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The Changing Landscape and Evolution of the Forensic Accounting Profession: *Digital Analysis Technology*

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The following excerpt is from an article that was published in the August/September 2020 issue of the *Financial Valuation and Litigation Expert*.

Previously, this series discussed the evolution of the forensic accounting profession and two of the three investigative techniques modern-day forensic accounts should be well versed in. The final part of this series will discuss the importance of digital analysis technology. Due to the great and consistent growth in detail-oriented technology, forensic accountants are offered a wide variety of computer-based techniques to help them look deeper. The patterns and deviations in data that may not be detected by the human eye can now be deciphered and recognized quickly by utilizing these techniques.

When analyzing numbers as part of an investigation, the old method of using a mix of a little statistics, a little sampling, and a little professional judgment is not good enough in today's environment. We have all heard the expression "the devil is often in the details," or in the forensic accountant's case, the data.

As companies continued to grow and become more complex, fraudulent activities were more difficult to detect without the help of sophisticated analytical tools. The concept of digital analysis became practical when computers became commonplace. Digital analysis is an innovative method of analyzing groupings of data in an effort to identify numbers within data sets that have non-conforming patterns and deviations. This technology allows the forensic accountant to implement many computer-related applications to cost-effectively perform an unbiased financial forensic investigation on 100 percent of the information within a database, permitting conclusions to be drawn about the results.

These computer-based techniques allow forensic accountants to isolate and focus on target groups of data, in search of deviations that might signal accounting errors, invented numbers, biases, or other irregularities in the data set. By deploying digital analysis techniques, professional judgment, and investigative skills, forensic accountants can work smarter and more efficiently during their investigations.

This technological advance has transformed the manual paper trail examination into a powerful,

multi-faceted investigation, and in a fraction of the time. Some techniques available to the forensic accountant include:

1. Benford's Law
2. Link analysis
3. Gap analysis
4. The duplicate numbers test
5. The rounded numbers test

Benford's Law

One of the most popular digital analysis procedures is an investigative technique known as Benford's Law. It is based on a mathematical law that there are expected frequencies or occurrences of digits in a list or data set that was randomly generated, such as in a general ledger. This technique, which was first identified in the late 1880s by an astronomer and mathematician named Simon Newcomb, was developed by Frank Benford in the 1920s when he was a physicist for the General Electric Company.

Benford's Law provides a unique approach to data analysis, allowing the forensic accountant to identify non-conforming, abnormal number patterns as it applies to a company's accounting records. Our number system uses the digits 0 through 9 and Benford's Law was able to empirically demonstrate that in a large data set, the probabilities for the distribution of digit occurrences would follow an expected digital frequency.

Therefore, Benford concluded that numbers beginning with 1 will occur more frequently than numbers beginning with 2, and numbers beginning with 2 will occur more frequently than numbers beginning with 3, and so forth.¹ Applying Benford's Law, the expected proportion of numbers in a large data set with the first digit being 1 is 30.1 percent, while the expected proportion of numbers in the data set with the first digit being 2 is 17.6 percent, and as the numbers get higher in value, the percentage of their use becomes more infrequent.

The premise for Benford's application was that human actions are not random, in that individuals will invent numbers that they are accustomed to or could easily create and tend to repeat them. Naturally occurring, non-manipulated numbers, such as numbers that would occur in the ordinary course of business, have a tendency to follow Benford's Law.

There are many practical applications of Benford's Law that forensic accountants have available to efficiently evaluate large amounts of information when comparing the accounting records of a target company to the expected digit frequency of Benford's Law. As an example, when applying these digital analysis techniques, invented numbers in a company's accounting records, such as payments for non-existent goods or services, are unlikely to follow the sequence of Benford's Law.

Link Analysis

Link analysis establishes associations between people and data by identifying common characteristics that might not otherwise be apparent from an examination of isolated data. Using computer software, this technique can be a powerful resource to analyze large quantities of financial information, uncovering patterns or commonalities that link individuals and entities by demonstrating relationships that appeared superficially unrelated. In addition, by using digital analysis software, two databases can be joined (linked) to create a new master database; then a search for matching characteristics, such as telephone numbers or addresses, can be implemented in order to identify commonalities in the data set.

Gap Analysis

Gap analysis involves identifying items unaccounted for in a sequentially numbered or dated set of documents or transactions. When an accounting system has satisfactory internal controls, all numbered documents should appear sequentially, even if they were not utilized, such as voided checks or invoices. Utilizing digital analysis software, the forensic accountant can identify gaps in the records,

¹ The first digit of a number is the leftmost digit, and the first digit of "0" is ignored.

such as certain missing invoice or check numbers in a company's accounting system, and then develop a procedure to inspect and investigate the findings. Gap analysis can also be performed on a range of dates, for example, to detect when a normally recurring transaction is absent.

Duplicate Numbers Test

The duplicate numbers test is used to identify uncharacteristic recurrences of specific numbers, for example, check numbers, invoice numbers, and dollar amounts. Using digital analysis software, the forensic accountant can detect numbers that appear to be unusual due to their frequency. As an example, dollar amounts disbursed can be evaluated by reviewing the findings in a percentage chart, noting the percentage of total records and the percentage of total disbursements for each transaction category. When an observation of a specific category yields duplicate numbers, this may appear suspicious, and relevant conclusions can be drawn through further investigation.

Rounded Numbers Test

The rounded numbers test is conducted on the same basis as the duplicate numbers test, although the purpose of this analysis is to determine the abnormal frequency of rounded numbers. In general, rounded numbers can be a likely sign of an estimated amount, since individuals tend to estimate when they create fabricated numbers. Accordingly, the forensic accountant should

investigate each incident of deviant occurrences of rounded numbers to determine the validity and purpose of the transaction.

Conclusion

The forensic accounting professional has been transformed from the early-stage quintessential accountant to a multi-specialized professional, applying detective- like qualities to financial activities. Although the forensic accountants' know-how has its foundational base in the capabilities possessed by a CPA, successful investigations require not only solid accounting proficiency, but also bloodhound- like tracking and meticulous analytical abilities.

Thus, forensic accountants have to be good with numbers, but also have to possess a broad variety of skills to look beyond the numbers in order to find the connections, or the actual intent of the transactions that are not apparent or expected. Integrating the diverse techniques mentioned in this article, which includes research through open-source intelligence, a greater understanding of communication and interpersonal skills, and having sufficient knowledge of digital analysis technology, is all part of what makes a forensic accountant so special.

This is the final article of a four part series that has been released. To read the previous sections please visit: <https://www.gettrymarcus.com/the-changing-landscape-and-evolution-of-the-forensic-accounting-profession/>.



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