

APPLICATION OF COMPUTER IN AUDITING

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Abstract

The objective of this paper is to provide auditors, captains of industries both at top, middle and lower levels with current information about the application of computer in auditing; especially with the use of Computer Assisted Audit Techniques (CAAT). It is a well known fact today that, there is undoubted computer speed in processing information. Auditors are confronted with wide spread financial information that are complex and heavy but the demand for quick and reliable audited information by owners and other users have become increasingly high, which requires a speedy provisions approach to be able to meet up with the demand. However, for one to have a reliable and sound audited financial information, effective and efficient control system must be in place before, during and after processing. In this paper, I am going to look at what auditing is, why computer in auditing, online information system, the use of CAAT, the computer audit problem, audit approach in a computer audit environment, controls in computer audit environment, audit trails and loss of audit trails.

Introduction

The advent of computer have not in any way changed the auditor's statutory duties and responsibilities. What has changed is the method of keeping accounting records. The auditor is still duty bound to express opinion as to truth and fairness of the financial information under review. It therefore means that the auditor must also move towards this trend.

Auditing Defined

“Auditing is a systematic process of objectively obtaining and evaluating evidence regarding assertions about economic actions and events to ascertain the degree of correspondence between those assertions and established criteria and communicating the results to interested users (Messier, 1999:07)

The auditor must emphasize, in the course of his report, state that:

- i. Whether in the auditor's opinion proper accounting records have been kept by the company. The record must contain
 - a. a record of purchases and sales of goods with sufficient details to identify the goods and their buyers and sellers (except in case of normal retail trade)
 - b. day to day details of receipts and payments of cash.
 - c. details of assets and liabilities
 - d. statements of stock and supporting stock taking schedules
- ii. Whether proper returns as required for audit purposes have been received from branches not visited by him.
- iii. Whether the balance sheet and profit and loss accounts are in agreement with the records

- iv. Whether he has received all information and explanations which he required for purposes of his audit

Computer Auditing Defined

Computer auditing is the systematic process of obtaining and evaluating evidence obtained regarding assertions as contained in a financial information presented by management to a duly appointed auditor, using CAAT so as to ascertain the degree of correspondence between those assertions and communicate the result, as to the truth and Fairness, to the information users.

Advantages of Computer Aided Accounting

The essence of introducing computer into accounting system is the need to adapt to the world economic system, which has speedily grown to a global village. Computerizing the accounting system of a firm has some advantages, which include the following:-

- i. **Speed:-** The computerized accounting system is the fastest way of handling an accounting job.
- ii. **Accuracy:-** Accuracy is one of the advantages derived from computerized auditing/accounting system because it eliminates human errors. If accurate data is inputted without fraudulent intention, accurate result will be obtained.
- iii. **Efficiency:-** It removes the cumbersome process of accounting. Posting the ledger account is a tedious job but when done with computerized accounting system like account modules, it is modified and efficiency is increased. With computer, one can receive a balance sheet, income statement, and international money transfers within the shortest possible time.
- iv. **Facilitation of Sales:-** The point of sales modules in computerized accounting system captured all sales information at (or in place of) the cash register including sales person, date customer, credit information, items and the quantity sold. The system can instantly produce the sales details in the twinkle of an eye.
- v. **Purchasing and Receiving:-** This modules help the account department to generate purchase orders and track their fulfillment.
- vi. **Quick billing process:-** This device reduces manual and clerical work, simplifies the billing process and facilitate prompt billing process.
- vii. **Control over account receivable:-** In computerizing account receivables, the accountant can get the bills out the same day the service is performed. This allows the accountant or financial manager the access and control over cash and cash equivalents.
- viii. **Control over account payables:-** If the account payables are computerized, it will facilities the control of purchase order, invoice processing, payment selection handling, cash requisition, cheque writing and control, forecasting and other accounting controls in an organization.

