are sufficient controls over cash and other assets and that adequate process controls exist over the acquisition and use of resources. Unlike external financial audits, internal financial audits do not prepare or express professional opinions on the financial statements fairness (Otle, 2010).

Compliance Audits: These audits determine if entities are complying with applicable laws, regulations, policies and procedures. Examples include federal and state laws, Trustee policies, Chancellor's Office directives. Recommendations usually require improvements in processes and controls used to ensure compliance with regulations (Sarens and Beelde, 2006).

Information Systems (IS) Audits: These audits review the internal control environment of automated information processing systems and how people use these systems. The

audits usually evaluate system input, output; processing controls; backup and recovery plans; system security; and computer facilities. These audits may review existing, as well as, developing systems (Sprakman, 2010).

Internal Control Reviews: These audits focus on the components of the University's major business activities, such as payroll and benefits, cash handling, inventory and equipment, physical security, grants and contracts, and financial reporting (Sprakman, 2010).

According to The Institute of Internal Auditors' (IIA) definition of internal auditing, the internal audit function should provide independent, thorough, timely, and objective results of quantitative and qualitative testing to senior management, and, in essence, help evaluate organizational risk management. Internal auditing assists public and private organizations to meet overall corporate objectives by establishing a systematic and disciplined approach to assessing, evaluating, and improving the quality and effectiveness of risk management processes, systems of internal control, and corporate governance processes. This systematic approach and analysis is implemented across all parts of an organization, and the internal auditor reports directly and independently to the most senior level of management. The role of the internal auditor, therefore, is to provide an overall assurance to management that all key risks within an organization are managed effectively, so that the organization can achieve its strategic objectives (Sarens, and Beelde, 2006).

An internal audit function should be independent and unbiased, and hold a neutral position within an organization. The audit function looks beyond the narrow focus of financial statements and financial risks (although these risks are included in the remit of the internal auditor's job), and it may, for example, involve auditing reputational, operational, environmental, or strategic risks. Reputational risks could involve labor practices in host countries; operational risks include poor health and safety procedures;

environmental risks might involve pollution generated by a factory; while a strategic risk might involve the board stretching company resources by producing too many products (Spraaakman, 2010).

An internal audit function should have the ability itself to define the scope of internal audits (after consultation with the internal audit's primary stakeholders), the authority to obtain information and resources, and have an appropriate reporting structure to senior management. The internal audit team members do not test their own work, or the work of persons that they report to. Any actual or potential conflicts of interest that hinder an honest, independent, and unbiased assessment must be disclosed (Hoag, 2002).

Organizations serve their stakeholders. Senior management's role is to ensure that the organization's resources are managed and applied effectively to meet objectives and responsibilities. A crucial part of this process of governance is the design of appropriate systems and processes in order for them to be able to identify and manage risks effectively and efficiently. Internal audit's role is to evaluate the appropriateness and effectiveness of those systems and processes, whether they are related to finance, IT, brand reputation, health and safety, legal and regulatory compliance, human resources, and/or major projects (Jain and Singh, 2011).

Internal auditors perform their role by working with boards of directors, audit committees, and senior managers to help them understand the consequences of risks and ineffective processes to manage them. They encourage and support managers to have appropriate systems in place. Internal auditors then report to senior management and the audit committee on how effectively these systems of control are operating. In such a way, the corporation succeeds in aligning the internal audit function with its strategic objectives (Jain and Singh, 2011)

2.2.8 Challenges Facing the Internal Audit

There are several common challenges that impact the effectiveness of internal audit departments. The first is objectivity. In many cases, the audit team reports organizationally, either solid line or dotted line, to a superior that is involved in the processes or departments being audited. This structure presents the opportunity for the supervisor to exert undue influence over the audit team and the team's objectivity could be compromised. To minimize this risk, internal audit departments should report as high up the organizational structure as possible, preferably to the board of directors (Ahmad and Taylor, 2009).

A second challenge faced by internal audit departments is simply the size of the staff. Audit departments are historically understaffed, and the problem has become increasingly worse in today's economic environment. Staffs are being downsized and forced to operate at bare-bones levels. They must then make choices about what functions to audit and how comprehensive the audits can be. A lean audit staff cannot always accomplish everything that they had planned to accomplish in a given year (Ahmad and Taylor, 2009).

Finally, an audit department may not have some of the critical tools required to perform comprehensive, state-of-the-art audits. New software tools that enable data mining and other computer-assisted audit capabilities may not be available in an underfunded audit department. An understaffed department without the technology to compensate for the lack of personnel is not unusual, but often delivers incomplete or ineffective audits. Often perform audits and wonder why, when they're complete, they didn't go very well. This article will offer insight on how to better anticipate and solve the common problems that all auditors face. This is going to take some personal work on the readers' part. There are a multitude of issues and problems auditors will encounter during auditing that must be addressed individually (Bou-Raad, 2000).

No management support, when starting an audit, the first question we ask ourselves is, “Why are doing this?” auditors may be performing the audit for compliance reasons, financial reasons, or because a procedure tells. All of these are good reasons, though auditors must understand that conducting audits is a business tool that improves quality system. How do then convey to management, the CEO, or the board of directors that audits are an essential part of business processes and not something (Bou-Raad, 2000).

Communication is key, auditors often perceive internal audits or supplier audits as just part of job, but auditors need to understand that they play a much larger role. If auditors can communicate to upper management that audits lower the regulatory risk, help improve processes, find waste, and ultimately save the company money, they start to pay attention. This communication occurs in the form of audit reports. How can auditors make these audit reports stand out? Try to associate a cost to the observations on the report or to a specific regulatory risk. During reviews of audit findings in monthly or semiannual management meetings, take the opportunity to re-emphasize management’s role in the audit process. To get the most out of any audit, you must successfully interact with the owner of the process while reviewing his or her processes, procedures, and records. In some instances, you may encounter auditees who exhibit difficult behaviors. These can be anything from auditing a person who is “too busy” for the audit, to someone that doesn’t care about it, to someone that’s aggressive because you’re interrupting his or her schedule (Brown, 2009).

As an auditor, it may seem as though you have to receive training by the Federal Bureau of Investigation. However, you should obtain training in communication skills, dealing with difficult people, and interview techniques. If an auditee is being negative or overly aggressive with auditor, stop the audit and notify the audit program manager, the auditee’s supervisor, or the company president. There is no benefit from an audit process when the situation is confrontational. Take a class from the local university or a seminar on communication skills. Auditor have found these classes invaluable in understanding

how to diffuse difficult situations, understanding nonverbal communications, and even cultural differences in worldwide business applications. There are also interview techniques that auditors can learn that will help you gain valuable information from the audit (Jain and Singh, 2011)

Audit reports are often one of the least-liked aspects of an auditor's job. Audit reports take more time to complete than was planned for, which usually results in them being published later than expected. A common expectation is that audit reports are formally published no more than a week after the audit has been performed. This may be easier for organizations that include their audit checklists in the audit report. However, for frequent supplier audits or external audits, there is an expectation of a formal report, not just a checklist. The audit report must be generated to clearly communicate audit findings to managers so they can make appropriate decisions (Huhns and Singh, 2012).

Create a standardized audit report form that can be used by all auditors. These audit reports can be "fill in the blank" so that any observations or nonconformities observed can be entered efficiently (Jain and Singh, 2011) Try to refrain from publishing a checklist as the audit report as these usually don't convey the information properly. Consider generating a checklist that is the audit report, but be sure that nonconformities, observations, and opportunities for improvement are clearly identified. As with audit preparation, schedule plenty of time to complete the audit report. I have found that if the report is submitted more than a week after the audit, the information is usually forgotten by the auditee and doesn't benefit the organization (Huhns and Singh, 2012).

