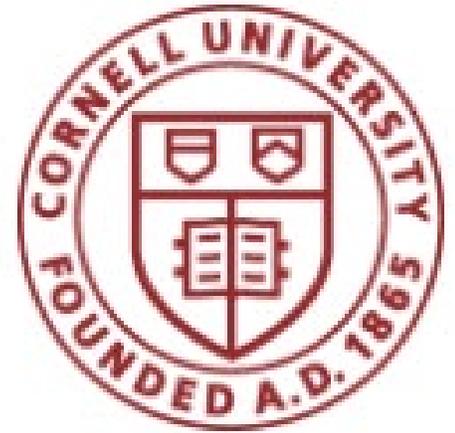


Guest Lecture for Data Analytics for Fraud



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Workshop for Internal Fraud Investigations

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Biography of the Instructor

Alexis C. Bell



Founder &
Managing Partner

Fraud Doctor LLC



Alexis C. Bell, MS, CFE, PI is the founder & managing partner of Fraud Doctor LLC. She helps companies protect themselves from fraud by specializing in international litigation support, antifraud consulting, training, and board advisory.

Bell is the elected Global Chair *Emeritus* to the Board of Regents for the Association of Certified Fraud Examiners (ACFE) and appointed board member for the LexisNexis Fraud Defense Network Advisory Board. She serves as an adjunct professor in the Financial Crime & Compliance Management (FCM) graduate program in the College of Business & Justice Studies at Utica College. She is a champion within antifraud communities speaking at conferences & delivering specialized training. She also produces a video podcast series (FraudCast) connecting antifraud thought leaders to global followers.

Bell successfully led the design and implementation of the initial Global Antifraud Program for a European public conglomerate with 165,000 employees. She then pioneered the first comprehensive Microfinance fraud risk management program covering 22 post/active conflict developing countries in the Greater Middle East, Eurasia, Latin America, and Africa. Both initiatives encompassed governance, antifraud training, fraud risk assessments, data analysis, investigations, and communication strategies.

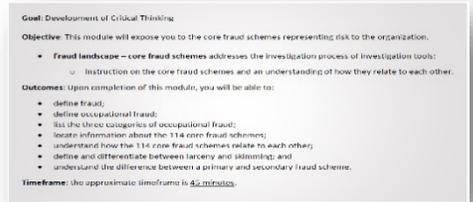
Bell spearheaded and chaired internal diversity programs addressing employee education and community outreach regarding both women's and Native American initiatives. She has been an active member serving on internal diversity & inclusion boards as well as external nonprofit boards supporting both antifraud and the arts.

Bell is a graduate of Cornell University with a Bachelor of Science degree in Applied Economics, completed the ASCENT fellowship in Mastering Management at Dartmouth University, and obtained her Master of Science degree in Financial Crime and Compliance Management at Utica College. She has authored three books and broken new ground with academic research in furtherance of the antifraud field.

Workbook Layout

This workbook has been designed with the following attributes:

- The beginning of each module lists the **goal, objective, and outcomes**.



Fraud

A knowing misrepresentation of the truth or concealment of a material fact to induce another to act to his or her detriment (*Black's Law Dictionary*, 2004).

- **Definitions** are provided in call out boxes and listed in the Glossary of Terms in Appendix A.
 - *Note that the full Appendix (and full list of References) has been included which lists definitions from additional modules not included in this shortened version.*

- Paragraphs have **fill in the blanks**. This reduces the quantity of notes participants need to take while also providing the opportunity for both individual and group exercises.

Is a policy violation a crime?



- Illustrative **case studies** and **exercises** are provided for the participant to practice the concepts learned within the module.

- **Rules** are called out where the participant needs to pay particular attention.



- **Best Practices** are highlighted.

MODULE 1: Fraud Landscape – Core Fraud Schemes

Goal: Development of Critical Thinking

Objective: This module will expose you to the core fraud schemes representing risk to the organization.

- **Fraud landscape – core fraud schemes** addresses the investigation process of investigation tools:
 - Instruction on the core fraud schemes and an understanding of how they relate to each other.

Outcomes: Upon completion of this module, you will be able to:

- define fraud;
- define occupational fraud;
- list the three categories of occupational fraud;
- understand the role of materiality in fraud investigations;
- locate information about the 114 core fraud schemes;
- understand how the 114 core fraud schemes relate to each other;
- define and differentiate between larceny and skimming; and
- understand the difference between a primary and secondary fraud scheme.

Timeframe: the approximate timeframe is 15-minutes.

Workshop for Internal Fraud Investigations

Why This is Important?

The single most important success factor within an investigation is considering all the possible fraud schemes relative to the facts of the case. Once you know what likely schemes are involved, you have your direction of inquiry. You know what data to request, what tests to run, which documents to review, who to interview, and what questions to ask during the interview.

Not Addressed Today

We will not cover today:

- Every core fraud scheme name and definition;
- Industry specific fraud schemes;
- External fraud schemes; nor
- Cybercrime schemes.

Fraud Defined

There are a multitude of definitions for fraud. According to the Internal Revenue Service (IRS): (2014, §25.1.1.2)¹

1. **Fraud** is deception by misrepresentation of material facts, or silence when good faith requires expression, which results in material damage to one who relies on it and has the right to rely on it. Simply stated, it is obtaining something of value from someone else through deceit.
2. **Tax fraud** is often defined as an intentional wrongdoing, on the part of a taxpayer, with the specific purpose of evading a tax known or believed to be owing. Tax fraud requires both:
 - a tax due and owing; and
 - fraudulent intent.

For the purposes of this training, the *Black's Law Dictionary* (2004) definition of *fraud* has been used as a more encompassing definition:

A knowing misrepresentation of the truth or concealment of a material fact to induce another to act to his or her detriment.

Occupational fraud is defined as: (ACFE, 2016, p. 6)

The use of one's occupation for personal enrichment through the deliberate misuse or misapplication of the employing organization's resources or assets.

Fraud

A knowing misrepresentation of the truth or concealment of a material fact to induce another to act to his or her detriment (*Black's Law Dictionary*, 2004).

Occupational Fraud

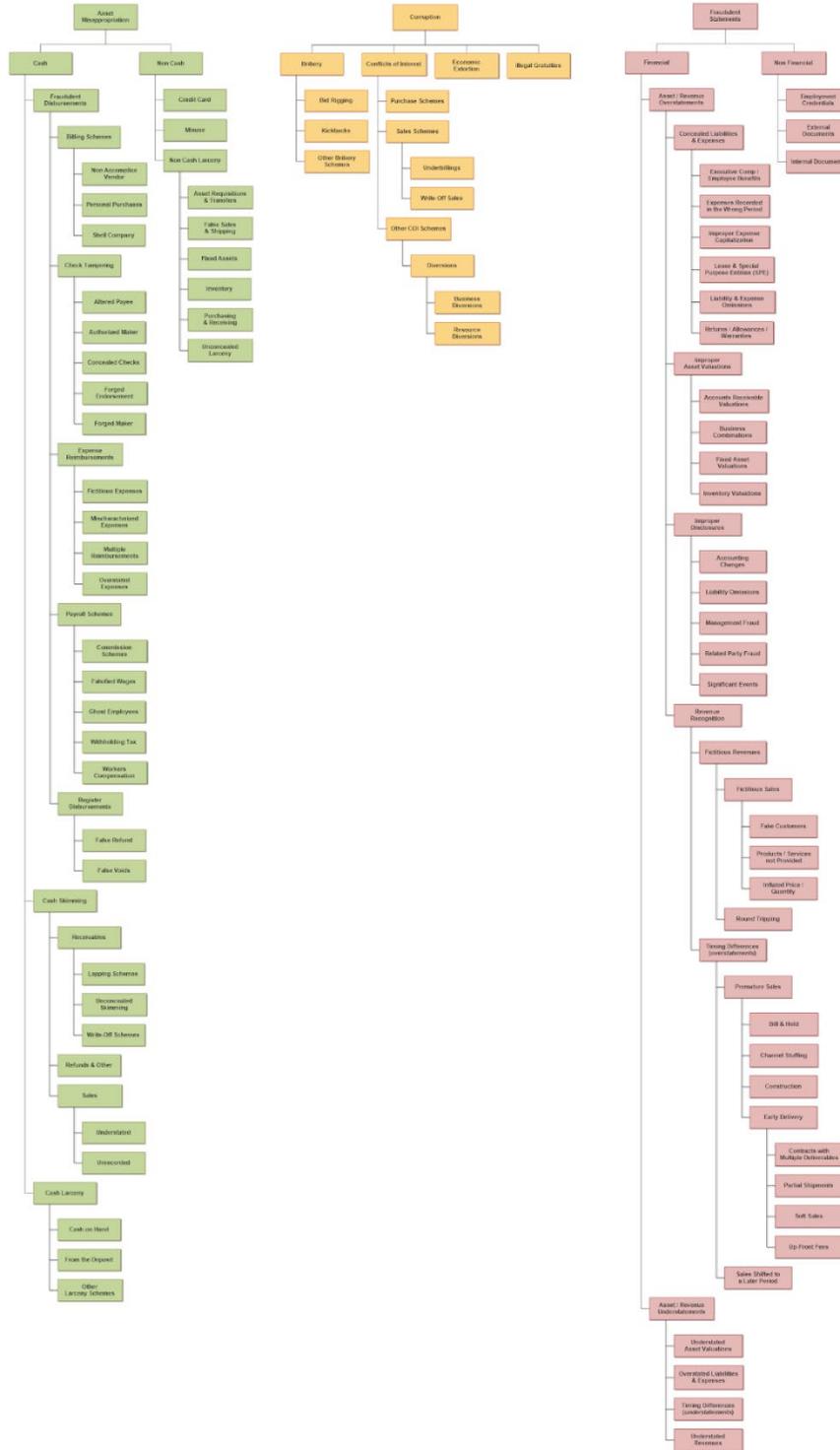
is defined as the use of one's occupation for personal enrichment through the deliberate misuse or misapplication of the employing organization's resources or assets (ACFE, 2016, p. 6).

¹ This is a very good resource for understanding fraud-related statutes and the burden of proof for each.

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The Association of Certified Fraud Examiners (ACFE) places occupational fraud into three primary categories: (1) **Asset Misappropriation**, (2) **Corruption**, and (3) **Fraudulent Statements**.

The ACFE Occupational Fraud and Abuse Classification System, referred to as the “fraud tree,” depicts the nesting relationship between the broad categories of fraud and their respective subschemes.



Workshop for Internal Fraud Investigations

Identifying the Core Fraud Schemes

As a starting point, refer to the *Report to the Nation(s)* (ACFE, 1996-2018) for information on occupational fraud schemes as what we refer to as *core fraud schemes*. These are fraud schemes that apply to any business in any industry. The report has been issued every two-years since 1996. Upon review, you may notice that some schemes appear as new in some years while others drop off in later years. The reason for this is that the report notes schemes that were indicated in that term's questionnaire given to Certified Fraud Examiners (CFEs). Of those that responded, these are the schemes reported during that timeframe.

Since all of these schemes apply in terms of fraud risk, whether or not they are indicated on that year's report does not impact the risk to organizations for that specific scheme. Therefore, if you were to go back through each report and capture every scheme noted in each report, you would have a list of how many fraud schemes?

<u>50</u>	Asset Misappropriation
<u>16</u>	Corruption
<u>48</u>	Fraudulent Statements ²
<u>114</u>	Total

Forensic

Criminal investigation.

