

**KAMPALA INTERNATIONAL UNIVERSITY**

**AN ASSESMENT OF EFFECTIVE USE OF COMPUTERS  
IN AUDITING.**

**CASE STUDY OF PRICE WATERHOUSE COOPERS**

**BY**

**NSAJIGWA SAMUEL SIMPILU**

**BBA/6025/41/DF**

**SCHOOL OF BUSINESS AND MANAGEMENT**

**COURSE: BACHELOR OF BUSINESS**

**ADMINISTARTION (ACCOUNTING)**

**A RESEARCH REPORT SUBMITTED TO THE SCHOOL  
OF BUSINESS AND MANAGEMENT IN PARTIAL  
FULFILMENT FOR THE REQUIREMENT OF THE  
AWARD OF A BACHELORS DEGREE IN BUSINESS  
ADMINISTARTION OF KAMPALA INTERNATIONAL  
UNIVERSITY.**

**JUNE 2007**

## DECLARATION

I, Nsajigwa Samuel Simpilu, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other University for similar or any degree award.



NSAJIGWA SAMUEL SIMPILU

## **APPROVAL**

I certify that Mr. Nsajigwa Samuel Simpilu carried out this research under my supervision.

Signature.....

Date.....

Dr Y. B. NYABOGA

SUPERVISOR.

## ACKNOWLEDGEMENT

I, firstly, thank almighty God for taking me through this dissertation, without his sustainability nothing could be possible.

Truly I am admitting from the very outset that working out this dissertation has not by any means been an easy task. Somewhat, it was such a demanding undertaking that in one way or another it could not be possible to accomplish it unaccompanied. Due to this fact I feel intensely grateful to express my earnestly appreciations to a number of persons who in one way or another had made this dissertation to come into existence.

Therefore, I wish to express my sincerely gratitude to my supervisor Dr Y. B. Nyaboga (Associate Dean) for his beneficial directions and contributions, the school of Business and Management of Kampala International University, Barbara Mutoni (Human Resources Administrator, PwC) for the help she rendered to me when I was at PwC.

I will also be ungrateful if I fail to heavily thanks to my best friends, for their lovely courage that has made me happier through out, when I was undertaking my study, i.e.; Everlyne Amwayi, Lutaaya Titus, Simon Simatwo, Dhamalie Sanyu, Patrick Baguma, Doris Kaberia, Ssentongo David, Captain Charles Suleiman, Kapiro Simon, Rodgers, Samson etc.

May almighty God bless you all.



## **TABLE OF CONTENTS**

## **PAGE**

Declaration.....	i
Approval.....	ii
Acknowledgement.....	iii
Table of contents.....	iv
List of tables.....	viii
Abstract.....	ix
Abbreviations.....	xi

### **CHAPTER ONE**

1.0.0 Introduction.....	1
1.2.0 Background.....	1
1.3.0 Introduction to the problem.....	2
1.4.0 Statement of the problem.....	4
1.5.0 Objectives of the study.....	4
1.5.1 General objective.....	5
1.5.2 Specific objective.....	5
1.6.0 Research Questions.....	5
1.7.0 Significance of the study.....	6
1.8.0 Delimitation of the study.....	6
1.9.0 Limitations of the study.....	6
1.10.0 Conceptual framework.....	7
1.11.0 Scope of the study.....	8

### **CHAPTER TWO**

#### **LITERATURE REVIEW.**

2.1.0 Introduction.....	9
2.1.1 Definition of Auditing.....	9
2.1.2 Auditing in Computer System.....	10

2.2.0 User Controls.....	11
2.3.0 EDP Application Controls.....	11
2.3.1 Controls over Input.....	12
2.3.2 Controls over Processing and Computer Data Files.....	12
2.3.3 Controls over Output.....	12
2.4.0 General EDP Installation Controls.....	13
2.4.1 Organisation and Management Controls.....	13
2.4.2 Application Systems Development and Maintenance Controls..	13
2.4.3 Computer Operation Controls.....	14
2.4.4 System Software Controls.....	14
2.4.5 Data Entry and Programme Controls.....	14
2.4.6 Access Controls.....	14
2.4.7 Other EDP Installation Controls.....	15
2.5.0 Computer Controls Activities Chart.....	16
2.6.0 Potential EDP Audit Problems that are easily avoided.....	17
2.7.0 Computer Assisted Audit Techniques (CAATs).....	20
2.7.1 Audit Software.....	21
2.7.2 Test Data.....	21
2.7.3 Uses of CAATs in Audit Process.....	21
2.8.0 Auditor's Operational Standards with Computers.....	22
2.8.1 Planning.....	22
2.8.2 Controlling.....	23
2.8.3 Recording.....	24
2.8.4 Accounting System.....	24
2.8.5 Audit Evidence.....	24
2.8.6 Internal Controls.....	25
2.8.7 Review of Financial Statements.....	25
2.9.0 Audit in Computer Environment at PwC.....	25
2.9.1 Diagrammatic Presentation of PwC Audit Process.....	28

## CHAPTER THREE

### THE RESEARCH METHODOLOGY

3.1.0 The Research Design and name of the research design.....	29
3.2.0 Data Collection Techniques.....	29
3.2.1 Observation.....	29
3.2.2 Documentary Study.....	29
3.2.3 Interview.....	30
3.2.4 Questionnaire.....	30
3.3.0 Sampling Techniques.....	30
3.3.1 Sampling Framework.....	30
3.3.2 Sample Size.....	30
3.3.3 Sampling Technique.....	31
3.4.0 Data Analysis Strategy.....	31
3.5.0 Conclusion.....	31

## CHAPTER FOUR

### RESEARCH FINDING AND DATA ANALYSIS

4.1.0 Introduction.....	32
4.2.0 Data Analysis Technique.....	32
4.3.0 Discussion and Interpretation of Findings.....	32
4.4.0 Opportunities Obtained from Computerised Audit System.....	40
4.5.0 Problems Facing Auditors in Computerised Audit system.....	41

## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATIONS

5.1.0 Introduction.....	42
5.2.0 Conclusion.....	42
5.3.0 Recommendations to the Auditors and Management.....	42

5.4.0 Recommendations for further study.....	44
--	----

<b>BIBLIOGRAPHY.....</b>	<b>45</b>
--------------------------	-----------

**LIST OF APPENDICES**

1. Appendix A- Questionnaires
2. Appendix B- Covering Letter

## LIST OF TABLES

Computer audit vs. manual audit.....	34
Table A: Existence of audit trail.....	35
Table B: Speed of action in retrieving the required data.....	36
Table C: Security of data.....	37
Table D: Application of Audit procedures.....	37
Table E: Maintenance of evidence of review.....	38
Table F: Efficiency in the review process.....	39
Table G: Ensuring compliance with required Audit Standards .....	40



## ABSTRACT

The study on “the effective use of computers in auditing” is very important due to the facts that, in today’s global business conduct and the economic performance in general largely depend on critical analysis and reliable information from various sources of information. These sources of information are of different types, ranging from the engineers, economist, financial analysts, auditors, accountants etc.

In this context auditing as one and most important source of information concerning the reliability of financial statement and non financial matters in an organization, like management performance and operation of the activities. The information are of extremely important to a number of persons ranging from, Shareholders, Investors, Management, Government and others as a bases for their rational decision. Previously auditing was carried out through manual system but today due to complexity of businesses, which is associated with time constraints the use of computers in auditing has proved inevitably.

Due to that fact, the researcher decided to carry out a research on the effective use of computers in auditing in order to establish its reliability on its execution of the process. The researcher was also interested to know the advantages and problems or challenges that the auditors might face when they keep in use of computers in auditing. Basically, this is the observable fact, which this dissertation endeavors to address within the context of PwC, which is my case study.

In undertaking the study, the researcher decided to use various techniques (as described in chapter three of the dissertation) of collecting, analyzing and interpreting data collected, from which 80% out of 100% of the selected sample was used as a decision criteria to validate the problem as to whether computers are effectively assisting PwC auditors in auditing.



After critical analysis on the information collected from the respondents, the researcher concluded that, PwC is effectively using computers in auditing and therefore recommended that, despite of effective use of computers in audit, PwC (auditors at PwC) should take care of the following:- getting rid of monotony and allowing chance on critical intellectual human thinking, establishment of an independent computer service bureau, need to have same standards of computers to all auditors irrespective of their ranks. The researcher had also recommended a further study on the subject matter to be carried out by other researchers.