2.2.9 The Benefits of Internal Audit

Internal audit is as an integral part of an institution and when properly implemented, is a key component to assist institution in discovering control weaknesses, regulatory violations, policy violations and operational inefficiencies (Jill, 2008). This self-

discovery of issues provides the institution the ability to take corrective action in order to maintain the safety, soundness, profitability and integrity of the institution (Huhns and Singh, 2012).

Proper implementation of an effective internal audit process begins with a risk assessment. Every financial institution is not created equally. They may not offer the same mix of products and services, and the organizational structure will vary. The risk assessment should take these items into account when building the audit universe. Other factors to be taken into account are regulatory issues, prior internal audit issues, and the risk appetite of the institution, among others. The risk assessment needs to take into account all operational areas specific to the institution when building the audit universe and plan. The risk assessment needs to be documented to support the audit plan created. The utilization of a cookie cutter audit plan and a general risk assessment may cause the institution to overlook key operational and regulatory deficiencies (Jain and Singh, 2011).

Proper execution of the audit plan is the next critical component of an effective internal audit process. The internal audit department must perform the work in accordance with the Standards for the Professional Practice of Internal Auditing as promulgated by the Institute of Internal Auditors. Possessing knowledge of the changing regulatory landscape, current focus and emphasis of federal and state regulators, is essential in optimizing the benefits of internal audit (Lwiza and Nwankwo 2002).

The internal audit process does shine a spot light on the issues uncovered. However, it is better to have issues uncovered and addressed by an internal self-reporting function rather than by regulators. Internal audit needs to be leveraged by the audit committee of the board of directors, as well as management, to ensure that the institutions safety, soundness, profitability and integrity remain strong on an ongoing basis (Lange and Oshima, 2008).

The role of the internal auditor in the supervisory process requires standards such as independence, objectivity and integrity to be achieved (Sarens and Beelde, 2006). Even though the regulator and internal auditor perform similar functions, namely the verification of financial statements, they serve particular interests. The regulator works towards safeguarding financial stability and investor interests. On the other hand, the internal auditor serves the private interests of the shareholders of a company (Lwiza and Nwankwo 2002).

The financial audit remains an important aspect of corporate governance that makes management accountable to shareholders for its stewardship of a company (Otley, 2010). The internal auditor may however, have a commercial interest too. The debate surrounding the role of external auditors focuses in particular on auditor independence. A survey by the magazine “Financial Director” shows that the fees derived from audit clients in terms of non-audit services are significant in comparison with fees generated through auditing (Van Peurse, 2004).

Accounting firms sometimes engage in a practice called “low balling” whereby they set audit fees at less than the market rate and make up for the deficit by providing non audit services (Genesereth and Ketchpel, 2013). As a result, some audit firms have commercial interests to protect too. There is concern that the auditor's interests to protect shareholders of a company and his commercial interests do not conflict with each other. Sufficient measures need to be in place to ensure that the internal auditor's independence is not affected (Jain and Singh, 2011). Brussels proposed a new directive for auditors to try to prevent further scandals such as those of Enron and Parmalat (Huhns and Singh, 2012).

The new directive states that all firms listed on the stock market must have independent audit committees which will recommend an auditor for shareholder approval (Jill, 2008). It also states that auditors or audit partners must be rotated but does not mention the

separation of auditors from consultancy work despite protests that there is a link to compromising the independence of auditors. However this may be because Brussels also shares the view that there is no evidence confirming correlation between levels of non-audit fees and audit failures and that as a result, sufficient safeguards are in place (Genesereth and Ketchpel, 2013).

2.3 Empirical Literature

Fanning, and Cogger, (2012), conduct a study on information technology and fraud detection. Generally, the study intended to assess the influence of IT on internal auditing performance. The technological advances in which will change the audit process in near future. The focus of the study is on continuous auditing (CA) and its implications to independent auditors; analyzing internal control in the everchanging IT world; and examine key auditing aspects.

Fanning, and Cogger, (2012), recommended that that Independent Auditors to anticipate thoroughly in scrutinize electronic evidences and evaluate its implication to the organization. This can be monitored through a substantive test, which designed to test for conformity of accounting procedures in validating financial statements. The major benefit of utilizing CA can reduce time and costs auditors traditionally spent on manual examination of transactions and account balances. It may also enable auditors to focus more on understanding a client's business and industry, and its internal control structure. However, the authors have not provided sufficient suggestion on how auditors should react in adapting continuous auditing process and technology advancement as a whole.

Also, Genesereth and Ketchpel, (2013) conduct a study on the Role of Auditing Software, The objective of the study was to investigate the role of IT in fostering auditing functions. The impact of ecommerce to the auditing process and methodologies. Also, the study aimed to explore the application of technologies, in which may assist auditors in improving the quality of their auditing process and how to

use computer assisted auditing techniques (CAATs) more effectively with the emerging information technologies. The author has disclosed a concept of electronic auditing (EA) where some of the audit tasks conducted electronically over the internet with the support of information technologies. The author has identified three emerging information technologies to constitute a software framework to facilitate EA. These technologies include object-oriented distributed middleware, internet security technologies, and intelligent agents.

Moreover, GASI can be designed and deployed independently from the auditee's EDP systems. The author has demonstrated on how a CPA may conveniently audit the loan account of a bank with EA framework. The author also implicated that this system emulates EDP applications in the banking industry and is based on the CORBA architecture industrial standard. However, the author has not provide example of how auditors need to design specialized audit software for each auditee's electronic data processing (EDP) system if the EDP system uses proprietary file formats or different operating systems.

Jill (2008), has explored the strategic systems approach in performing continuous auditing. With rapid emergence of information technology (IT) and the demand for timelier assurance of financial information, auditors required to invent new approaches to continuously monitor, gather, and analyze audit evidence. Continuous auditing depends on a continuous flow of transaction data and analysis. Continuous auditing using a strategic-systems approach will allow the auditor to continuously monitor and analyze the transactions processed in a real-time accounting system. The strategic-systems approach can also provide a greater ability to detect material misstatements in financial auditing. Auditors need to work through the seven components of the strategic-systems Knowledge Acquisition Framework, including: considering the company's strategic advantages; determine and analyzing risks; understanding key processes and competencies required to realize strategic goals and objectives.

Huhns and Singh, (2012), explored the interconnection of internal audit practice and exposure to IT risks in general way and almost every path of the auditors in performing their job. Due to fast magnitude of IT ever-changing environment, the author has suggested the internal auditors to ensure organization to form a scenario planning in verifying the integrity of data and its sources.

Auditors also need to be aware of the risks associated with these areas to help their organizations review vital systems and ensure the enterprise runs smoothly. Outside threat such as intruders, or hackers, may also target companies for illicit gain or other malicious purposes. Recent security surveys have shown that a large number of information security breaches originate from inside the organization. Employees can inadvertently harm the organization's systems by deleting important files, opening e-mail attachments that contain viruses, or attempting to fix malfunctioning devices without adequate knowledge or training. To help mitigate the risk of both deliberate and unintentional damage, organizations need to establish effective access-control measures. Huhns and Singh, (2012), also suggested internal auditors to pay more attention towards authorization processes. In this essence, access control represents as the "front door" to the organization. On network security risks, auditor needs to consider exploitation of social engineering, where penetration into the organization's system can be done without any technical know-how. This threat can be mitigated through training and educating employees.

Apart from internal and external threat, the auditor has also need to deal with hardware and software risks, as well as threats stemming from the employees who use these assets. Discovery of illegal software can lead to reputation harm, and unnecessary damages to the organization (Huhns and Singh, 2012).

In this essence, the author suggested an effective software management helps optimize the organization's IT systems and reduce the total cost of ownership. Addressing potential technology risks can be extremely difficult, as the process requires organizations to predict problems within a complex, ever-changing environment. However, sufficient internal audit awareness can help deter attackers, ensure decisions are made based on accurate and timely information, and keep overall IT risks to a minimum (Huhns and Singh, 2012).

