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RESEARCH PROJECT TITLE

AN ANALYSIS OF THE IMPACT OF INFORMATION TECHNOLOGY ON THE ROLE OF INTERNAL AUDITING: CASE STUDY OF THE INTER-REGIONAL MEETING OF THE BISHOPS OF SOUTHERN AFRICA (IMBISA).

Submitted By

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Dedication

This research project is dedicated to my family, making special mention of my sister Sharon Chinogara.

Acknowledgements

The researcher would like to extend her gratitude to the following:

- ❖ The Almighty God, for guiding me throughout the period of my studies.
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Abstract

The study sought to analyse the impact of Information Technology on the role of internal auditing using The Inter-regional Meeting of the Bishops of Southern Africa as a case study. The objective of the study was to articulate the roles of internal auditors that are affected in an IT related audit in the organization and also evaluate the effectiveness of CAATs in counteracting the challenges internal auditors could face in their engagement. The study also recommended ways of improving these challenges. A case study research design was used; questionnaires and interviews were used as data collection instruments. A sample of 15 employees was drawn using stratified sampling to identify them all. The major findings were that employees (accountants, internal auditors and IT workers) were facing challenges of keeping pace with the changes that emerge in an IT related auditing.With the expanded and extended role of internal audit now stretching beyond its traditional focus on compliance and financial audit, to encompass an assessment of the organizations efficiency and effectiveness in achievement of its objectives, internal audit has become a management tool.The study recommended that human resource needs training so as to cope with the changes that constantly arise with the use of Information Technology.

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List of tables **Page**

List of Figures

List of Appendices

CHAPTER I

INTRODUCTION

1.0 Introduction

This chapter focused on the background to the study, the statement of the problem, purpose of the study, research objectives, research questions, significance of the study, assumptions, and definition of terms, delimitations and limitations of the study and chapter summary.

1.1 Background of the Study

1.1.1 Organizational profile

IMBISA

IMBISA (The Inter-regional Meeting of the Bishops of Southern Africa) is an Association of the Bishops Conferences namely; the Episcopal Conferences of Angola and Sao` Tome & Principle (CEAST), LESOTHO (LCBC), Mozambique (CEM), Namibia (NCBC), South Africa which is made up of Botswana, South Africa and Swaziland (SACBC) and Zimbabwe (ZCBC).The region has 78 ecclesiastical territories (Archdioceses and Dioceses) and about 100 Bishops .IMBISA is now 35 years old and is at the moment the only region in Africa that is made up of two language groups, that is English and Portuguese.

IMBISA is an organ of Liaison and Pastoral Cooperation between the Bishops, whose main aim is its mandate of creating communion through sharing of best practices in each member country.

IMBISA has five departments at its secretariat in Harare and these are Refugee Services, Social Communications, Justice and Peace, Biblical Pastoral Ministry, Theological Reflection and Exchange and Translations Desk. Of the five departments, only one is not functional at the moment that is the Theological Reflection and Exchange. The departments have the mandate of being organs of liaison and collaboration between member Conferences of IMBISA, to coordinate the activities at regional level and assist the national conferences in need of advice, expertise, skills training, representing IMBISA at different fora etcetera.

1.1.2 General Secretariat

Is responsible for carrying out the day to day business of IMBISA and whatever has been assigned to it by the Standing Committee (Board of Directors). The General Secretariat consists of: The Secretary General, who is a Bishop member of IMBISA, a Director or Principal Secretary whom is a priest nominated by the Secretary General and approved by the Standing Committee. Within the General Secretariat, that is where all the accounting work of all Departments (Refugee Service, Social Communications, Justice and Peace, Translations Desk) is conducted.

1.2 Statement of the Problem

At IMBISA, the role of internal auditors is not well communicated to the workforce that is specified thoroughly in order to ensure necessary capability and competencies to be addressed, thus helping the auditor to perform auditing tasks effectively. There are no specific guidelines available to ensure information technology impact can be softened through audit best practices. Contributory to these factors is the absence of auditing standards at IMBISA to educate relevant auditors in performing audit task and mitigate organizational risk.

1.3 Research Objectives

- To analyse the impact of information technology on the role of internal auditing.
- To ascertain the effectiveness of Information Technology (IT) related auditing to good auditing best practices.
- To address and suggest IT related auditing standards to educate auditors in performing their audit task.
- To redefine the detailed role of internal auditors, required skills and competencies in an IT related audit.
- To detail out the significance of CAATs (Computer Aided Auditing Techniques) of internal auditing.

1.4 Research Questions

- What is the impact of information technology on the role of internal auditing?
- How effective is IT related auditing to good auditing best practices?
- To address and suggest IT related auditing standards to educate auditors in performing their audit task.
- Why is ensuring a detailed role of internal auditors and the availability of required skills and competencies in IT related audit important?
- What is the significance of CAATs in internal auditing?

1.5 Assumptions of the Study

- The sample will be representative of the entire population.
- Information will be voluntarily expressed by respondents to this study.
- Effective Information Technology systems improve the performance of internal auditors.

- Basic knowledge of Information Technology by internal auditors will enable them to comply with auditing best practises.
- The use of IT complies with acceptable accounting standards.

1.6 Delimitations of the Study

Opportunities given by Information and Communications Technology are wide and varied in the business function in general. This study specifically focused on the impact that IT has on the internal auditing function within a Non-Profit making Organisation (IMBISA) in order to present a true and fair view of the entire organisation. The study was confined within Harare, Zimbabwe in a space of twelve months.

1.7 Significance of the Study

The study personally helped the author to decide on the specific line of work that is preferable and also widen her pool of knowledge. To IMBISA, the study helped to improve organization's IT-based internal auditing. Bindura University's pool of knowledge was also widened by this study.

1.8 Limitations of the Study

The author cannot change the type of software package that the organization under study uses; the research is confined within the type of IT that the organization has adopted. The outcome can be affected as some software packages are subject to manipulation.

1.9 Definition of Terms

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

Information technology is a field of engineering involving computer hardware and software systems and communication systems to enable acquisition, representation, storage, transmission and use of information.

IT Audit is an examination of the management controls within an Information Technology (IT) infrastructure. The evaluation of obtained evidence determines if the information systems are safeguarding assets, maintaining data integrity, and operating effectively to achieve the organization's goals or objectives.

Continuous auditing is the examination of a firm's financial transactions and their support documents (accounting practices), carried out daily or on a fixed interval basis throughout the year. Continuous audits are usually technology-driven and designed to automate error checking and data verification in real time.

Organizational risk is a collection of risks (investment, budgetary, legal liability, safety, inventory, program management and risk from information systems). Management of organizational risk brings together best collective judgments of individuals' responsibilities for the strategic planning and day-day operations of an organization to provide adequate security and risk mitigation.

1.10 Chapter Summary

This chapter gave an overview of the background of the study, the problem statement, primary objectives, secondary objectives, research questions to be addressed, sub problems, significance of the study, assumptions of the research, delimitation of the research and the limitations. The next chapter will focus on literature review.

CHAPTER II

LITERATURE REVIEW

2.0 Introduction

According to Allan Taylor (2000:58) information technology is the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numeric information by a micro-electronics based combination of computing and telecommunications. Planning for IT needs will enable organizations to better achieve their organizational goals and objectives. The past decade has seen most organizations adapt to the use of Information Technologies in their operations, this has greatly affected auditing as a profession as they have to change the way they plan and execute their audits to suit the IT changes in most organizations. IT has impacted auditing in a two way process that is, organizations have to prepare their records in such a way that they incorporate the changes brought by IT and has effected auditors as a giver of assurance services.

This chapter will give an overview of the relevant literature pertinent to the research study highlighted in the previous chapter, that is, show how IT has impacted on the manner in which auditors (internal auditors in particular) carry out their job. Literature review will assist in developing a better understanding and insight to the previous research that relates to the relevant study. Hart (2000) outlines that literature review is essential to distinguish what has been done from what needs to be done, to help discover important variables relevant to the topic.

2.1 Conceptual and Theoretical Framework

2.1.0. The impact of IT on the role of internal auditing

Information technology (IT) function is responsible for designing, implementing and maintaining controls over an organization's business processes. IT has a critical role in collecting, processing, and storing data that is summarized and reported in financial statements (Cannon and Crowe, 2004:31). Many organizations are becoming increasingly dependent on IT with elements such as fully integrated information systems and electronic document management becoming more popular each day. IT increases the accuracy and speed of transaction processing, and leads to competitive advantages for many organizations in terms of operational efficiency, cost savings, and reduction of human errors.

According to Silltow's (2003) point of view, internal auditors receive considerably more exposure to IT systems nowadays than in the past. IT plays a fundamental role in the way modern organizations function, and it becomes integrated to the degree that virtually every type of audit requires at least some consideration of IT issues. Whereas technology was once considered the domain of specialized IT auditors, it is now the concern of all auditors, including audit generalists. Pathak (2003) also suggested that "…the integration of applications and enterprise-wide information systems will be a key trend for the future and will surely have a great impact on the entire set of knowledge, skills, methods, algorithms, and strategies of internal auditors. Accordingly, the audit practitioners and educators need to expand their skill sets and knowledge bases to cope not only with current changes but also with future challenges".

Tongren (1997) also argued that internal auditors are struggling to maintain their identity and purpose as the organizations they audit undergo radical changes. Total quality management, business process reengineering, globalization, and self-directed teams are dismantling hierarchical command and control structures. Advances in IT continuously render control procedures obsolete; and the "value" of traditional internal audit becomes seriously questioned. As IT changes occur more quickly, auditors must keep pace with

emerging technological changes and their impacts on their client's data processing system, as well as their own audit procedures (Rezaee & Reinstein, 1998: 465).

The American Institute of Certified Public Accountants (AICPA) has recently stated that internal auditors need to change their audit strategies in reaction to the all-encompassing changes in information technology IT.

The use of IT affects the manner in which transactions are initiated, recorded, processed, and reported. An organization may have information systems that use automated procedures to initiate, record, process, and report transactions, in which case records in electronic format replace such paper documents as purchase orders, invoices, shipping documents, and related accounting records. Controls in systems that use IT consist of a combination of automated controls and manual controls.

Furthermore, manual controls may be independent of IT, may use information produced by IT, or may be limited to monitoring the effective functioning of IT and of automated controls, and to handling exceptions. Accordingly, the auditor should design and perform further audit procedures whose nature, timing and extent are responsive to the risk assessments.

On the other hand, there are many types of risk associated with IT; this includes loss of computer assets, erroneous record keeping, increased risk of fraud, competitive disadvantages if the wrong IT is selected, loss or theft of data, privacy violations, and business disruption (Warren et al. 1998; Gelinas et al. 1999; Hermanson et al. 2000a; Hadden et al. 2003).

2.1.1 The effects of IT to good auditing practices

The significant effect of IT advancements on the audit profession is evident in the release of two auditing standards that address the impact of technology on the audit.

Statement on Auditing Standards (SAS) No. 80 (AICPA 1996) suggests that, with respect to clients that process a significant portion of their transactions electronically, auditors

may not be able to reduce audit risk to an appropriate level via additional substantive procedures and may need to perform more control testing. SAS No. 94 (AICPA 2001) indicates that, in computer intensive environments, auditors should assign one or more computer assurance specialists (CAS) to the engagement in order to appropriately determine the effect of IT on the audit, gain an understanding of controls and design as well as perform tests of IT controls. Clearly, the increased complexities and pervasiveness of IT should affect auditor planning (e.g. the application of the audit risk model) and increase the role of CAS as a source of evidence within the audit engagement team.