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ix. **Inventory control:-** The use of inventory module in computer aided accounting system has multiple functions of tracking inventories for costing, tax control, purchase control and minimization of investments in inventories. The speed and accuracy of this process is too far above the manual process.

Audit Approach in a Computerized Environment

The approach to auditing in a computerized environment is not different from the manual approach which includes approaches in terms of:

- Audit planning activities
- Evaluating the system of internal control
- Application of auditing standard and guideline in evaluating information.
- Reach conclusion to express opinion, as to the truth and fairness of the system and financial information.

However, in a computerized environment, the auditor needs to do the following:

System Design:- In conventional audit, the auditor finds out about the clients system but in computerized audit, the auditor must be there right from the design stage when the systems are set up.

Auditing Visit and Timing:- In computerized auditing system, more frequent visit is required because systems and programmes change frequently but this is not the case in manual auditing.

System Review:- Both the manual and computerized audit require systems review but the review is more frequent in computerized system.

Audit Tests:- Audit tests in manual system differ from the computerized system because, manual system relies on controls over individual items while computerized system controls batches of items.

The use of Computer Bureau:- This is a situation where the client sends data to an outside computer bureau for processing. In this case, the auditor obtains his information from the bureau.

Computer Assisted Audits Techniques (CAATs) IAG 16

CAATs are all those auditing procedures and techniques which make use of the computer or the computer programs or the computer data as a means of obtaining audit evidence. With CAAT, efficiently is guarantee over traditional audit; as studies shows in (Singleton, 2006:158) which stated that:

One of the primary issues in a fraud audit (and other types of audits) is the potential efficiency advantage of using CAATs over traditional audit techniques—specifically substantive testing of a sample of the audit trail. With a CAAT, an auditor can evaluate 100% of the data in 100% of the transactions, assuming the data provided are all of the data. With the public, governmental, and business community pressures to look for fraud, it is much easier to do so if an auditor can review 100% of the transactional data efficiently. A second issue is the volume of data and transactions. For example, a 60-gigabyte hard drive can hold the equivalent of over 27 million pages. If they were stacked up, that stack would be 18 times the height of the Washington Monument. How is it possible to examine that volume of paper documents? A review of that set of transactions is humanly possible, or economically feasible, only with a CAAT. There also is the issue of proactive audits versus reactive audits. According to the most recent Association of Certified Fraud Examiners (ACFE) Report to the Nation (2004), over 60% of all frauds are detected either by a tip or accident. That leaves a lot of room for proactive methods. One excellent proactive method is to build an inventory of effective audit procedures (tests) in a CAAT that searches for the existence of specified red flags, such as anomalies (exceptions) or certain characteristics of data. Over time, the audit program could be doing an extensive search of 100% of the data for known red flags. That approach is clearly proactive. And in many, if not most, cases, that is feasible.

In addition, financial auditors must consider the Statement on Auditing Standard (SAS) No. 94, *The Effect of IT on the Auditor's Consideration of Internal Control in a Financial Statement Audit*. This technical literature piece was written in response to the explosive growth of Information Technology (IT). The use of IT significantly changes the methods that firms employ to gather and report financial information. SAS No. 94 provides guidance to financial auditors concerning the proper assessment of internal controls in IT systems. The standard states that CAATs are needed to test the automated controls in those systems. According to the standard, it is not practical or possible to restrict detection risk to an acceptable level by performing only substantive tests." Therefore, SAS No. 94 suggests that financial auditors rely more on analytical procedures, CAATs, and techniques other than substantive tests. The standard provides specific examples and even examples of when it is not appropriate to use CAATs. But, where applicable, the tests of controls required under this SAS are possible with CAATs.

CAAT Methodology

The key elements to CAAT methodology are basically four steps as stated by (Singleton, 2006). These are:

- (1) The auditor needs to choose the appropriate CAAT, and obviously needs to have an adequate level of competence with that tool.