2.4 Research Gap

By considering the above empirical literature review its evident that a good number of similar research have been done, but there is no published documents that indicate that the same research have been done at Tanzania Electric Supply Company Limited. Therefore the study intended to investigate the influence of IT applications on the performance of internal audit in public institutions.

2.5 Conceptual Framework

In this study there are dependent and independent variables. The dependent variable of the study is reliable internal auditing. Reliable internal auditing depends on the level of technology implemented by the company. Also, the study assumes that technology implementation needs; implementation of IT plans, proper training, accessibility to various IT, accounting standards AND use of the systems.

The study assumes that the application of IT in auditing process is determined by various factors. These involve the IT plans and proper training. Audit management is charged with providing an effective audit force, directing audit resources for maximum benefit to the organization, and complying with laws, regulations, and policies regarding auditing. These assumptions are summarized in Figure 2.1

Figure 2. 1: Conceptual Framework

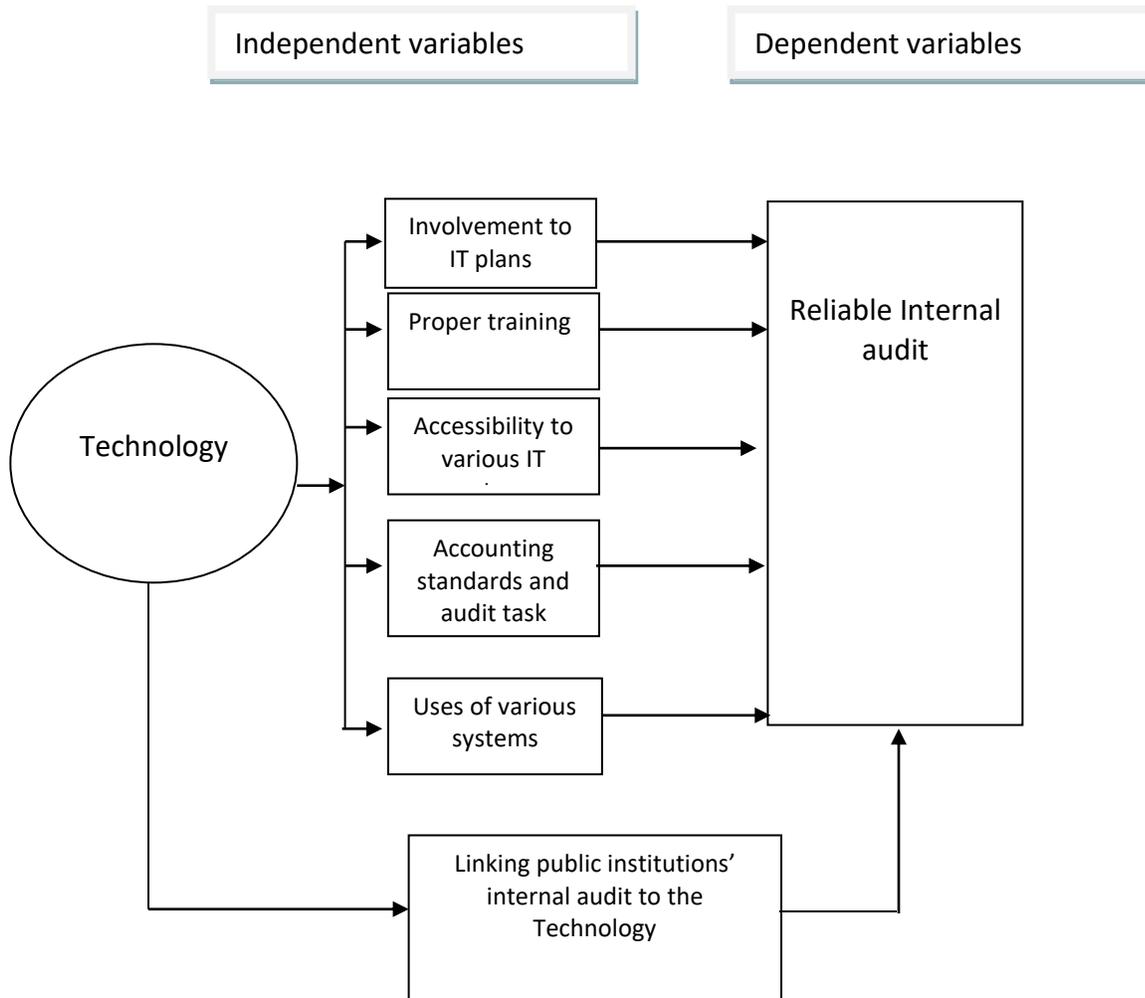


Figure No. 1: Conceptual framework - linking internal audit to the technology (Adapted from CIPFA, 1998)

Figure 2.1 presents conceptual framework of the study. The study assesses that ,there are dependent and independent variables independent variables are involvement to IT plans ,proper training ,accessibility to various IT, accounting standards and audit task and uses of various systems while dependent variables is Reliable internal audit

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with the description of the methods was applied in carrying out the study. The first section of the chapter explains the study area while research design is given in section two of the chapter. Study population is provided in section three of the chapter. Section four gives sample size and how the sample is selected. Data collections methods are discussed in section five of the chapter. The last section explains the validity and reliability of measurements.

3.2 Study Area

The study was conducted at Tanzania Electric Supply Company Limited. Tanzania Electric Supply Company Limited (TANESCO) is a parastatal organization under the Ministry of Energy and Minerals. The Company generates, transmits, distributes and sells electricity to Tanzania. TANESCO owns most of the electricity generating, transmitting and distributing facilities in Tanzania Mainland.

The study was conducted at TANESCO due to act that: The Company is one of the public institutions in Tanzania with sufficient number of auditors and accountants. Moreover, the area is more accessible compared to same public institutions.

3.3 Research Design

Research design is well understood as a logic plan of how to conduct a research (Kothari, 2004). The study adopted a case study research design where TANESCO was taken as a case study. The case study frequently makes use of qualitative data and place emphasis on a full contextual analysis of fewer events and conditions and their interrelations. Case studies also involve in depth contextual analysis of similar situations

in the organizations, where the nature and definition of the problem happen to be the same as experienced in the current situation.

The main advantage of using a case study is its ability to draw information from many different sources such as interviews, observations and documentary review including historical findings/data (Kothari, 2004). The use of case study enable the study to use multiple sources of evidence; and thus avoid the bias associated was to found in case of the use of a single source of evidence (Krippendorf, 2004).

Moreover, a case study research design was used in this study because the researcher intends to gain a deep and thorough understanding of the influence of IT applications on the performance of internal audit in public institutions.

3.4 Study Population

This is the totality of objects under investigation (Kamuzora and Adam, 2008). Saunders et al (2007) suggests that population is the complete set of cases or group members while a sample are a subgroup or part of a larger population. In this study the sample population fall to all accountants and internal auditors of the company/TANESCO in the head Office.

3.5 Sample Size

Sample size refers to exact numbers of items (respondents) selected from a population to constitute a sample (Kamuzora and Adam, 2008). The sample size of the study include about 25 accountants 25 internal auditors from TANESCO, these complied a total of 50 respondents. The sample was selected equally, to avoid biased.

3.6 Sampling Procedures

Purposive sampling was used to all respondents to participate in the sample, this sampling method involves purposive or deliberate selection of particular units of the

universe for constituting a sample which represents the universe. The technique was used because some of the respondents were not available at the time of data collection, others were assigned out of the office task, and some of them were too busy. The respondents were selected from Finance and Audit department by using probability sampling technique.