According to the International Federation of Accountants (IFAC) (2002), IT would provide potential benefits of effectiveness and efficiency for an organization's internal control because it enables an organization to:

- Consistently apply predefined business rules and perform complex calculations in processing large volumes of transactions or data.
- Enhance the timeliness, availability, and accuracy of information.
- Facilitate the additional analysis of information.
- Enhance the ability to monitor the performance of the organization's activities and its policies and procedures.
- Enhance the ability to achieve effective segregation of duties by implementing security controls in applications, databases, and operating systems.

Cannon and Crowe (2004: 32) stated that many of internal controls over financial data are incorporated in computer programs, processes, and procedures that are written, implemented, and maintained by IT function. Accordingly, organization assets can be transferred and liabilities incurred through transactions without human action by computerized processes. Purchases of materials, and wire transfers are routinely initiated and consummated within computer processes residing within external entities. The degree of automation can be such that human activity is limited to promulgating policies and rules and reviewing results.

IT applications, such as Enterprise Resource Planning (ERP) systems, have significantly changed the way companies operate their businesses. These complex and pervasive IT systems have allowed companies to better manage supply chains, perform business process reengineering, and re-organize their accounting processes along with providing numerous other functions (Brown 1997; Moore and Warrick 1998; Scheer and Habermann 2000). Changes brought about by ERP systems have also affected the ways in which auditors perform their duties (Helms 1999; POB 2000). For example, the implementation and utilization of ERP systems at many major corporations has increased audit-related risks such as business interruption, database security, process interdependency, and overall control risk (Hunton et al. 2001).

Pathak (2003) argued that the overall quality of various internal controls facilitates to a great extent the internal auditing of business systems applications in general. IT audit can be performed for small-sized systems by auditing the end products, assuming that the internal controls are well placed. However, in large and complex systems, auditors may need to collect further evidence of the quality of the internal control systems (both operational and application) in order to vouch for the data integrity, system efficiency and effectiveness, and asset safeguarding objectives of IT audit. If the internal control system is intact, the internal auditor can have more confidence in the quality of the application systems being evaluated.

On the other hand, IT also introduces specific risks to an organization's internal control, including:

- Reliance on systems or programs that are inaccurately processing data, processing inaccurate data, or both.
- Unauthorized access to data that may result in destruction of data or improper changes to data, including the recording of unauthorized or nonexistent transactions or inaccurate recording of transactions.
- Unauthorized changes to data in master files.
- Unauthorized changes to systems or programs.
- Failure to make necessary changes to systems or programs.
- Inappropriate manual intervention.

11

- Potential loss of data or inability to access data as required (IFAC, 2002).

2.1.2 The International Standard on Auditing in relation to IT

The International Standard on Auditing 401- Auditing in Computer Information Systems Environment, states that auditing processes for both internal and external auditors have been rapidly changed. Factors that prompted these changes include: the globalization of business; advances in technology; demands for value-added audits; the organizational structure of the client's computerized information systems (CIS) activities; the extent of concentration or distribution of computer processing throughout the organization; particularly as they may affect segregation of duties; and the availability of data source documents.

Some computer files and other evidential matter that may be required by the auditor may exist for only a short period or only in machine-readable form. Accordingly, the auditor should have sufficient knowledge of the CIS to plan, direct, supervise and review the work performed. The auditor should also consider whether specialized CIS skills are needed in an audit.

Again, ISA 401 confirmed that the overall objective and scope of an audit does not change in a CIS environment. However, the use of a computer changes the processing, storage and communication of financial information which may in turn affect the accounting and internal control systems employed by organizations. Accordingly, a CIS environment may affect:

- The procedures followed by the auditor in obtaining a sufficient understanding of the accounting and internal control systems.
- The consideration of inherent risk and control risk through which the auditor arrives at the risk assessment.
- The auditor's design and performance of tests of control and substantive procedures appropriate to meet the audit objectives.

As new CIS technologies emerge, they are frequently employed by clients to build increasingly complex computer systems that may include micro-to-mainframe links, distributed databases, end-user processing, and business management systems that feed information directly into the accounting systems. Such systems increase the overall sophistication of CIS and the complexity of the specific applications that they may affect. As a result, CIS may increase risk and require further consideration. The auditor should obtain an understanding of the significance and complexity of the CIS activities and the availability of data for use in the audit. According to IAS 401, an application may be considered to be complex when, for example:

- The volume of transactions is such that users would find it difficult to identify and correct errors in processing.
- The computer automatically generates material transactions or entries directly to another application.
- The computer performs complicated computations of financial information and/or automatically generates material transactions or entries that cannot be (or are not) validated independently.
- Transactions are exchanged electronically with other organizations (as in electronic data interchange (EDI) systems) without manual review for propriety or reasonableness.

2.1.3 The Role of Internal Auditors

The Institute of Internal Auditors defines internal auditing as an independent, objective assurance and consulting activity designed to add value and improve an organisation's operations. It helps an organisation accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.

The internal auditor is often described as the organisations' critical friend, the independent advisor who can challenge current practice, champion best practice and be a catalyst for improvement, with the objective of ensuring that the organisation as a whole can achieve its strategic objectives.

2.1.4 Major Roles and Responsibilities of Internal Audit Function

With reference to the Deloitte and Touché China Centre of Corporate Governance (2012) the following roles and responsibilities of internal auditors were extracted.

A. **Evaluating controls and advising managers at all levels**

The Internal Auditor's work includes assessing the tone and risk management culture of the organisation as well as evaluating and reporting on the effectiveness and efficiency of the implementation of management policies.

B. **Evaluating risks**

Internal Auditors identify key activities and relevant risk factors and assess their significance. Changing trends and business/economic conditions impact the way the internal auditor assesses risk. The techniques of internal auditing have changed from a reactive and control based form to a more proactive and risk based approach. This enables the internal auditor to anticipate possible future concerns and opportunities as well as identifying current issues.

C. **Analysing operations and confirming information**

Internal Auditors work closely with line managers to review operations then report their findings. The internal auditor must be well versed in the strategic objectives of the organisation, so that they have a clear understanding of how the operations of any given part of the organisation fit into the bigger picture.

D. **Reviewing compliance**

Compliance review ensures that the organisation is adhering to rules, regulations, and laws, codes of practice, guidelines and principles as they apply individually and collectively to all parts of their organisation.

Apart from the above mentioned roles and responsibilities Rishel and Ivancevich (2003) state the following internal auditing roles and responsibilities:

- Evaluates and providing reasonable assurance that risk management, control, and governance systems are functioning as intended and will enable the organisation's objectives and goals to be met.
- Reporting risk management issues and internal controls deficiencies identified directly to the audit committee and providing recommendations for improving the organisation's operations, in terms of both efficient and effective performance.
- Evaluating information security and associated risk exposures.
- Evaluating regulatory compliance program with consultation from legal counsel.
- Maintaining open communication with management and the audit committee.
- Engaging in continuous education and staff development.
- Providing support to the company's anti-fraud programs.

However, in an effort to reduce the number of IT failures, internal auditors should also provide value-added services in areas that are often overlooked. An auditor's involvement in evaluating and improving the quality of the processes used to validate and document systems and train personnel could contribute to achieving a successful IT implementation. During the validation and testing phase of implementation, internal auditors could also provide valuable input about configuring the systems in a way that incorporates appropriate controls in their organizations.

Meredith and Akers (2003) also highlighted the evolutionary development of the management's expectations of the internal audit function related to IT development in the last thirty years. The scope of internal audit has expanded from measuring and evaluating the effectiveness of internal controls to providing consulting services related to IT and systems developments. However, one potential problem with internal auditors acting as consultants for systems-related projects is that their independence might be impaired.

2.1.5 The significance of CAATs in internal auditing

According to James Bourke (2010), Computer-Assisted Audit Techniques (CAATs) or Computer-Assisted Audit Tools and Techniques (CAATTs) are a growing field within the audit profession. CAATs are the practice of using computers to automate the audit process. CAATs normally include using basic office productivity software such as spreadsheet, word processors and text editing programs and more advanced software packages involving use statistical analysis and business intelligence tools. But also more dedicated specialized software is available. CAATs have become synonymous with data analytics in the audit process. The organization specifically under study (IMBISA) uses QuickBooks.

Traditional auditing vs. CAATs

James Bourke (2010) argued that the traditional method of auditing allows auditors to build conclusions based upon a limited sample of a population, rather than an examination of all available or a large sample of data. The use of small samples may diminish the validity of audit conclusions. Management realizes that they conduct thousands or perhaps millions of transactions a year and the auditor only sampled a handful. The auditor will then state that they conducted the sample based upon generally accepted audit standards (GAAS) and that their sample was statistically valid.

However, the CAATTs driven review is limited only to the data saved on files in accordance with a systematic pattern. Much data is never documented this way. In addition saved data often contains deficiencies, is poorly classified, is not easy to get, and it might be hard to become convinced about its integrity. So, for the present CAATTs is complement to an auditor's tools and techniques. In certain audits CAATTs cannot be used at all. But there are also audits which cannot be made with due care and efficiency without CAATTs.

Why Use CAATS?

With reference to (http://www.topcaats.edu/reports/html) CAATs have been around for years, accountants are finding it easier to use these techniques now to analyze large volumes of data for anomalies. And with advances in technology, it is simpler to obtain data files and have access to many of the improved tools on the market. CAATs are used by auditors and accountants to help them perform testing on financial data. The key benefits of using CAAT software are that it can greatly improve efficiency (often saving many hours a week); it reduces risk and improves the quality of the audit. CAATs have similar benefits for internal auditors as they do for external auditors, yet a survey conducted by Ernst and Young in April 2011 in the United Kingdom showed that 51% of internal auditors do not use CAATs at all and a PricewaterhouseCoopers, United States of America 2009 survey showed that only 33% of internal auditors use CAATs.

As technology continues to change, putting more powerful processors into the hands of the end users and with the prevalence of more technologies in the business environment, there is no better time than the present to improve the efficiency of audit procedures by the addition of CAATs.

Furthermore, as the reports from CAATs are all in a standard format, it makes benchmarking between divisions, locations or subsidiaries easy. The wide variety of tools and inbuilt flexibility make up for a number of shortcomings in many mainstream accounting packages (Ibid).

The rapid changes in IT and managerial practices force many organizations moving away from rigid, documented control to situations where responsibility for control is being pushed down the organization hierarchy and where oversight by management could not be achieved through traditional, compliance based internal audit (Spira & Page, 2003).

Fadzil et al. (2005:84) also confirmed that internal auditing has undergone dramatic changes that have expanded its scope in a way that allows it to make greater contributions to the organization it serves. Internal auditing is also performed in diverse legal and cultural environments; within organizations that vary in purpose, size, and structure; and

also by persons within or outside the organization. The internal auditing profession also walks a tightrope between serving as a management consultant and an independent professional.

2.2 Previous Research Findings

In an empirical study carried out on Saudi organizations, a survey, using a self-administered questionnaire, was conducted by Dr. Ahmad A. Abu-Musa, to explore and evaluate the effect of IT and its related activities on IA in Saudi organizations. The study used the questionnaire developed by Hermanson et al. (2000a). It was revised to take into consideration the comments and suggestions raised by Burton (2000) and Jackson (2000). Hermanson et al. (2000a) developed the original questionnaire based on the elements of IT as grouped by IFAC in the statement IT in the Accounting Curriculum (IFAC, 1995, 2002).

