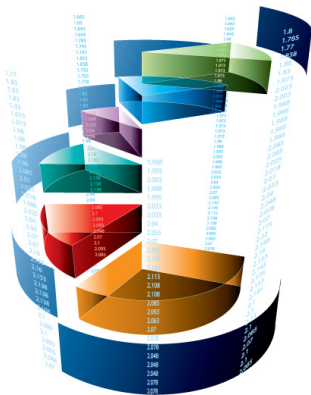


# The Mechanics of Analysis for Fraud Detection

## Part II: Data Analysis Techniques

According to the Association of Certified Fraud Examiners' (ACFE) *2008 Report to the Nation on Occupational Fraud and Abuse*, fraud loss represents 7% of an organization's annual revenue. Another ACFE study found that 46% of detected frauds occurred because of insufficient controls. An additional 40% exploited situations where controls were ignored.



In Part I of this article we discussed the importance of data access for fraud detection. In Part II of this article, we'll discuss what you do with this data to reduce profit bleeding and recover hard dollars.

Audit analytics refers to data analysis technology designed for audit and fraud detection purposes. The primary reason audit analytics is used for fraud detection is because a lot of internal control systems have control weaknesses. To effectively test and monitor internal controls, organizations need to look at all the transactions that roll through them and test transactions against

established parameters, across applications, across systems, from dissimilar applications and data sources. A lot of internal control systems cannot handle this.

Since internal control systems generally have some weaknesses that can either be exploited or circumvented, you need to look at 100% of transactions. You need to compare data from different applications and systems and look for matches that occur that should not be there. Or look for duplicate entries in the transactions that are indicative of fraudulent activity or perhaps just inefficiencies. You also need to automate high-risk areas so you can catch fraud as it occurs before it escalates.

What about sampling? While sampling is required for some mandated processes, it may not be sufficient for comprehensive controls testing. Some things to consider:

- Sampling is **not** able to fully quantify the impact of control failures, it is only able to estimate errors within a population
- Sampling may miss many smaller anomalies, anomalies that could point to weaknesses that may later be exploited causing a material breach
- Fraud is not representative in a sample, so if you want to proactively look for fraud, you need to review **all** transactions
- The need is to get the complete picture of potential anomalies, and sampling does not do this

Another key aspect of audit analytics is the ability for the technology to maintain comprehensive logs of all activities performed. If you find fraud, you will need proof of what you did to uncover the fraudulent activity. The proof has to be specific and detailed enough to stand up to further investigation and even prosecution. That is why the Association of Certified Fraud Examiners, the Institute of Internal Auditors, and the American Institute of Certified Public Accountants all advocate the use of data analysis technologies to assist in fraud detection.

So what are some of the specific analytic techniques that can be used for fraud detection? Following are some examples:

- Calculation of **statistical parameters** such as averages, standard deviations, and highest and lowest values to identify statistical anomalies
- **Classifications** to find patterns and associations among groups of data to identify trends and anomalies
- **Stratifications** of numeric values to identify unusual and outlying values such as low interest rates or service fees
- **Digital analysis**, using Benford's Law, to identify fake amounts
- Joining or **matching data** to identify ghost employees, employee/vendor fraud, and system breakdowns
- **Duplicates** testing that identifies both simple or complex patterns
- **Gaps** testing that identifies missing invoices or checks
- **Graphing** to provide visual identification of anomalous transactions, such as manual journal entries at unusual times or on weekends

Audit analytics has been around for 20 years and is a proven and effective tool in fighting fraud and monitoring the effectiveness of internal controls to identify fraud risk.

For more detailed information on how you can use audit analytics to implement a robust fraud detection program at your organization, visit [www.acl.com/webinars](http://www.acl.com/webinars) and listen to an on-demand webinar on Fraud Detection.