Fraud Investigation

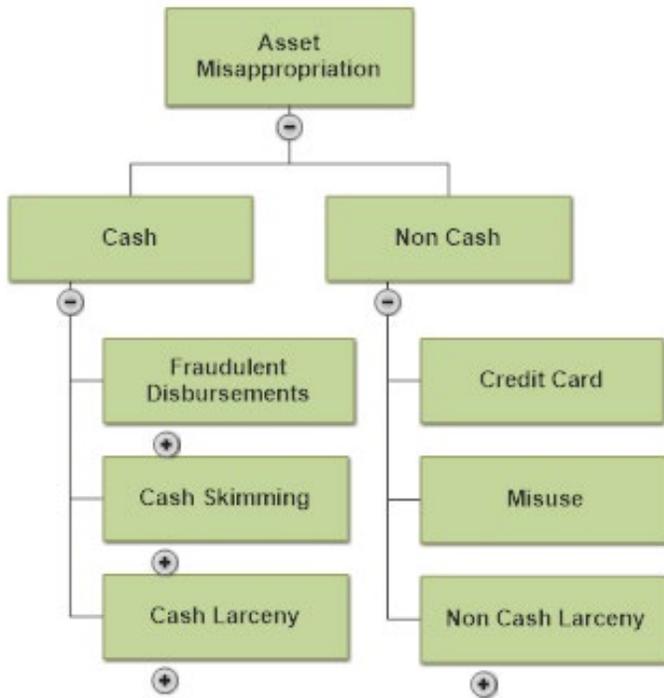
An investigation to prove or disprove allegations of a crime, specifically fraud.

Core Fraud Schemes

fraud schemes that apply to any business in any industry.

² The culmination of the ACFE *Report to the Nation(s)* identifies a total of 30 fraudulent statement schemes, bringing the number of occupational fraud schemes to 96. The additional 18 have been provided in the following Fraudulent Statements section which brings the total core fraud schemes to 114.

Asset Misappropriation

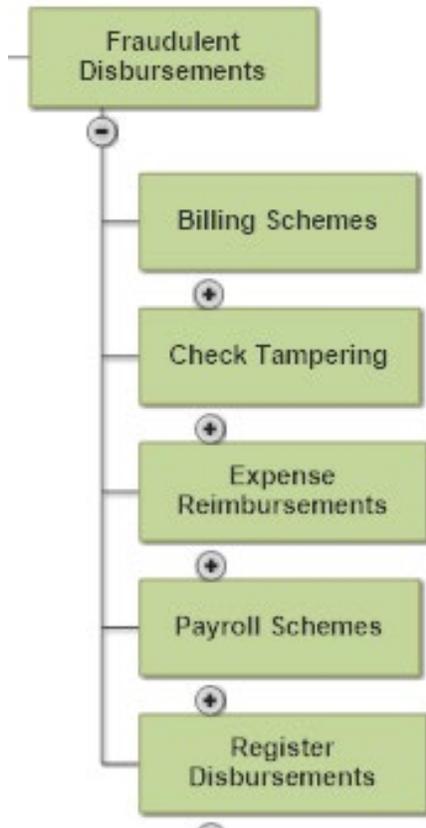


Asset Misappropriation

Theft of assets. Asset misappropriation schemes include those frauds in which a perpetrator employs trickery or deceit to steal or misuse an organization's resources. The distinguishing elements of asset misappropriation are that an organization's assets are taken through trickery or deceit, rather than by force (Albrecht, Kranacher, & Albrecht, n.d., p. 1).

Workshop for Internal Fraud Investigations

Asset Misappropriation > Cash > Fraudulent Disbursements



Here, the subschemes of “Fraudulent Disbursements” are:

- _____;
- _____;
- _____;
- _____; and
- _____.

Cash

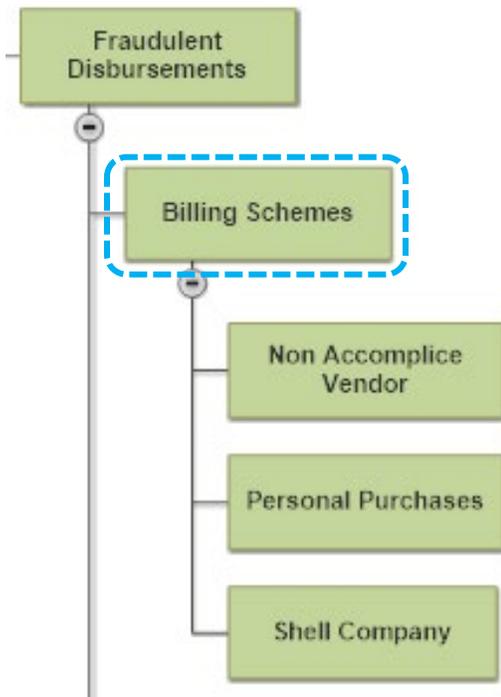
Cash misappropriation involves the misuse or theft of an organization’s cash (Bell, 2015, p. 12).

Fraudulent Disbursements

Fraudulent disbursement schemes are those in which a distribution of funds is made from some company account in what appears to be a normal manner, but is actually fraudulent. The method for obtaining the funds may be the forging of a check, the submission of a false invoice, the doctoring of a time card, and so on. The key difference between fraudulent disbursement schemes and cash larceny schemes is in the former, the money is moved from the company in what appears to be a legitimate disbursement of funds (Singleton & Singleton, 2010).

Workshop for Internal Fraud Investigations

Asset Misappropriation > Cash > Fraudulent Disbursements > Billing Schemes



Here, the subschemes of “Billing Schemes” are:

- Non Accomplice Vendor;
- Personal Purchases; and
- Shell Company.

Billing Schemes

Any scheme in which a person causes his or her employer to issue a payment by submitting invoices for fictitious goods or services, inflated invoices or invoices for personal purchases. Billing schemes use the company’s accounting system to steal funds by submitting bogus claims in one form or another (Singleton & Singleton, 2010).

Workshop for Internal Fraud Investigations

Asset Misappropriation > Cash > Fraudulent Disbursements > Check Tampering



Check Tampering

Check tampering is any scheme in which a person steals his or her employer's funds by intercepting, forging or altering a check drawn on one of the organization's bank accounts (ACFE, 2012, p. 12).

Check tampering is unique among fraudulent disbursements because it is the one group of schemes in which the perpetrator physically prepares the fraudulent check (Wells, 2010).

Altered Payee

A check tampering scheme in which an employee intercepts a company check intended for a third party and alters the payee designation so that the check can be converted by the employee or accomplice (Wells, 2017, P. 122).

Note: Obtains the check after it has been signed, but before it has been delivered and endorses the check on the back.

Maker

The person who signs a check (Wells, 2017, p. 112).

Authorized Maker

A check tampering scheme in which an employee with signature authority on a company account writes a fraudulent check for their own benefit and signs their own name as the maker (Wells, 2017, p. 127). *Note:* Can write and authorize checks themselves.

Concealed Checks

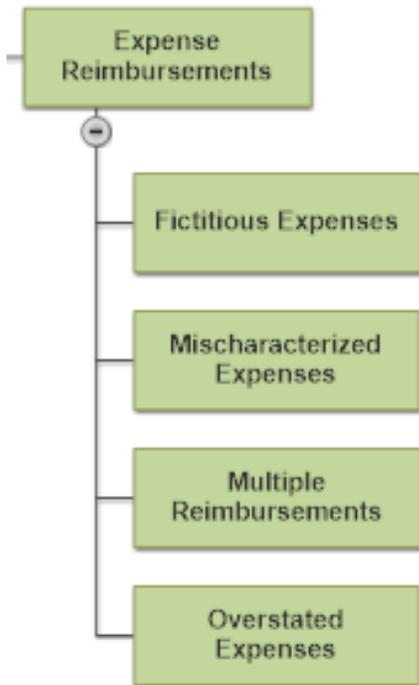
A check tampering scheme in which an employee prepares a fraudulent check and submit it, usually along with legitimate checks, to an authorized maker, who signs it without a proper review (Wells, 2017, P. 125).

Forged Maker

A check tampering scheme in which an employee misappropriates a check and fraudulently affixes the signature of an authorized maker (Wells, 2017, P. 112).

Workshop for Internal Fraud Investigations

Asset Misappropriation > Cash > Fraudulent Disbursements > Expense Reimbursements



The Internal Revenue Service (IRS)³ requires any expense at or above what amount to be accompanied by a receipt and expense report?

\$ _____

Receipts and expense reports must contain information sufficient to substantiate ___ for each expense⁴:

_____ ;
 _____ ;
 _____ ;
 _____ ; and
 _____ .

Expense Reimbursements

Expense reimbursement schemes occur when employees make false claims for reimbursement of fictitious or inflated business expenses. Expense reimbursements are usually paid by organizations in the following manner: An employee submits a report detailing an expense incurred for a business purpose, such as a business lunch with a client, airfare, or hotel bills associated with business travel.

In preparing the expense report, the employee usually must explain the business purpose for the expense as well as the time, date and location in which it was incurred. Attached to the report should be supporting documentation for the expense, typically a receipt. The report usually must be authorized by a supervisor in order for the expense to be reimbursed (Kranacher, Riley, & Wells, 2010).

³ 26 CFR 1.62-2 retrieved from https://www.irs.gov/irm/part25/irm_25-001-001#idm140540676026512

⁴ There are additional requirements for travel related expenses.

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Asset Misappropriation > Cash > Fraudulent Disbursements > Payroll Schemes

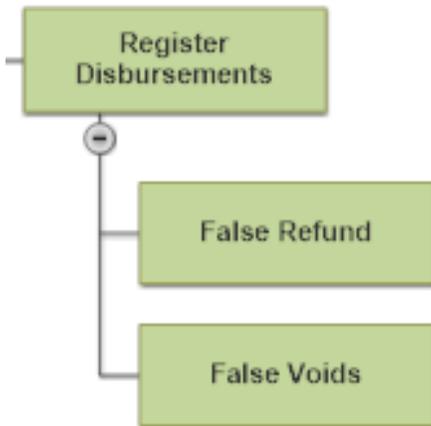


Payroll Schemes

Payroll schemes occur when an employee fraudulently generates overcompensation on his or her behalf. These schemes are similar to billing schemes, in that the perpetrator generally produces some false document or otherwise makes a false claim for a distribution of funds by his employer. In payroll schemes, the false claim generally occurs when the fraudster falsifies payroll records, timekeeping records, or some other document concerned with the payroll function (ACFE, *Other People's Money*, 2012).

Workshop for Internal Fraud Investigations

Asset Misappropriation > Cash > Fraudulent Disbursements > Register Disbursements



Register Disbursements

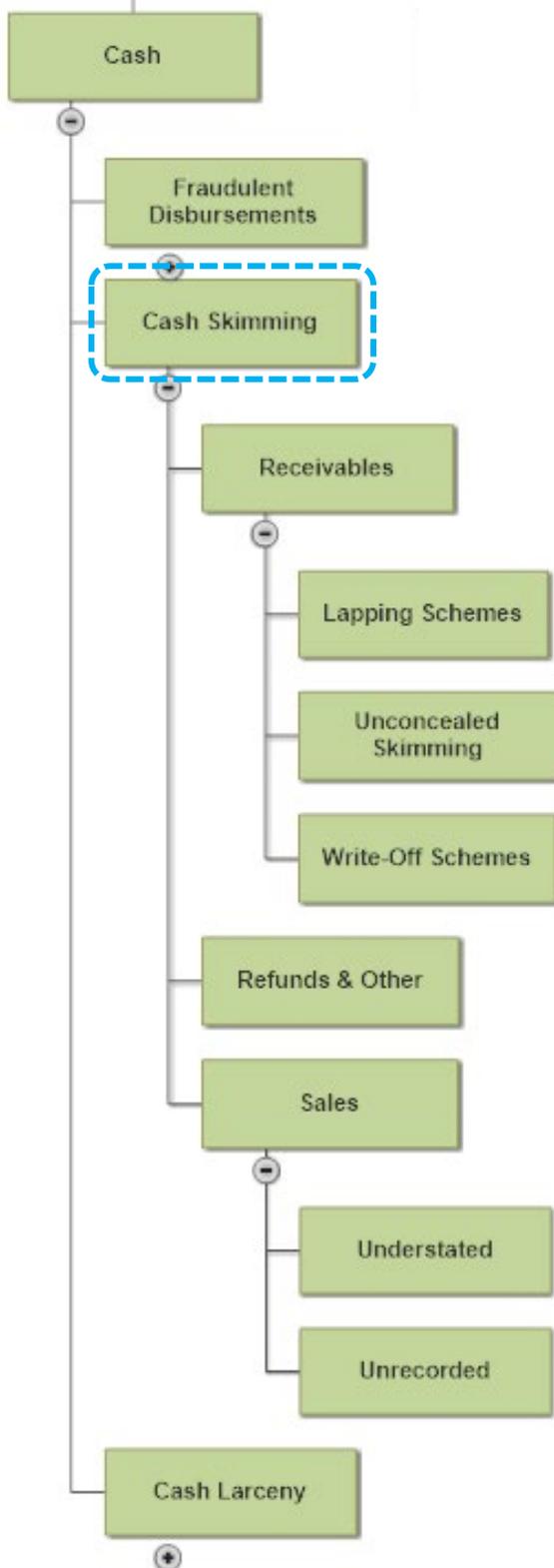
Two basic fraudulent schemes take place at the register: false refunds and false voids (Albrecht, Albrecht, & Kimbleman, 2008).