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- (2) The auditor must get all of the appropriate data. Usually the fraud auditor will have to go through the Information Systems (IS) department or personnel in order to get the data files. A word of caution concerning fraud and this process: If someone is involved with a fraud, they can deliberately falsify the data downloaded from the operational system and given to the fraud auditor.
- (3) The auditor must verify that she has the right data and that their integrity is intact. For example, it is possible for the IS person to make a mistake in downloading the data or misunderstand precisely what data need to be downloaded. Since it is critical to have the right data, this step is usually the most important of the steps involved. On a social note, IS people tend to be busy and unresponsive to auditors, especially fraud auditors. It is extremely helpful to become "friends" with the IS personnel, to treat them with courtesy, and so on.
- (4) Then the auditor must import that data into ACL (or another CAAT), which usually is a simple process for the trained person. For example, most systems can export data files as text (also known as ASCII) files. ACL can then read that data in as a text file and create the ACL files using a wizard with little effort on the auditor's part. Many systems can export smaller files as Excel spreadsheets. ACL can read a variety of different file types, including Excel, Comma Separated Value (CSV), Access, and the increasingly popular (for its format compatibility) extensible Markup Language (XML). Hint for importing Excel files into ACL: If auditors use the first row of a spreadsheet to label the column headings and then enter data contiguously beginning on the second row, ACL can read that Excel file easily using its wizard, even establishing the column headings and data types.

Uses of CAAT

1. To ascertain the correctness of program processing procedures;
2. To ascertain the existence and effectiveness of program control;
3. To examine transactions and balances on computer files and select exceptional items for further audit testing. For example, to review the stock files and select slow moving stock items for further audit examination.
4. To stratify transactions and balances on computer files for audit purposes. For example to age debtor's balances or stratify debtors balances into various brackets e.g. the balances below N5,000, N5,001- N10,000 and above N10,000.
5. To select transactions and, balances on a random basis from computer file for the purposes of audit testing;
6. To match the contents of two computer files in order to identify unmatched

Items for audit purposes, e.g. to compare the contents of the Gaels Delivery Note (GDN) file and invoices file so as to identify goods delivered, but not yet invoiced and invoices unsupported by delivery notes.

7. To copy the content of computer files for audit testing e.g. they can be used to download (copy) the clients file for testing in a different computer installation;
8. To print/display on screen transactions and balances on computer files for audit purposes.
9. To sort the content of the clients file into an order appropriate for audit purposes;
10. To perform calculation including analytical review on transactions and balances contained in the clients files.

Merits

1. They enable the auditor to overcome problems caused by loss or change in Audit Trail (AT) where accounting systems are computerized;
2. They enhance the effectiveness of the audit e.g. by enabling the auditor to examine large volume of transaction and balance in totality and on a constant basis.
3. They enhance the efficiency of the audit in various ways including saving in the time required to perform audit test.
4. Low running costs of most CAATs

Factors to Consider When Using CAATs

1. Skill and experience of the auditor;
2. Cost of using, CAATs relative to the use of conventional procedure;
3. Availability of the CAATs;
4. Availability of computer time;
5. Impracticability of manual test.

Types of CAATs

1. Test Data Packs

These are selected items, of transactions data with predetermined result. During audit testing, the test data are processed using the clients application program and the result or output generated is reconciled to the predetermined result as a basis for ascertaining whether the program processing procedures are correct and logical and can be relied upon to generate adequate balances. Often during the test, errors made intentionally be included in the test data so as to determine whether adequate program checks or control exist, to prevent/detect such errors if they occurred in practice.

Uses Test Data Packs

- a. To ascertain the correctness of program processing procedures:
- b. To ascertain the existence and effectiveness of program controls,

Principles to be Adhered to

- a. The test data should be processed in the presence of the auditor;
- b. The test should be carried out under clients normal data processing condition;
- c. When testing, for the existence and effectiveness of program control emphasis should be on normal error conditions;
- d. The result of the test should be carefully analyzed as a basis for planning the nature and extent of the substantive test to be performed.