The questionnaire contains four main parts. In the first part, the respondents were asked to answer 4 questions related to the objectives of their audit evaluations of CIS using an interval scale rated from 1 – rarely done to 5 – always done for each objective. The second part of the questionnaire requested the respondents to provide information on the 36 specific tests outlined by IFAC (classified under eight main groups) using a five interval scale rated from 1 – rarely done to 5 – always done for each individual test. The third part of the questionnaire collected primary information related to the usage of computer assisted audit techniques by the IA in the Saudi organizations. Finally, the last part of the questionnaire contains questions addressing the main organizations' characteristics and respondents' profile. The questionnaire was pre-tested, again on a selected number of academic staff and accounting practitioners, and was piloted on a selected sample of Saudi organizations. Comments and suggestions were considered in developing and revising the final copy of the questionnaire used in this survey.

The respondents were asked to respond to the questionnaire based on their internal audit department's "typical" audit approach or "typical" portfolio of audit activities.

The respondents were given strict guarantees of anonymity regarding the collected data, and were assured that it would be used only for academic research purposes.

About 700 copies of the questionnaires were randomly distributed to different organizations (manufacturing companies, merchandising companies, banks, services companies, oil and gas companies, governmental units and others) in five main cities (Al-Khoubar, Dammam, Dhahran, Jeddah and Riyadh) in Saudi Arabia. After excluding incomplete and invalid questionnaires, the research ended with 218 valid and usable questionnaires – representing a 30.7 percent response rate.

A reliability test was carried out on the collected data using the Cronbach α model, to explore the internal consistency of the questionnaire, based on the average inter-item correlation. The result of the reliability test shows that the questionnaire design is highly reliable, and the collected data are highly reliable and consistent (α =0.8421). The student test (*t*-test) was also carried out to investigate if there were any significant differences between early responses (150 questionnaires) and late responses (68 questionnaires). The results of the student test revealed no significant differences between early and late responses (at significance level *p*=0.05), providing evidence of a representative and unbiased research sample.

The collected data show that 58 of the respondents were services organizations and 50 were manufacturing companies, representing 26.6 and 22.9 percent of the total responses, respectively. While 34 respondents were merchandising companies (15.6 percent) and 25 of the respondents – representing 11.5 percent of the total responses – were banks, 20 respondents (9.2 percent) belonged to oil and gas industry and 15 respondents (6.9 percent) were from the governmental sector. Finally, 16 respondents (7.3 percent of the total) belonged to other organizations, such as hotels, car rental organizations, décor and carpentry firms, publishing and printing organizations, accounting and auditing firms, construction companies and design organizations.

The results showed that the vast majority of respondents (83 respondents representing 38.1 percent of the total response) were internal auditors. About 33

respondents (15.1 percent) were executive managers, 30 respondents (13.8 percent) were staff accountants, seven respondents were cost accountants, and ten respondents (4.6 percent) were controllers. While, 22 respondents (10.1 percent) were IT specialists and four respondents were EDP auditors.

Two hundreds and eighteen valid and usable questionnaires – representing 30.7% response rate – were collected and analyzed using SPSS version 15. The results of the study revealed that internal auditors need to enhance their knowledge and skills of computerized information systems (CIS) for the purpose of planning, directing, supervising and reviewing the work performed. The results of study are consistent with Hermanson et al. (2000) that internal auditors focus primarily on traditional IT risks and controls, such as IT data integrity, privacy, and security, asset safeguarding, and application processing. Less attention has been directed to system development and acquisition activities. The internal auditors' performance of IT evaluations is associated with several factors including: the audit objective, industry type, the number of IT audit specialists on the internal audit staff, and the existence of new CIS. The findings of this study have important implications for managers and internal auditors. It will enable them to better understanding and evaluating their computerized accounting systems.

The second study was carried out by Meredith and Akers (2003) who surveyed 241 chief executive officers (CEOs) in Saudi Arabia to investigate their opinions on internal audit's involvement in systems development, including whether internal auditors' independence is compromised by such involvement and whether auditors should act as consultants for systems development projects. The results of the study revealed that CEOs are more concerned with the internal audit function remaining independent than with auditors acting as consultants to an organization. The respondents were essentially indifferent regarding internal audit's involvement in the planning and design phases and did not support internal audit involvement in the development, implementation, and maintenance phases. The results of the comparison of the perceptions between CEOs and chief audit executives (CAEs) show that there are significant differences between the groups regarding their

expectations. CEOs placed more importance on independence while CAEs emphasized the need for internal auditors acting as consultants.

The third study was carried out by Bierstaker et al. (2006), they surveyed 86 accountants, internal auditors and certified fraud examiners in the Unites States of America to examine the extent to which they use fraud prevention and detection methods, and their perceptions of the effectiveness of these methods. The results indicated that firewalls, virus and password protection, and internal control review and improvement are quite commonly used to combat fraud. However, continuous auditing, discovery sampling, data mining, forensic accountants, and digital analysis software are less often used, despite receiving high ratings of effectiveness due to lack of organization resources and their reluctance to invest in fraud prevention and detection control systems.

The fourth study was done by Sarens and De Beelde (2006). They interviewed chief audit executives in 10 different large manufacturing and service companies located in Belgium and Belgian subsidiaries of US companies. The results of the study suggested that in the Belgian cases, internal auditors' focus on severe shortcomings in the risk management system creates opportunities to demonstrate their value. Internal auditors are playing a pioneering role in the creation of a higher level of risk and control awareness and a more formalized risk management system.

2.3 Chapter Summary

This chapter reviewed theoretical and conceptual literature as well as previous research findings about how IT is affecting the role of internal auditing in a business or an organizational set up, most of which are stressing on the need for organisations (including the one under study-IMBISA), to constantly keep up with the changes that are frequently coming with IT, that is, upgrading their IT systems. The next chapter will focus on research methodology.

CHAPTER III

RESEARCH METHODOLOGY

3.0 Introduction

Research methodology is the systematic collection, analysis and interpretation of data that is useful to address research questions. It encompasses both qualitative and quantitative research methods that include interviews, surveys and observations.

A great deal of discussion will be centred on how to conduct the research in order to collect reliable and valid data for the research questions as well as the overall objective of the study. This will entail defining the sampling techniques, sample size, the different types of data, introducing and discussing development of research instruments and how data will be processed, analysed and presented.

3.1 Research Design

According to Kothari (2005) research design is the arrangement of conditions for collection and analysis of data in a manner that aims at attaching relevance to the research purpose. It is also a conceptual structure within which research is conducted.

The researcher conducted a case study of IMBISA in order to analyse the impact of IT on the role of internal auditing. The case study enabled the in-depth study of practices, beliefs, perceptions, attitudes as they exist in their social contexts so as to portray an accurate profile of events. The procedural characteristics in the situation include many variables of interest; multiple sources of evidence; theoretical propositions to guide the collection and analysis of data.

According to Wegner (1993) the research plan of a study refers to the layout or arrangement on how the research will be carried out. This research used a combination of descriptive surveys and information from previous case studies to achieve its objectives. The research tools used comprised of interviews and questionnaires.

3.2 Subjects (Target Population)

Best and Khan (1989) described a population as any group of individuals that have one or more characteristics in common that are of interest to the researcher. The target population is the population where research findings are generalized. The target population was composed of the workforce at IMBISA mainly those that are familiar with the auditing and information technology subjects, that is, accountants, internal auditors (Accounts Department) and IT personnel from the IT Department.

Table 3.1 Population size

POPULATION	NUMBER
Accountants	4
Internal Auditors	6
IT Personnel	5
Total	15

Source: Secondary data

3.2.1 Sampling Scope and Size

Sampling is done when it is impractical to conduct all the elements in a population under survey. This study made use of stratified random sampling technique. According to Hair et al (2003) stratified sampling requires the separation of the defined target population into different strata, and then selecting samples in each stratum. The advantage of probability based sampling is that sampling error can be calculated and hence greater accuracy in results can be achieved. A sample of 10 workers is going to be used as a sample.

3.2.2 Sampling Procedure

Stratified sampling is a probability sampling method where the population under study is first divided into strata. The researcher firstly identified the relevant strata and their actual representation in the population. Random sampling was then used to select a sufficient number of elements from each stratum. The strata comprised of two accountants, four internal auditors and four Information Technology personnel.

3.3 Data Collection Instruments

The research instruments that the author used are interviews and questionnaires. Preference was based on reliability, convenience and accuracy as well as affordability.

3.3.1 The Questionnaire

A questionnaire is a paper and pencil instrument that has a set of questions that respondents complete with sequence of presentation. It has a precise indication of how the questions should be answered. In this study the questionnaire was used as the main survey method to collect vast amounts of quantifiable data at minimum cost in terms of time and finance. The researcher developed and administered questionnaires to the sample

elements at IMBISA in order to ascertain how and why IT affects the role of internal auditing. The questions were structured in such a way that they contained both closed and open-ended questions.

Advantages of using questionnaires

Questionnaires gave a broadness of scope such that large amounts of data were collected (Chikowore 1991). Closed-ended questionnaires helped the researcher in analysing and presenting data using computer software package. Open-ended questions were meant to reveal more information and give respondents room to elaborate their views. The researcher handed in the questionnaires personally and specified on the date on collection, this gave respondents ample time to give thoughtful and useful answers to the researcher thus reducing bias on the conclusions withdrawn from the data. The objective of quantitative research is to derive and utilise models and theories related to the natural phenomena. The process of counting and measuring events and performing the statistical analysis of a body of numerical data is essential since it leads to mathematical expression of empirical findings.

Disadvantages of using questionnaires

Data collected from open-ended questions was difficult to analyse and present as most of the responses would not dwell on the subject matter but incorporated other matters not included in the current research. There was limited room for development of hypothesis due to the closed structure the questions that offered no alternatives.

However, an effective questionnaire was aided by pilot testing the questionnaire and making requisite adjustments and clarifications on the questions to avoid ambiguity.

3.3.2 The Interview Schedule

An interview is a face to face interaction where information or data is gathered through oral questioning the respondents. An interview schedule outlined a list of key questions that set the benchmark for the interview. Open-ended questions were used to probe on responses to close-ended questions for clarifications.

Advantages of an interview

Most respondents were willing to talk rather than write, some confidential information was also collected. Moreover, there was an opportunity to ascertain the sincerity of the response through the study of non-verbal cues such as body language (expressions). Interviews enable a more in-depth and comprehensive compilation of data on the problem at hand through the use of subjective information that give the researcher a better grasp of the area under study. Bartos (1986) emphasises that qualitative research is a field of study that focuses on four main data gathering methods namely; participation in the setting, direct observation, in-depth interview and an analysis of documents and materials.

Disadvantages of interviews

It is very possible for respondents to distort facts during the course of the interview. It is also expensive and time consuming to book an interview with respondents. Interviews are inconvenient to respondents as some respondents prefer anonymity which they are not afforded. However, a schedule to set up convenient time and location for the interview was made. The interview took place in a friendly location where both the interviewee and interviewer will feel comfortable to discuss the matter under study, (http://www.neirtec.org/evaluation/PDFs/PreparingtoCollect5.pdf Developing Interview Protocol).

3.4 Data Collection Procedures

Sample elements were contacted by telephone and e-mails in order to seek their participation in the survey. A total of five interviews were conducted.

The researcher personally administered the questionnaires and face-to-face interviews. The questionnaires were distributed with a covering letter and arrangements of collection dates for picking up the questionnaires were made.

The researcher explained the objectives of the study to the respondents so as to obtain their maximum co-operation in providing the required information.

3.4.1 Data Presentation and Analysis Procedures

Content analysis was used for presenting qualitative data. These graphical presentations would provide valuable information about the nature of a group of individuals. Previous research findings were discussed in order to compare their applicability to the current situation. Both quantitative and qualitative data analyses were used. After obtaining feedback from the survey respondents, data was analysed in order to extract key information. Data was then presented in the form of graphs, pie charts, tables as well as narrative discussions.