## **ABBREVIATIONS**

<b>ABAS</b>	- Assurance and Business Advisory Services
<b>ACL</b>	- Access Control List
<b>CAATs</b>	- Computer Assisted Audit Techniques
<b>CER</b>	- Computer Exception Report
<b>EDP</b>	- Electronic Data Processing
<b>GRMS</b>	- Global Risk Management Solution
<b>ITF</b>	- Integrated Test Facility
<b>PwC</b>	- PricewaterhouseCoopers
<b>SPA</b>	- System Process Assurance

## **CHAPTER ONE**

### **1.1.0 INTRODUCTION**

This Chapter is intending to give short and clear background information in terms of facts and events about an assessment and effective use of computers in auditing and brief profile statement of PwC where the research was carried out.

### **1.2.0 BACKGROUND**

The legacy of PricewaterhouseCoopers emerged after a merger of two big international advisory firms in 1998, which existed in the country and many other parts of the world .The two companies Coopers and Lybrand and Pricewaterhouse had been operating in the country for as long as 20years and more represented by local firms.

The main objective of merging was to enjoy the economies of scale after combining their human and material resources in various lines of services, the firm could then be able to meet their clients demand in providing variety of services under one roof.

PricewaterhouseCoopers is currently situated at Communication house, 10<sup>th</sup> floor, 1 Colville Street, Kampala Uganda.

Services provided by PricewaterhouseCoopers include the following;

- a) Audit and Assurance Services
- b) Public and Private Advisory Services
- c) Corporate Finance and Recovery(CFR) Services
- d) Tax and Legal Services

### 1.3.0 INTRODUCTION TO THE PROBLEM

Auditing came into existence as a result of separation of ownership and management (Principal Agent relationship) in Business Organisations. Basically there was a need by the owner to place reliance on accounting and other related information produced by the management after being entrusted to look after the owner's properties.

Due diligence, skills, accuracy, competence and independence of individual professional is required in producing an independent opinion in his report expressing what has been seen after a critical examination on task vested to him, However, reliability and accuracy of what has been examined depend much on means, methodology, and techniques of carrying out the task.

The popular manual system of audit has been in use for quite a long time, although to some extent the system met objectives but was experiencing a number of problems including the following;

- Data retrieval from the client files became tedious work.
- Much time spent in communicating the work done by the team members to their managers and partners.
- Delay in delivering report to the client.
- Cost-benefit analysis could not justify the application of using manual system in audit.

But with technological development associated with time constraint, computer system has emerged as the best method of audit. In this era of invention, increased size and complexity of business organisation, competition and change in general environment, the use of sophisticated computer system has proved inevitable. The first computer made its appearance in 1951, under the name of UNIVAC; from that point various computers with different memory capacity, speed and size were produced. Today the principle computer manufacturer (IBM) and other computer companies have been outpouring computers there by increasing sophistication of computers themselves, computer design and program coupler applications. Also the developed programming languages were used to



communicate with other computers and to instruct them in solving of increasingly complex problems and the operating systems that controls the exertion of jobs under multi-programming and time-sharing.

Computers are being increasingly used in keeping accounting and other business records, it also used for decision making and other managerial activities like planning and controlling .The rapid increase in computerised data processing by business continues to have a dramatic effect on public accounting. No longer is the challenge of auditing computer activities limited to large firms only. With the advent of inexpensive microcomputer systems, even the smallest audit firms are likely to use a computer for most accounting functions.

Application of computer system range from the automation of individual data processing task, such as audit plan preparation or sample testing procedures through the manipulation of involved mathematical models simulating specified area of interest to the development of completely integrated management information systems (MIS), with the underlying data base management system (DBMS) on which MIS is dependent.

Further more, computer system may not only facilitate the handling of numerous transaction of similar nature but also are able to provide figures for control purposes, so eliminating duplication through unnecessary checking work.

Given above criteria, it is essential that all auditors should have at least a general understanding of how computer functions, how they are being programmed and the manner in which they are used in automated processing of accounting related data by means of what is commonly referred to as electronic data processing (EDP) system.

Computer auditing arises following the use of EDP system in accounting and related practices subject to auditing. Due to its retention of records, speed, diligence, accuracy and reliability computer system is at an outset an everlasting solution to numerous problems facing manual system in audit as pointed out earlier.

#### **1.4.0 STATEMENT OF THE PROBLEM**

During the past few decades, auditing was manually carried out, basically that time business organizations were small in size and operations, hence few number of transactions were involved.

Nowadays, due to high level of technology many business organizations became bigger in size and operation, since many transactions are involved. Therefore due to this fact manual audit became tedious work and may involve a number of difficulties which may result into tremendous risks in carrying out the activity.

Following the above situation, computer auditing system has attracted many auditing firms and organizations to be as basic tool in their daily operations. Nevertheless, to this moment it is still evident that a number of firms and organizations are still carrying out their auditing activities manually, considering the fact that the whole world is moving into one stream towards massive globalization where computers in organizations are the focal point in getting work done.

Therefore the study will explore the extent to which the use of computers in auditing is effective and efficient, the study will also acquire if there are problems associated with computerization of the audit system and lastly to come up with facts that will be used as guidelines for all firms that wish to computerize their system of operations specifically in auditing.

#### **1.5.0 OBJECTIVES OF THE STUDY**

The objectives of the study are categorized as under general objective and specific objective as follows below;



### **1.5.1 General objective**

Due to importance of auditing in business world today, the research will generally intend to determine the extent to which computerization will effective and efficient perform audit work, considering the problems, opportunities and abilities of auditors to face the challenges on everyday change in computer technology.

Parallel to this general objective, following are the specific objectives of the study:

### **1.5.2 Specific objectives**

- To determine whether there is a need for employers to promote staff training scheme to all staff concerned in order to enable them acquire more knowledge of accounting and auditing information in computerized systems and to improve the accounting techniques based on computers.
- To establish whether there are weaknesses or strength in accounting and audit information in computerized systems.
- To create opportunities for further studies and the introduction of new techniques in auditing.
- To advise auditing firms to use sophisticated means in carrying out their duties in order to cope with challenging environment.

### **1.6.0 RESEARCH QUESTIONS**

1. Are the auditors/ members of the team computer literate?
  - i) If yes, do they know the computerized audit system used by the firm?
  - ii) What are the problems they are facing in computerized audit system?
  - iii) How do they manage to cope up with changes in computerized audit systems?
  - iv) What are the opportunities that the auditors have in the computerized audit system?
2. To what extent does the manual system affect the performance?
3. What are the steps taken by the firm to solve problems posed by manual

Systems during auditing?

4. What cost did the company incur while installing and training staff?
5. What are the benefits a firm gets by using computerization in auditing?

#### **1.6.0 SIGNIFICANCE OF THE STUDY**

- a) By carrying out the study a researcher was able to acquire a practical experience through comparison between theoretical aspects and actual practices in the professional field of audit and accountancy.
- b) The study poses a challenge to other researchers to carry out further studies on this field.
- c) The study is a requirement for partial fulfillment of bachelor of business administration (accounting option), therefore, in doing so a researcher will be able to qualify for a degree course in business administration.

#### **1.7. 0 DELIMITATION OF THE STUDY**

The scope of the research concerned the study on the effective use of computer in audit, a case study at PwC located in Kampala. To understand how things are going on practically the firm gave me an opportunity to carry out this work under their supervision

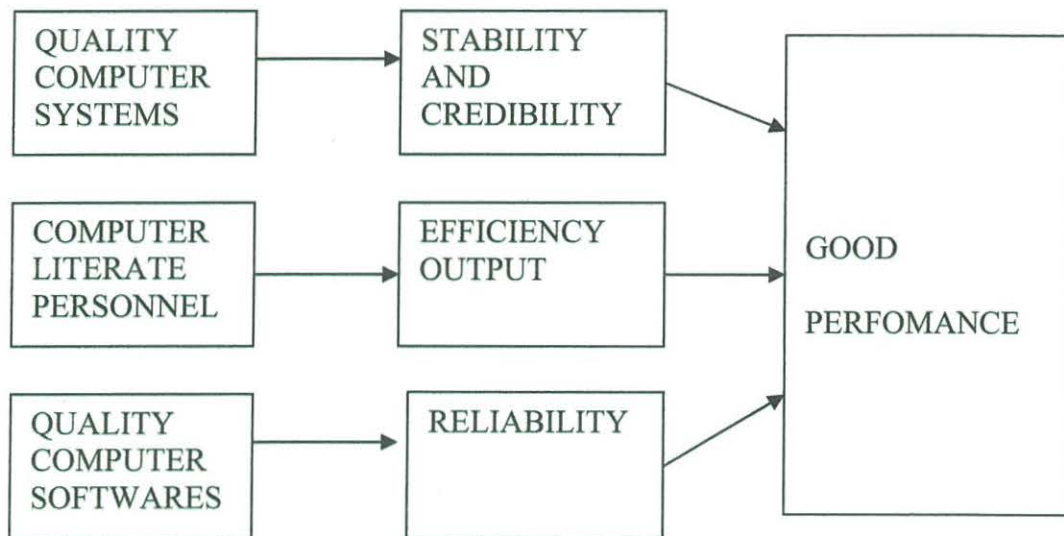
#### **1.8.0 LIMITATIONS OF THE STUDY**

- Sometimes the respondents are reluctant to give information due to confidentiality of the information. Some information is for organization uses only, it is not allowed for the public to avoid leakage of information that may pass to the competitors and threaten the firm's survival or loose of clients, as a result irrelevant information may be given.
- It may be difficult to get genuine answers especially from top management due to the time constraints.