Merits

- a. Low setup cost;
- b. Once set up, they can be used from one audit period to another until there is a significant modification in the clients system;
- c. The test can be varied;
- d. Low annual running cost.

Demerits

- a. Computer knowledge and experience are required;
- b. A more detailed knowledge of the clients accounting application is required;
- c. The test data may erroneously update the clients file.

2. Computer Audit Programs

These are computer software's used by auditors when auditing within an EDP based accounting environment to examine and perform tests on transactions and balances contained in Computer files.

It is important to note that these programs are not necessarily written for the purpose of performing audit test. Accordingly, computer audit programs are used by auditors for baudit purposes whether or not specially written for those purposes. As a result of their broad functions, those programs are generally referred to as file interrogation programs or information retrieval programs.

Computer Audit Programs include the Following

i. Computer Audit Packages:- These are generalized computer audit programs usually full by Software houses. These program are recommended by their low acquisition cost, ease of implementations, accessibility' to expert advice and availability of training programs from independent consultant at low costs. One major demerits of these programs is the mobility to use most of them in a small computer installation as they are usually written for large computer environment.

ii. Clients Installed File Interrogation Program: These are programs installed by the client within the system to enable the management and staff examines their contents of computer files. Auditors may use such programs during the audit.

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A major advantage of their use is that no additional cost is involved. The auditor must however verify the integrity of the programs before use.

iii. Utility Programs:- These are generalize program used within an EDP environment to perform routine data processing task-s such as sorting, copying, printing, dumping etc.

Auditor may use such program during their audit for performing' audit test. They involve no additional cost.

Purpose Written Computer Audit Programs:- These are programs written by the auditor or for the audit specially for a client assignment. They meet the auditors specific requirement they are not generalized. They are however expensive to develop and this may affect the efficiency of the audit.

Uses:

- i. To examine transactions and balances on computer files and select exceptional items for further audit testing. For example to review the stock files and select slow moving stock items for further audit examination.
- ii. To stratify transactions and balances on computer files for audit purposes. For example to age debtors balances or stratify debtors balance into' various brackets e.g. the balances below. N5,000, N5,001 - N10,000 and above N10,000
- iii. To select transactions and balances on a random basis from the computer file for the purposes of audit testing;
- iv. To match the, contents of two computer file in order to identify unmatched items for audit purposes, e.g. to compare the contents of the Goods Delivery Note (GDN) the and invoices file so as to identify goods delivered but not yet invoiced and invoices unsuspected by delivery notes.
- v. To copy the content of computer files for audit testing e.g. they can be used to download (copy) the clients file for testing in a different computer installation;
- vi. To print/display on screen transactions and balances on computer files for audit purposes.
- vii. To sort the content of the clients file into an order appropriate for audit t purposes;
- viii. To perform calculation including analytical review on transactions and balances contained in. the clients files,

Merit

- i. They enable the auditor to overcome the problem caused by the electronic storage of transactions and balances in computer file (loss in audit trail):
- ii. They enhance the efficiency of the audit by enabling tile auditor to examine large volume of transactions and balances on computer files within a short period of time (Time Saving);

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- iii. They enhance the effectiveness of the audit by enabling the auditor to examine large volume of items on a 100% basis without random errors;
- iv. Once developed, they can be used from one audit period to another until there is a significant change in the clients system;
- v. The annual running cost is low.

Demerits

- i. Computer knowledge and special skill are required,
- ii. A greater knowledge of the clients accounting application is required;
- iii. It may be difficult to obtain computer time for purposes of the test;
- iv. In the case of purpose written computer audit programs the cost development is high;
- iv. Computer audit packages are often not developed for micro-up installation.