Refunds and voided sales are transactions processed at the register when a customer returns an item of merchandise purchased from that store. The transaction entered on the register indicated the merchandise is being replaced in the store's inventory and the purchase price is being returned to the customer. In other words, a refund or void shows a disbursement of money from the register as the customer gets his money back.

Fraudulent refunds and voids represent a class of occupational fraud that is a hybrid between cash theft and fraudulent disbursements. Since these schemes appear on the books as legitimate disbursements of funds from the cash register, they are classified as fraudulent disbursements. In practice, an employee physically removes cash from his cash register and absconds with it. In that respect, such schemes are very similar to cash larceny schemes (ACFE, *Other People's Money*, 2012).

Workshop for Internal Fraud Investigations

Asset Misappropriation > Cash > Cash Skimming



Skimming

Theft of an asset before it has been recorded in the books and records of the organization (Bell, 2015, p. 14).

Cash Skimming

Skimming is the process by which cash is removed from the entity before it enters the accounting system. This is an “off-book scheme” because the receipt of the cash is never reported to the entity. This aspect of skimming schemes means they leave no direct audit trail. Consequently, it may be very difficult to detect that the money has been stolen.

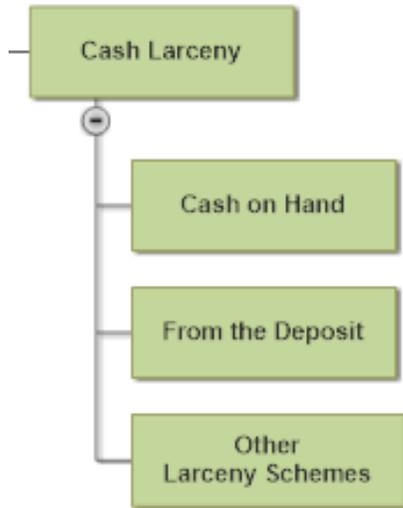
Skimming can occur at any point where cash enters a business, so almost anyone who deals with the process of receiving cash may be in a position to skim money. This includes salespeople, tellers, waitpersons, and others who receive cash directly from customers (ACFE, *Other People’s Money*, 2012).

Larceny

Theft of an asset after it has been recorded in the books and records of the organization (Bell, 2015, p. 14).

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Asset Misappropriation > Cash > Cash Larceny



Larceny

Theft of an asset after it has been recorded in the books and records of the organization (Bell, 2015, p. 14).

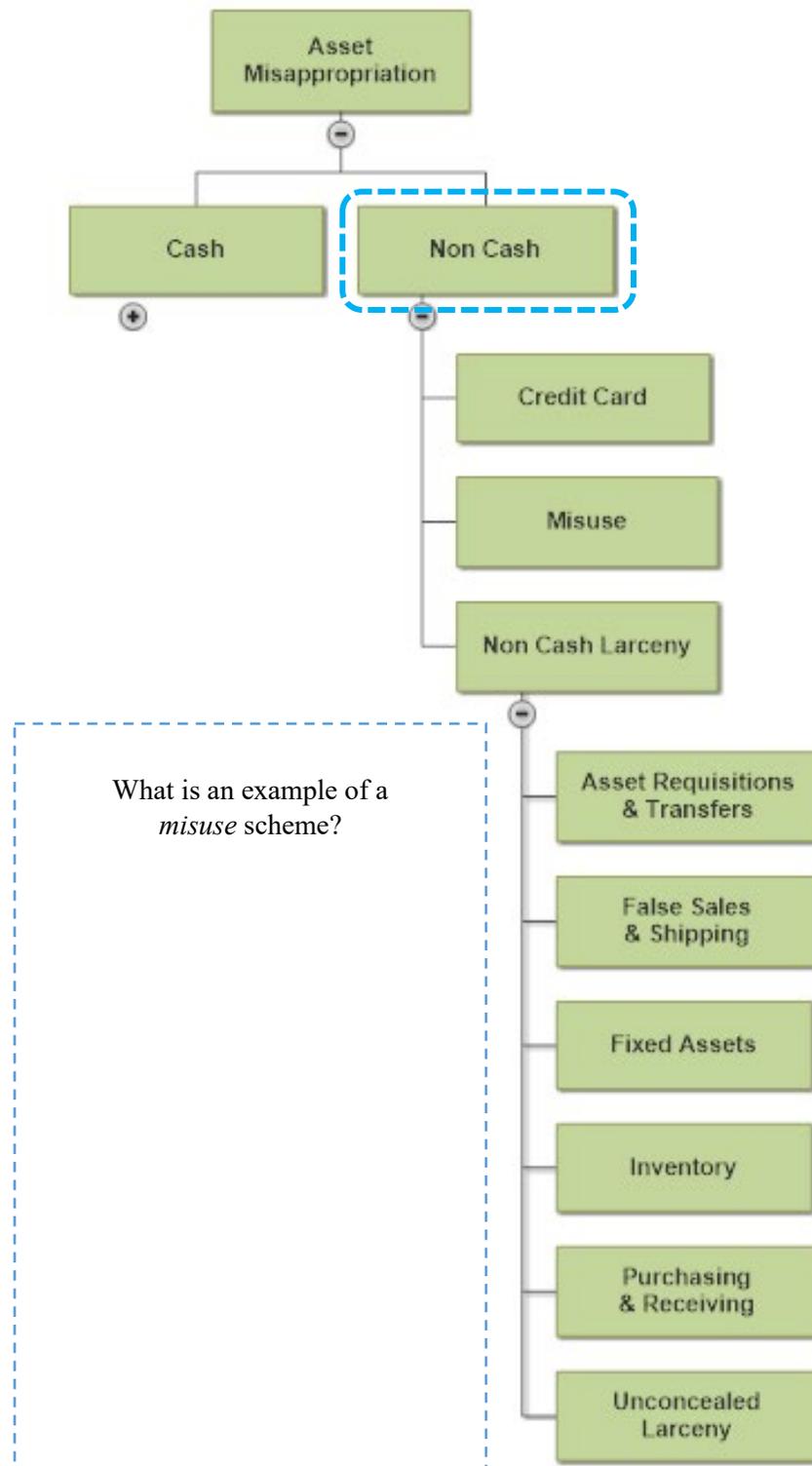
Cash Larceny

A cash larceny may be defined as the intentional taking of an employer's cash (the term cash includes both currency and checks) without the consent and against the will of the employer.

Cash larceny involves the theft of cash by employees after it has been recorded on the entity's books. For this reason it is easier to detect larceny than it is to detect skimming (ACFE, 2010).

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Asset Misappropriation > Non Cash



Non Cash

Employees target inventory, equipment, supplies, and other non-cash assets for theft in a number of ways. These schemes can range from stealing a box of pens to the theft of millions of United States Dollars (USD) worth of company equipment (Bell, 2015, p. 15).

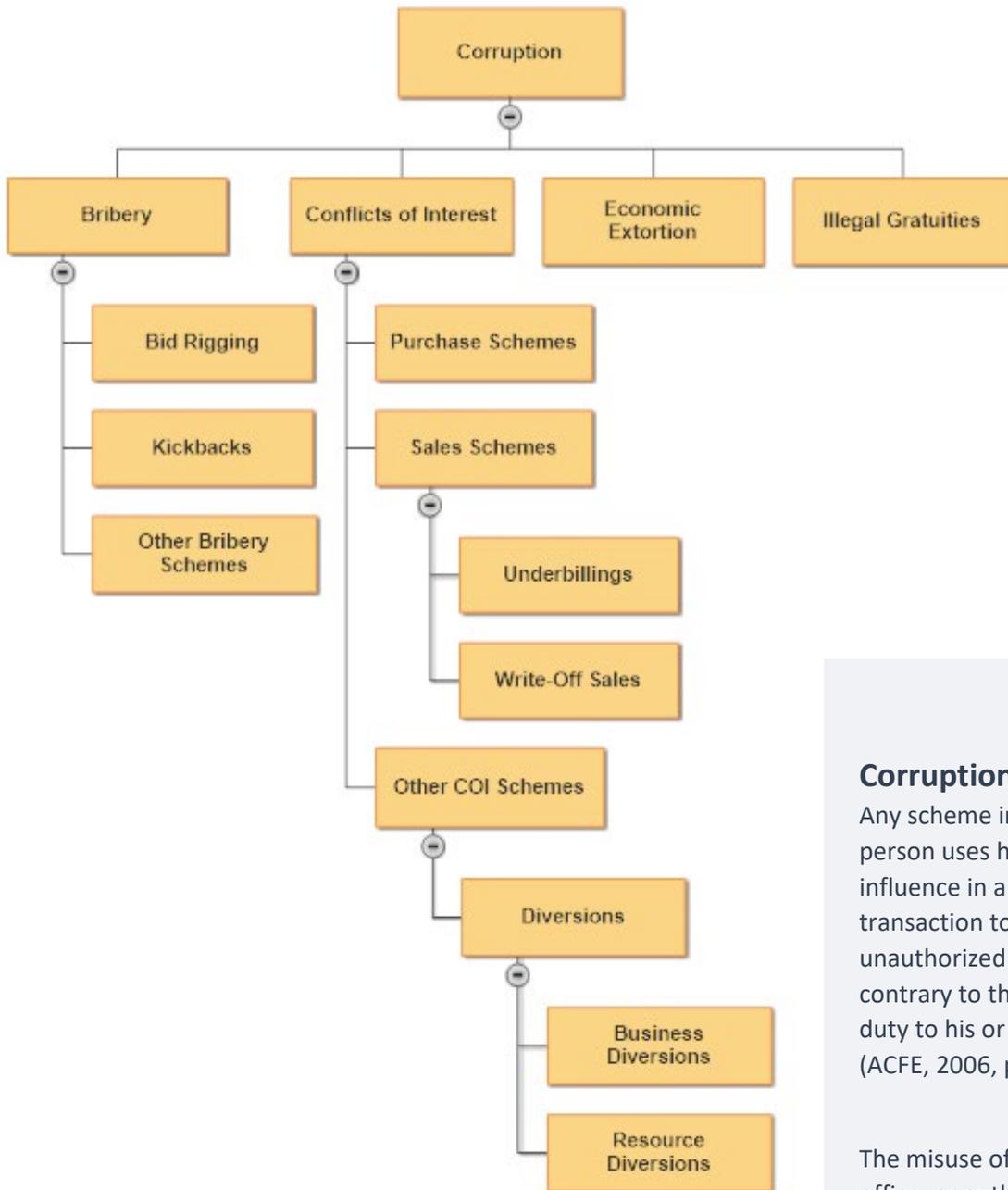
Larceny

Theft of an asset after it has been recorded in the books and records of the organization (Bell, 2015, p. 14).

Inventory

Any scheme involving the theft or misappropriation of physical, non-cash assets such as inventory, equipment or supplies (ACFE, 2006, p. 15).