### 1.9.0 CONCEPTUAL FRAMEWORK

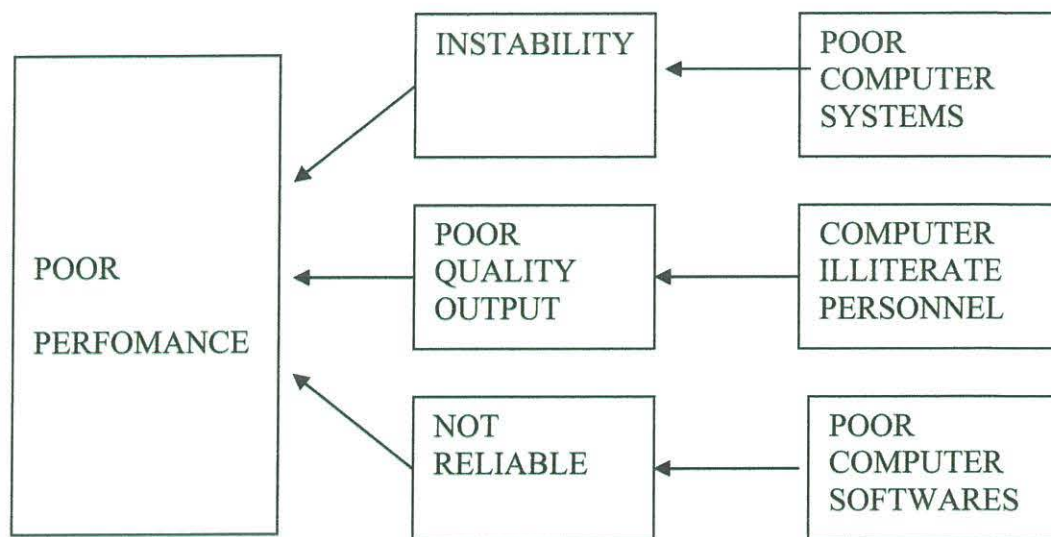
The conceptual framework of the study will determine the relationship between the independent variables and the dependent variables, together with the intervening variables as illustrated below,

**Independent variables    intervening variables    Dependent variables**



In case the above requirements will not be met by the firm or organization, the conceptual framework therefore will change to be as follows below,

**Dependent variables    intervening variables    Independent variables**



#### **1.10.0 SCOPE OF THE STUDY**

The scope of the study concerned with effective use of computers in auditing, a case study at PwC located in Kampala. To understand how things are done practically under their supervision. Generally more focus was on the objective of the study and that's where the researcher had put more concentration



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1.0 INTRODUCTION**

This chapter gives a detailed theoretical background of the study laid down by different authors with aspects of auditing, how it is effectively and efficiently carried out through computer system. It also point out the empirical facts concerning the subject matter of this study.

#### **2.1.1 Definition of auditing**

According to Meigs and Meigs, (1982) an audit refers to as an examination of a company's financial statement by a firm of independent public accountants. The audit consists of a searching investigation of the accounting records and other evidence supporting those financial statements. Through the study and evaluation of company's system of internal control and by inspection of documents, observation of assets, making of enquiries within and outside the company and by other auditing procedures, the auditor will gather the evidence necessary to determine whether the financial statements provide a fair and reasonably complete picture of the company's financial position and its activities during the period being audited.

Since auditing is important for the development of any organization and general economy in any country, there is a need for those information or details given by auditors concerning organization's financial position and overall performance to be accurate and reliable in order to aid society in allocating resources in an efficient manner.

Whittington and Pany, (1998), supported this by saying; the contribution of the independent auditor is to provide credibility to information. Credibility, in this usage, means that the information can be believed; that is, it can be relied upon by outsiders, such as stockholders, creditors, government regulators and other interested third parties.

These third parties use the information to make various economic decisions, such as decisions about whether to invest in the organization.

Economic decisions are made under conditions of uncertainty; there is always a risk that the decision maker will select the wrong alternative and incur a significant loss. The credibility added to the information by auditors, actually reduces the decision maker's risk. To be more precise, the auditors reduce **information risk**, which is the risk that the financial information used to make a decision is materially misstated.

Following that situation, auditors need to have an appropriate and effective means that will aid them to deliver reliable and accurate information concerning the financial statements and any other aspect under their examination or investigation.

As a result of technological development and increased business complexity, computer system in audit has appeared to be the best system in delivering valuable services.

According to Whittington and Pany, (1998), stated that, although the computer has created some challenging problems for professional accountants, it has also broadened their horizons and expanded the range and value of the services they offer. The computer is more than a tool for performing routine accounting tasks with unprecedented speed and accuracy. It makes possible the development of information that could not have been gathered in the past because of time and cost limitations. When a client maintains accounting records with a complex and sophisticated computer system, auditors often find it helpful, and even necessary, to utilize the computer in performing many auditing procedures.

### **2.1.2 Auditing in computer system**

Basically computerized system in audit or accounting aim to perform the processing stage electronically, much and more quickly than if it were done manually. However transactions and amendment details have to be input into the process in the correct form,



in the correct order and in timely manner. Computerized system in audit leads to time saving with respect to transactions processing and increased accuracy.

Despite of using computer system in audit, professional skills, care and diligence of an auditor are still important in detecting and taking corrective measure to some problems like systematic error, chances for manipulation and visibility of data as they tend to occur in computer system during the course of audit. Therefore it is essential for the auditor to know that the system may be properly compiled and instituted, but unless all subsequent alterations are carefully examined and authorized, the work may continue to flow but its reliability may be vitiated.

Nevertheless, any system installation should ensure the completeness and accuracy of input and processing and the validity of the resulting accounting entries. To do that two control systems are established.

These are:

- User controls
- EDP Application controls and
- General EDP installation controls.

### **2.2.0 USER CONTROLS**

These are controls performed by users to test the accuracy and completeness of computer reports.

### **2.3.0 EDP APPLICATION CONTROL**

These are the controls within a computer application, which ensure the completeness and accuracy of inputs and processing and validity of resulting accounting data. They aid the provision of controls over completeness and accuracy of inputs. Application control activities include both programmed control activities, which are written into the computer

programs, and manual follow-up activities performed on the exception reports that are generated by the computer.

The purpose of EDP application controls is to establish specific control procedures over the accounting applications in order to provide reasonable assurance that all transaction are authorized and recorded, and are processed completely, accurately and on a timely basis. EDP application controls include:

### **2.3.1 Control over input**

These are designed to provide reasonable assurance that, transaction are properly authorized before being processed by computer; Transaction are accurately converted into machine- readable form and recorded in the computer data files; Transaction are not lost, added, duplicated or improperly changed; Incorrect transactions are rejected, corrected, and, if necessary resubmitted on a timely basis.

### **2.3.2 Control over processing and computer data files**

Designed to provide reasonable assurance that:

The computer properly processes transactions, including system-generated transactions; Transactions are not lost, added, duplicated or improperly changed; Processing errors are identified and corrected on timely basis.

### **2.3.3 Control over output**

These are also consequently designed to provide reasonable assurance that:

Results of processing are accurate; Access to output is restricted to authorize personnel; Output is provided to appropriate authorized personnel on a timely basis.

## **2.4.0 GENERAL EDP INSTALLATION CONTROL**

These are controls that relate to the environment within which computer based accounting systems are developed, maintained and operated, and which are therefore applicable to all the applications. The objectives of installation controls are to ensure the proper development and implementation of applications and the integrity of programme and data files, and of computer operations. The purpose of general EDP controls is to establish a framework of overall control over the EDP activities and to provide a reasonable level of assurance that the overall objectives of internal control are achieved. General EDP controls may include:

### **2.4.1 Organization and management controls**

These are designed to establish an organization framework over EDP activities, including:

- Policies and procedures relating to control function;
- Appropriate segregation of incompatible functions (for instance, preparation of input transactions, programming and computer operation).