3.5 Validity and Reliability of Research Instruments

Validity is the extent to which data collection methods accurately measure what they intend to measure Maxwell (1996). The questionnaire method enables the respondents to have time to interpret the questions hence giving quality and accurate data. To ensure validity a range of question types were used including open ended, probing and closed questions. Further, the respondents were carefully selected to ensure they are qualified to answer the questions. At the beginning of the interview, the purpose of the study was presented to help the interviewee gain a better understanding. Validity was also guaranteed through pilot testing of the instruments prior to final presentation.

Saunders et al. (2003) propounded that reliability is the degree to which data collection methods will yield consistent findings, similar observations are made or conclusions reached by other researchers or there is transparency in how sense is made out of raw data. Therefore, reliable instruments should produce precise and stable results and is increased when various questions are used to measure a variable of interest.

Further, based on literature review, concepts were carefully defined and then the framework of reference was developed. Reliability was also ascertained through the use of research methods guided byreview of different authors and previous researches of a similar nature done on a topic and context of a similar nature.Continuous quality checks were conducted by the researcher in construction with the supervisor.

3.6 Chapter Summary

This chapter focused on the methodology followed by the researcher to collect data. The research adopted a survey method to collect data through the use questionnaires and interviews. Simple random sampling and purposive sampling were used to collect data for the questionnaire and interviews respectively. Data analysis was done graphically and through the use of content analysis. The next chapter will focus on data presentation and analysis.

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter forms an integral part of the research work as it presents the results of the research. The findings obtained from the research methods that were used, that are interviews and questionnaires were to be matched with the data obtained from secondary sources. Data analysis and presentation of the findings had to be conducted after all scheduled interviews and distributed questionnaires were complete. Personal interviews were meant to consolidate the research findings from the survey questionnaires and the literature review.

The primary respondents were internal auditors at IMBISA. The secondary respondents were mainly the general accountants and IT workers who have vast experience in the auditing profession and have witnessed the changes brought to the profession by the advent of IT. Various statistical tools including pie, charts graphs and percentages have been used to clearly illustrate the changes brought by IT on the auditing profession within the organization under study, IMBISA.

4.1 Research Results

Of the fifteen respondents who received questionnaires, the researcher managed to get all returns, representing 100% of the population sample. This was made possible probably because of the interest that the research topic generated in the minds of most respondents familiar with the auditing profession. Nevertheless, the responses obtained can generally be thought to be representative of the population sample. The

percentages of the respondents according to the departments they were sent to are clearly illustrated by the table below.

Table 4.1 Responses from questionnaires distributed

Department	Questionnaires issued	Questionnaires received	Percentage of responses
Internal Auditors	4	4	100%
Accountants	2	2	100%
IT	4	4	100%
Overall	10	10	100%

Source: Primary data

From Table 4.1 above the researcher can safely say that the response was therefore excellent. Thus the researcher considered it as absolute and reliable enough for making an analysis and interpretation of results from the questionnaires sent out.

From the questionnaires, the researcher gathered the following information pertaining to the educational qualifications and the working experiences of the respondents;

Table 4.2 shows the working experience and educational qualifications of the respondents.

Working experience (years)				Highest qualification			
x 3	4 x 6	7 x 9	x 10	HD	D	M	O
3	6	3	2	2	3	5	-

Source: Primary data

Key**:** HD**-** Higher Diploma   O**-** Others

D**-** Degree   x- number of years

M**-** Masters

4.1.1 The impact of IT on internal auditing roles

The respondents were asked whether they were satisfied to rate the impact of IT on internal auditing roles. The question was close ended in which the respondents were asked to choose among the options shown in the key below; Key: VPI-Very Positive Impact; PI- Positive Impact; NI- No Impact; NeI- Negative Impact and VNeI-Very Negative Impact

Impact of IT on internal audit roles
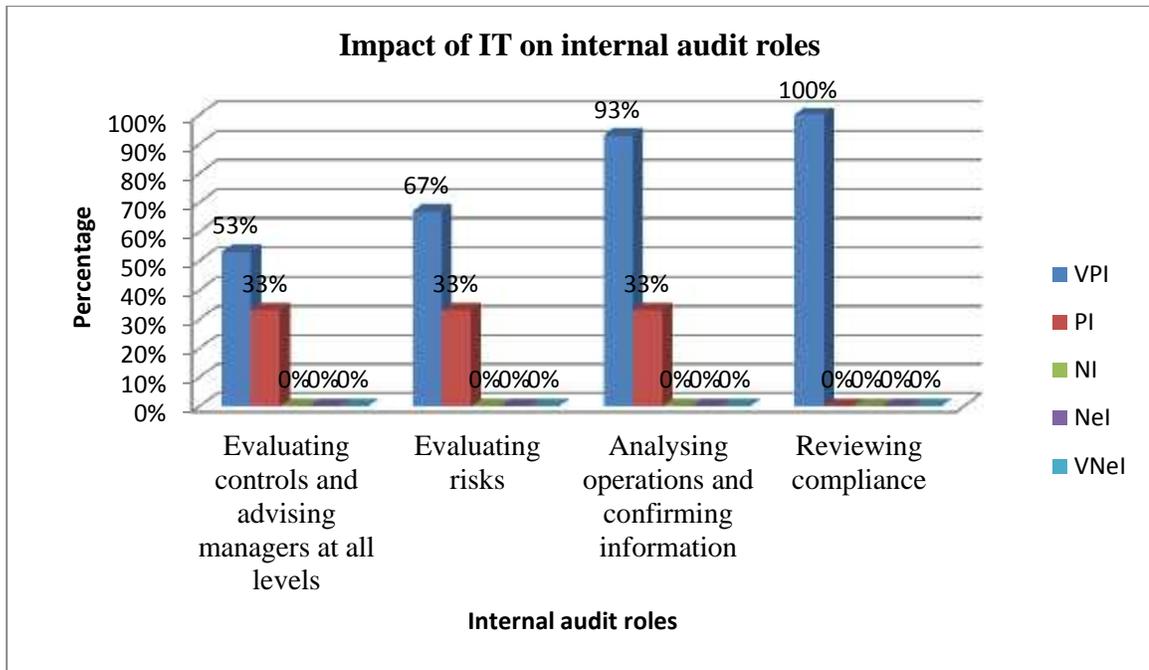
Fig. 4.1 Analysis of Responses to Question 4
Source: Primary data

Most of the respondents suggested that IT resulted in the emergence of complex information system environments that required a different approach to auditing compared to traditional systems so that they will be able to give a fair opinion. The identification of the functions performed by the organization in the achievement of its strategic objectives, and the breaking down into individual tasks and related risks and the control procedures built in to mitigate these risks are important. Best Practice therefore requires the preparation of a Risk Management Plan which will provide the framework for monitoring the risk management activities. Once the whole array of risks has been identified, the next step is to rank the risks and draw up an audit plan accordingly.

One way to effectively prioritize the processes for audit purposes is to look at the matrix of probability of occurrence versus severity of loss for each of the processes and develop a risk based audit plan according to this classification (Moody 2000). It is also desirable if the audit plan is devised with a holistic view as to the nature and significance of the risks facing the organization/activity rather than focusing only on the financial reporting risks.

While in the process of identifying these risks the audit team may use intelligence gathered by other functions within the organization, in devising the audit plan the internal auditors should have an independent view on risks. Best practices also demand timely and comprehensive coverage by audit across a spectrum of risks While we grade risks using simple ranking of high, medium and low risk, timeliness of the audit as per this categorization is important, with high risk areas being covered annually and so on. This does not imply that there should be slippage in covering the low risk areas because even these can create problems. In fact internal audit practitioners consider it advisable to annually re assess the organizations' risk profile annually. Given that the risks to the organization/activity would change over time, with new risks emerging, revisiting the risk based plan is imperative to an effective audit function.

4.1.2 How effective has been the implementation of IT auditing on the following good auditing practises?

Key: VE- Very Effective   E- effective   iE- Ineffective   ViE- Very Ineffective
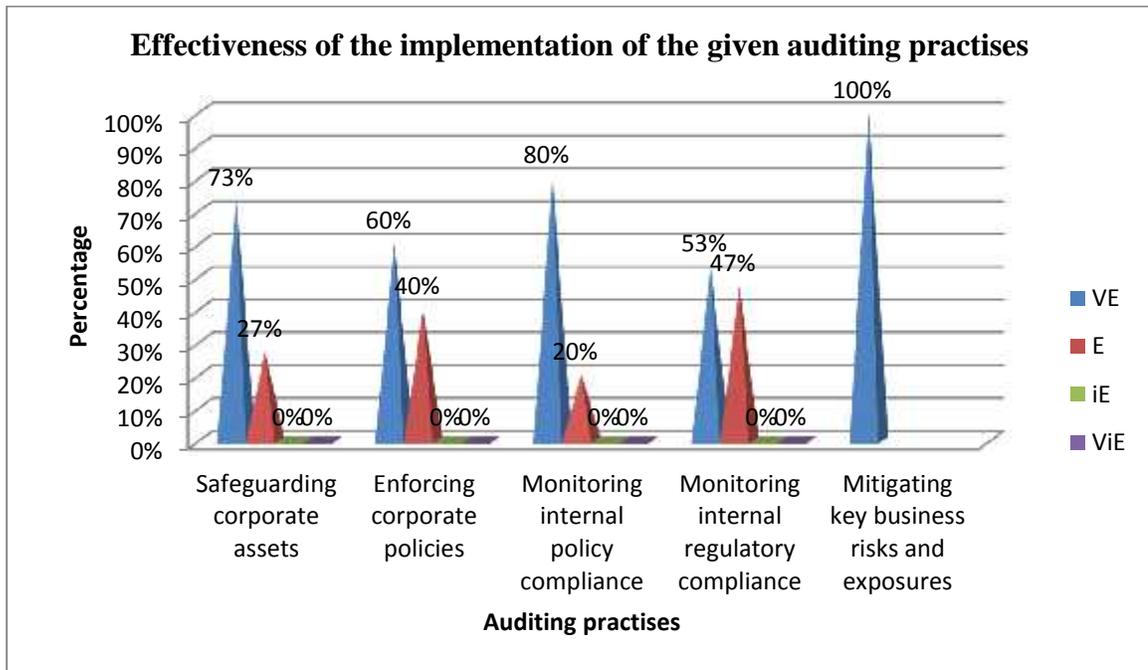
Fig. 4.2 Analysis of responses to question 5

Source: Primary data

With the expanded and extended role of internal audit now stretching beyond its traditional focus on compliance and financial audit, to encompass an assessment of the organizations efficiency and effectiveness in achievement of its objectives, internal audit has become a management tool. In the overall scheme of financial reform best practices in internal control and internal audit, will generate key benefits. The overall design of the internal audit system, including best practices should be geared towards the specific priorities of the organizations taking into account each organizations own circumstances and requirements. But an overall Best Practices Framework is necessary to evaluate the adequacy of internal controls and the performance of the organization as well as of the internal audit.

Best practices could include those relating to roles, responsibilities and authorities and oversight of internal audit, resourcing the internal audit function, planning internal audit's activities, audit processes, and evaluating internal audit's performance. Internal Audit practitioners talk about an appropriate "tone at the top" as being a key component of the internal control structure of the organization. Best practice emphasizes the responsibility of the Board/CEO to establish an appropriate 'corporate' culture, including codes of ethics and standards of conduct to enhance the organizations reputation for fair and responsible dealings and to help maintain high standards of behavior throughout the organization. These attributes include: acting with honesty and good faith; exercising due care and diligence; using information and position properly; employing discretion; avoiding conflict of interest; meeting public obligations; managing financial obligation prudently and maintaining confidentiality.