3. Program Code Examination

This technique involves the critical examination of the source program version of the clients applications program in order to draw into conclusions as to whether it is logical and can be relied upon to generate reliable information for inclusion in the Accounts and financial statements.

The source programs are usually written in low level or high level programming languages; consequently, this technique demands knowledge of programming languages, Care must be taken when using these techniques to ensure that source program examined is t he correct version of the clients application programe.

4. Snapshot

These are photographs of the computer memory taken during the execution program instruction. A series of such a snapshots will enable the auditor ascertain the process procedures which takes place within the computer, An examination of the snapshots often provides the auditor with evidence as to correctness of the program processing procedure.

5. Tracing Software

This technique involves the use of a software (Tracing Software) to examine sequence in which program instructions are executed by the computer during processing. Such examination will produce evidence which will enable the auditor to draw conclusion as to whether the program instructions are correct and logical.

6. Flowcharting

This technique involves the use of software to generate a flowchart version of the clients application program. An examination of the flowchart will enable the auditor arrive at a conclusion as to whether the program instruction are

correct and logical. This technique demands a knowledge of flowcharting principles and techniques,

7. **Systems Program Data Analysis**

This involves the examinations of computer log produced by system programs such as the 'operating system or the database management system. Such examination matters of audit significance for the auditor follow-up action, for example the computer log may indicate amendments to computer programs during the period

This information will assist the auditor to plan and execute a program or compliance test to determine whether:-

- a. The program amendment was properly authorized
- b. The program was properly tested before implementation
- c. The program specification was updated to take account of the amendment.

Embedded Audit Facilities

These are generally computer audit program and records integrated with the clients accounting application and use by the auditor for the performance of compliance and Substantive procedures. There are 2 basic types viz.

- a. Integrated Test Facilities (ITF);
- b. Systems Control And Review File,(SCARF),
- a. **Integrated Test Facilities (ITF):** ITF involves the integration of dummy records within the clients applications file. During the audit test the result of processing test data are posted to the dummy records and printed out for the auditors subsequent review.

The use of ITF avoids the need for special computer time when processing test data. As a result of this the auditor can process data on a surprise basis

- b. System Control and Review File (SCARF):- SCARF on the other hand involves the integration of a computer audit program within the clients accounting application in such a way that every data processed is automatically and simultaneously examined by the program. The use of SCARF reduces the problem of loss of audit trail. Exceptional items of data identified by the program are recorded in a special file for the auditor's subsequent review. Care must be taken to ensure that the program is not tampered with by the clients staff.

Problems of Computer Audit

The problem usually encounter in a Computer Audit otherwise known as EDP audit are as follows:

- (i) There is problem of loss of audit trail.
- (ii) There is problem of records being found in an invisible facility in computer hardware.

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- (iii) Data are usually stored in back ups, like disc and tapes which are fragile and brittle, hence data can easily be lost due to this breakage, corruption through virus etc.
- (iv) There may be no segregation of duties as, for instance, sales, purchase, stock and all accounting information are processed and stored together in EDP department.
- (v) There is possible problems of progress and files insecurity when controls are absent.

Audit Trail

Audit trail is a system that involve tracing of individual transaction from its source to final completion or resting place or vice versa. This is so when Parter W. T (1966:03) stated that “audit trail consists of documents, journals, ledgers and worksheets that enable an auditor to trail an original transaction forward to a summarized total or from a summarized total backward to the original transaction” It is needed for proper running of organisation business. It is the visible trace of the transaction that matters.

However, losses or change in traditional audit trails are encountered increasingly in the more advanced computer applications.

The instances where conventional audit test cannot be carried out occur mainly in:

- a. Testing computer generated totals, analysis and balances when details are not printed out;
- b. Testing the completeness of output where there are no control totals (e.g. exception reporting).

Frequently, computer generated totals, analysis, and balances are not printed out in details because management is not exercising control through verification of individual transaction or items processed.

There is therefore a loss of audit trail.