### **2.4.2 Application systems development and maintenance controls**

Designed to provide reasonable assurance that systems are developed and maintained in an efficient manner. They also typically are designed to establish control over:

- Testing, conversion, implementation and documentation of new or revised systems.
- Changes to application systems
- Access to systems documentation.
- Acquisition of application systems from third parties.

### **2.4.3 Computer operation controls**

Designed to control the operation of the systems and to provide reasonable assurance that:

- The systems are used for authorized purposes only.
- Access to computer operations is restricted to authorized personnel.
- Only authorized programmes are used.
- Processing errors are detected and corrected.

### **2.4.4 System software controls**

Designed to provide reasonable assurance that systems software is acquired or developed in an authorized and efficient manner, including:

- Authorization, approval, testing, implementation and documentation of new systems software modifications.
- Restriction of access to systems software and documentation to authorized personnel.

### **2.4.5 Data entry and programmed controls**

Designed to provide reasonable assurance that:

- An authorized structure is established over transactions being entered into the system.
- Access to data and programmes are restricted to authorized personnel.

### **2.4.6 Access controls.**

Refers to access to the EDP system hardware, programmes, data files, and program support documentation, there by minimizing the likelihood of improper or unauthorized use.

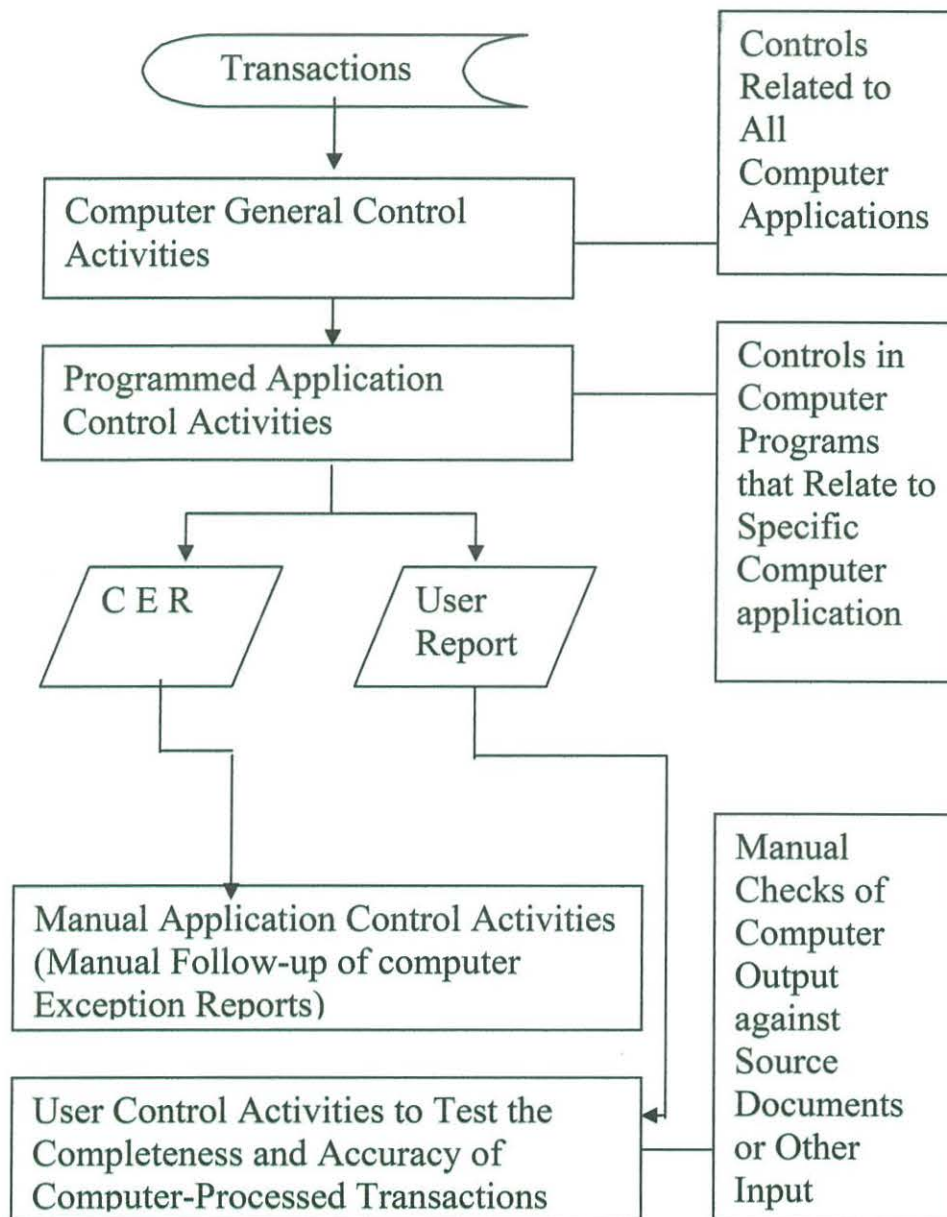


According to Ricchiute, (1982) in his book Auditing concepts and standards said that, access to computer hardware can be restricted through physical security devices, such as door locks and security personnel or processing schedule, which clearly indicate who is scheduled to process information at a particular time.

**2.4.7 Other EDP installation controls may include the following:**

- Offside back up data and computer programmes
- Hardware controls and
- Files controls.

## 2.5.0 COMPUTER CONTROL ACTIVITIES CHART



**Note:** C E R Stands for Computer Exception Reports



## **2.6.0 POTENTIAL EDP AUDIT PROBLEMS THAT ARE EASILY AVOIDED.**

Despite of using computers in auditing, auditors need to pay attention on some problems, which are likely to occur in computer audit system.

According to Warner and Lowell, (1990), auditors should not rely on untested computer controls. Computer controls exist in the form of user controls and electronic data processing (EDP) controls. Auditors should test the integrity of computer data before assuming that the output is accurate. The mistakes made by auditors include the failure to realize the difference between user controls and EDP controls, and failure to test computer controls because they seem to be unnecessary. Sometimes auditors believe that their audit approach result in inadvertent reliance on computer-based controls without having properly tested these controls, which might not be certain.

Basically auditors must consider the impact of computer processing of significant accounting information on audit design. The testing of programmed procedures requires audit techniques such as the use of test data, parallel simulation, or an integrated test facility (ITF). Because these procedures require a degree of computer skills that many auditors do not feel they possess, auditors often choose not to perform them and therefore do not consider these controls in designing the audit. In such a situation the auditors choose to “audit around the computer” and increase the amount of substantive testing and/or otherwise change the timing and/or nature of substantive procedures.

The auditor might also choose to test and rely on user controls that are designed to control the quality of EDP processed data. Such a philosophy is not necessarily flawed. However, if auditor chooses this approach because of either a lack of expertise or efficiency considerations, he or she should be very careful not to rely on the accuracy of computer output without first testing the integrity of the computer generated data through either properly designed substantive tests or test of user controls.

In an environment in which accounting data is processed by computer, controls should exist in one of two forms: These are

- User controls, or
- EDP controls.

User controls are entirely independent of the EDP process and are manually performed by groups using the EDP output. They typically consist of reconciling output to input.

EDP-based controls (i.e., application control procedures) rely on existence of the following:

- Programmed control procedures, and
- The manual follow-up of computer exception reports.

These, in turn, rely upon the existence of general control procedures that are made up of three independent components, which are Access controls, System development & Program change controls and Controls over computer operations.

The auditor in an EDP environment should recognize that although the components of EDP controls function independently of one another, no single component of an EDP control can be relied upon to prevent or detect errors without the effective operation of the others. Furthermore, if the auditor fails to properly distinguish between user controls and the manual follow-up component of an EDP control, improper audit design will likely result. The audit design flaw occurs as follows:

- The auditor mistakenly identifies the manual follow-up component of an EDP control as a user control.
- The auditor fails to test the related access controls, systems development/program change controls, because he or she feels that test of computer controls are unnecessary in that he/she is auditing “around the computer”
- The auditor tests the functioning of the control and relies on the control in designing the audit. Such reliance is unjustified because the components of the EDP controls have not been tested



This mistake is easily made because both user controls and the manual component of an EDP control normally involve manual procedures.

For instance, suppose that a client's EDP system produces an exception report listing all submitted sales transactions that cannot be matched with the shipping documents in the computer file of processed shipping documents. These sales are not processed against the current file until the sales department perform a manual follow-up to identify the problem and submits the item(s) for processing. Reports are maintained in the sales department on the resolution of all transactions appearing in the exception reports, and the computer maintains a suspense file of all flawed sales transactions that have not been resubmitted or otherwise cleared.