3.7 Types of Data

3.7.1 Primary Data

According to Kothari (2004) primary data are those which are collected afresh and for the first time and thus happen to be original in character. In collecting the primary data the study used questionnaire and in-depth interview.

3.7.2 Secondary Data

Secondary data were collected by using documentary review. A number of documents including official documents from TANESCO, reports and seminar papers in relation with the problem were reviewed to supplement the primary data that was collected by the researcher. The method helps the researcher to understand the magnitude of the problem. Documents are important in research because bridges the information obtained from data collected through the use of other research methods such as interviews. Documentary review guide was used as an instrument during data collection from different documents.

3.8 Data Collection Methods and Instrument

According to Saunders and Thornhill, (2009), data collection is two way systematic conversations between the investigator and the respondent. Data in a simple meaning is information, statistics, facts, figures, numbers or records.

3.8.1 Questionnaires

A questionnaire refers to questions printed or typed in a definite order on a form or set of forms, the respondents have to answer the questions on their own (Kothari, 2004). The researcher prepared questionnaire, comprised both open ended and close ended questions.

Open ended are those questionnaires in which there are definite, concrete and pre-determined questions. When characteristics are not present in a questionnaire, it can be termed as unstructured (Saunders and Thornhill, 2009). This technique is chosen because it does not exert pressure to the respondents; this meant they are free and comfortable. The questionnaires were administered to accountants and auditors. This method is chosen because wide data can be obtained and it limits bias on the side of the researcher. However, it also has disadvantages like low response rate, misunderstanding of some questions, no opportunity to ask further questions by the researcher, which are challenges to validity. In order to enhance validity, constant follow ups was done to respondents whose questionnaires are not returned; also piloting the questionnaire was done and the misunderstanding were corrected; other data collection methods like interviews was used to complement the questionnaire and enhance validity.

3.8.2 In-depth Interview

The study conducted in-depth interview which involved some selected auditor and accountants in TANESCO Head Office. The purpose of conducting an in-depth interview was to get more details on research problem.

The interview method of collecting data involves presentation of oral-verbal stimuli and reply in terms of oral-verbal responses (Kothari, 2004). This involves verbal interaction between the researcher and respondent. The researcher prepared the interview guide questions in connection to research questions, The technique was used because, sample controlled more effectively, more information and that too in greater depth can be

obtained, also the technique associated with greater flexibility, therefore the researcher has the opportunity to restructure questions so as to reach the research objectives. Interviews allow participants to provide rich, contextual descriptions of events. According to Saunders and Thornhill, (2009), interview help to get reliable and valid information relevant to the research.

3.8.3 Documentary Review

This is instrument analysis consists of analyzing the contents of documentary materials such as company's policy, company performance reports and the contents of all other verbal materials, which can be either spoken or printed. Thus, reading reports and then reporting on the content, as in a book review, is not document review. This study reviewed a company's policy, company performance reports in relation to the problem reviewed necessary for adding up information obtained from questionnaires and interview method. Documentary analysis was used in this study so as to supplement primary data.

3.8.4 Documentary Review Schedule

Instrument review schedule consists of analyzing the contents of documentary materials such as company's policy, company reports and the contents of all other verbal materials, which can be either spoken or printed. Documentary review schedule was used in reviewing documents. This is a statement that indicates how documents were reviewed.

3.9 Data Analysis Procedure

Data were analyzed by using by using SPSS, Data were presented in descriptive and tabular form; tabulation was used in order to establish relationship between variables. In presenting the finding of the study, tabulation was done to present some of the findings.

Data processing involves editing, coding, tabulation was used as a key factor in whole process of research. This was done in the area in order to make the research be accurate and effective.

Editing of data was done immediately after receiving questionnaire from respondents, it involved correction of errors that might have appeared in the whole process of research writing.

Coding of the data was done in order to ensure whether the response categories were appropriately classified and exhausted to the problem under the study and arrange data collected according to group or classes they base on the basis of their common characteristics.

Tabulation of the data was done so as to assemble data into concise and logical order, researcher analyzed data collected qualitatively where words were used to explain findings and quantitative analysis where the data used numbers, computation of total and percentage.

3.10 Validity and Reliability

Reliability is concerned with consistency that repeated measure produce across time and across observers (Sounders *et al*, 2003). To maintain reliability internally, the study used may repeated sample groups as possible to reduce the chance of an abnormal sample groups skewing the results.

Validity is concerned with the extent to which a test measures what it claims to measure (Saunders and Thornhill, 2009). It's vital for a test to be valid in order for the results to be accurately applied and interpreted. Reliability and validity test of instrument was performed to all selected variables to ensure accurate and consistence of data.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF THE RESEARCH FINDINGS

4.1 Introduction

This chapter provides presentation and discussion of the research findings. The first section of the chapter gives background characteristics of the respondents in terms of age sex and occupation. TANESCO employees' perception on the use of IT during internal auditing are discussed in section two whereas section three presents techniques used by TANESCO management to ensure effective use of IT during internal auditing. Section four explains challenges faced by TANESCO management on course of using IT in internal auditing. The last section of the chapter provides the extent the use of IT in internal auditing has been influence the performance of the organization.

4.2 Background Characteristics of the Respondents

4.2.1 Age of the Respondents

The study examines age of the respondents. It's found out of 45 respondents, 22 (48.8%) were aged between 25 to 34 years. Also, the study found important number of the respondents (31.1%) was aged between 35 to 44 years, as presented in Table 4.1. it is important to examine age of the respondents in order to establish the influence of age on internal audit practices.

Table 4. 1: Age of the Respondents

Option	Frequency	Percent	Valid Percent	Cumulative Percent
15-24	5	11.1	11.1	11.1
25-34	22	48.8	48.8	59.9
35-44	14	31.1	31.1	91.0
45-54	3	6.7	6.7	97.7
55+	1	2.3	2.3	100.0
Total	45	100.0	100.0	

Source: Field Data, 2014

Table 4.1 presents age of the respondents. The study found out of 45 respondents, 1 (2.3%) was aged above 55 years. Also, the study found small number of the respondents (6.7%) was aged between 45 to 54 years. The large number of the respondents (48.8%) was aged between 25 to 34 years. This implies that respondents were capable to participate in the study.

4.2.2 Sex of the Respondents

The study was interested to identify sex of the respondents in order to establish if it has any influence on the role of IT applications on the performance of internal audit in public institutions. Respondents were asked to identify their sex. The study found majority of the respondents (57.7%) were male, as presented in Table 4.2. its important to identify sex of the respondents in order to examine how sex influence internal auditing functions

Table 4. 2: Sex of the Respondents

Option	Frequency	Percent	Valid Percent	Cumulative Percent
Male	26	57.7	57.7	57.7
Female	19	42.3	42.3	100.0
Total	45	100.0	100.0	

Source: Field Data, 2014

Table 4.2 presents sex of the respondents, the study found minority of the respondents (42.3) were female. The study found majority of the respondents (57.7%) were male. This implies that the large number of the respondents were males

4.2.3 Marital Status of the Respondents

The study examines marital status of the respondents. Respondents were asked to identify their marital status, in their respond the study found majority of the respondents

were single as presented in Table 4.3. The study examine marital status of the respondents in order to establish how marital status influence internal auditing practices.

Table 4. 3: Marital Status of the Respondents

Option	Frequency	Percent	Valid Percent	Cumulative Percent
Married	18	40.0	40.0	40.0
Single	24	53.3	53.3	93.3
Divorced	2	4.5	4.5	97.8
Widow	1	2.2	2.2	100.0
Total	45	100.0	100.0	

Source: Field Data, 2014

Table 4.3 shows marital status of the respondents, the study found small number of the respondents (4.5%) and (2.2 %) were divorced and widow respectively. The study found significant number of respondents (40%) was married. This implies that the large number of the respondents was married. Moreover, majority of the respondents (53.3%) were single.

