CAAT

Computer Assisted Audit Techniques (CAATs) is the tool which is used by the auditors. CAATs can be used by both IT or financial auditors in a variety of ways to evaluate the integrity of an application, determine compliance with procedures, and continuously monitor processing results. IT auditors, for instance, review applications to gain an understanding of the controls in place to ensure the accuracy and completeness of the information generated. Automated techniques have proven to be better than manual techniques when confronted with large volumes of information. The auditor, by using automated techniques, can evaluate greater volumes of data and quickly perform analysis on data to gather a broader view of a process. Common CAATs like ACL and Interactive Data Extraction and Analysis (IDEA) can be used to select a sample, analyze the characteristics of a data file, identify trends in data, and evaluate data integrity. Other techniques used for analyzing data include, for example, Microsoft Access and Microsoft Excel. Microsoft Access can be used to analyze data, create reports, and query data files. Microsoft Excel also analyzes data, generates samples, creates graphs, and performs regression or trend analysis. SAP Audit Management (part of the SAP Assurance and Compliance Software that comes encapsulated with SAP GRC) also streamlines the auditing process by providing cost effective alternatives to spreadsheets and manual tools.

CAATs for Sampling

Some audit techniques assist in defining sample size and selecting the sample. For example, ACL automatically calculates the sample size and selects a sample from a population. Spreadsheet applications also generate random numbers for selecting a sample. There are two types of sampling techniques:

- Judgmental sampling: The sample selected is based on the auditor's knowledge and experience. The judgment may be to select a specific block of time, geographic region, or function.
- Statistical sampling: The sample is randomly selected and evaluated through the application of the probability theory.

Both methods allow the auditor to project to the population. However, only statistical sampling allows the auditor to quantify the risk that the sample is not representative of the population. The specific method selected for a sample will depend on the audit objectives and the characteristics of the population. The appropriateness of the method selected should be reviewed for validity

purposes by statistical or actuarial staff with expertise in this area. Also, the applied sampling method should be revisited and reassessed over time to see if there is any change to the characteristics or attributes of the population under review. Two common statistical sampling methods are: Random Attribute Sampling and Variable Sampling.

Random attribute sampling is a statistical technique that tests for specific, predefined attributes of transactions selected on a random basis from a file. Attributes for which such testing is done could include signatures, account distribution, documentation, and compliance with policies and procedures.

Variable sampling is another statistical technique that estimates the dollar value of a population or some other quantifiable characteristic.

CAATs for Application Reviews

There is a variety of CAATs that are useful when auditing applications and data integrity. An example of such techniques includes generalized audit software. Generalized audit software can be used to analyze spreadsheet logic and calculations for accuracy and completeness, evaluate data produced from applications (residing in databases), and produce logical data flowcharts, among others. In auditing databases, for example, techniques related to data mining can search "through large amounts of computerized data to find useful patterns or trends."*

Data mining techniques help analyzing data from different perspectives and summarizing it into useful information. Another related example include data analytics (DA), or procedures to examine raw data in order to draw conclusions. DA is used in many industries to allow for better decision making, and in science to verify or disprove existing models or theories.†

DA differentiates from data mining by the scope, purpose, and focus of the analysis. Data mining sorts through huge amounts of data using sophisticated software in order to identify undiscovered patterns and establish hidden relationships. DA, on the other hand, focuses on the process of deriving a conclusion (or inferring) based solely on what is already known.

Generalized audit software makes it possible to perform required functions directly on application files as it uses auditor-supplied specifications to generate a program that performs audit

functions. Financial auditors, for example, use generalized audit software to:

- Analyze and compare files
- Select specific records for examination
- Conduct random samples
- Validate calculations
- Prepare confirmation letters
- Analyze aging of transaction files

IT auditors also use these software techniques for testing and/or documentation of selected processes within the IT environment in the form of flowcharts, and data flow diagrams, for instance.

Generalized audit software allow IT auditors to evaluate application controls as well as query and analyze computerized data for substantive audit tests, among others. Some of the most popular software packages include Audit Analytics by Arbutus Software, TopCAATs, CaseWare Analytics IDEA Data Analysis, Easy2Analyse, TeamMate, and ACL. These are all virtually similar in regards to functionality. The ACL software package is described below as an example of what these techniques can do.

CAATs for Auditing Application Controls

When auditing application controls, auditors examine input, processing, and output controls specific to the application. Application controls are also referred to as “automated controls.” Automated input controls validate the data entered in the system, and minimize the chances for errors and omissions. Examples of input controls include checking for: characters in a field; appropriate positive/negative signs; amounts against fixed/limited values; amounts against lower and upper limits; data size; and data completeness, among others. Processing controls are those controls that prevent, detect, and/or correct errors while processing. Examples of processing controls include matching data before actions take place (e.g., matching invoice amount against purchase order and receiving report, etc.), recalculating batch totals, cross-footing data to verify accuracy of calculations, and ensuring that only the correct and most updated files are used. Output controls detect errors after processing is completed. Examples of output controls include performing report data reconciliations (e.g., general ledger with subsidiary ledgers, etc.), reviewing reports for accuracy and completeness (e.g., performing comparisons of key data field, checks for missing information, etc.), and protecting the transfer of data to

ensure data are being transmitted completely and adequately (e.g., encryption, etc.).

CAATs come very handy to the auditor when evaluating application controls related to the processing of transactions. As described above, controls regarding the processing of transactions are concerned with the accuracy, completeness, validity, and authorization of the data captured, entered, processed, stored, transmitted, and reported. Auditors typically work with organizationor client-provided spreadsheets and/or databases when performing their procedures. Application controls found on spreadsheets and/or databases that are commonly tested by auditors include checking for mathematical accuracy of records, validating data input, and performing numerical sequence checks, among others. Auditors must ensure these types of controls are effectively implemented to ensure accurate results.