Loss of Audit Trail

Loss of audit trail mean a situation where the tangible and visible trace of transaction from its source to its final process or resting place cannot be been completed.

Audit trail is required by auditor in order to assume himself that proper recording of transaction have been made at each stage off the transaction, as Parter W T (1966:03) put that “audit trail is essential to the auditor in tracing the systematic flow of data within a company.

The documentary evidence of controls in a manual system and other supporting documents can always provide tangible or visible audit tails which is not always present in computer installations.

To overcome this problem, the auditor must make sure that:

- i. Special print out of additional information are made out to him. This requires additional part of a program, which will be activated at the auditor's request.
- ii. Programmed interrogation facilities must be provided, whereby records are held on magnetic or card files are printed out on a selective basis by means of direct requisite to that file. In essence, file dimpling facility must be provided.
- iii. Clerical re-creation (e.g. to verify a sales total when no detailed lists have been printed out this copy invoices might be add-listed and the total thereof compared with the computer totals. In this the auditor should advice client at the implementation stage to ensure that consideration is given to providing visible audit trail of transactions.
- iv. Auditor use of computer assisted audit techniques e.g. test data and audit software to test processing controls.

Audit Round the Computer

This is system which auditors adopt when face with problem of audit of computer system. In the audit Round The Computer.

The auditor will ignore the processing which will take place within the computer programme and concentrate on initial **Input** and final **output**, usually on a selective or sampling basis. The auditor checks the validity of input and that it is clerically controlled in battues, correctly coded and property authorised. The final output will be compared in detail with the sourced documents and clerical control totals as a means of checking accurate processing.

Audit through the Computer

This approach adopt the procedures in the "audit round the computer" described above but it goes further to test the computers own processing to ensure:

- i. All input finds it way to the machine
- ii. No processing error occur in the computer
- iii. Computer operator don't cause processing errors.
- iv. Controls in the computer programmes are operating as effectively as they are supposed to.

Obviously the auditing through the computer will be preferable from the point of view of: Thoroughness of audit processing However, it will require:-

- i. Computer skill and understanding of the main programme and application
- ii. A considerable amount of time and in sources will also be required to carry out the audit.
- iii. Additional clerical work's required

Controls in an EDP environment

There are basically two major controls in an EDP environment viz:

- (i) General organizational or Environment
- (ii) Application or system.

1. General Control

This is control to ensure proper acquisition, custody and maintenance of computer. It is made up of:

- * Administrative Control
- * System Development Control

Administrative Control

This is made up of

- * Segregation of duties,
- * Control over computer operations,
- * File control,
- * Fire precaution, and
- Back up routine

2. System Development or Implementation Controls Development.

This starts from the system design stage to successful use of the system and consideration of possible changes where possible, from old system to new ones.

Application or Procedural Control

This control is summed up under input controls, processing control and output controls.

Input Control: This control is to ensure that
All data (input) to be processed are authorized
All changes to input should be controlled
Accuracy of input is ensured and
Input data are complete

Control Over Processing: this is to ensure that

- Validation of data control through vetting or editing of data
- Parity codes check (i.e. O or I). the code is meant to maintain consistency.
- Data input should not fall below a given time
- Master files must be matched with the input data.
- There must be sequence check to ensure seriality of data
- Format check to ensure correct unit are used

Output control

This control is to ensure accurate output is realized and protection against unauthorized access, the control could be:

- Use of password to secure assess
- Proper storage of output data whether on line or off line

- Ensure correct distribution of data output.

Conclusion

There is no doubt that the use of computer in accounting has immensely contributed to the speedy preparation and presentation of financial statement, which is the raw data for computer auditing activities. Considering the fact that timely information is what the investors, managers and other financial information user for speedy decision making requires, all over the glob. The use of CAAT speeds up this report. The globalization of this report through the use of computer meet up this standard. Indeed, the world has become a global village.

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