4.2.4 Occupation/ Position

The study identifies occupation of the respondents in order to examine if it has any influence on the role of IT applications on the performance of internal audit in public institutions. Respondents were asked to identify their positions. The study found equal number of respondents was accountant, auditors and operation officers, as presented in Table 4.4. the study examine occupation of the respondents in order to identify if respondents were capable to provide responses for the study.

Table 4. 4: Occupation/ Position

Option	Frequency	Percent	Valid Percent	Cumulative Percent
Accountant	15	33.3	33.3	33.3
Auditors	15	33.3	33.3	66.4
Operation Officer	15	33.3	33.3	99.9
Total	45	100.0	100.0	

Source: Field Data, 2014

Table 4.4 presents occupation of the respondents. The study found significant number of the respondents (33.3%) were accountant. Also, the study found out of 45 respondents, 15 (33.3%) were auditors.

2.2.5 Level of Education

The study was interested to examine the level of education of the respondents. The study found majority of the respondents (55.6%) had first degree. Also, the study found significant number of the respondents (28.8%) had post graduate qualification (Masters/Phd) as presented in Table 4.4. the study examine education of the respondents in order to identify the capability of the respondents.

Table 4. 5: Level of Education

Option	Frequency	Percent	Valid Percent	Cumulative Percent
Valid First Degree	25	55.6	55.6	55.6
Post graduate (Master/Phd)	13	28.8	28.8	84.4
Certificate	1	2.2	2.2	86.6
Diploma	6	13.3	13.3	100.0
Total	45	100.0	100.0	

Source: Field Data, 2014

Table 4.5 presents level of education of the respondents. The study found small number of the respondents (6%) and (2.2%) have diploma and certificate qualification respectively. Also, the studies found the large number of the respondents (55.6%) have first degree.

4.3 TANESCO Employees' Perception on the Use of IT during Internal Auditing

The study examines employees' perception on the use of IT during internal auditing. Respondents were asked to identify their perceptions. The study found majority of the respondents were satisfied with the use of IT during internal auditing, as presented in Table 4.6

Table 4. 6: Employees' Perception

Option	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Satisfied	29	64.4	64.4	64.4
Neutral	9	20.0	20.0	84.4
Unsatisfied	7	15.6	15.6	100.0
Total	45	100.0	100.0	

Source: Field Data, 2014

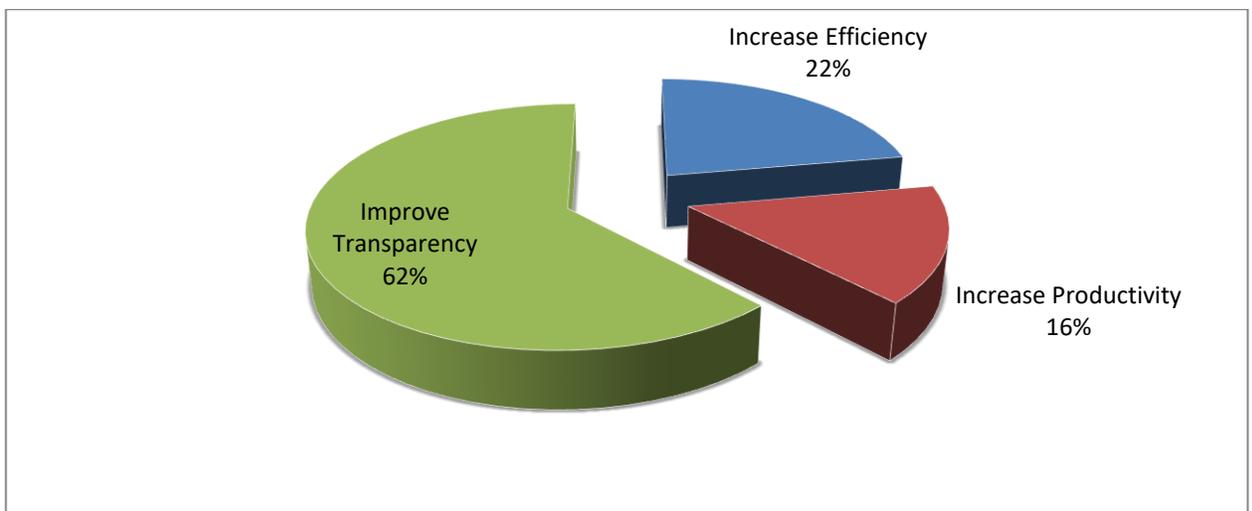
Table 4.6 presents employees' perception on the use of it during internal auditing. The study minority of the respondents (20%) and (15.6%) were neutral and unsatisfied respectively. The study found majority of the respondents (64.4%) were satisfied with the use of IT during internal auditing. This is similar to responses obtained during interview, one of the interviewed auditor revealed that...*"The company has modern computerized program that facilitates auditing operations"..... I am satisfied with the way company utilize computer programs"*.

The use of IT during internal auditing is vital for improving company efficiency and level of transperence during auditing operations. This is similar to the study made by

Brown, (2009), the study found that there is a need to computerized internal auditing operations in order to increase the level of transparency.

Moreover, the study investigates a major strength of the applicability of IT during internal auditing process. Respondents were asked to identify the strength of the applicability of IT. The study found majority of the respondents (62%) identified the applicability of IT during internal auditing process increase transparency, as illustrated in Figure 4.1

Figure 4. 1: The Strength of the Applicability of IT



Source: Field Data, 2014

Figure 4.1 illustrates the major strength of the applicability of IT during internal auditing process. The study found small number of the respondents (16%) identified IT increase productivity. Also, the study found significant number of the respondents (22%) identified increase efficient. Moreover, majority of the respondents (62%) suggested that the applicability of IT during internal auditing process increase transparency. This is similar to responses during interview. One respondent revealed that...

“The applicability of IT during internal auditing improves transparency. The use of computer facilitates disclose of financial information”.

4.4 Techniques used by TANESCO Management to Ensure Effective use of IT

The study examines the techniques used by TANESCO management to ensure effective use of IT during internal auditing. Respondents where asked to identify techniques, in their respond the study found majority of the respondents (51.1%) identified TANESCO management provide training, as presented in Table 4.7

Table 4. 7: Techniques used by TANESCO Management

Option	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Provide training	23	51.1	51.1	51.1
System maintenance	4	8.9	8.9	60.0
Increase IT experts	18	40.0	40.0	100.0
Total	45	100.0	100.0	

Source: Field Data, 2014

Table 4.7 presents techniques used by TANESCO management to ensure effective use of IT during internal auditing. The study found out of 45 respondents, 23 (51.1%) identified that, management provide training. This is similar to the study made by Ziegenfus, (2000), the study found internal audit technology play a critical role in achieving internal auditing objectives. In fact, providing systematic, comprehensive training for every staff member is a key success factor in moving up the technology and improves internal auditing operations. It’s also important to view training as a process, rather than an event, that needs to be consistent and ongoing. The increasing availability of online training programs has greatly helped the company to ensure their staffs have access to ongoing learning opportunities from the comfort of their desks.

Also, Sarens and Beelde, (2006), found that, training involves a number of major interdependencies. Consequently, internal audit staff alike needs to appreciate the

critical need for training and its strategic importance to both team and individual success. For instance, ongoing training enables internal auditors to keep up with current technology changes and acquire the necessary skill sets to enhance the overall quality and execution of audit engagements.