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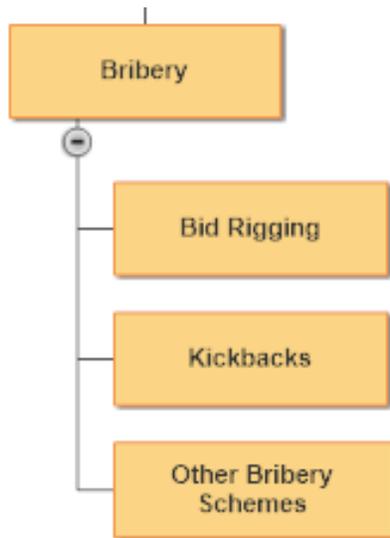
Corruption

Any scheme in which a person uses his or her influence in a business transaction to obtain an unauthorized benefit contrary to that person's duty to his or her employer (ACFE, 2006, p. 10).

The misuse of power, office, or authority for private benefit—through bribery, extortion, influence peddling, nepotism, fraud, speed money or embezzlement (Matsheza, 2008).

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Corruption > Bribery



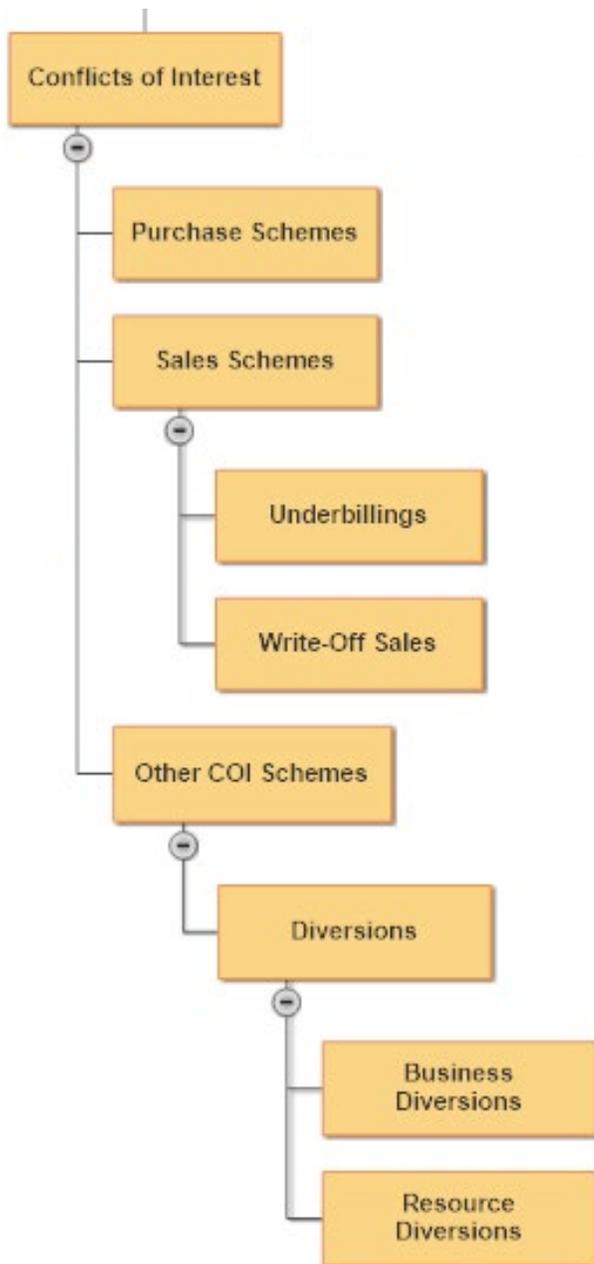
Bribery

Bribery is the offering, giving, receiving, or soliciting anything of value to influence an official act or business decision (Wells, 2010).

The term “official act” means that traditional bribery statutes proscribe only payments made to influence the decisions of government agents or employees. Commercial bribery cases deal with the acceptance of under-the-table payments in return for the exercise of influence over a business transaction (Kranacher, Riley, & Wells, 2010).

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Corruption > Conflicts of Interest



- managed through _____
_____ ; and
- determined when it becomes unfair.

The vast majority of conflict of interest cases occur because the fraudster has an undisclosed economic interest in a transaction. But the fraudster's hidden interest is not necessarily economic. In some scenarios an employee acts in a manner detrimental to his company in order to provide a benefit to a friend or relative, even though the fraudster receives no financial benefit from the transaction himself.

In order to be classified as a conflict of interest scheme, the employee's interest in the transaction must be undisclosed. The crux of a conflict case is that the fraudster takes advantage of his employer; the victim organization is unaware that its employee has divided loyalties. If an employer knows of the employee's interest in a business deal or negotiation, there can be no conflict of interest, no matter how favorable the arrangement is for the employee (ACFE, 2010).

However, conflicts of interest can still be present when disclosed. Organizations often can and do perform activities where conflicts of interest exist, e.g. internal audit. The point is that the activity should be:

Conflicts of Interest

A conflict of interest is a situation that has the potential to undermine the impartiality of the person because of the possibility of a clash between the person's self-interest and professional or public interest (Kapka).

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Corruption > Economic Extortion



Economic extortion also includes scenarios where an employee extorts another employee to force a certain action to occur that would be to the detriment of either the employee or the organization. It can also be committed by or against a client to the detriment of another person or organization.

If economic extortion is committed against a client, then this would be Individual fraud and not Organizational fraud (Bell, 2015, p. 17).

Economic Extortion

Economic extortion cases are the “Pay up or else...” corruption schemes; basically, the flip side of bribery schemes. Instead of a vendor offering a payment to influence a decision, an employee demands that a vendor pay him in order to make a decision in that vendor’s favor. If the vendor refuses to pay, he faces some harm such as loss of business with the extorter’s company. In any situation where an employee might accept bribes to favor a particular company or person, the situation could be reversed to a point where the employee extorts money from a potential purchaser or supplier (ACFE, 2010).

Corruption > Illegal Gratuities

Illegal Gratuities

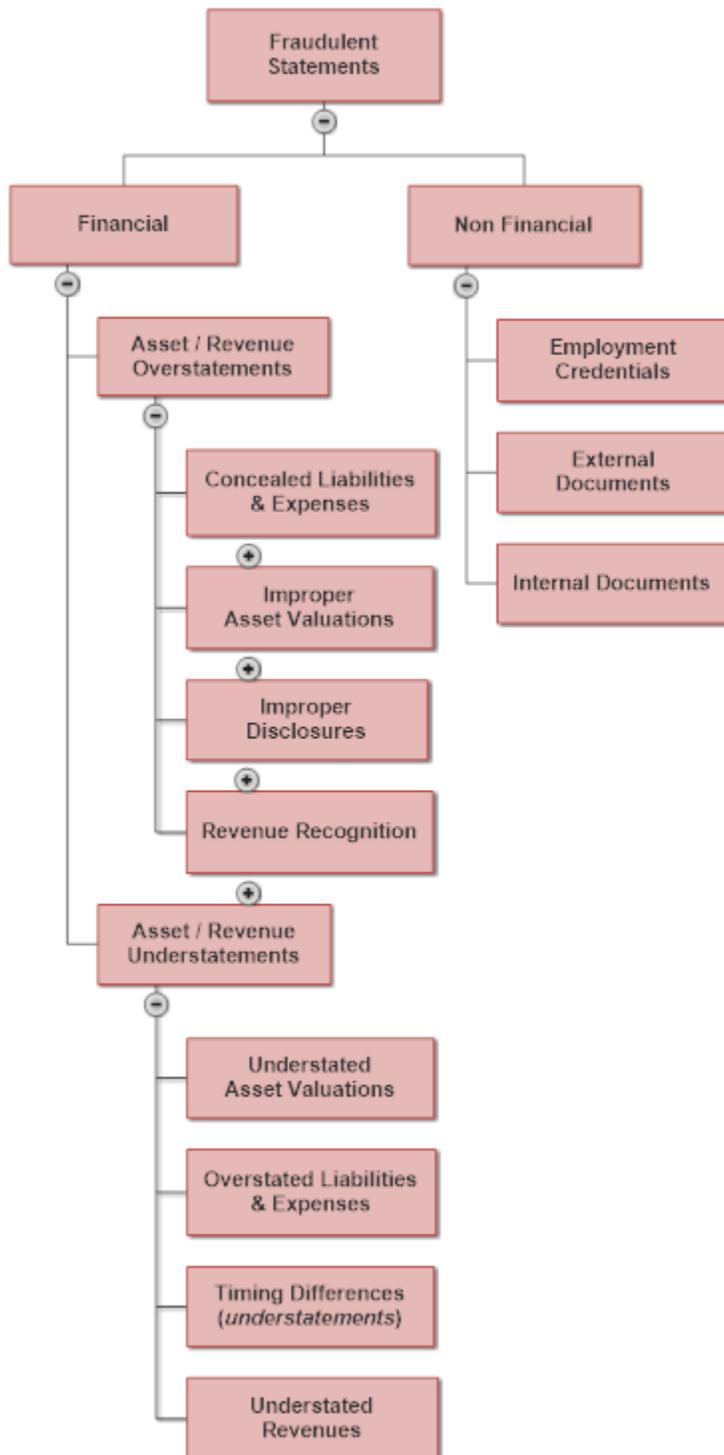
At first glance, it may seem that illegal gratuities schemes are harmless as long as the business decisions in question are not influenced by the promise of payment. But most company ethics policies forbid employees from accepting unreported gifts from vendors. One reason is that illegal gratuities schemes can (and do) evolve into bribery schemes (ACFE, 2010).

Illegal Gratuities

Illegal Gratuities are similar to bribery schemes except there is not necessarily an intent to influence a particular business decision before the fact. In the typical illegal gratuities scenario, a decision is made that happens to benefit a certain person or company. The party who benefited from the decision then gives a gift to the person who made the decision. The gift could be anything of value. An illegal gratuity does not require proof of an intent to influence (ACFE, 2010).

Workshop for Internal Fraud Investigations

Fraudulent Statements



When identifying the core fraud schemes, understand the limitations of each source. The following charts incorporate schemes from the upcoming book entitled “Data Analysis for Corporate Fraud Risk” by Alexis C. Bell. Notice that here *revenue recognition* is incorporated into the fraudulent statements category. However, it was not included in the ACFE fraud tree in any year between 1996-2018. Yet, revenue recognition is the number one scheme used in earnings manipulation.

Fraudulent Statements

A statement related to a material fact and known to be untrue or made with reckless indifference as to its truth or falsity. A statement or representation may also be "false" or "fraudulent" when it constitutes a half truth, or effectively conceals a material fact (Bell, 2015, p. 18).

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According to the American Institute of Certified Public Accountants (AICPA): (Avey, Bakersville, & Brill, 2006)

Fraudulent statement fraud involves the alteration of financial statement data, usually by a firm's management, to achieve a fraudulent result (p. 10.1.2)...

The SEC Definition of Fraud

These concepts are codified in the United States securities laws, especially SEC Rule 10-b-5⁵, which states the following: (pp. 10.1.4)

It shall be unlawful for any person, directly or indirectly, by the use of any means or instrumentality of interstate commerce, or the mails, or of any facility of any national securities exchange,

- a) to employ any device, scheme, or artifice to defraud,
- b) to make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, or
- c) to engage in any act, practice, or course of business which operates or would operate as a fraud or deceit upon any person, in connection with the purchase or sale of any security.

Financial Statement Fraud

Financial statement fraud is the deliberate misrepresentation of the financial condition of an enterprise accomplished through the intentional misstatement or omission of amounts or disclosures in the financial statements to deceive financial statement users.

Financial statement fraud usually involves overstating assets, revenues, and profits and understating liabilities, expenses, and losses (ACFE, 2010).

Earnings Manipulation

The direct alteration of accounting data for the purpose of fraudulently changing reported net income (Avey, Bakersville, & Brill, 2006, p. 10.2.1).

