A REVIEW OF MODERN APPROACH TO COMPUTER AUDITING

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Abstract

The auditor, today, will find computer technology not only relevant but almost indispensable if he is to catch up with modern trend in the profession. The ability. Of the auditor to give a true and fair opinion on the financial statement is the hallmark of the profession.

In order to discharge his duties with integrity, various sorts of financial data will have to be gathered, assessed and evaluated. It should be possible for the data to be easily or readily located, and the evaluation or judgment to be made within the ethics and contention of the profession.

Areas to cover in the paper include the following:

- Concept of Computer Auditing
- Controls in EDP environment
- Approach to Computer Audit
- Computer Assisted Audit
- Techniques (CAAT).
  - Generalized Computer Software
  - Computer Code Analyses/Program
  - Auditing
  - Snapshots Integrated Audit Monitors
  - Tagging
  - The 'Cusum' Technique
  - Parallel Simulation and Normative Auditing
  - Trace Routines and Mapping.

Introduction

Concept of Computer

Computer auditing can be described as simply auditing in a computer environment with reference to the programmed controls carried out by Computer applications and the manual controls exercised by the users.

To achieve Computer Auditing, there must be two levels of controls:

- **Program Controls**

These are the controls built into the application programs such as payroll programmes of edit, update, etc which monitors the processing activities of the system and ensure that the data integrity is maintained.

- **Manual Administrative Controls**

These are controls instituted during the development state, which define the method of activities within the computer environment to ensure that information is only available to the authorized users only.

Computer auditing also involves the monitoring of these controls and the periodic expression of opinions on how the activities function.

Computer usage by auditors can be looked into from different perspectives e.g. that an auditor uses the computer as an aid to his work such as the provision of test data or that the auditor actually looks into the working of a Financial Computer environment and makes up his opinion as to the correctness, effectiveness and efficiency of the result of operations.

Auditors therefore need to either specialize in systems support techniques or need at least an ability to work to systems support specialist in their own technical language.

Auditors often perform financial audits. But they may also be called to do special investigations, fraud detectives, efficiency audits and exercises to ensure that set standards and normal

procedures are complied with.

A good volume of computer auditing is the function of Internal Auditors. Reliance on the work of internal auditors will make external auditors to give a positive opinion to the computer operation. However, external auditors must take a compliance test of controls in EDP environments.

Controls in EDP Environment

Controls in EDP environments are mainly internal controls situated by management to provide proper processing of functions of the data processing department. The controls in EDP environments are of two broad forms, namely:

- General or Organizational Controls
- Application or Procedural Controls

The general or organizational controls involve the following administrative controls:

- Segregation of duties.
- Control over operation.
- File controls.
- Fire precaution, backup procedures and stand by provision.

They also involve systems development controls such as:

- Establishment & review of Systems development standards.
- Authorization and approval of works to be done.
- File conversion controls.
- System * Programme testing documentation.

The application or Procedural Controls are controls under the influence of programmes developed for various applications and they involves controls in the following areas of operations:

- Input
- Input conversion
- Processing
- Output
- File Maintenance

For each of these controls, the overall objective is to ensure that the information obtained from a computer processing is complete, sufficient and reliable.

The duty of the Auditor, internal or external, is to ensure that these controls exist and that they are being used in the day-to-day operation of the organization.

The Auditor looks into the work of Computer audit from two perspectives depending on what he thinks the tool “the computer” is all about.

Approach to Computer Audit

Part of the application or Procedural Controls in EDP environment is the processing control. This is the control due to the processing functions of the computer. The auditor’s consideration of the processing activities within the computer systems is of two forms, namely:

In “Round the computer approach”, the Auditor considers the computer as a black box and does not concern himself with the internal working of the computer. Evidence regarding the completeness, accuracy and validity of processing is obtained by a reconciliation of Computer output with input and ensuring that controls of input and output are working accordingly.

“Round the computer Audit Approach” is more applicable where the volume of data is small and well organized, output from the computer more detailed and can be correlated with input and there is no serious complexity in the calculation and manipulation of information.

In “Through the Computer Audit Approach” the computer is not regarded as a black box and the auditor does not only reconcile input to output but he carries services of programmes processing procedures which take place within the Computer as a basis for reaching conclusion regarding the validity, completeness and accuracy of processing.

This approach requires that the auditor should be conversant with the working of the

computer and how the computer can help us facilitate this work. Because of the modern trend in computer technology e.g. Terminal microcomputers, etc, it is the recommended approach.

As the complexity of information processing increases and the volume of data also increases, the need for the auditor to develop techniques to assist him in his audit becomes relevant. He does not have to limit his option to the approach to use but looks for aids to use no matter the approach, especially now that information technology has developed into new trends.

Computer Assisted Audit Techniques (CAAT)

Computer Assisted Audit Techniques (CAAT) are techniques used by the auditors to meet the challenging changes in computer development. They refer to all those audit procedures, which make use of computer programmes, computer data and other computer facilities. New trends in computer auditing mainly involved improvements and usage of the CAATS.

CAATS can be subdivided into those techniques, which are used to review real (productive) data and those which are used to controls. The division is perfect as the former can also, by implication, tell the auditor a lot about the latter and vice versa.

CAATS are used

- To overcome problems that may be caused by changes or losses in audit trail.
- To ensure that the audit is carried out in a more efficient and effective manner.