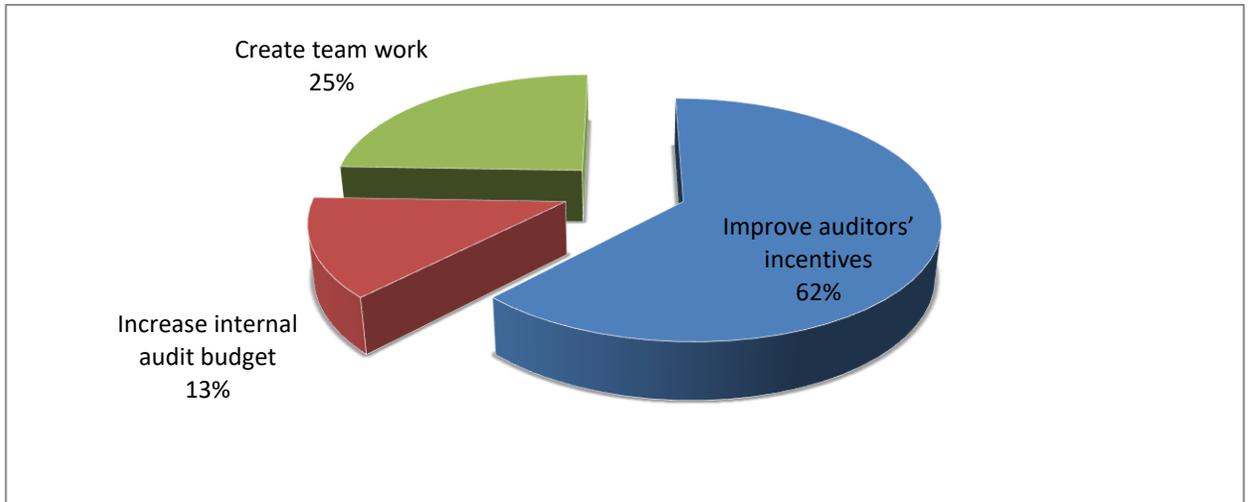
Moreover, the study found significant number of respondents (40%) and (8.9%) identified increase IT experts and system maintenance respectively. This implies that, it's vital for the company to increase IT experts and maintain computerized systems. During interview one respondent revealed that...

We lack IT experts in our company. The company should increase computer engineers who will be responsible for maintenance of the system instead of hiring from outside.

This is related to the study made by Brown, (2009), its found that, companies should have sufficient computer experts to assist daily operations. IT officials are highly demanded to support internal auditing functions. Internal audit functions approaching technology as a strategic initiative are further up the maturity curve than organizations that do not. The use of technology is a top strategic initiative. For these organizations, a strong strategic orientation sets the stage to effectively leverage technology to achieve a significant, positive impact on current internal audit processes as opposed to more limited, incremental change.

Furthermore, the study examines measures that can facilitate techniques used by TANESCO management. Respondents were asked to identify measures, in their reply the study found different measures can be used by TANESCO management. The study found majority of the respondents (62%) identified there is a need to improve internal auditor incentives, as presented in Figure 4.2

Figure 4. 2: Measures



Source: Field Data, 2014

Figure 4.2 illustrate measures that can facilitate techniques used by TANESCO management. The study found small number of the respondents (13%) and (25%) identified increase internal audit budget and create team work respectively. This implies that, by creating group work and increase internal auditing budget. The management of the company can facilitates the applicability of the techniques used by management to ensure effective use of IT during internal auditing.

Also, the study found majority of the respondents (62%) identified there is a need to improve internal auditors incentives. This is similar to the study made by Leung *et al.*, (2004), the study found that, it's important to consider internal auditors incentives in order to improve efficient of the auditors. However, this is contrary to the study by Otley, (2010), the study suggested that internal auditors' incentives should be in accordance to the company incentives policy. Company leadership and communications set the tone for the entire internal audit group and make it clear that a strategic commitment to technology is a shared responsibility of the entire staff. Staff wide buy-in is also a must for organizations hoping to streamline and improve core processes

4.5 Challenges faced by TANESCO Management on course of using IT

The study determines challenges faced by TANESCO management on course of using IT in internal auditing. Respondents were asked to identify challenges. Different challenges were identified by the respondents. The study found out of 45 respondents, 22 (48.9%) identified high maintained cost is a major challenge facing TANESCO management on course of using IT in internal auditing, as presented in Table 4.8

Table 4. 8: Challenges

Option	Frequency	Percent	Valid Percent	Cumulative Percent
Valid High maintenance cost	22	48.9	48.9	48.9
Limited budget	2	4.4	4.4	53.3
Lack experts	9	20.0	20.0	73.3
Internet shortage	12	26.7	26.7	100.0
Total	45	100.0	100.0	

Source: Field Data, 2014

Table 4.8 present challenges by TANESCO management on course of using IT in internal auditing. The study found small number of the respondents (4.4%) identified limited budget. This implies that for some extent TANESCO management was encountered by limited budget on course of using IT in internal auditing.

Also, the study found significant number of the respondents important number of the respondents (20%) and (26.7%) identified lack of experts and internet shortage respectively. This implies that TANESCO management experiencing lack of experts and internet shortage on course of using IT in internal auditing. This is similar to study made by Anderson, (2012), the study found the major problem facing the applicability of IT during internal auditing in most of the developing countries is internet shortage. Developing countries lack infrastructure, this impede the development of IT and internal auditing.

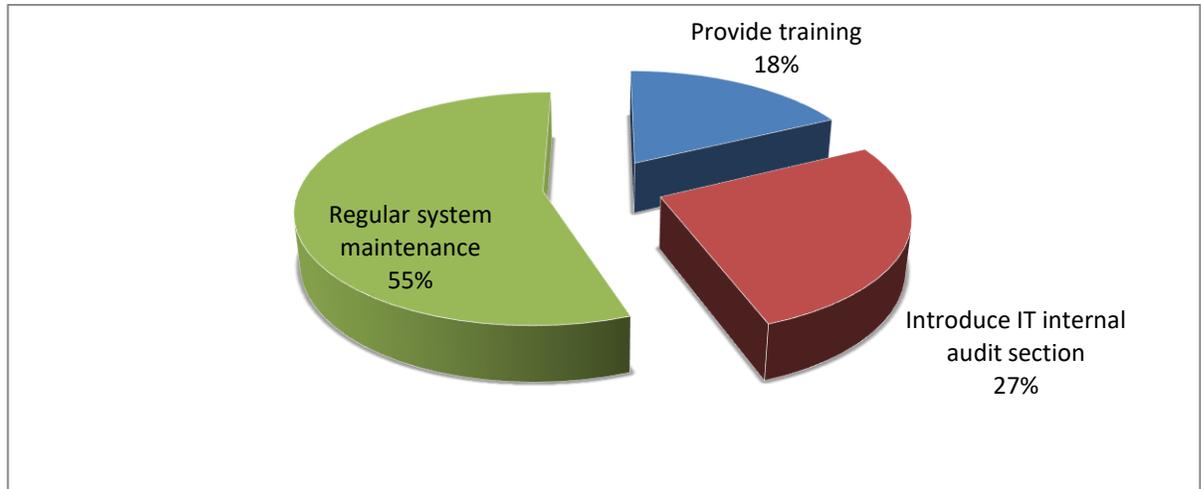
Moreover, the study found the large number of the respondents (48.9%) identified high maintenance cost as a major challenge facing TANESCO management on course of using IT in internal auditing. This is similar to responses obtained during interview, one auditor revealed that...

“The major challenge facing the management on course of using IT in internal auditing is high maintenance cost. Some auditing software needs to be updated every year”.

This implies that TANESCO management facing various challenges on course of using IT in internal auditing. This is similar to the study made by Coram *et al.*, (2008) the study found that, the applicability of IT for internal auditing functions face a number of challenges. Today’s business environment is both elevating the importance of internal audit and subjecting it to significant challenges. As companies extend their operations across the globe, internal audit departments must recruit, train, and manage staff that can operate across a variety of cultures and far-flung locations. They must also deal with multiple regulatory regimes. Meanwhile, the heightened focus on risk in recent years especially IT risk and compliance risk, which are seen in rapid change—has broadened the depth and scope of internal audit’s activities in this area.