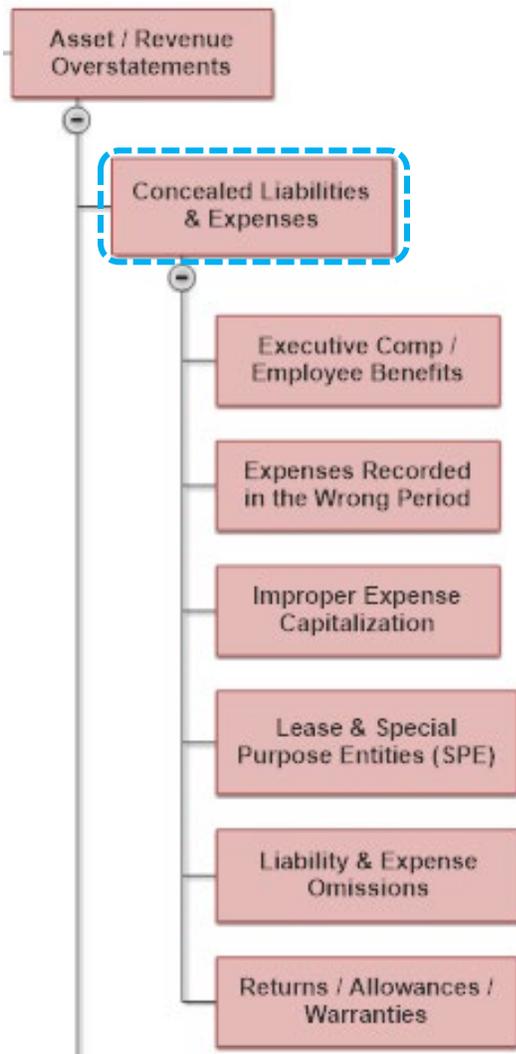
Earnings Management

A subtler variant of earnings manipulation... [where earnings management] attempts to exploit the interpretive opportunities inherent in GAAP to produce reported earnings that confirm to outside expectations (Avey, Bakersville, & Brill, 2006, p. 10.2.2).

⁵ Promulgated under Section 10(b) of the Securities Exchange Act of 1934.

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Fraudulent Statements > Financial > Asset/Revenue Overstatements > Concealed Liabilities & Expenses

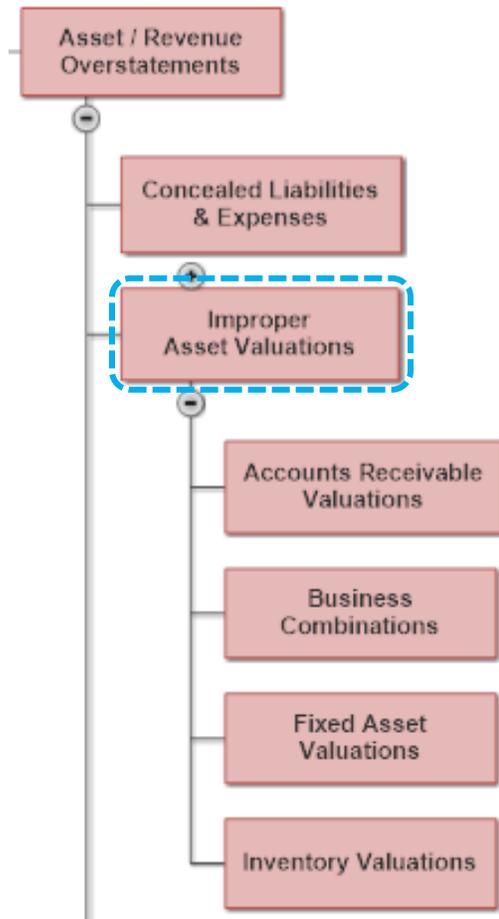


Concealed Liabilities & Expenses

Schemes in which financial statements are misstated by improperly recording liabilities and/or expenses (ACFE, 2006, p. 16).

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Fraudulent Statements > Financial > Asset/Revenue Overstatements > Improper Asset Valuations

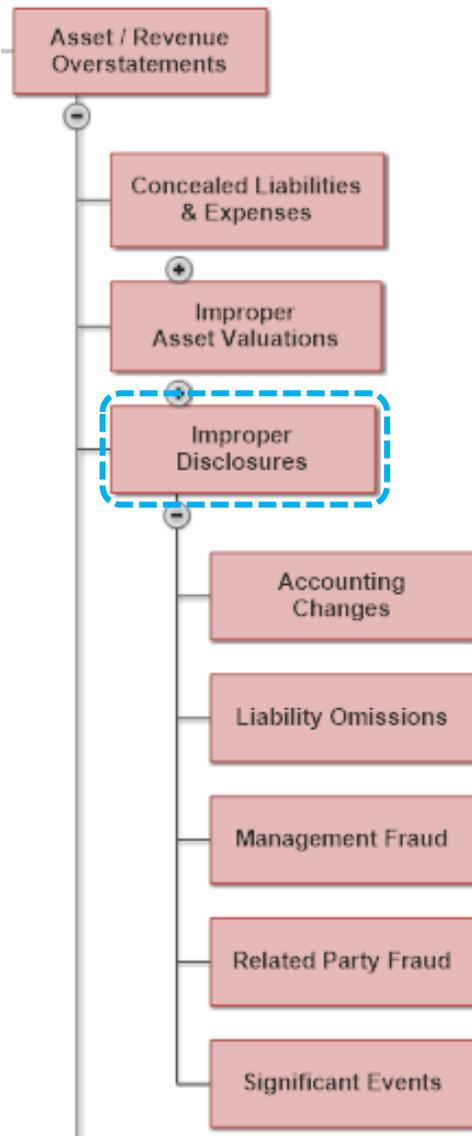


Improper Asset Valuations

Schemes in which the value of an organization's assets is fraudulently misstated in the organization's financial statements (ACFE, 2006, p. 16).

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Fraudulent Statements > Financial > Asset/Revenue Overstatements > Improper Disclosures

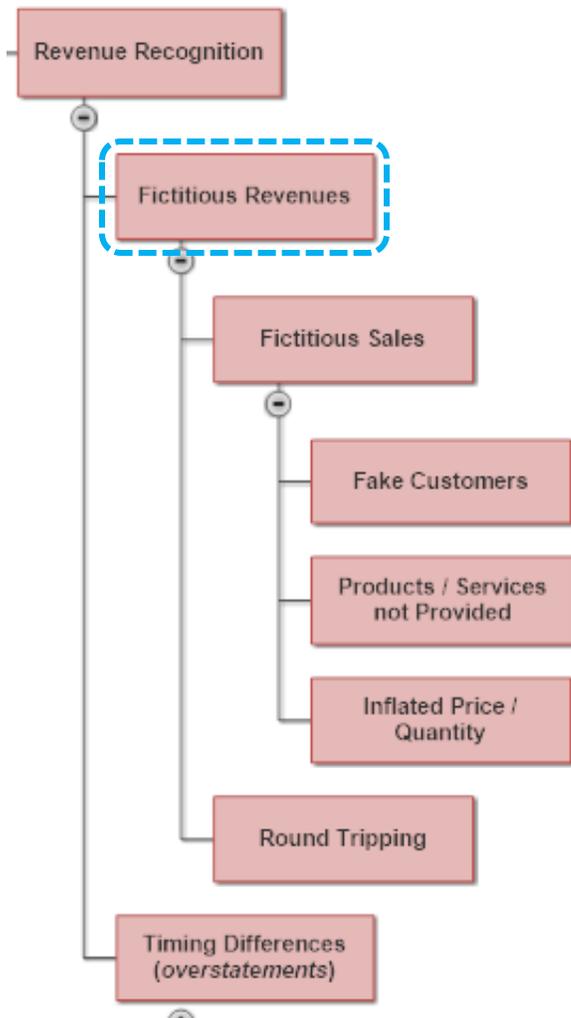


Improper Disclosures

Schemes in which management fails to disclose material information in its financial statements in an attempt to mislead users of the financial statements (ACFE, 2006, p. 16).

Workshop for Internal Fraud Investigations

Fraudulent Statements > Financial > Asset/Revenue Overstatements > Revenue Recognition



When identifying the core fraud schemes, understand the limitations of each source. These two charts are adapted from the upcoming book by Alexis C. Bell entitled “Data Analysis for Corporate Fraud Risk”. Notice that here **revenue recognition** is incorporated into the fraudulent statements category. However, it was not included in the ACFE fraud tree in any year between 1996-2018⁶. Yet, revenue recognition is the number one scheme used in earnings manipulation.

Revenue Recognition Fraud

Revenue recognition fraud occurs when the principles of revenue recognition are manipulated to falsify income.

Fictitious Revenues

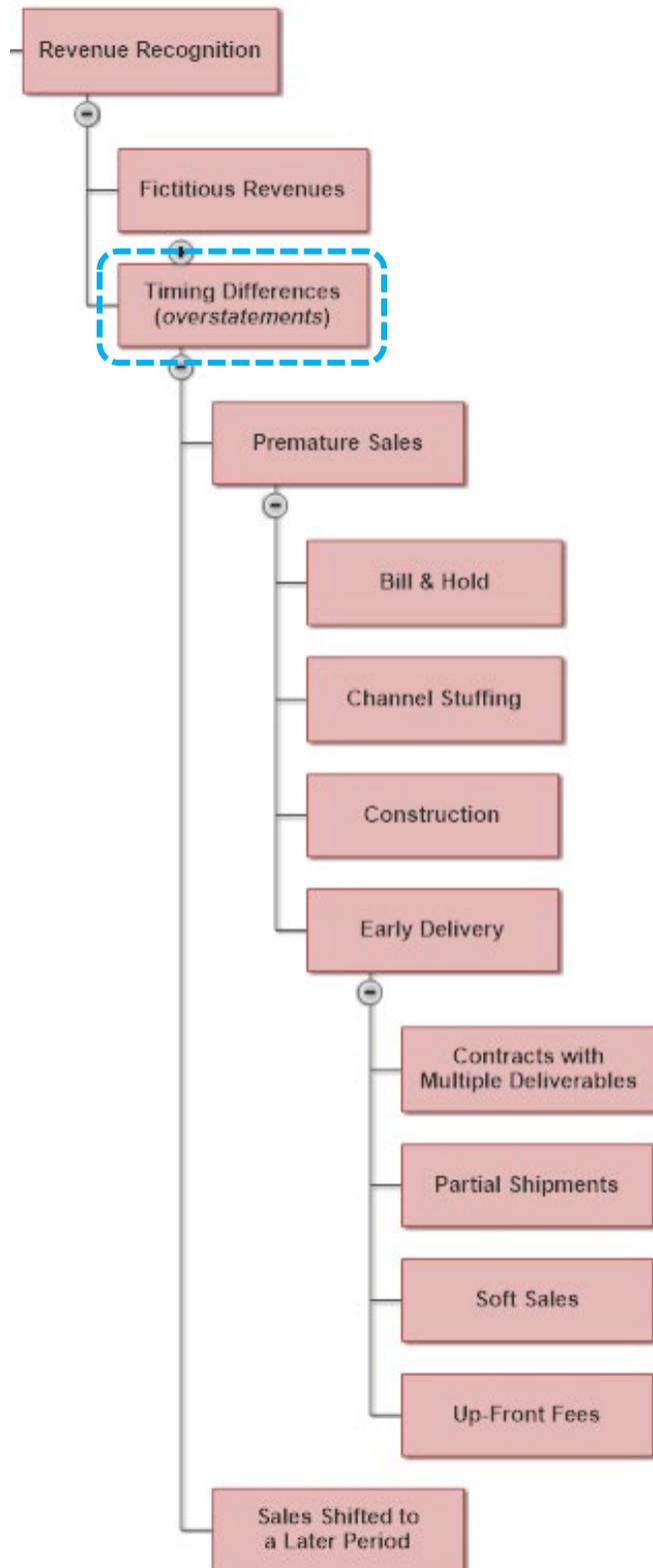
Schemes in which financial statements are inflated by recording sales of goods or services that never occurred, or by inflating actual sales (ACFE, 2006, p. 16).