If, in this situation, the auditor does not desire to rely on (and therefore test) computer controls, the control just described (i.e., manual follow-up on all items appearing on the exception report) cannot be relied upon in auditing sales. This is because the control described is not a user control. The effectiveness of the described process depends on the integrity of the computer generated exception report. If auditor tests the performance of this control only and then relies on it in designing the audit, the audit will be improperly designed. Even though manual user follow-up is involved in the execution of this control, its effectiveness is dependent upon the quality of the computer generated exception report which, in turn, is dependent upon the adequacy of the computer generated control procedures.

Therefore, auditors should be particularly careful to avoid this type of error by carefully analyzing any control upon which he or she desires to rely that appears to be a user control, but involves the use of computer generated exception reports or totals. If the quality of the information being employed by the user is dependent upon the proper functioning of the computer program, it is not a user control and cannot be relied upon without first testing the computer generated control procedures related to that specific manual follow-up control.

Auditors should also be aware of the fact that many user controls that are based on batch or hash totals cannot be relied upon entirely to control the quality of computer output. For example, suppose the credit department calculates a total of account payable credits submitted for computer processing and then manually compare this total with the total of transactions processed on a subsequent computer printout. An auditor may, in such circumstances, conclude that the quality of the computer generated control totals for accounts payable has been validated by the user control. However, this is only partially true. While the user control can be relied upon to verify the accuracy of the total account payable, testing would be necessary to rely on the accuracy of individual balances making up the total of account payable. The accounts payable printout cannot be assumed to be accurate simply because the total of the listing has been subjected to a user control.

### **2.7.0 COMPUTER ASSISTED AUDIT TECHNIQUES (CAATs)**

These are techniques by which auditors can use computers in carrying out their audit work. CAATs may be defined as any audit test that has been automated with the use of a computer and associated software. CAATs can be used to make the audit more effective and efficient, by:

- Automating an existing audit test that is being performed manually, such as testing the mathematical accuracy of a report; or
- Performing tests that are not feasible to perform manually, e.g., the review of sales transactions for large and/or unusual items- although it would be possible to perform this manually, for most large companies the number of transactions that would need to be reviewed would be prohibitive from a time perspective.

CAATs can not only help to efficiently review all transactions, but they can also do so more effectively, as the computer is not susceptible to fatigue, which an auditor will encounter after reviewing pages and pages of transactions. From an efficiency perspective, internal PwC studies have shown that CAATs can save 40-60% of the audit effort compared with performing the same test using a manual approach, even in the first year. Subsequent year savings can be even greater.



TSASG, No 6. Described the main types of CAATs as here under:

### **2.7.1 Audit Software.**

It comprises sets of instructions or programmes which an auditor uses to extract and examine the client's files. When designed and distributed by the computer manufactures they are known as generalized audit software. The advantage of the generalized software is that, it is likely to be more robust since over time the manufacturer will have acquired the necessary technical expertise in producing them and at lower cost due to economies of scale. Generalized audit software are basically designed to perform a variety of data processing functions such as to read computer files, select desired information, perform calculations and poring report in a format specified by the auditor.

There are on the other hand specialized audit software which are programmes made specifically by the auditor, by the entity or by an outside programmer engaged by the auditor for specific purposes.

### **2.7.2 Test Data.**

Here, the auditor prepares a test data and submits it for processing by the client computer programme. The data is made to include both the valid and invalid transactions. The aim of this approach is to test whether the client system will be able to detect errors in the invalid transactions. This may be processed during a normal production run (live test data) or during a special run at a point in the outside the normal cycle (dead test data).

### **2.7.3 Uses of Computer Assisted Audit Techniques (CAATs) in audit process.**

The most widely used CAATs as pointed out by PwC audit guide Section.5420, are in the area of **substantive testing**, particularly with regard to **substantive analytical procedures**. In addition to substantive analytical procedures, CAATs can also be used for **tests of details**, including **targeted testing** and in assisting in **audit sampling**. CAATs can enable every transaction in a system to be tested, which could serve as a replacement for manually testing a large sample of transactions.

CAATs can also be used in **testing the effectiveness of controls**, as a companion to other controls testing, which would typically involve making a small selection of transactions and walking them through the system, or by developing an integrated test facility and processing test transactions through the system. The advantage of using CAATs in controls testing is that it is possible to test every transaction (either in a master file or transaction file), to determine whether there were any control failures.

CAATs can also assist in **fraud detection** (e.g., in reviewing non-standard journal entries) by enabling auditors to sift through large volumes of data.

Due to the technical nature of CAATs, and the complexity in obtaining appropriate data files, they are typically performed by; Global risk management solution (GRMS) specialists and Territory GRMS contacts should be consulted.

## **2.8.0 AUDITOR'S OPERATIONAL STANDARDS WITH COMPUTERS**

These are auditing standards which deal with the conduct of an audit including planning, controlling, recording, accounting system, audit evidence, internal controls and review of financial statements. Some of the conduct of an audit includes the following;

### **2.8.1 Planning.**

In order to plan and carry out an audit in a computer environment, auditors will need an appropriate level of technical knowledge and skills. As part of his additional planning considerations he/she should decide at an early stage what effect the system itself, and the way it is operated, will have on the timing of and the manner in which he will need to perform and record his work. In this respect, he may have had the opportunity to consider these matters during the development and implementation of the system.

The auditors should also consider the use of CAATs, as this may have a significant on the nature, extent and timing of his audit tests. As indicated below the auditor, in certain circumstances will need to use CAATs in order to obtain evidence he requires, where as

in other circumstances he may use CAATs to improve the efficiency and effectiveness of his audit.

In choosing the appropriate combination of CAATs and manual procedures, the auditors will need, inter alias, to take the following into account:

- Computer programmes often perform functions of which no visible evidence is available hence manual tests are impracticable.
- In many audit situations auditors will have the choice of performing a test either manually or with the assistance of CAATs. These factors will influence their efficiency as to the extent of compliance or substantive testing achieved by both alternatives, the cost effectiveness of using the application of CAATs and the ability to incorporate within the use of CAATs in a number of different audit tests.
- In some cases, auditors will need to report within a comparatively short time-scale. In such cases it may be more efficient to use CAATs because they are quicker to apply, even though manual methods are practicable and may cost less.
- There is a need before using CAATs to ensure that the required computer facilities, files and programmes are available.
- The operation of some CAATs requires frequent attendance or access by the auditor.
- Where the entity's accounting records includes computer data, then auditors will need to have access to those data.

### **2.8.2 Controlling.**

Whether or not the audit is being carried out in a computer environment, audit procedures should always be controlled to ensure that the work has been performed in a competent manner. Where CAATs are used however, particular attention should be paid to:

- The need to coordinate the work of specialist in computer skills (I T department) with the work of others engaged in audit.



- The approval and review of technical work by some one with the necessary computer expertise.

It is acceptable for an auditor to use CAATs on copies of computer records or programmes provided he has taken steps to gain reasonable assurance that the copies are identifiable to the originals.

### **2.8.3 Recording.**

The standard of audit working papers relating to computer based accounting systems and the retention procedures in respect of them, should be the same as those adopted in relation to other aspects of the audit.

Where the technical paper differs materially from the other working papers, for instance where they consist of computer out or magnetic media, it may be convenient to keep these separate from other working papers.

### **2.8.4 Accounting System.**

The Tanzania Statement of auditor's operational standards No1. States that, "The auditors should ascertain the entity's system of recording and processing transactions and assess its adequacy as a basis for preparation of financial statements". The principles relating to this are the same in a computer environment, but it should be born in mind that many computer based accounting systems are specified in far greater detail than non-computer based accounting systems.

### **2.8.5 Audit Evidence.**

The Standard No1. Also provides that, "The auditor should obtain relevant and reliable audit evidence sufficient to enable him to draw reasonable conclusions there from". The principles relating to the obtaining of audit evidence do not change because the audit is being carried out in a computer environment.



### **2.8.6 Internal Controls.**

The Standard No1, further provides that, “if the auditor wishes to place reliance on any internal controls, he should ascertain and evaluate those controls and perform compliance tests on their operation”. The principles relating to internal controls are the same in a computer environment as does in any other environment.

Application and installation controls are inter-related. Strong installation controls contribute to the assurance, which may be obtained by an auditor in relation to application controls.