Since internal controls and internal audit is a process rather than an end in itself, and more importantly, it is a process driven or effected by people at every level of the organization, the key attributes and attitudes of the most senior level within the organization, are critical not only to the effectiveness of the audit but also to the achievement of the organizations goals. Best practices now encourage the organization to establish effective audit committees which would help preserve the independence of the internal audit function and ensure appropriate and timely action is taken on audit findings.

Any delay in this would defeat the very purpose and function of internal audit. It is considered a best practice if audit professionals rank or grade their reports, using a simple system, to enable the clients distinguish problematic audit reports from others. There could for instance be one category of reports that are highly critical where significant remedial actions are recommended; others that list out deficiencies that need to be corrected but where the lapses are not too significant; and a third category of those reports that are by and large a 'clean bill of health' though some improvement opportunities are identified. Effective and timely follow up to reports is essential particularly the speedy implementation of remedial actions recommended in highly critical reports.

However, pertaining to risk mitigation, Sarens and De Beelde (2006) interviewed chief audit executives in 10 different large manufacturing and service companies located in Belgium and Belgian subsidiaries of US companies. The results of the study suggested that in the Belgian cases, internal auditors' focus on severe shortcomings in the risk management system creates opportunities to demonstrate their value. Internal auditors are playing a pioneering role in the creation of a higher level of risk and control awareness and a more formalized risk management system.

Options 3 and 4 (Ie- ineffective and ViE- Very ineffective) were ultimately not selected as the sample believed that IT is effectively working and helping in the implementation of the good auditing practices outlined in the question.

4.1.3 The impact of new market demands on IT related internal auditing

Respondents presented the information in the questionnaire and it was shown in the graph below;

Key: A-Agree   SA- Strongly Agree   D-Disagree   SD- Strongly Disagree
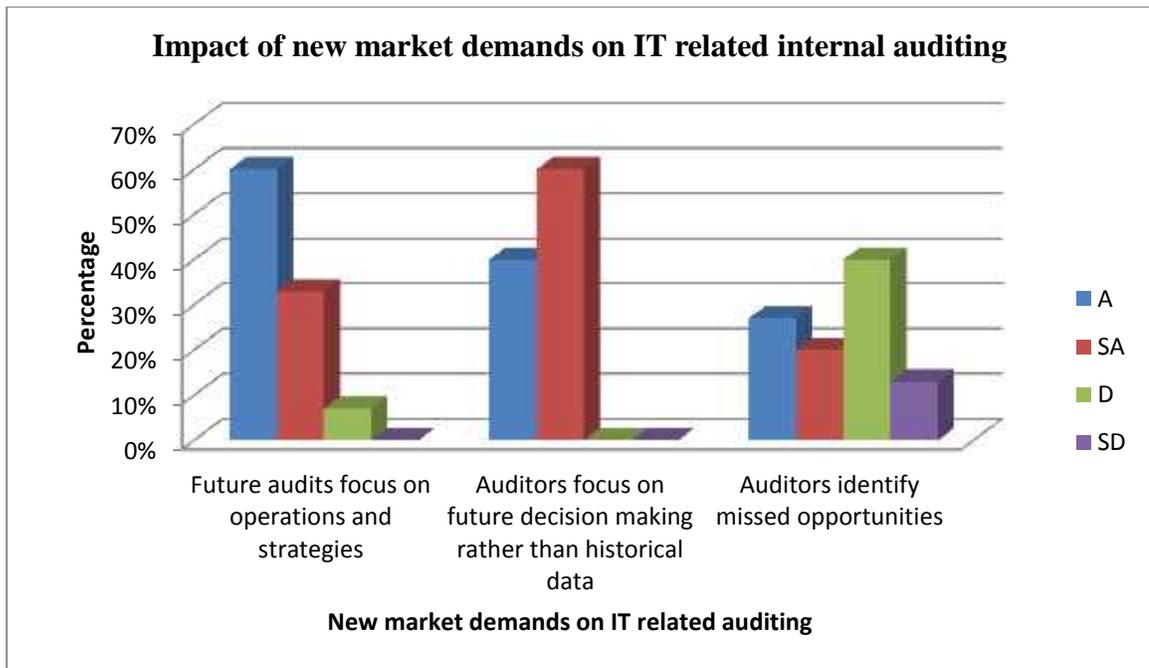
Fig 4.3 Analysis of responses to question 6
Source: Primary data

Most respondents agreed that IT related auditing has an impact on the new market demands that were given in the questionnaire, that is;

- IT related internal auditing helps the future audit to focus more on operations and strategies.

- Helps auditors focus on future decision making, rather than on historical data.

- Helps auditors identify opportunities they would have missed in perform a substantial audit, thus reducing the impairment of a true audit opinion.

However, according to the International Federation of Accountants (IFAC) (2002), IT also comes with other demands besides the ones that were given in the questionnaire for an organization's internal auditing to:

- Enhance the timeliness, availability, and accuracy of information.

- Enhance the ability to monitor the performance of the organization's activities and its policies and procedures.

- Enhance the ability to achieve effective segregation of duties by implementing security controls in applications, databases, and operating systems.

4.1.4 The competence and compliance of the current human resources to the given IT related internal audit programs

Key: VC- Very competent   C- Competent   IC- Incompetent   VIC- Very incompetent
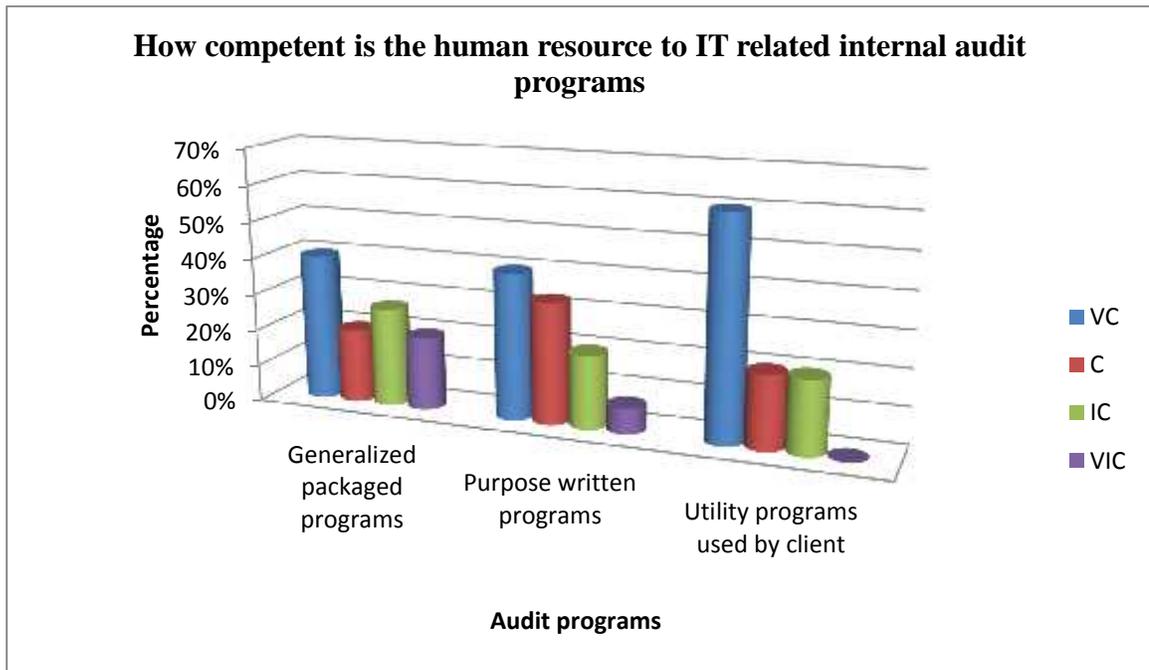
Fig 4.4 Analysis of responses to question 7
Source: Primary data

Generalized packaged programs need to be tailored to each specific case by defining the format of the files to be interrogated by specifying the parameters required and the form of that output. Purpose written programs are specially written programs where it is not possible to adapt a package program because of the type of machine, processing or file organization used. Utility programs are used by the entity to perform data processing functions such as sorting and printing of files e.g. excel.

The respondents who gave responses in the view that the human resource is competent and compliant to the IT related programs indicated were basing on the merits of the given programs. The programs give the total amount of individual entries in purchases day book in a particular period. Auditor then agrees this total amount to the amount posted in purchases ledger control a/c. Programs checks that there are unreasonable items, e.g. no customer has discount of 50% or sales ledger balance (i.e. debtors balance) is more than the amount of sales made to that customer.

Programs help select items for audit testing, e.g. obtaining a stratified sample of sales ledger balances to be used as a basis for a circularization of debtors.

They also cater for completeness checks, e.g. checking continuity of sales invoices to ensure that they are all accounted for.

However, there are also other problems faced when setting up audit programs;

- Set up cost is high

- Alterations to the audit software are costly.

- Not suitable for small installations.

- It may arise that output is too large either due to poor design of the software or using inappropriate parameters on a test.

Internal audit department should learn how to ensure that the software they administer or design uses the appropriate parameters.

4.1.5 In your opinion do you think that CAAT is significant to the internal audit role?

The sample was asked, in the questionnaire to pass their opinion as to whether CAATs are significant to internal auditors. The results are presented below;

Are CAATs significant to internal auditors?

13%

87%

■ Yes ■ No
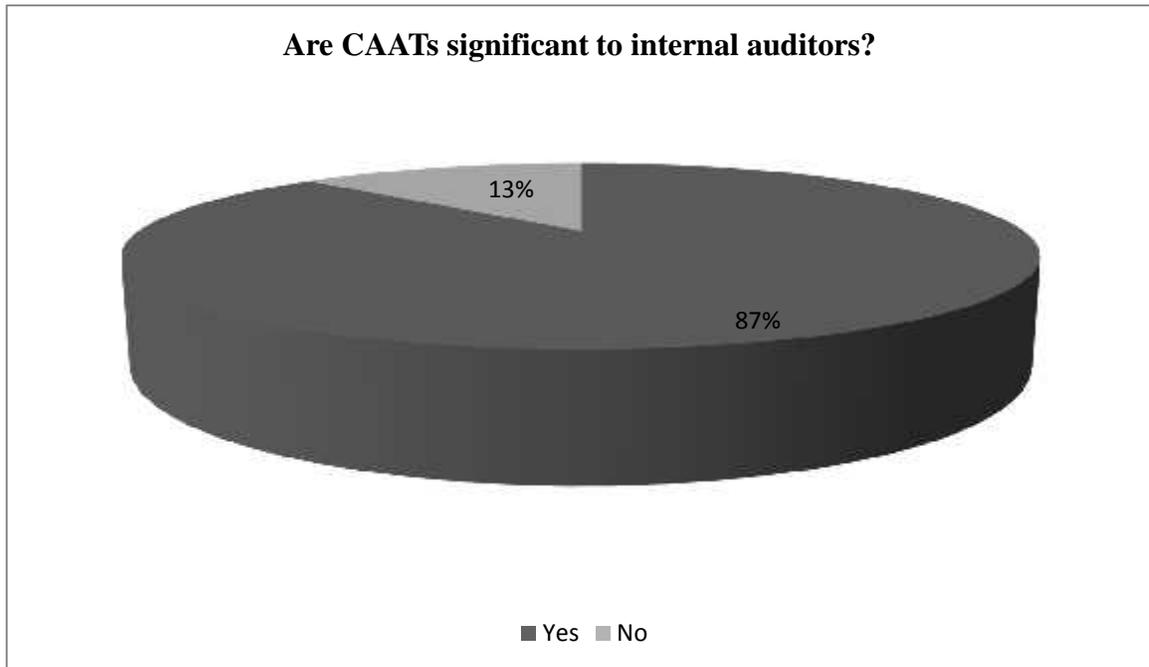
Fig 4.5 Analysis of responses to question8
Source: Primary data

87% of the respondents showed that CAATs are very significant to internal auditors. All their justifications were revolving around the following advantages;

- Test programmed controls: in a computer based accounting system, there are large volumes of transactions which the auditor will have to audit. The auditor will have to check if the programmed controls are functioning correctly. The only effective way of testing programmed controls is through CAATs.
- Test on large volume of data: CAATs enable auditors to test large amount of data quickly and accurately and therefore increase the confidence they have in their opinion.