Round Tripping

Another approach to overstating revenue where the recording of transactions between companies and from which transactions there are no economic benefits to either company (Frank, Jansen, & Carey, 2011, pp. 463-464).

⁶ Adapted from the ACFE Occupational Fraud and Abuse Classification System from the culmination of the *Report to the Nation(s)* for the years 1996, 2002-2018 and Biegelman & Bartow (2006, p. 83).

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This only includes the *occupational fraud* schemes⁷. Industry specific schemes have not been included. Likewise, cyber events have not been included either. Only fraud schemes where a person could utilize their place of employment to commit the fraud are listed in the fraud tree.

Timing Differences

Schemes in which financial statements are intentionally misstated by recording revenues in a different accounting period than their corresponding expenses (ACFE, 2006, p. 16).

⁷ Revenue recognition fraud sub-schemes adapted from a combination of the ACFE (2005, p. 1.308), Biegelman & Bartow (2006, p. 83), and Frank, Jansen, & Carey (2011, pp. 433-466).

Channel Stuffing

A *channel stuffing* scheme occurs when a company offers its customer incentives to purchase products in the current period when the customer otherwise would not have purchased that quantity or at that time. Examples of incentives include deep discounts and offering extended credit terms.

Note: Also known as “trade loading” (ACFE, 2005, p. 1.313).

Side Agreements

A *side agreements* scheme arises when agreements or amendments to existing agreements are made outside the normal process. Examples of side agreement schemes include unrestricted rights of return, an extension of established payment terms, unrestricted rights to cancel, the rights to continued negotiations, and contingencies that void the sale. NOTE – classified by the associated corruption scheme.

Contracts with Multiple Deliverables

where the full amount of the contract is recognized when services are still unfulfilled.

Partial Shipments

are where incomplete products are delivered or when the customer is not ready for them yet.

Soft Sales

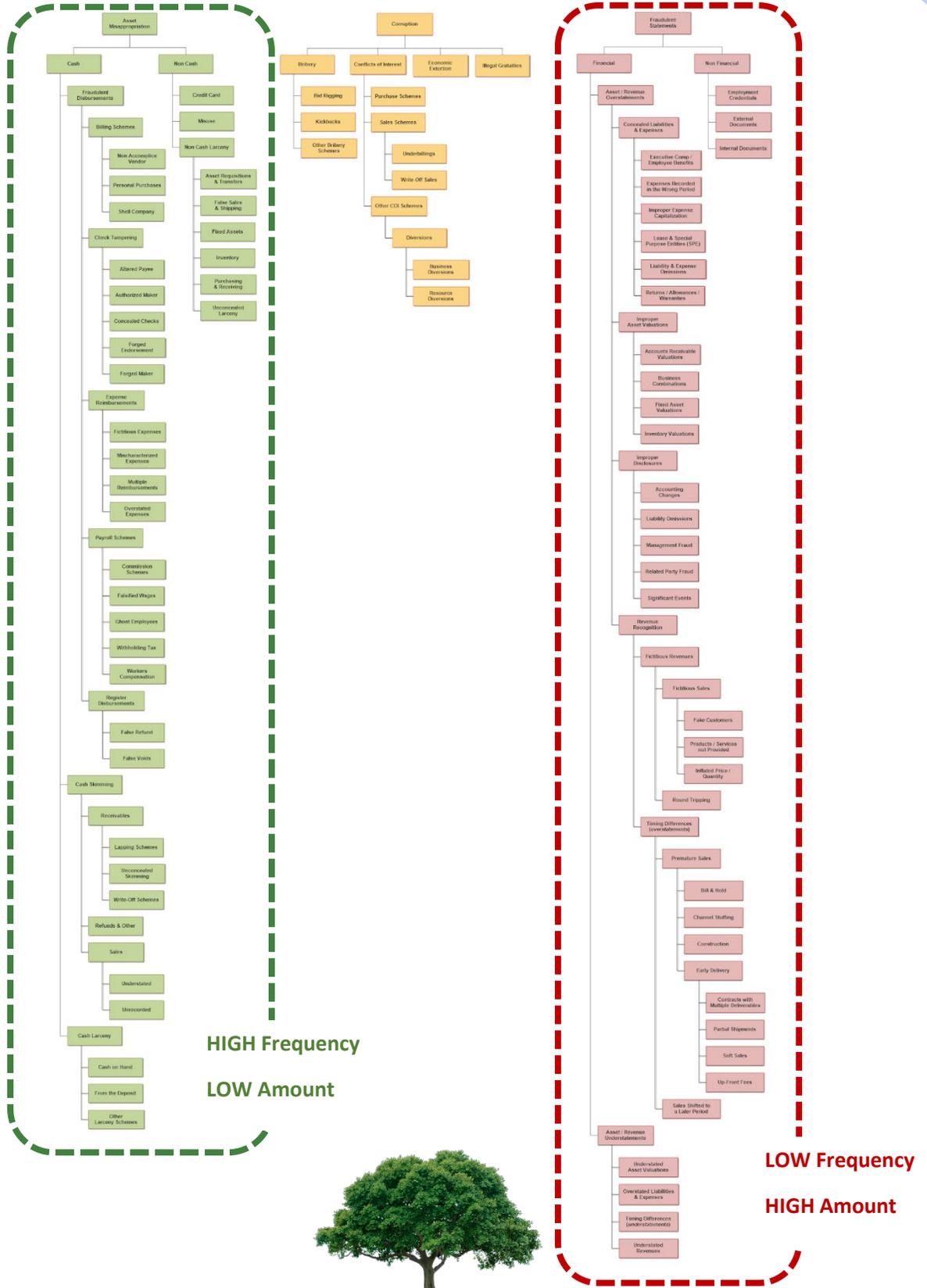
when customers have not ordered the product and it was shipped anyway.

Up-Front Fees

where the full amount of revenue is recognized when only the fees have been collected prior to the actual deliverable of products or services.

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Value of Holistic Fraud Risk Management



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In a mature fraud risk management program, you should calculate expected loss ⁸ that considers both the frequency (likelihood) and amount (impact) so you can adequately compare the importance of these vastly different types of schemes. The implications of this run beyond loss recognition estimates and impact the staffing model, talent strategies, tools, & techniques.

Considerations

- It takes a specialized skillset, which includes forensic accounting, in order to successfully investigate financial statement fraud schemes; and
- *Interviewing example:* If you are actively investigating allegations of a fraudulent disbursement scheme and you are interviewing an employee in the accounting department, you should also consider their access which could allow the capability to commit other fraudulent statement schemes.

Primary and Secondary Fraud Schemes

You can expect every case to have at least one primary scheme and at least one (if not more) secondary schemes.

Name two fraudulent statement schemes that will always be secondary schemes as opposed to being a primary scheme:

Fraudulent Statements > _____ :

➤ _____

Fraudulent Statements > _____ :

➤ _____

Primary Scheme

The principal fraud scheme which depicts the manner in which the fraudster attempted or committed the fraudulent act; i.e. the point of conversion.

Secondary Scheme

A secondary or supporting fraud scheme is one that is perpetrated so that the primary fraud scheme can be more successful; i.e. the camouflage (Bell, 2015, p. 8).

⁸ This is a training module within internal fraud investigations that has not been included in this training session due to the scope of the engagement.

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Practice: Identifying the Primary and Secondary Schemes

PRACTICE

Practice what you just learned.
Group exercise.



You have 5-minutes for this exercise.

Practice *identifying the primary and secondary schemes*:

A company provides a loan for a customer so the customer can purchase product with no expectation that the customer will repay the loan company (Frank, Jansen, & Carey, 2011, pp. 463-464).

In this example, the primary scheme would be:

Fraudulent Statements > _____ > _____

> _____ > _____ > _____

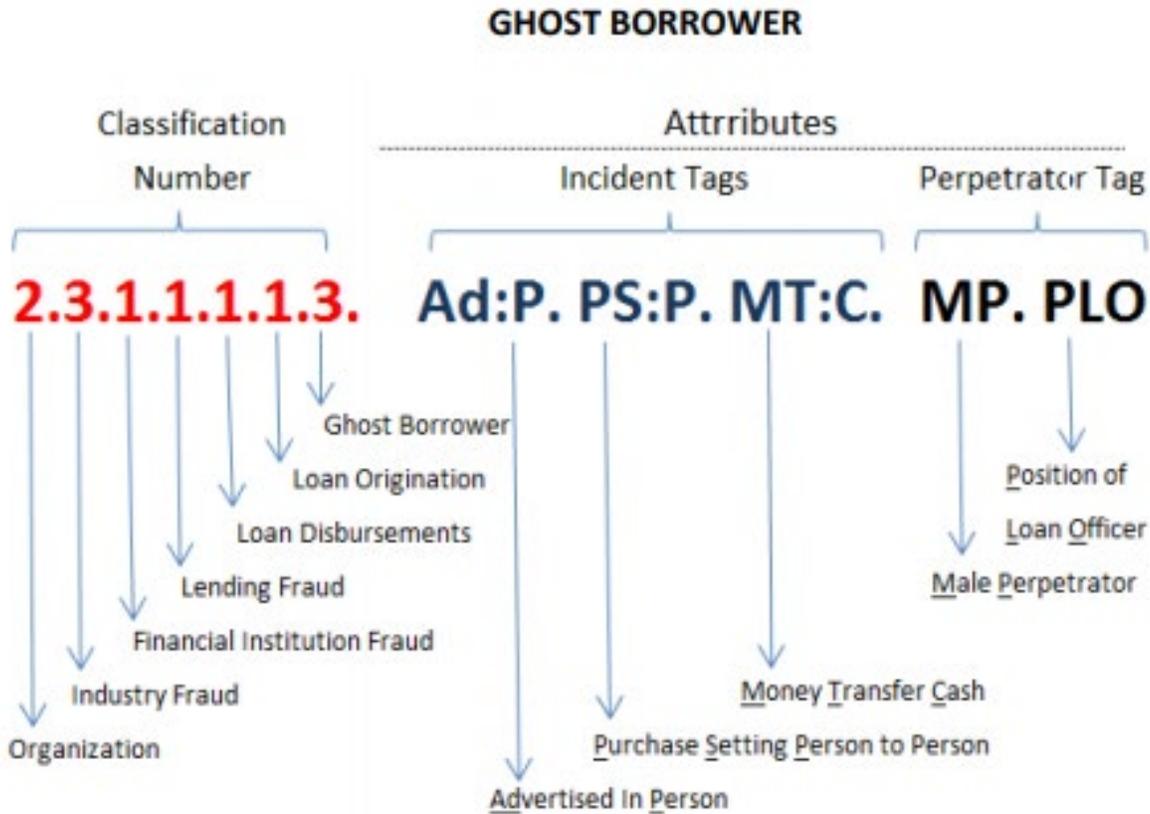
The secondary scheme would be:

Corruption > _____ > _____ > _____

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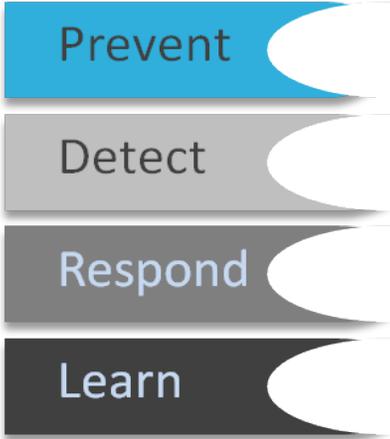
Implications for Data Analytics

Each scheme must be mutually exclusive so you can capture events, report upon, and analyze them. It is possible to capture additional information to better understand your risk:



Source: Bell, 2015

NOTES



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MODULE 2: Procurement Fraud Case Study

Goal: Development of Critical Thinking

Objective: This module will expose you to the analysis steps for core fraud schemes.