Moreover, the study examines strategies that can overcome challenges faced by TANESCO management on course of using IT in internal auditing. Respondents were asked to identify strategies, in their reply the study found there are different techniques that can be used by the management to overcome challenges faced by TANESCO management on course of using IT in internal auditing. The study found majority of the respondents identified

Figure 4. 3: Strategies



Source: Field Data, 2014

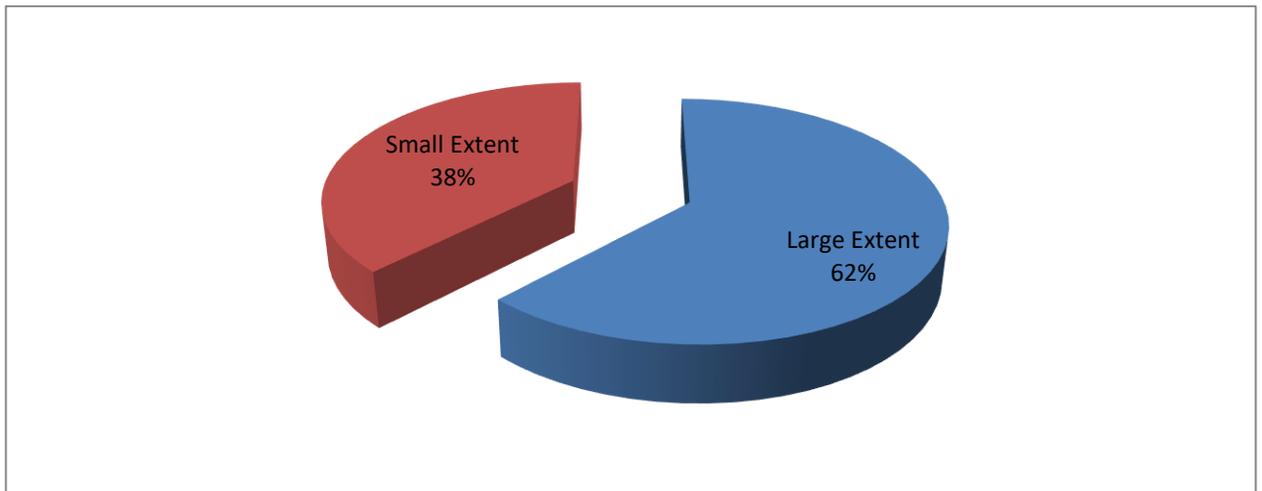
Figure 4.3 presents strategies that can overcome challenges faced by TANESCO management on course of using IT in internal auditing. The study found small number of the respondents (18%) identified the provision of training to internal auditors will overcome some of the challenges facing management on course of using IT in internal auditing. This implies that the role of training in improved internal auditing operations is very important. This is similar to the study made by Hoag, (2002), the study found continuous training and development is essential. Successful computer auditing is based upon a foundation of technical excellence. Without this, computer auditors are limited in their ability to audit effectively and to provide a valuable service to the organization. It should also be noted that the role of the computer auditor can, in some areas, overlap with that of the computer security function and this can cause confusion.

Also, the study found important number of the respondents (27%) and (55%) identified introduce IT internal audit section and regular system maintenance respectively. This implies that, the management should introduce IT internal audit section and regular system maintenance in order to overcome challenges faced by TANESCO management on course of using IT in internal auditing.

4.6 The Extent the Use of IT in Internal Auditing Influence the Performance

The study assesses the extent the use of IT in internal auditing has been influence the performance of the organization. Respondents were asked to identify for what extent the use of IT in internal auditing has been influence the performance of the organization. The study found majority of the respondents (62%) identified for high extent the use of IT in internal auditing has been influence the performance of the organization, as presented in Figure 4.4

Figure 4. 4: The Extent



Source: Field Data, 2014

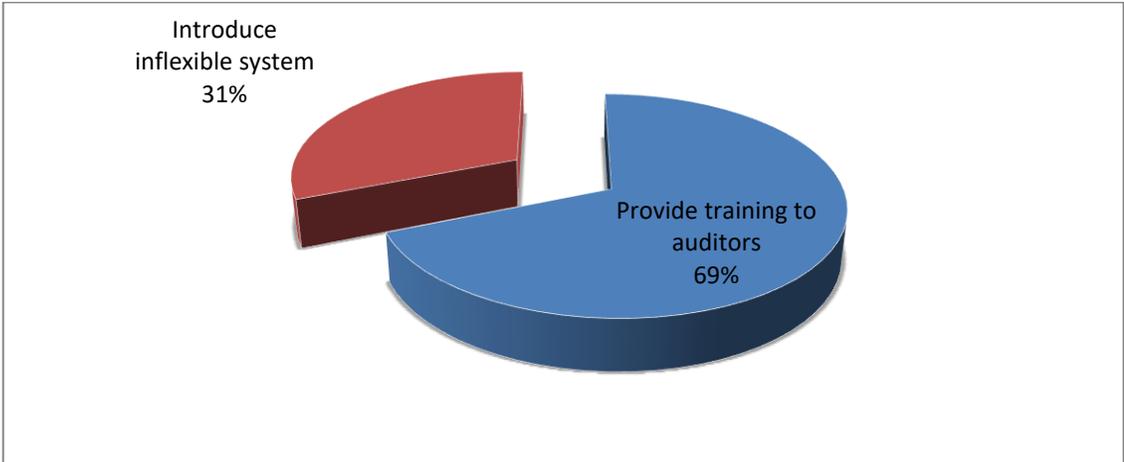
Figure 4.4 presents the extent the use of IT in internal auditing has been influence the performance of the organization. The study found minority of the respondents (38%) identified for high extent the use of IT in internal auditing has been influence the performance of the organization. Also, (62%) of the respondents suggested for large extent the use of IT in internal auditing has been influence the performance of the organization.

This implies that the use IT in internal auditing play critical role in enhancing company performance. This is similar to the study made by Jill, (2008), the study found use IT in

internal auditing is as an integral part of an institution and when properly implemented, is a key component to assist institution in discovering control weaknesses, regulatory violations, policy violations and operational inefficiencies and increase the company performance. This self-discovery of issues provides the institution the ability to take corrective action in order to maintain the safety, soundness, profitability and integrity of the institution (Huhns and Singh, 2012).

Also, the study examines technique that can be used to improve the extent the use of IT in internal auditing. Respondents were asked to identify technique that can be used to improve the extent the use of IT in internal auditing. The study found the large number of the respondents (69%) identified by providing training to auditors will improve the extent the use of IT in internal auditing

Figure 4. 5: Technique That Can Improve the Extent



Source: Field Data, 2014

Figure 4.5 presents technique that can be used to improve the extent the use of IT in internal auditing. The study found minority of the respondents (31%) identified there is a need to introduce inflexible system. Also, the study found majority of the respondents

(69%) identified by providing training to auditors will improve the extent the use of IT in internal auditing.

This implies that, there is a need to provide training to auditors in order to improve the extent the use of IT in internal auditing. This is similar to the study made by Coram et al., (2008), the study found it is essential to provide training to auditors and clearly define respective responsibilities so that unnecessary duplication is avoided. This will increase the extent the use of IT in auditing.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary, conclusion and recommendations of the study. The first section of the chapter gives conclusion of the study whereas recommendations of the study are discussed in section three. The last section of the chapter gives areas for further studies.