- Test on source location of data: CAATs enable auditors to test the accounting systems and its records (e.g. disk files) at its source location rather than testing the printouts of what they believe to be a copy of those records.
- Cost effective: once set up CAATs are likely to be a cost effective way of obtaining audit evidence year after year provided that the entity does not change the accounting system regularly (as in this case).
- Comparison: allows results from using CAATs to be compared to traditional testing. Where the two results agree this increase the overall audit confidence.

However, some criticism cropped out from the 13% of the sample that was used. They pointed out some disadvantages that propelled them into saying that CAATs are not significant to internal auditors. This earned the support from the research findings by PricewaterhouseCoopers that showed that only 33% of internal auditors use CAATs.

4.1.6 How would the significance of the given CAATs variables be rated?

Key: VS-Very Significant   S- Significant   NS- Not Significant
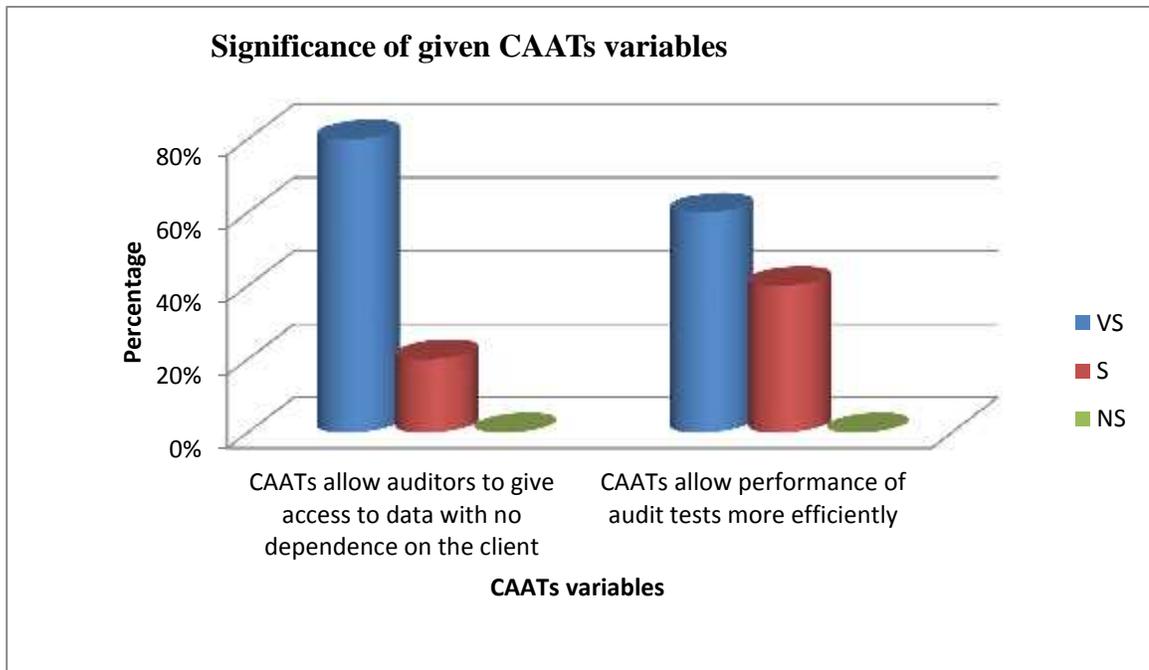
Fig 4.6 Analysis of responses to question 9
Source: Primary data

Most respondents indicated that CAATs give auditors room to give others the access to data with no dependence on the client and there is performance of audit tests more efficiently. With reference to the literature, the researcher linked responses to the information that other authors gathered.

James Bourke (2010) argued that the traditional method of auditing allows auditors to build conclusions based upon a limited sample of a population, rather than an examination of all available or a large sample of data. The use of small samples may diminish the validity of audit conclusions. Management realizes that they conduct thousands or perhaps millions of transactions a year and the auditor only sampled a handful. The auditor will then state that they conducted the sample based upon generally accepted audit standards (GAAS) and that their sample was statistically valid.

However, the CAATs driven review is limited only to the data saved on files in accordance with a systematic pattern. Much data is never documented this way. In addition saved data often contains deficiencies, is poorly classified, is not easy to get, and it might be hard to become convinced about its integrity. So, for the present CAATs is complement to an auditor's tools and techniques. In certain audits CAATs cannot be used at all. But there are also audits which cannot be made with due care and efficiency without CAATs (Ibid).

4.1.7 Does the human resource at IMBISA require further training to enhance their knowledge, as auditors, accountants and or IT workers?

Respondents were asked whether there is need for training so that they can efficiently cope with IT related auditing. They were to choose either yes or no. Their responses are shown in Fig. **4.7**below;

Fig. 4.7 Analysis of responses to question 10

Source: Primary data

67% of the entire population indicated the need for training. This will enable them to cope with the changes that constantly come with Information Technology, that is be flexible enough so as to know the corrective action to take in any situation that may arise. Most of the respondents encompassed in the 67% been employed in their respective departments for at most 5 years. However the 33% that do not require further training have gone through the training already, thus can cope with anything that may arise. This is because all of them now have been employed for more than 5 years in their respective departments.

4.1.8 The role of each department in contributing to an effective audit

Accounting Department

The following roles were gathered from the accountants who were interviewed;

- ❖ Keeping track of the organization's finances during its normal transaction of business, (intakes and outflows of cash).
- ❖ Preparation of the organization's financial statements.
- ❖ Preparation of the organization's taxes and ensure that the taxes are properly filed and paid.
- ❖ Working hand in hand with attorneys to the organization make the decisions that involve interpreting the many rules created for proper reporting of financial information.

Internal Audit Department

The internal auditors who were interviewed outlined various roles and responsibilities they have in the organization under study, (IMBISA), which are listed below.

- ❖ **Evaluating controls and advising managers at all levels**

  The Internal Auditor's work includes assessing the risk management culture of the organization, evaluates and reports on the effectiveness and efficiency of the implementation of management policies.

- ❖ **Evaluating risks**

  Internal Auditors identify key activities and relevant risk factors and assess their significance, paying much attention to the changing economic conditions as they affect the way the internal auditors assess risk.

- ❖ **Analyzing operations and confirming information**

  Internal Auditors work closely with line managers to review operations then report their findings. The internal auditors interviewed articulated that they ensure

43

that they are well versed with the strategic objectives of the organization, so that they have a clear understanding of how the operations of any given part of the organization fit into the bigger picture.

❖ **Reviewing compliance**

Internal auditors at IMBISA ensure that the organization is adhering to rules, regulations, and laws, codes of practice, guidelines and principles as they apply individually and collectively to all parts of the organization.

The roles and responsibilities that were gathered from the interviews agreed with those that were outlined by the Deloitte and Touché China Centre of Corporate Governance (2012).

Apart from the above mentioned roles and responsibilities Rishel and Ivancevich (2003) also stated the following internal auditing roles and responsibilities:

❖ Evaluating and providing reasonable assurance that risk management, control, and governance systems are functioning as intended and will enable the organization's objectives and goals to be met.

❖ Reporting risk management issues and internal controls deficiencies identified directly to the audit committee and providing recommendations for improving the organization's operations, in terms of both efficient and effective performance.

❖ Evaluating information security and associated risk exposures.

❖ Evaluating regulatory compliance program with consultation from legal counsel.

❖ Maintaining open communication with management and the audit committee.

❖ Engaging in continuous education and staff development.

❖ Providing support to the company's anti-fraud programs.

Information Technology Department

From the IT personnel that was interviewed, the fundamental role of the IT department with regards to IT related auditing system is to provide support to ensure that the accounting department is electronically running with sufficient reliability and availability

as the internal audit opinion is derived from the work of the Accounts department. The operating environment includes all hardware and software components which include personal computers(PCs), operating systems, databases, servers, routers, switches, hubs, and the network (LAN/WAN) itself that connects these components together.

Backup and Recovery

IT will be responsible for the backup of system server files, applications and databases. It is their job to ensure that in the event of machine failure or disaster, there is an up-to-date and accurate data (financial data in this respect)from which the system can be restored.

Providing adequate services to level users

Response times and system availability must be within a set tolerable limit defined by the users. IT must ensure that these service levels are being met, in this case, services required by the internal audit department should always be provided.

Ensuring information security

It is the job of the IT department as a whole to ensure that the company's information is not made accessible to unauthorized users.

To ensure that the above mentioned roles from the IT department are met the following positions are held by some IT personnel that were part of the sample:

• Technical support coordinator

• Network administrator

• Database (Oracle) administrator

The network administrator is responsible for maintaining network components and configurations like routers, switches, hubs and LAN/WAN connections.

The database administrator is responsible for administration and maintenance of the system database. He ensures that table statistics, table indexes, and database spaces are optimized for efficient performance. The database administrator is also responsible for the daily backup of the system database.

The technical support coordinator and his staff are responsible for maintenance of PCs, deployment of application and performance of general support for the IT system.

4.1.9 The substantiality of IT Department's contribution to good auditing practices

In the questionnaire, the sample was asked whether the value of the contribution that is coming from the IT Department is substantial. The results are shown in the pie chart below;

Is the contribution from IT Department substantial?

■ Yes ■ No

13%

87%
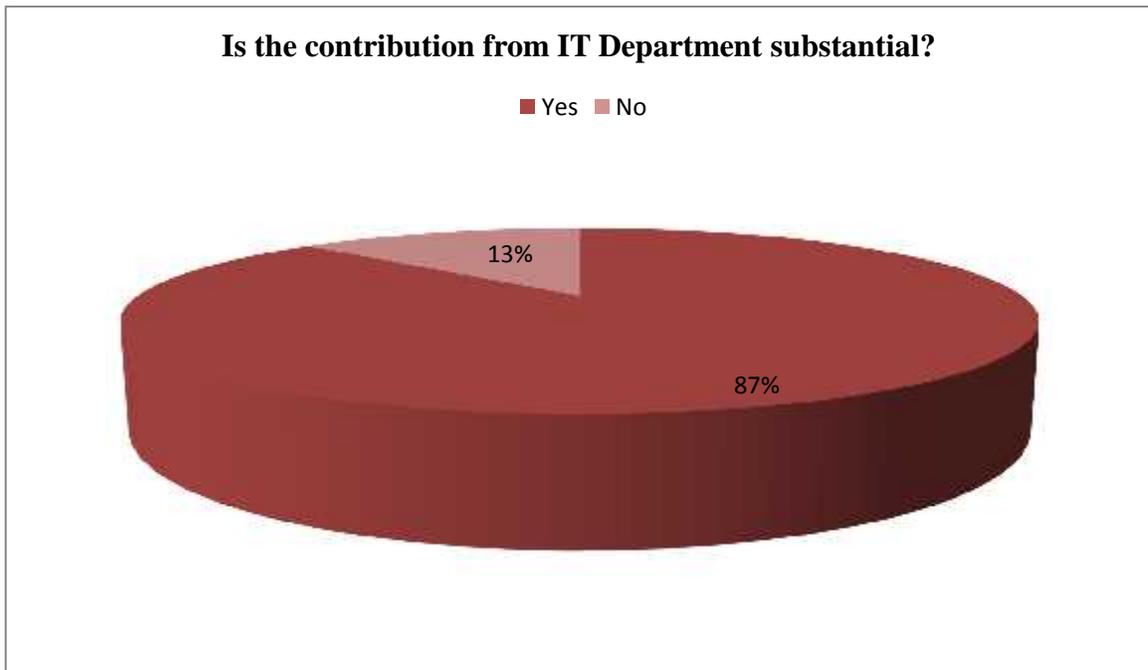
Fig. 4.8 Analysis of the results from question 13
Source: Primary data

From the IT personnel that was interviewed, the fundamental role of the IT department with regards to IT related auditing system is to provide support to ensure that the accounting department is electronically functional; with sufficient reliability and availability as the internal audit opinion is derived from the work of the Accounts department. The operating environment includes all hardware and software components which include personal computers (PCs), operating systems, databases, servers, routers, switches, hubs, and the network (LAN/WAN) itself that connects these components together.