Outcomes: Upon completion of this module, you will be able to:

- list the six data quality dimensions;
- define each of the six data quality dimensions;
- define the measurement of each of the six data quality dimensions;
- define the unit of measure each of the six data quality dimensions;
- list questions to ask for each of the six data quality dimensions; and
- provide test examples for each of the six data quality dimensions.

Timeframe: the approximate timeframe is 1-hour.

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Why is This Important?

Performed correctly, this methodology provides a targeted direction of inquiry for the case. If an investigator skips steps in the general analysis methodology, the results can be skewed and rendered meaningless. Deficient investigations can create unnecessary legal and reputational risk for organizations and employees performing them.

Predication

Sufficient evidence has arisen such that should it be presented to another, a reasonable person would conclude that a crime may have been committed.



RULE

Predication must be established before an investigation can be launched.



RULE

Each case file must have documentation that includes the basis for how the **predication** was established for that specific case.



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Case Study: Predication

PRACTICE CASE STUDY

The case study was designed with elements taken from real investigations. The behavior that shows up in the data and documents is an example of what you may find in the real-world application. It is provided for illustration purposes only. It does not represent how all cases involving these fraud schemes would present in terms of evidence. This is merely one example where there are many possibilities.

The details such as name, address, bank account, salary, etc. are fictitious. They were made up for the purposes of creating a dataset where students could learn in a hands-on environment. Where applicable, we have attempted to call attention to aspects which do not reflect the typical real-world scenario.

Your name is "Pat Smith". You are a "Senior Fraud Investigator" in the "Special Investigations Division" for "Acme Company"⁹. You have received the below email from the Director of Special Investigations Division with the following instructions:

Date: 8 AUG 2017 09:20

From: Helen James <helen.james@acme.com>

To: Pat Smith <pat.smith@acme.com>

Subject: New Allegations of COI

Pat,

We received a notification from the internal audit department of allegations of a possible conflict of interest fraud.

Background

During a routine audit, an auditor was told during an interview that there is a possible conflict of interest issue in the procurement department of Acme Company. The manager of special projects has worked for Acme Company for nearly 20 years. He told the auditor that he is afraid there are employees who are benefiting from the procurement process rather than what is in the best interest for the company. He said vendors are linked to employees of Acme. The manager stated he tried to tell other people in the finance department, and they told him they found no issues. The manager determined he did not have enough evidence to say anything to his boss, so he said nothing. He decided to tell the auditor because it was still bothering him, and he hoped the auditor would look into it.

⁹ The name "ACME Company" represents a made-up name for the purposes of this case study. Any resemblance to a real company, in name or behavior, is purely a coincidence.

PRACTICE CASE STUDY

Edward Falso, the current manager in charge of procurement was promoted 2 ½ years ago. He was hired on September 13, 2012 as a procurement supervisor and was promoted to manager on July 24, 2015. Jim Crimen is Edward's direct supervisor and has been with Acme Company for over 15 years. Both Jim and Edward are trusted employees with excellent performance reviews.

Based on the above formal tip from a member of management, a substantive suspicion that a crime has been committed has been determined such that sufficient evidence has arisen to establish predication. Therefore, an investigation will be launched effectively immediately to prove or disprove the allegations of fraud.

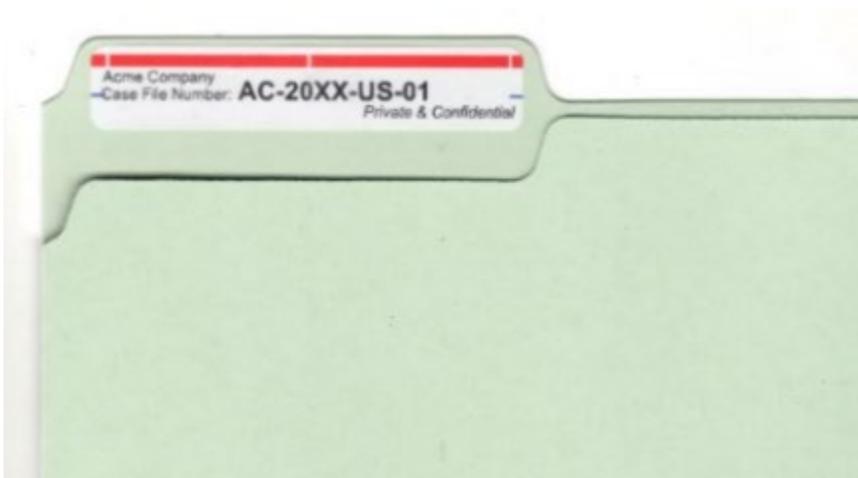
Please initiate a case file with the following number: AC-20XX-US-01

Your initial task will be to obtain the relevant datasets from I.T. and review for data quality dimensions. Once that is completed, we will discuss the next steps.

Regards,

Helen James
Special Investigations Division, Director
Acme Company

Based on the written instructions, you created a case file folder and printed the email from Helen James to document that predication was established for this case.



Folder name:

 A.2 Background

File name:

A.2.A Establish Predication

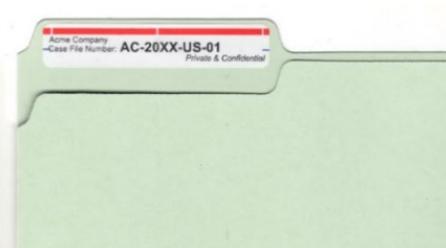
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PRACTICE CASE STUDY

You entered the first document into the chain of custody evidence log:

Chain of Custody							
Project Type: Investigation on allegations of conflict of interest in procurement							
Location: [City], [State], United States							
Year: 20XX							
EVIDENCE DESCRIPTION							
Index	WP #	Title	Purpose	Type	Date	Tag # (Physical)	Description (Serial, Model, & Other info)
1	A.2.A	Establish Predication	launch the investigation	hardcopy	mm/dd/yy	n/a	n/a
EVIDENCE RECEIVED FROM or PREPARED BY							
Date	First Name	Last Name	Employer	Location (Region, Country)	Department	Phone	Email
mm/dd/yy	Helen	James	Acme Co	United States	Special Investigations Division	+1 (987) 234-7890	helen.james@acme.com
PERSON TAKING INITIAL CUSTODY							
Original Language	Translator (Name)	First Name	Last Name	Phone	Email		
English	n/a	Pat	Smith	+1 (202) 123-4567	pat.smith@acme.com		
RELEASED TO							
Date	First Name	Last Name	Employer	Department	Phone	Email	

Link the original file to the predication folder by using the name of a .TXT file as a label.



Folder name:

 C.1 Predication

File name:

C.1.1 See A.2.A Establish Predication.TXT

PRACTICE CASE STUDY

Then you reply to Helen James to confirm the investigation has officially begun.

Date: 8 AUG 2017 09:46

From: Pat Smith <pat.smith@acme.com>

To: Helen James <helen.james@acme.com>

Subject: RE: New Allegations of COI

Ms. James,

The instructions have been received. A case file has been initiated. The predication for this case has been documented. I will begin the request for the relevant datasets from I.T. shortly.

Regards,

Pat Smith

Senior Fraud Investigator

Special Investigations Division

Acme Company

Workshop for Internal Fraud Investigations

Focus: Fraudster or Behavior?

The “fraud triangle” - in the 1950’s Dr. Donald Cressey, an American Criminologist produced what went on to become some of the most formative and longstanding research on the causes of fraud, and in particular fraud that took place through the abuse of trust or fraud classified as embezzlement. Cressey’s research of convicted embezzlers through structured interviews later became adapted into the commonly discussed “fraud triangle” depicting the relationship between three causal factors (Pressure, Opportunity and Rationalization) which Cressey’s theory felt important in explaining why otherwise law abiding employees succumbed to temptation to steal from those who trusted them. Cressey’s contributions beyond the research went on to suggest a shift in society’s response to how the legal system might investigate wrongdoing by such offenders and a professional construct of fraud examination knowledge not then found in law enforcement (Cressey, 1953).

Cressey’s research has in recent times come under academic and legal challenge, including other models such as the “fraud diamond” which added “Capability” to the fraud diamond. It’s focus prioritized in examination of detected fraud likewise has come under challenge with the emergence of risk management thinking and expectations of compliance and audit programs to be prevent fraud before it occurs (Wolfe & Hermanson, 2004). Cressey’s research is an important contributor to the understanding of fraud, but its psychological focus does not address in sufficient detail or priority the causes of opportunity or access needed to be present for the other acknowledged causes of fraud to be combined.

Organizations are increasingly charged with the prevention and less detection of fraud through risk management thinking and mandated by legal and regulatory requirements. As such we advocate that organizations must put primary and sufficient attention into the processes and their overarching objectives that generate “opportunity” in order to mitigate fraud risk, before any action designed to profile a potential offender. Indeed, profiling offenders is increasingly legally and ethically problematic, if not directly outlawed, for most organizations.

Strategies grounded in designing out or minimizing opportunity through disciplined risk assessment and control design and control monitoring and testing also provide the foundations for appropriate monitoring of employee behavior for anomaly in any process or transaction. Such process and control monitoring (neutral of the employees personal and biographical attributes) more readily meets modern day privacy needs for ethical and reasonable insider threat and fraud detection monitoring. As important, such strategies also allow anomaly detection at a behavioral level, before fraudulent transactions take place, where potential fraudsters can be seen to set the foundation for themselves or others to improperly access systems and manipulate controls for improper gains. Such pre-transaction monitoring does not wait for the rationalization of a potential offender to be assessed. Behavior outside expected norms and established performance standards becomes the trigger to appropriate review and escalation procedures up to and including the establishment of predication and investigation.



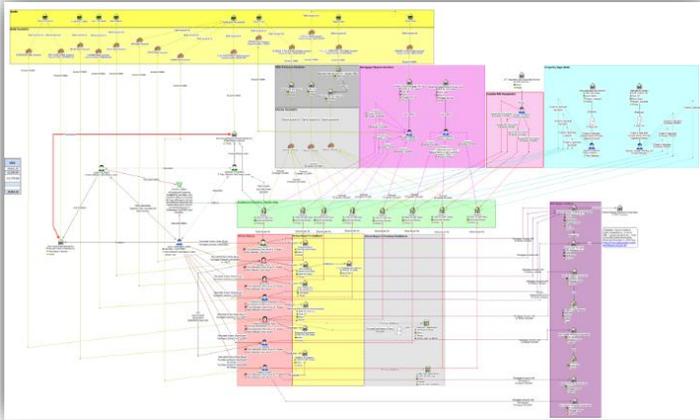
RULE

**Focus on the behavior in the data,
not the suspected fraudster.**

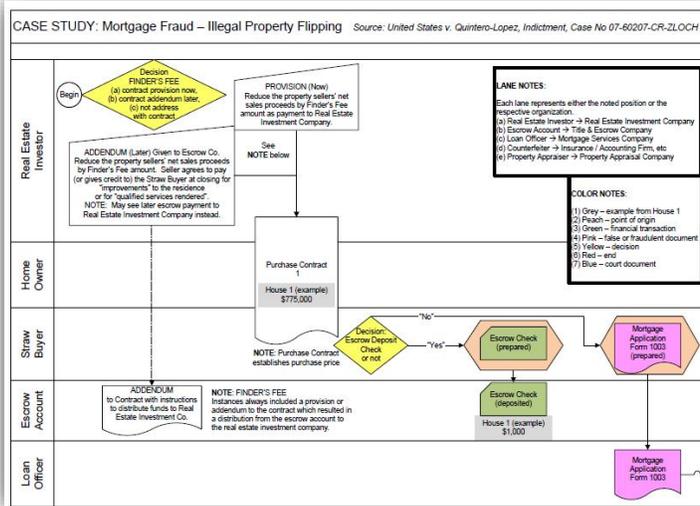


Not Addressed Today

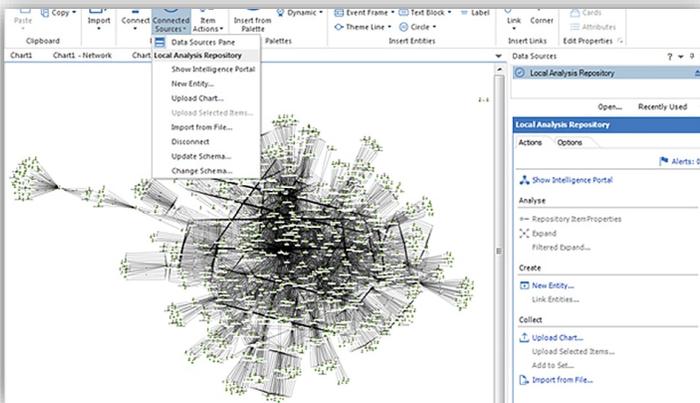
Neither link analysis, fraud flowcharts, cluster analysis, timelines, nor unstructured data.