In performing compliance tests on installation or application controls, the auditor should obtain evidence that is relevant to the controls being tested

### **2.8.7 Review of Financial Statements.**

The auditor’s operational standards states, “the auditor should carry out such a review of the financial states as is sufficient, in conjunction with the conclusions drawn from the other audit evidence obtained, to give him a reasonable basis for his opinion on the financial statements”, CAATs (particularly software) may be of assistance to auditors in carrying out certain aspects of this work.

### **2.9.0 AUDIT IN COMPUTER ENVIRONMENT AT PwC**

In addition to general uses of computer in audit, **PricewaterhouseCoopers** is also using lotus domino. Lotus Domino is an application Server that provides groupware functionality and development tools to create messaging, collaboration, workflow, tracking and Internet applications.

The Domino server stores information in Lotus notes databases. All information resides in these databases, which are building blocks used to create other applications, and services e.g. Team Asset, Career Deal, Team Find and My Client etc, which are commonly used in audit. All these applications are installed on your computer.

The databases are created using Domino template, which have permissions associated with them. These permission attributes are called Access Control List (ACL), which defines who can access which resources. All templates are found around the workspace of the notes and their number depends on how they are created.

For example, members of engagement team in a particular assignment can easily exchange information and consolidate work done by each member through their computers by simply replicating their work to the organization server (lotus domino). Through this each member could then be able to receive what other colleagues have done and give what he/she has done as part of the whole assignment of audit. In doing so auditors can easily manage their time which could be spent much if the process could be done manually. For instance, using that programme, no need for the meetings to be called several times to discuss work done by each member of the team.

Partners and Managers can also use this programme to review work done by the team in their office through their computers and giving some coaching notes if necessary on specific areas of audit where they found there are some shortcomings, simply by replicating the information.

Moreover, MyClient for instance as a major audit management system and communication tool that houses PwC **audit programs** and **work paper files**, is created on the workspace of the lotus notes. The file mentions all clients of the firm, planning of the audit task, execution and completion of the assignment. It also describes a specific client of which team members are concerned, by team members PwC mean all staffs (auditors) appointed to a particular client to perform an assignment and only they can have an access to that file, although it can be accessed globally so long as one is having an access to it. In this specific file therefore, under execution (documentation part) all tailored procedures and steps on each area of audit are specified.

Due to those ready installed procedures on each area of an assignment as related to the nature of the client, any member of the team on his/her part of assignment need not to take themselves trouble to remember or go through the texts to search for necessary

procedures or steps to follow during the course of audit. For instance in testing bank reconciliation, an auditor will direct go through his/her computer, he/she will just click and read all the steps to be followed as they listed on that part of testing bank reconciliation.

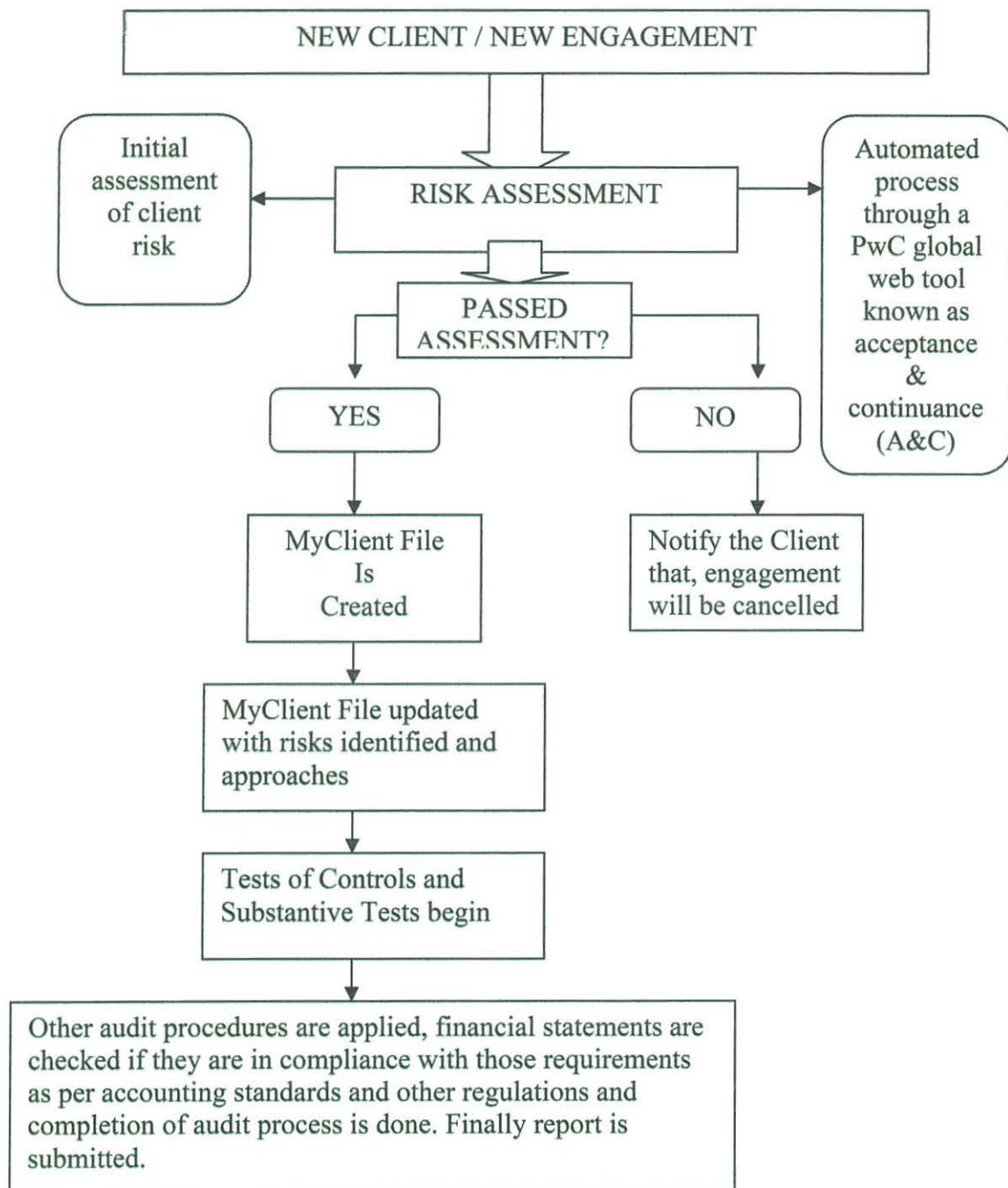
After reading and understanding the requirement of all procedures and methodologies, he or she will then start to test and finally documenting what has been done. If there is any disagreement between the PwC methodologies and the information obtained from the client's source/supporting documents, a critical matter is raised and a new sheet is created to state what has been seen (as a critical matter) and giving recommendation, suggesting the best way to follow in doing a particular thing. All these are done through sophisticated program of MyClient, client file that can be easily checked by all members of the engagement team.

It is also possible even for a new member of the engagement team to cope with the client environment by simply reviewing the working paper, which is also in the MyClient (for the recurrent client of the firm), to check what other auditors in the past audit have done.

Therefore, following that application software, auditors will be able to carry out their tasks quickly and very accurate within a short period of time so long as everything is there and no necessary step can be overlooked.



2.9.1 PwC audit process can also be described using the following diagram:





## **CHAPTER THREE**

### **THE RESEARCH METHODOLOGY**

This chapter of the study is going to describe procedures that have been used in undertaking the study.

#### **3.1.0 THE RESEARCH DESIGN AND NAME OF THE RESEARCH DESIGN**

Basically the research design is a plan that will guide the researcher in the whole process of collecting, organizing, analyzing, and interpreting data.

The design of the research will be a case study. The researcher will carry out the study at PricewaterhouseCoopers in Kampala.

#### **Data collection methods;**

#### **3.2.0 DATA COLLECTION TECHNIQUES**

The method used in collecting data was based on qualitative data collection strategy because of the raised findings based on narrations. In collecting relevant data, the researcher used the following means;

##### **3.2.1 Observation**

This an accurate way of watching and noting of phenomenon, which occur in nature with regards to cause and effect. Through observation, events, behavior and activities are recorded as they occur.

##### **3.2.2 Documentary study**

Documents are written materials that contain information about a phenomenon studied. Therefore in the course of collecting data, a researcher extracted relevant data from

organization sources like PwC audit guide, PwC codes of conduct and various written audit rules and methodologies.

### **3.2.3 Interview**

Interviews were conducted with different individuals of the firm from various grades. For example, auditors/partners, associates, managers etc. In order to get a wide scope of information.

### **3.2.4 Questionnaire**

The questionnaires were developed from different basis of several sources, e.g. problems facing auditors in computerized audit software, challenges, advantages and solutions to the problems. And were distributed to about 5 auditors who in virtue of their position it was anticipated that they would be able to render the required information.