The negative responses collected were answered by management staff that was also interviewed lastly. They explained that the major reason can be said to be failure of the organization to keep up with some demands that come up with the use of IT, for instance, updating software (that is only viable through the IT Department), which is very costly and might not have been provided for in the annual budgets.

4.1.10 CAATs in aiding the performance of an internal audit

The sample also had to rate the usefulness of CAATs in performing an internal audit using the following options; Very good, Good, Fair, Bad and Very Bad. The results attained are shown in the graph below;
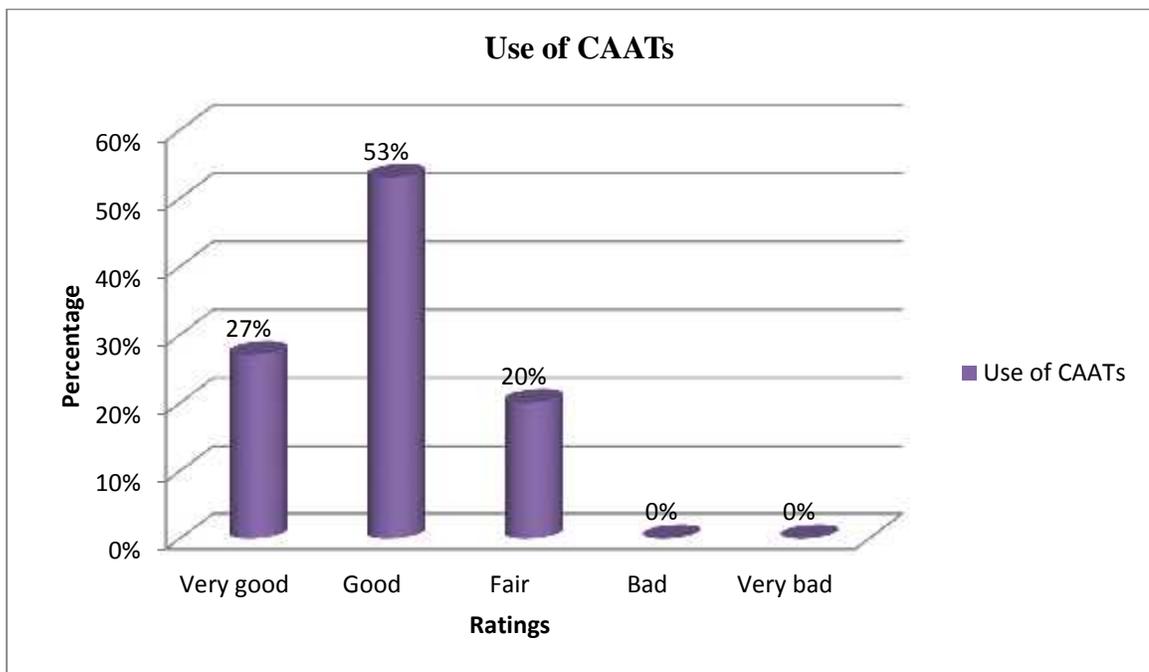
Fig. 4.9 Analysis of results to question 14
Source: Primary data

The responses were generally good which implies that the human resource is appreciating the use of IT for auditing purposes. These responses were analyzed and matched to the information provided from the Guidance notes by the Chartered Accountants, (2004), United Kingdom. They argued that manual tests are sometimes impracticable;

- Some audit procedures may not be possible to perform manually because they rely on complex processing (e.g. advanced statistical analysis) or involve amounts of data that would overwhelm any manual procedure.

- Many computer information systems perform tasks for which no hard copy evidence is available and, therefore, it may be impracticable for the auditor to perform tests manually. The lack of hard copy evidence may occur at different stages in the organizational cycle.

- Source information may be initiated electronically, such as by invoice activation, electronic data imaging, or point of sale electronic funds transfer.

- A system may not produce a visible assurance as to the completeness and accuracy of transactions processed. For example, a computer program might match delivery notes and suppliers' invoices.

However, the fairness that was implicated by some respondents can be supported by the findings from two audit firms; Ernst and Young showed that 51% of internal auditors do not use CAATs at all and a PricewaterhouseCoopers survey showed that only 33% of internal auditors use CAATs.

4.1.11 Does the software package adopted by an entity have an effect on the audit?

The following information shows the responses from the sample pertaining to the closed question 15(in the questionnaire).
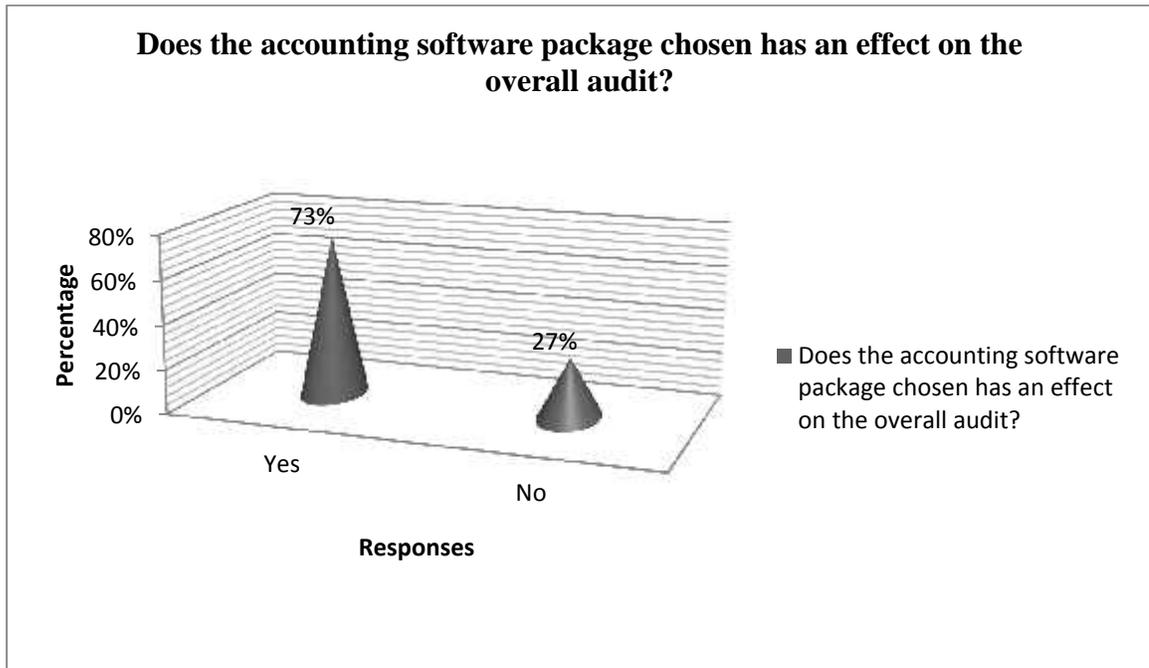
Fig 4.1.10 Analysis of results to question 15
Source: Primary data

The dominant response was from the argument that there are some software packages that can be manipulated, including QuickBooks that is used by the organization under study. This overally affects the audit opinion that is passed by internal auditors. The few that gave no for an answer could not give reasons, thus the researcher concluded that they did not have sufficient knowledge pertinent to answering the specific question.

On the other hand, there are many types of risks associated with IT; these include loss of computer assets, erroneous record keeping, increased risk of fraud, competitive disadvantages if the wrong IT is selected, loss or theft of data, privacy violations, and business disruption (Warren et al. 1998; Gelinas et al. 1999; Hermanson et al. 2000a; Hadden et al. 2003). This is as a result of some the software packages giving room for manipulation, for example, QuickBooks, which the organization under study (IMBISA) uses. However, packages like Pastel does not give the room for any alterations that could

be made without the consent of superiors, (in the Accounting department, by junior accountants).

4.1.12 Keeping pace with changes coming up with the use of IT for auditing purposes

The researcher also sought information about whether the auditing profession is keeping pace with the rapid changes that are being brought about by IT through interviewing the population sample comprising of accountants, internal auditors and IT personnel. The five respondents who were interviewed gave an estimate of the percentage which they thought is the extent to which the audit profession is keeping pace with IT changes, the percentages from each of the respondents were averaged so as to develop an average that indicated the total percentage of every group listed above that were in the view that the auditing profession was keeping pace with IT changes. The information was graphically represented as shown below;

How auditors are keeping pace with changes in IT

IT personnel — 63%
Internal auditors — 89%
Accountants — 70%

(x-axis: Percentage 0% 20% 40% 60% 80% 100%; y-axis: Departmental Opinions)

Legend: How auditors are keeping pace with changes in IT
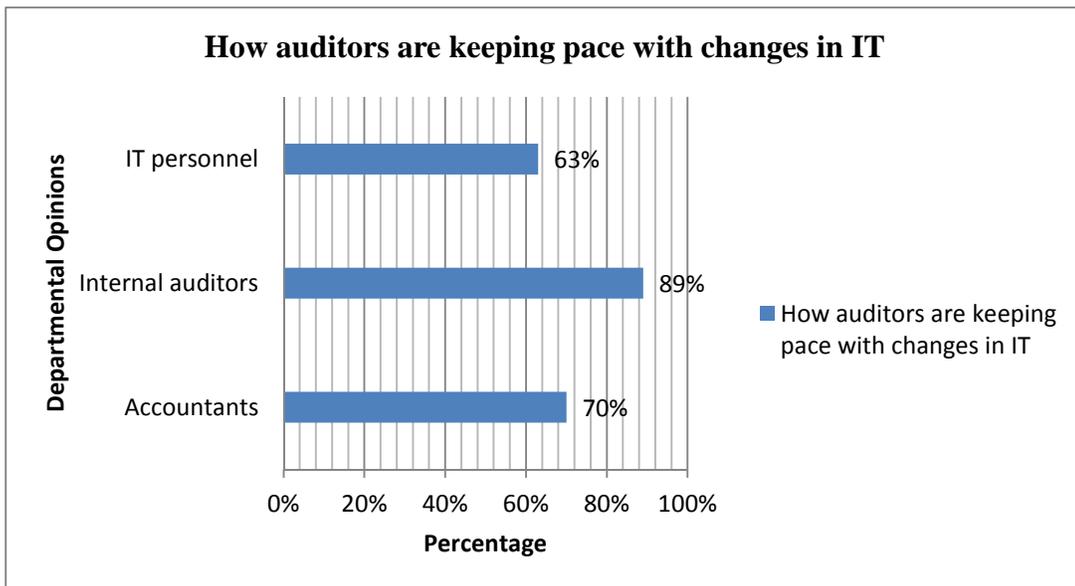
Fig. 4.1.11 Analysis of results from question 1
Source: Primary data

The internal auditors who were interviewed suggested that they are keeping pace with the changes occurring in the business world that are being brought about by IT, they suggested that they are putting in measures within IMBISA to ensure that they keep track

of these changes. One of the most common measures that most of the respondents mentioned was that the goal of establishing of an IT department (that was fulfilled in 1999) that deals solely with the IT needs of the organization has gone a long wayin identifying changes in the IT world and allowing IMBISA to cope with such changes. Basing on the literature review gathered the researcher was of the view that auditors are keeping pace due to the fact that the manner in which they perform audits in IT environments is governed by an international body. The standards set by the international body include all the various changes that would have taken place and how the auditor should deal with these.