CAATS includes the following

(i) Generalized Computer Software.
(ii) Computer Code Analyses/Programme Auditing
(iii) Snapshots
(iv) Integrated Audit Monitor

All these techniques assist the auditor to make up his opinion on the validity, Accuracy and correctness of the systems environment.

Generalized Computer Software

These are software packages e.g. Utility programmes which may be found useful by the auditor, even though it was not written with the auditor in mind. Auditors do find them useful in the examinations of real data as well as facilitating file handling and interrogation of files. Examples are:

(i) File interrogation package, which the auditor can use to access files as if an audit enquiry package is in use.
(ii) The Data Base Management System (DBMS) which can be used to 'front-end' with the auditor's computer audit enquiry package, in order to supply data and format it in a way that can be handled by the audit enquiry package.

Generalized computer software can also be used to assist the auditor in his review of the system particularly, systems controls.

Computer Code Analyses/Programme Auditing

This technique involves review of the programme logic in order to determine their correctness. It demands an understanding of programming and principles of programming by the Auditor.

As the programme listing of the programme is about the closest an auditor can get to in a computerized system, the techniques attracts systems auditors who are desirous to review the actual system. However, the auditor who is looking at what the system actually does so it is essential that the auditor take all reasonable steps to satisfy himself that he is reviewing the operational version of the programmes. The auditor must assure that the source programme under review is actually the programme used for processing.

Snapshots

This is a part of the technique used to review the systems performances. It entails the photographing of the computer memory using specialized devices, during the execution of programmes. A series of such photographs will enable the auditor to recreate the sequence of

programme procedure in order to carry out an analysis regarding the correctness. It is a technique that requires an advanced technical facility and knowledge to interpret the result of the analysis.

Integrated Audit Monitor

This is a module of Computer programmes which is built into the operational system either temporarily or permanently and is used either occasionally or continuously for audit purposes. It is either a separate programme built into a computer application or a part of an application programme.

The technique allows the auditor to do some of his work at the time that the data is being processed or very shortly afterwards. It is suitable where audit trail is deficient such that historical audit work is difficult. It can be designed to print out reports of audit interest for subsequent review.

It is a useful technique in a distributed system with online as well as real time systems as it can be used for continuous monitoring of transactions passing through the system. The technique is commonly used to achieve three audit requirements.

- To gather and store information relating to transactions which are available at the time of processing, for subsequent audit review to determine correctness.
- To check at integrity of files which are being processed.
- To spot and record for subsequent audit attention any items which are usual or of special audit interest.

Tagging

The procedure of tagging in auditing is more suitable for online, real-time systems using a database. It involves the incorporation of a single character field to the system at the design stage. This field may be activated by an auditor's tag. The activation may occur due to the request of the auditor who must have selected that entry for further investigation or at the working of the internal control systems which must have noticed the entry as an aberration from the norm.

When an active flag or tag is selected, the system will list them out for the attention of the operators of the system. The audit team will subsequently investigate the cause of the flagging.

It is an expensive system, as it needs the use of extra design concept for the software in use.

Tagging procedure will be better if it is incorporated into the operating system, as very few professionals are capable of tampering with operating systems. This will give the auditor's technique a measure of protection from unauthorized scrutiny or amendment.

The 'Cusum' Technique

The word "Cusum" is derived from cumulative sum. The technique involves the auditor's usage of his own incorporated routines to accumulate cumulative sums or moving averages relating to the occurrence of particular conditions during processing, such as significant variances from regular practice. Examples of usage of his own incorporated routines to accumulate cumulative sums or moving averages relating to the occurrence of particular conditions during processing, such as significant variances from regular practice. Examples of usage of Cusum Technique are in the areas of:

- The incidence of specified processing conditions.
- The nature of output e.g. average number of lines per document.
- The inconsistency of related data items.

Parallel Simulation and Normative Auditing

This method involves the development of models of applications to be audited under the control of the auditors, the model is computerized and contains the features of the application systems from the auditor's viewpoint.

The live data is used to run the auditor's model as well as the real version of the system. The auditor compares the result of the model and the operational version and prepares his report, which may expose differences which may have to be further tested. Usually, the auditor's model reflects the norm of standard of operation upon which the operational system is tested, hence the reference to the method as normative.

The method test both the current operation of specific programmes and programmes controls

and verifies specific values included in computer records.

Trace Routines and Mapping

Tracing technique is the approach used in programming at the initial programme development stage to debug programmes where the reason for error is apparent whereas mapping tends to detect coding instructions, which were not active at the processing state.

Auditors use Tracing Routine to establish the sequence in which programmes instructions are executed within the CPU. They are also used to debug programmes in order to locate progamme errors.

Auditors use the mapping technique to detect programme codes, which are not executed during processing thereby determining the reasons for their not being executed; either they are logically bypassed or they are planted for subsequent activation.

Awareness of such redundant codes will enable the auditor carry out an assessment regarding their effects on the completeness, accuracy and validity of processing.

Conclusion

Auditing in a computer environment, especially at the current level of information technology, requires a full knowledge of Computer studies and auditing procedures, Auditors should not "Audit Round" the computer again. A 'Through' the Computer Technique therefore requires the knowledge of the workings of the computer, especially, the modern trend of Online, Real time and Databases which require advance knowledge of the techniques of suitable auditing approach.

The paper has attempted to provide the list of procedures, which are available for auditing Through the Computer. More developments are still being conceptualized to improve Auditing of Computer environment.

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