## **3.3.0 SAMPLING TECHNIQUES.**

Due to unavoidable circumstances, sampling techniques were used to draw samples from the total population.

### **3.3.1 Sampling framework.**

This is a list containing all such sampling unit under the study.

### **3.3.2 Sample size**

Under this study the researcher selected a sample of five members (Auditors) of different ranks to be able to gather required and appropriate data.

### 3.3.3 Sampling techniques

Stratified sampling technique was used, where by Auditors of different ranks were selected proportionally and some were selected following the researcher's judgment.

### 3.4.0 DATA ANALYSIS STRATEGY

The researcher analyzed data on item-to-item basis hence tables and charts was used. Item-to-item basis refers to individual respondent with respect to questions. The following percentage criterion was used;

$$\text{Percentage} = \frac{\text{Number of persons responded}}{\text{Number of persons expected to respond}} \times 100$$

### 3.5.0 DRAWING THE CONCLUSION

Basing on the methodology and technique of collecting data used by a researcher, a researcher has decided to evaluate and measure in terms of number and percentage the empirical data collected in order to come up with his decision and conclusion on an effective use of computers in auditing, taking into consideration, the efficiency, benefits, problems and challenges facing the auditors during the course of audit.

Therefore a researcher based on the greater number and percentage of respondents to draw his conclusion on whether the use of computers can effectively assist auditors in their daily activities (i.e. auditing).

To be more precise and in accordance with the standards the researcher have decided to take 80% or above as a decision criteria basing on the number of persons responded over the number of persons expected to respond on the questionnaires provided to them.

## **CHAPTER FOUR**

### **DATA ANALYSIS AND DISCUSSION OF FINDINGS**

#### **4.1.0. INTRODUCTION**

The researcher has basically carried out the study within the limit of research investigative questions, therefore within this chapter, the analysis of data and research findings have been interpreted with respect to research questions developed to guide the study. The primary concern of this chapter is therefore to validate the research questions developed.

#### **4.2.0. DATA ANALYSIS TECHNIQUE**

To embark on analysis, the researcher has specifically made use of tables in assisting him to develop recommendations and findings on the study. The units of testing used to validate the research questions developed are percentages. The percentage technique has been applied to determine the effective use of computers in auditing, basing on the relative number of respondents. The researcher focused on the perceptions of the respondents and the observations made by the researcher as when the researcher has been a part of the team members during the course of various assignments in audit. Following the research findings we could be able to determine on whether computers are effectively assisting them in the whole process of audit, taking into account the opportunities, problems, solutions and challenges they get.

The research findings decision criterion was on the highest percentage as discussed in chapter three. I.e. 80% or above of the response to judge the effective use of computer in auditing at PwC.

#### **4.3.0. DISCUSSION AND INTERPRETATION OF FINDINGS**

In this section, the researcher is mainly concerned with the detailed and critical analysis on the research findings, discussion and interpretation of the same.



PwC` (Uganda) has started to use computers in auditing since 1997. The use of computers emerged following the need to improve efficiency and to get to the bottom of some problems facing them when they applied manual system in audit.

PwC has taken various steps to ensure computerization in audit come into existence.

The steps taken include the following:-

- A team of champions was selected which attended special training.
- Pilot teams were selected and new tool tried on pilot clients
- Results of pilot clients were evaluated.
- The tool was rolled out to all assignments.

To ensure compliance with the system or adoption of some changes in the system, PwC tends to conduct various training to its staffs. Appropriate training is the only solution to make auditors at PwC to cope with changes in computerized audit system.

The following chart shows efficiency of computerization in audit over manual system.

#### COMPUTER AUDIT VS MANUAL AUDIT

	WEAK	SATISFACTORY	GOOD	VERY GOOD	EXCELLENT
Existence of audit trail					•
Speed of action in retrieving required data.					•
Security of data.					•
Application of audit procedures					•
Maintenance of evidence of review.				•	
Efficiency in the review process				•	
Ensuring compliance with required audit standards		•			

Source: ABAS private (audit department)

From the above chart, the following data were obtained and comprehensively analyzed in the following tables:

**Table (A): Existence of Audit Trail**

Mode of answer	Number of persons expected to respond	Number of persons responded	% of persons responded over persons expected to respond.
WEAK	5	NIL	0
SATISFACTORY	5	1	20
GOOD	5	NIL	0
VERY GOOD	5	NIL	0
EXCELLENT	5	4	80

**Source: ABAS private (audit department)**

From the above table (where 80% equals to the researcher significance level i.e. 80%), it has been proved that the transactions in computerized system can be traced from its point of inception to the point of destination “Audit Trail” taking into account the software in use. PwC through its MyClient software can track all the necessary steps in a particular transaction.

The system demands recording of all transactions and supporting documents examined. MyClient is a tool used to manage and execute audit. It has detailed audit programmes to be used in any audit and allow easy documentation, sorting and disposition of issues. MyClient tool is not CAAT, although procedures where necessary can be done outside MyClient and results transferred to MyClient.

The trail is documented in file through:

- Use of programme step section of each step in MyClient File.
- Documentation of work done in the programme step.

The system is highly sophisticated in such a way that, an overlooked step will immediately highlighted and can easily be tracked by the partner or manager who will then request for its execution.

**Table (B): Speed of Action in Retrieving the Required Data**

Mode of Answer	Number of persons expected to respond	Number of persons responded	% of persons responded over persons expected to respond.
WEAK	5	NIL	0
SATISFACTORY	5	NIL	0
GOOD	5	NIL	0
VERY GOOD	5	NIL	0
EXCELLENT	5	5	100

**Source: ABAS private (audit department)**

The use of computers through EDP has made an automatic and quick action in processing of the required data. The researcher has proved this through his observation when he was in the field carrying out the audit, that the auditor can spend about 10 to 15 seconds to get the required file out of thousand of files that has been stored in computer, where it can take him even the whole day to find a certain file that has been manually kept. Auditors can also move with the number of files for different clients in his/her computer (Laptops), this will enable the auditor wherever he is, to settle some queries concerning a particular client to whom he is concerned when he is needed to so do.



**Table (C): Security of Data**

Mode of Answer	Number of persons expected to respond	Number of persons responded	% of persons responded over persons expected to respond.
WEAK	5	NIL	0
SATISFACTORY	5	NIL	0
GOOD	5	1	20
VERY GOOD	5	1	20
EXCELLENT	5	3	60

**Source: ABAS private (audit department)**

At PwC the access to computer is limited to persons having a legitimate mission there in, even the data bases to which some one has to look for have special permission associated with them. These permission attributes are called Access Control List (ACL), which defines who can access which resources. Through this a strong security of data is facilitated.

**Table (D): Application of Audit Procedures**

Mode of Answer	Number of persons expected to respond	Number of persons responded	% of persons responded over persons expected to respond.
WEAK	5	NIL	0
SATISFACTORY	5	NIL	0
GOOD	5	NIL	0
VERY GOOD	5	2	40
EXCELLENT	5	3	60

**Source: ABAS private (audit department)**

There are number of audit procedures which are performed manually but can be performed more accurately within a short period of time when applied in computer system.

For instance; to ensure the continuous effective operation of the automated/IT dependent controls PwC through its GRMS/ SPA specialists uses various techniques to validate the accuracy, completeness and reliance of its client's automated controls.

Furthermore in testing of controls, the extent of testing is different in each of the two cases; that is, large number of items needs to be tested when manual system is applied and few numbers of items are usually tested when automated (computer) controls are used.

**Table (E): Maintenance of Evidence of Reviews**

Mode of Answer	Number of persons expected to respond	Number of persons responded	% of persons responded over persons expected to respond.
WEAK	5	NIL	0
SATISFACTORY	5	NIL	0
GOOD	5	NIL	0
VERY GOOD	5	3	60
EXCELLENT	5	2	40

**Source: ABAS private (audit department)**

In MyClient each electronic working paper requires an electronic signature of the person who did the work and the person who reviewed. Without these two signatures on each working paper the file cannot be closed. Electronic signature here refers to the name of the person, who touches the file that is automatically appears on each working paper.

**Table (F): Efficiency in the Review Process**

Mode of Answer	Number of persons expected to respond	Number of persons responded	% of persons responded over persons expected to respond.
WEAK	5	NIL	0
SATISFACTORY	5	NIL	0
GOOD	5	1	20
VERY GOOD	5	4	80
EXCELLENT	5	NIL	0

**Source: ABAS private (audit department)**

There are various sections in MyClient file, including review section. When partner wants to review the whole assignment, he/she goes direct to this section. In this section, the programme is automatically and within few seconds gives each and every area of the assignment, which has been done by whom, and those areas that have been overlooked or not performed. Through this system partner could then be able to review the whole process within a very short period of time. No one can close the file if there is incomplete assignment.