Collectively, respondents were of the view that auditors are keeping pace with IT changes due to their use of various Computer Aided Audit Techniques (CAATs) when internal audits are being done. Making reference to Pathak (2003), the audit practitioners and educators are encouraged to expand their skill sets and knowledge bases to cope not only with current changes but also with future challenges.

4.1.13 How successful has IMBISA been in effecting the use of IT in the Accounts Department?

The 5 respondents that were interviewed articulated that, the IT department engaged on setting up an accounting software package in 2001, (QuickBooks). This has gone a long way in reducing paperwork that needs to be filed as most of the transactions are now being kept in the computer, if need for cross referencing arises, the information is searched from the computer instead of files, (minimization of the use of the filing system). This suggests a very good improvement, that is, success in moving along with the changes being brought up with IT).

4.1.14 How costly has been up-keeping with the introduction of new technology?

As outlined by the respondents, the systems which enable the IT system to be set up and maintained are quite expensive. However, the vast benefits that come with the use of IT

over time, for auditing purposes counter the overall costs that are incurred; increase in the accuracy and speed of transaction processing, competitive advantages in terms of operational efficiency, cost savings (minimized paper work) and reduction of human errors.

4.1.15 Evaluating the competence and skills of internal auditors in conducting an IT related audit

The sample of accountants that were interviewed indicated that the internal auditors are competent enough to detect any errors that the accountants might have possibly failed to point out. They have the skills necessary to perform an audit in a computerised environment which are summarised below;

- They have the potential to act as independent and objective appraisal mechanism within the organization, whose findings and recommendations can act as a tool enabling the department in which it operates to take suitable (corrective) action with respect to service delivery and also procedures.
- Internal auditors can help examine and evaluate activities, as a service to the organization, thus promoting effective control.
- They become an inherent part of management reporting by suggesting remedies for the problem areas identified, it can only fit into the fundamental and critical area of financial reform which focuses on outcomes of objectives being achieved at a reasonable cost.

4.1.16 How helpful has been the use of CAATs in the accounting department for internal auditing purposes?

The advent of IT has resulted in a loophole in many organizations which can be used to perform fraud by employees. As employees get a thorough understanding of how the system operates they can identify methods of manipulating the system for their own benefit. However, according to International Standard of Auditing (ISA 432) auditors are

not responsible for fraud but if they are to meet any information during the course of the audit they have the duty to report this to management.

4.1.17 The significance of the role of internal auditors in the organization considering the impact of IT on their audit work

The sixth question in the interview wanted the respondents to explain the significance of internal auditors' role paying attention to the impact of IT on their work. From the data gathered from the interviews (5), respondents articulated that the role of internal auditors has become even more significant considering the changes that have been brought up by the introduction of IT for auditing purposes. Employment of internal auditors who have a strong knowledge base as far as IT related auditing is concerned has resulted in the respondents passing on a positive response. They are able to work with new problems, problems with no obvious solutions and are bringing in new skills in solving those problems. With reference to literature review, IT plays a fundamental role in the way modern organizations function, and it becomes integrated to the degree that virtually every type of audit requires at least some consideration of IT issues, that is, according to Silltow's (2003) point of view, internal auditors receive considerably more exposure to IT systems nowadays than in the past which makes them the "life blood" of the organization's internal audit function.

4.2 Chapter summary

This chapter focused on data presentation, analysis and discussion, it touched on the demographic of the respondents, with analysis and discussion of the data gathered being done separately according to the research instrument sent to the respondents. The following chapter is going to look at the research summary, conclusion and recommendations.

CHAPTER V

RECOMMENDATIONS AND CONCLUSIONS

5.0 Introduction

The purpose of this research was to identify the implications that Information Technology has on the role of internal auditing. The research sought to identify all the positive and negative contributions that IT has on internal auditors and also how they are addressing the drawbacks that are being brought up by IT. This chapter focuses on the way forward in the auditing profession suggesting various recommendations to both the internal auditors and to organizations which deal with auditors. The recommendations given in this chapter have been derived from the relevant literature that was reviewed, the information gathered from the field study and from the researcher's judgments and understanding of the subject matter.

5.1 Conclusion

The auditing profession has been greatly impacted by the changes that are occurring in IT. However the trends brought about by IT were mainly advantageous to internal auditors as computers came along with many advantages that assisted them in performing their work efficiently. Due to the rapid changes occurring internal auditors were however failing to keep pace with these changes as they required more skills and the audit firms were failing to train their employees frequently in line with the changes occurring. The auditing profession was therefore drastically affected by IT.

5.2 Recommendations

In the light of the above conclusions, the following recommendations were suggested by the researcher;

➢ IMBISA should frequently train its human resource; especially those that have a contribution in IT related audits (accountants, internal auditors and IT workers).

➢ Prior to accepting an internal audit engagement; internal auditors should accept audit engagements for organizations that are computerized only if their audit staffs have a thorough understanding of how the organization's computer system operates.

➢ If the audit staffs do not have the necessary skills to cope with the organization, internal auditors should seek specialist services from external parties that will assist them in performing an audit.

➢ IMBISA should make it a mandate that they involve internal auditors when they are constructing the system development process so that they gain a better understanding of the system as this will enable them to identify weaknesses in the system that can be used to perpetrate.

➢ Auditors should also identify how IT is impacting the manner in which their client operates i.e. the manner they execute and record transactions as this will have a great impact on the audit procedures that the auditor has to carry out as the audit opinion needs to be a true and fair opinion of the clients' operations.

➢ Regulatory bodies like the Institute of Chartered Accountants in Zimbabwe should make efforts to condense the International Standards especially International Standard of Auditing 402(ISA 402) so that they meet local need.

➢ When performing pre-engagement activities organizational acceptance policies and procedures should be improved.

5.3 Future Work

It is envisaged that a similar research focusing on the auditing profession be employed on a broader base including internal auditors operating in first world countries were the IT changes originate from. Also due to the rapid changes in IT further studies should be carried out as current findings will be quickly outdated. Future researchers could also specifically look mainly into the implications of Information Technology on the audit process.

5.4 Chapter summary

This chapter gave the researcher the opportunity to draw conclusions, recommendations, and the research area that could be worked on in the future.

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BINDURA UNIVERSITY OF SCIENCE EDUCATION

QUESTIONNAIRE

Dear respondent

My name is Noreen N. Chinogara, a student at Bindura University of Science Education studying towards the completion of Bachelor of Accountancy (Honours) Degree. I am researching on the impact of Information Technology (IT) on the role of internal auditing. Responses to this questionnaire are designed to help the researcher reach a conclusion on the research topic and any information given is going to be solely used for the purpose of this academic research.

I would appreciate if you could spare some time to complete this questionnaire. There is no right or wrong answer it is only your factual response that matters. All the information and views you give will be treated in strict confidence.

Thank you in advance for your time and assistance

Chinogara Noreen

Cell: 0734 022 870

INTERNAL AUDIT QUESTIONNAIRE

May you therefore kindly fill in the blank spaces provided and/ or tick in the appropriate box.

_____

DEMOGRAPHIC SECTION

1. Highest professional qualification?

Higher Diploma [   ]   Degree [   ]   Masters [   ]   Other [   ]

2. Department?

Accounting [   ]   Internal Audit [   ]   IT [   ]

3. Work experience?

1-3 years [   ]   4-6 years [   ] 7-9 years [   ] more than 10years [   ]

INFORMATION SOUGHT

4. How has IT auditing impacted on the following internal audit roles?

   Key: VPI-Very Positive Impact   PI- Positive Impact   NI- No Impact   NeI-
   Negative Impact   VNeI- Very Negative Impact

Audit Role	VSI	PI	NI	NeI	VNI
Evaluating controls and advising managers at all levels					
Evaluating risks					
Analysing operations and confirming information					
Reviewing compliance					

5. How effective has been the implementation of IT auditing on the following good auditing practises?

Key: VE- Very Effective   E- effective   iE- Ineffective   ViE- Very Ineffective

Auditing practises	VE	E	iE	ViE
Safeguarding corporate assets				
Enforcing corporate Policies				
Monitoring internal policy compliance				
Monitoring internal regulatory compliance				
Assessing business performance improvements				
Mitigating key business risks and exposures				

6. How do you rate the impact of new market demands on IT related internal auditing?

Key: SA- Strongly agree   A- agree   D- disagree   SD- strongly disagree

New market demands	SA	A	D	SD
IT related internal auditing helps the future audit to focus more on operations and strategies				
Helps the auditors to focus on future decision making rather than on historical data				
Helps auditors to identify missed opportunities				

7. How competent and compliant are the current human resources to the following IT related internal audit programs?

   Key: VC- Very competent   C- Competent   IC- Incompetent   VIC- Very incompetent

Internal Audit Program	VC	C	IC	VIC
Generalized packaged programs				
Purpose written programs				
Utility programs used by the client				

8. In your opinion do you think that CAAT is significant to the internal audit role?
   Yes   [   ]   No   [   ]

9. How would you rate the significance of the following CAAT's variables?

Key: VS-Very Significant   S- Significant   NS- Not Significant

CAATs variables	VS	S	NS
CAATs allow the auditor to give access to data without dependence on the client, test the reliability of client software.			
CAATs allow the performance of audit tests more efficiently			

10. Do you require further training to enhance your knowledge, as an auditor, accountant and or IT worker?

Yes   [   ]   No   [   ]

11. If your answer to question 6 is yes. Which specific areas do you require training?

………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
……………....

12. Explain the role of your department in contributing to an effective audit.

………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………

13. Do you think that IT is substantially contributing to good auditing practices?

Yes [   ]   No [   ]

14. How do you rate CAATs in aiding the performance of an internal audit?

(Please tick only one box below)

Very good   [   ]   Good   [   ]   Fair   [   ]

Bad   [   ]   Very Bad   [   ]

If not satisfactory what improvements do you suggest?

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

15. Do you think that the accounting software package that an organization adopts has an effect on the audit?

Yes [   ]   No [   ]

For either option briefly give reasons

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

Thank you for your time

Appendix 1II: INTERVIEW GUIDE

Notes to interviewer:

❖ Each question should be asked in a way that the interviewee has a chance to expand upon each answer.

❖ Always wait for the response and avoid leading the interviewee.

❖ Ask for clarification where you cannot interpret responses.

❖ Write the responses on a separate response sheet.

<u>Background information</u>

Name of Department……………………………………………………………

Date of the interview…………………………………………………….

Interviewee Designation ……………………………………………

1. Are auditors keeping pace with IT changes?

2. How successful have you been in effecting the use of IT in the Accounts Department?

3. How costly has been up-keeping with the introduction of new technology?

4. Evaluate the internal auditors' competence and skills in conducting an IT related audit.

5. How helpful has been the use of CAATs in the accounting department for internal auditing purposes?

6. Explain the significance of the role of internal auditors in the organization considering the impact of IT on their audit work?