5.2 Summary of the Study

The study on the applications of Information Technology (IT) and the performance of internal audit in public institutions was conducted at Tanzania electric Supply Company limited (TANESCO). The objectives of the study were; to determine TANESCO employees' perception on the use of IT during internal auditing; to analyze techniques used by TANESCO management to ensure effective use of IT during internal auditing; to determine challenges faced by TANESCO management on course of using IT in internal auditing and to assess the extent the use of IT in internal auditing has been influence the performance of the organization.

The study used a case study research design whereas 45 respondents were involved. In collecting primary data the study used questionnaire and interview. Secondary data were collected through documentary analysis. Data were analyses by using SPSS. Data collected was analyzed based on research objectives. The study found there are various techniques applied by the management to ensure effective use of IT during internal auditing. Majority of the respondents (51.1%) identified TANESCO management provide training.

The study concluded that employees were satisfied with the use of IT during internal auditing. The use of IT play critical role in improves transparency, increase efficiency and productivity. Also, the study concluded that there are various techniques used by TANESCO management to ensure effective use of IT during internal auditing. The study recommended that Companies' management should consider the role of education and training in improving internal auditors' functions in relation to IT applicability

5.3 Conclusion

The study concluded that employees were satisfied with the use of IT during internal auditing. The use of IT play critical role in improves transparency, increase efficiency and productivity. Also, the study concluded that there are various techniques used by TANESCO management to ensure effective use of IT during internal auditing. These involves Provide training, System maintenance and Increase IT experts. Moreover, the study concluded that TANESCO management facing a number of challenges on course of using IT in internal auditing. High maintenance cost is a major challenge facing TANESCO management, other challenges include; limited budget, lack experts and internet shortage. Finally, the study concluded that for large extent the use of IT in internal auditing has been influence the performance of the organization.

Internal audits are designed to evaluate the effectiveness of an operation's internal controls by first gathering information about how a unit operates, identifying points at which errors or inefficiencies are possible, and identifying system controls designed to prevent or detect such occurrences. Then, they test the application and performance of those controls to assess how well they work. Managers ought to routinely evaluate controls in their department's operations by following the same process. Computers and networks provide most of the information needed for auditing. In order to be effective, auditors must use the computer as an auditing tool, audit automated systems and data, understand the business purposes for the systems, and understand the environment in

which the systems operate. The other important uses for computers and networks by auditors are in audit administration.

5.4 Recommendations for Immediate Action

Companies' management should consider the role of education and training in improving internal auditors' functions in relation to IT applicability. Education and training clearly have a key role to play in overcoming challenges facing internal auditing, as well as turning to outside expert resources for assistance.

Audit scheduling software should support assignment of auditors with critical skills as needed within an audit project, and allow such auditors to proceed to other projects once their tasks are completed, even if the audit is not finished. Such software should also assess the impacts of schedule and priority changes, compensate for special assignments, and extend the impacts of schedule overruns.

Public companies should try to implement modern IT software that will assist internal auditing operations. This may contribute to a potential manipulation by the company and influence users in accessing valid and reliable information. The accounting profession has to play an important role in improving the quality of information provided and assuring users about their reliability.

Organization may be able to achieve more effective IT oversight by tapping into the resources of the audit committee and external auditors to a greater extent. Therefore companies should increase its auditing budget.

Organizations should provide strong security policy administration and/or auditing. The application of IT during internal auditing face a number of security threats. Therefore,

frequent assessment and monitoring are important elements of information security management.

Universities should provide sufficient computer skills for account students. This can help the auditors not only to be professionals, but also to be seen as professionals. It is noted that internal auditors, rather than external auditors, will be more helpful in detecting and reporting fraud, since internal auditors work with the management.

There should be serious looking at technology as a way to improve productivity and the organization's risk management process. Technology can help automate activities, such as ongoing monitoring of certain internal controls, and free internal audit professionals to lend their expertise to their organizations in other high-impact areas.

The audit committee should ensure that internal audit's risk-based plan is flexible and responsive to change. The audit plan should be dynamic and responsive to the changing internal and external environment.

The government or company should rotate auditors to keep the system fresh. Spread them around. Take advantage of new thoughts, perspectives and ideas. Share the audit results among the entire organization as a lessons learned exercise – one person's corrective action could be someone else's preventive action.

Employers including government should improve incentives available for internal auditors. Also there should be utilizing a wide variety of trained internal auditors. In fact, some of the best auditors are new employees or the employees that have no clue of the area, the function or the process they are auditing. These individuals therefore ask the uncomplicated questions and are not satisfied until they understand the answers provided. These are the types of auditors that ask the "why" question at least five times

which almost always leads to revealing the underlying root causes. Using a checklist only as a guide and ensure it is a process based approach.

5.5 Areas for Further Studies

Impending studies should explore the current impact of technology on the audit process, and discuss the future implications of technological trends to the audit profession. Also, future studies should address and detailed out IT system (software/ hardware) for continuous auditing. Moreover, the study should suggest a detailed role of internal auditor and required skills and competencies in IT related audit.

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APPENDICES

Appendix I: Questionnaire

My name is **Monica Komba**, a Master's Student from Mzumbe University. I am conducting a research on **the applications of Information Technology (IT) and the performance of internal audit in public institution**. Your participation on answering this questionnaire could make this research be effective and complete. Therefore I am kindly requesting your attention to read and answer the question below to the best of your knowledge and ability.

Instruction

Encircle the correct answer and fill the blank

Section 1: Respondents' Profile

1. Age

- a) 15 – 24
- b) 25 – 34
- c) 35 – 44
- d) 45 – 54
- e) 55+

2. Gender

- a) Male
- b) Female

3. Level of education

- a) Certificate
- b) Diploma

- c) First degree
- d) Post graduate (eg, Masters and PhD)

4. Occupation

- a) Accountant
- b) Human Resource Officer
- c) Engineer
- d) IT Officer
- e) Others, specify

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Section 2: Employees' Perceive

5. How do you perceive the use of IT during internal auditing? Please explain

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6. What do you think is a major strength of the applicability of IT during internal auditing process?

- a) Increase efficiency
- b) Increase productivity
- c) Improve transparency

7. What are others strength of the applicability of IT during internal auditing process. Please mention

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- 8. What do you think is a major weakness of the use of IT during internal auditing process?
 - a) High cost
 - b) Involve extensive training

- 9. What are other weaknesses of the use of IT during internal auditing process?
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Section 3: Techniques

- 10. What are the techniques used by TANESCO management to ensure effective use of IT during internal auditing?
 - a) Provide training
 - b) Proper System maintenance
 - c) Increase IT experts

- 11. Apart from the above, what are other techniques used by TANESCO management to ensure effective use of IT during internal auditing?
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12. What should be done to improve the above mentioned techniques?

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Section 4: Challenges

13. What are the challenges faced by TANESCO management on course of using IT in internal auditing?

- a) Limited budget
- b) Lack experts

14. What are other challenges faced by TANESCO management on course of using IT in internal auditing?

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15. What should be done to overcome challenges faced by TANESCO management on course of using IT in internal auditing?

- a) Provide training
- b) Introduce IT internal audit section
- c) Regular system maintenance

Section 5: Extent of the use of IT

16. To what extent the use of IT in internal auditing has been influence the performance of the organization? Please explain

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17. What do you think are the factors impede the use of IT in internal auditing?
Please mention

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18. What do you think should be done to improve the extent the use of IT in
internal auditing? Please mention

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Appendix II: Interview Guide

1. How do you perceive the use of IT during internal auditing?
2. What are the techniques used by TANESCO management to ensure effective use of IT during internal auditing?
3. What are the weaknesses of the techniques used by TANESCO management to ensure effective use of IT during internal auditing?
4. What are the challenges faced by TANESCO management on course of using IT in internal auditing?
5. What should be done to overcome challenges faced by TANESCO management on course of using IT in internal auditing?
6. To what extent the use of IT in internal auditing has been influence the performance of the organization?