**Table (G): Ensuring Compliance with Required Audit Standards**

Mode of Answer	Number of persons expected to respond	Number of persons responded	% of persons responded over persons expected to respond.
WEAK	5	NIL	0
SATISFACTORY	5	3	60
GOOD	5	NIL	0
VERY GOOD	5	NIL	0
EXCELLENT	5	2	20

**Source: ABAS private (audit department)**

The system made it easier to comply with international standards on auditing as all mandatory audit steps are “Flagged” and must be completed. If these are not completed the audit file cannot be closed. Flagged standards refer to those mandatory audit standards, which has been inserted with special red Flags so that no person can either delete or overlook them.

#### **4.4.0 Opportunities Obtained from Computerized Audit System**

- The review process has become easier. **Refer table (F)**
- The process of accumulating and disposing audit issues has become easier. . I.e. to review any issues rose from the audit process; partner or manager will go direct to a critical matter section of MyClient file and decide how to deal with the issue.
- The system made it easier to comply with international standard on Audit. **Refer Table (G)**
- Time taken to complete audit has reduced.
- Computerization made easy risk assessment and management of audit risk. PwC is using its global website called Acceptance and Continuous (A&C) tool for risk assessment. The tool has been programmed with the questions pertaining to the

risk assessment, where by an auditor (Partner) are only required to ask and fill in, the response from the prospective client. The system is then producing the answers for the questions filled. Finally the results from the system will enable the partner to accept or reject the engagement.

#### **4.5.0 Problems Facing Auditors in Computerized Audit System**

- The major problem facing auditors at PwC is a risk that, the process become mechanical and people do not put enough thinking on the process but concentrates on “ticking box”.i.e ready made procedures and steps.
- There is a possibility of the system to crash, particularly on individual machines (computers) hence all the information if not replicated in an organization server or saved in another device will lost.
- Sometimes it might be difficult for the team members to exchange data (through wireless link/ inferred) when working on the field as computer used by staffs are of different standards.

## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATION**

#### **5.1.0 INTRODUCTION**

The study was undertaken to meet the primary objective of the researcher in assessing the effective use of computer in auditing. In assessing the effective use of computer in auditing a researcher was basically looking on various applications and procedures that are necessary to be followed during the course of auditing, comparing the same function when undertaken through manual system. By doing so, a researcher was able to establish the gap in terms of efficiency in carrying out the activity (Auditing). To determine whether computers are effectively assisting auditors in their daily operation, the researcher have tried to develop the research questions based on the problem definition and literature review. From the questions developed the relevant information have been collected through various data collection techniques as discussed in chapter three and critically analyzed in chapter four.

#### **5.2.0 CONCLUSION**

After the critical and detailed analysis made on the data collected, the analysis has made clear demonstration that PwC is effectively using computers in auditing through its audit management system (MyClient).

#### **5.3.0 RECOMMENDATIONS TO THE AUDITORS AND MANAGEMENT**

As it has been seen in research findings, problems and challenges, the analysis has led the researcher to recommend the following: -



### **5.3.1 Get rid of Monotony and chancing critical intellectual human thinking**

It has been seen that auditors at PwC concentrates on the ready made audit programmes, although it makes the audit to be more efficiency but steps should be taken to make sure that auditors also have a thorough understanding of all necessary procedures of auditing in their mind instead of concentrating in ‘ticking boxes’, This is due to the fact that sometimes computers fail to execute a certain programme or any of the programmes either due to power failure or crashing of the system. Having a deep knowledge in their mind the auditors could be able to proceed with the auditing, although it will take them much of their time instead of stopping their work just because of power failure, crashing of the system or any of the technical problems.

### **5.3.2 Establishment of an Independent Computer Service Bureau**

Apart from having an IT department which is heavily dealing with the programme set-ups, the Company may possibly be in a better position to maintain most of its crashed computers, and for this reason protecting the auditors from loss of their works and avoiding high cost of frequently buying new computers through maintenance and repairment strategy. To come up with this, the company should make a proper arrangement of having a team of specialist or engineers who are capable of maintaining those computers.

### **5.3.3 Need to have the Same Standard of Computers to all ranks of auditors**

Throughout the study the researcher observed that, there are some problems in exchanging some information between members of the team particularly when they are using wireless link, this is mainly because of using different standards of computers. When auditors are in the field of work find themselves difficult to share their information through inferred which is probably seem to be the best way of exchanging information. Despite of having others a device like floppy drive (Drive A), Flash disks (USB), still the

importance of wireless link has been seen. Flash disks are also good type of storage devices but few of the auditors have managed to have them.

#### **5.4.0 RECOMMENDATIONS FOR FURTHER STUDY**

Due to time, resources constraints and for the sake of detailed study of the subject matter, the researcher has deliberately restrained his investigations solely on the “assessment of effective use of computers in auditing”. The researcher had completely based as a case study of PwC, where it obviously that, there are some number of issues relating to the topic have been left unproved.

For instance; effective use of computers in auditing for other auditing firms like KPMG, Delloite and Touche, Ernst and Young etc.

Due to that fact, the researcher desires to recommend further study of which if accordingly carried out it is anticipated would lend a hand shed more light on the main theme and hence collaborate it further.

## BIBLIOGRAPHY

1. Broom, L.S and Warner P.D (1990) "The CPA Journal Online" Nov ([www.nysscpa.org/cpajournal/old/09624919.htm](http://www.nysscpa.org/cpajournal/old/09624919.htm))
2. Howard, L.R (1978), Principles of Auditing; Macdonald and Evans, London, UK.
3. Meigs, W.B and Meigs, R.F (1982), Principles of Auditing; Richard D. Irwin Inc, USA.
4. Ricchiute, D.N (1982), Auditing Concepts and Standards; South Western Publishing Co, Palo Alto, California, USA.
5. Settler, H.F, (1982), Auditing Principles; 5<sup>th</sup> Ed, Prentice Hall International Inc, London, UK.
6. Saxena, R.G, (2001), Principles and Practice of Auditing; Himalaya Publishing House, Hyderabad, India.
7. Whittington, O and Pany, K, (1998) Principles of Auditing; 12<sup>th</sup> Ed, Irwin/McGraw-Hill, Boston, USA.



# APPENDICES

# QUESTIONNAIRES

Good day!

My name is NSAJIGWA SAMUEL SIMPILU, a student pursuing a bachelor degree of business administration (Accounting) at KAMPALA INTERNATIONAL UNIVERSITY. I am carrying out a research on “AN ASSESSMENT OF EFFECTIVE USE OF COMPUTERS IN AUDITING.”

You have been selected to complete this questionnaire so as to enable the researcher gain a greater insight to the study. Your response will be highly appreciated. This information will be used solely for academic pursuit and not for any other purpose.

## SECTION: A

1. Which post are you holding in the organization

(PwC)?.....  
.....

2. When did you join the organization

(PwC)?.....  
.....

## **SECTION: B**

**INSTRUCTIONS: PLEASE TICK APPROPRATELY.**

**THE FOLLOWING QUESTIONS REQUIRE THE RESPONDENT  
TO SHOW THE EFFICIENCY OF COMPUTERISATION IN  
AUDITING OVER MANUAL SYSTEM.**

**1. Existence of Audit Trail**

WEAK

SATISFACTORY

GOOD

VERY GOOD

EXCELLENT

**2. Speed of action in retrieving the required data**

WEAK

SATISFACTORY

GOOD

VERY GOOD

EXCELLENT

**3. Security of data.**

WEAK

SATISFACTORY

GOOD

VERY GOOD

EXCELLENT

4. Application of Audit procedures

WEAK

SATISFACTORY

GOOD

VERY GOOD

EXCELLENT

5. Maintenance of evidence of review

WEAK

SATISFACTORY

GOOD

VERY GOOD

EXCELLENT

6. Efficiency in the review process

WEAK

SATISFACTORY

GOOD

VERY GOOD

EXCELLENT

7. Ensuring compliance with required Audit Standards.

WEAK

SATISFACTORY

GOOD

VERY GOOD

EXCELLENT



## SECTION: C

**INSTRUCTIONS: PLEASE ANSWER BRIEFLY.**

1. What are the advantages of obtained from computerized audit system?

- i. ....
- ii. ....
- iii. ....
- iv. ....
- v. ....

2. What are the problems facing Auditors in computerized Audit system?

- i. ....
- ii. ....
- iii. ....
- iv. ....
- v. ....