Link Analysis

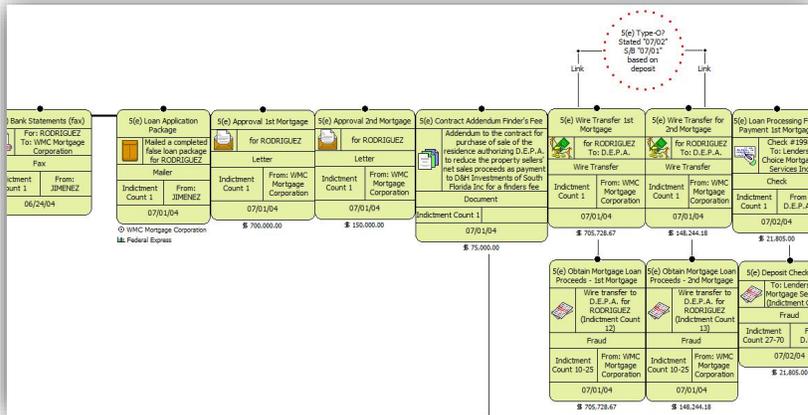


Fraud Flowcharts

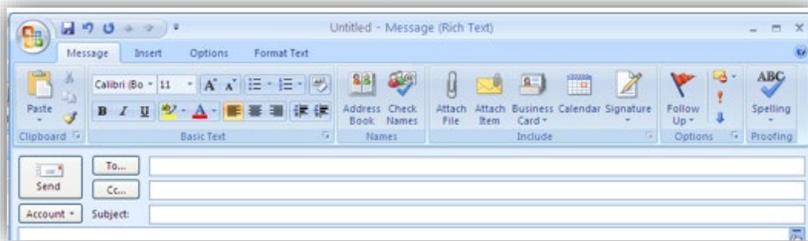


Cluster Analysis

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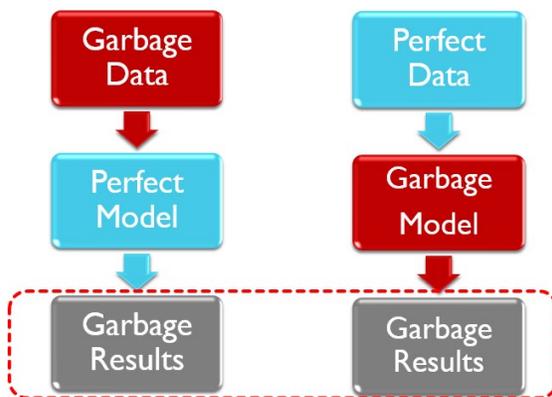
Timelines



Unstructured Data

Model Calculations Paradigm of “Garbage In – Garbage Out”

The importance of the model calculations paradigm of “Garbage In – Garbage Out” is ____.



Source: Gorajia (2016)

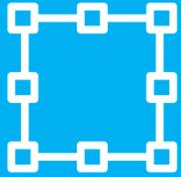
The importance of the model is?

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General Analysis Steps

When you analyze data for _____ reason, you should use these general analysis steps.

Step 1: Area



Area

Identify the area to be examined. This provides the direction of inquiry.

Example: purchasing



Identify the area to be examined. This provides the direction of inquiry.

Example: purchasing

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Case Study: General Analysis Steps – Step 1

PRACTICE CASE STUDY

Now that predication has been established, you will need to request the relevant datasets. However, there are six steps that you will need to complete before you can make the request. Let's start with the first step.

Step 1. Identify the area to be examined. Let's review the case background to determine the area to be examined. This will provide the direction of inquiry.

Background

During a routine audit, an auditor was told during an interview that there is a possible conflict of interest issue in the procurement department of Acme Company. The manager of special projects has worked for Acme Company for nearly 20 years. He told the auditor that he is afraid there are employees who are benefiting from the procurement process rather than what is in the best interest for the company. He said vendors are linked to employees of Acme. The manager stated he tried to tell other people in the finance department, and they told him they found no issues. The manager determined he did not have enough evidence to say anything to his boss, so he said nothing. He decided to tell the auditor because it was still bothering him, and he hoped the auditor would look into it.

Edward Falso, the current manager in charge of procurement was promoted 2 ½ years ago. He was hired on September 13, 2012 as a procurement supervisor and was promoted to manager on July 24, 2015. Jim Crimen is Edward's direct supervisor and has been with Acme Company for over 15 years. Both Jim and Edward are trusted employees with excellent performance reviews.

Based on the details provided within the background, there are allegations involving the procurement department. Therefore,

Step 1. Identify the area to be examined. _____

Since the special projects manager notified the finance department in the past and no issues were identified, you should consider obtaining documentation for that. It will be important to know when the finance department was notified, who was notified, and what was done about the allegations. The findings from that inquiry will need to be documented for this case file. However, the allegations of wrongdoing are related to activity in the procurement department. Thus, the area to be examined in this case is "_____".

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Step 2: Objective



Objective

Determine the objective of the tests to be performed. This is the broad statement of what will be accomplished with the analysis.

Example: identify questionable or unusual vendor disbursements

Determine the objective of the tests to be performed.

This is the broad statement of what will be accomplished with the analysis.

Example: identify questionable or unusual vendor disbursements

Case Study: General Analysis Steps – Step 2

PRACTICE CASE STUDY

Now that the area to be examined has been identified as " _____ " from Step 1, you will need to determine the objective of the tests to be performed for Step 2. Later, as you begin to conduct your analysis in Step 12, you will have testing objectives with much greater detail and granularity. The results from testing will serve to further drive the direction of

inquiry. Each new result will inform you about the next appropriate objective. However, at this stage in the process, you will only need to determine the broad statement of what will be accomplished with the analysis.

Step 2. Determine the objective of the tests to be performed.

Go back to the background and underline what is relevant for this step.

Based on the details provided within the background, there are allegations involving the _____ department. Specifically, the special projects manager alleges that "there are _____". Therefore, for

Step 2. Determine the objective of the tests to be performed: Identify _____ or

_____.

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Step 3: Tests



Tests

Determine the tests to be performed. Specific tests are how the objective will be met. Start with the suspected schemes. (Pull down from the library).



Determine tests to be performed.

Specific tests are how the objective will be met. Start with the suspected schemes.

Example scheme: conflict of interest

Example tests: match employee to vendor

- *address*
- *bank account*
- *phone number*



Refer to the _____ for tests to perform.

Case Study: General Analysis Steps – Step 3

PRACTICE CASE STUDY

Deciding which fraud schemes potentially apply is a critical aspect to data analysis for fraud investigations. If you are unsure, you should ask a supervisor or a subject matter expert to help you decide which schemes would be the most applicable for your project.

Now that the objective of the tests to be performed was identified as "Identify _____ or

_____ " from Step 2, you will need to determine the tests to be performed for Step 3. These specific tests in Step 3 are how the objective in Step 2 will be met.

As a starting point, the tests can be driven by the suspected fraud scheme. It is important to understand the full landscape of all of the possible fraud schemes. You can begin to build a library of fraud schemes and testing methodologies which can be used by your team in subsequent cases.

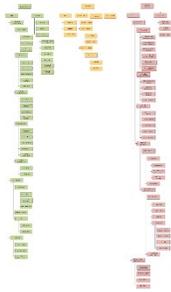
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Step 3. Determine the tests to be performed.

PRACTICE CASE STUDY

At this stage in the general analysis steps, you need to consider all of the possible schemes which could potentially apply to your case.

Fraud Landscape



RULE

You must consider the entire fraud landscape to determine potential applicable fraud schemes based on the early background information. This should be completed before attempting to develop tests for Step 3 of the General Analysis Steps.



Let's review the case background to identify the initial possible fraud scheme(s) for the working theory.

Go back to the background and double underline what is relevant for this step.

The relevant portion of the background is: _____ department. Allegations that "there are

_____". Therefore, the objective of the tests to be performed: Identify _____ or

_____ where _____ are linked to

_____ of _____.

While you will remain open minded about the schemes involved throughout the investigation and will adjust as you come to new information, to develop the working theory you will consider the most likely fraud schemes based on the background information.

PRACTICE CASE STUDY

Go to Module 1 and identify possible schemes for what is relevant in this step.



Under the asset misappropriation category, one potential fraud scheme for this case could include billing schemes:

[Asset Misappropriation > Cash > Fraudulent Disbursements >](#) _____

At this early stage, you should remain at the subcategory level. As the investigation progresses, you can examine the records further for the possibility of more precise schemes underneath the subcategory of

_____ such as:

- Non Accomplice Vendor
- Personal Purchases
- Shell Company

Another potential fraud scheme for this case would include:

[Asset Misappropriation > Non Cash >](#) _____

Under the corruption category:

[Corruption > Bribery >](#) _____ could apply.

In this case study, the allegations include both employees and vendors. Thus, it is likely going to involve an element of:

[Corruption >](#) _____

As the case progresses and you obtain more evidence, you will be in a better position to classify potential schemes as primary or secondary.

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PRACTICE CASE STUDY

Now that the potential applicable fraud schemes have been identified, you can determine some of the initial testing by scheme.

Initial tests for billing schemes could include:

- Test for _____ or _____.
- Test for instances where the amount for the _____, _____ and _____ does not match.
- Test for instances where the invoice or payment _____ is before the purchase order _____ or where the payment _____ is before the invoice or purchase order _____.

Initial tests for non cash larceny could include:

- Test for an increasing trend in purchasing _____.
- Test for an increasing trend in purchasing _____.

Initial tests for kickbacks could include:

- Test for an increasing trend in _____.

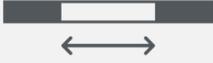
Initial tests for conflict of interest could include:

- Test for _____ which could produce a conflict of interest scenario.

You will further develop the testing later. For now, the initial tests are used to help you determine the data required to perform the analysis in Step 5.

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Step 4: Scope



Scope

Determine the scope of inquiry. Considerations include:

- review / audit / investigation
- area
- date range (statute of limitations)
- budget constraints
- based on the subject's access (investigations)

Determine the scope of inquiry.

Considerations include:

- *type: review / audit / investigation*
- *area (from step 1)*
- *date range (statute of limitations)*
- *budget constraints*
- *based on the subject's access (investigations)*

Statute of Limitations

Any law that bars claims after a certain period of time passes after an injury. The period of time varies depending on the jurisdiction and the type of claim.

Statutes of limitations exist for both civil and criminal causes of action, and begin to run from the date of the injury, or the date it was discovered, or the date on which it would have been discovered with reasonable efforts. Many statutes of limitations are actual legislative statutes, while others may come from judicial common law (Cornell Law School, n.d.) .

The *statute of limitations* for fraud in

_____ is _____.

(country) *(timeframe)*

Is a policy violation a crime?

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Case Study: General Analysis Steps – Step 4

PRACTICE CASE STUDY

Considerations

- You should refer to your department's specific protocol when developing the scope of your project.
- Unlike reviews and audits, the scope for an investigation is typically the initial scope. Over the course of an investigation, you could uncover evidence that would make it appropriate to widen the scope of the investigation. Ideally, each organization would have written protocols for obtaining and documenting the proper approval to adjust the scope of an investigation. Ultimately, changes in scope are a management decision.

Now that the initial tests to be performed in Step 3 have been determined, it is time to determine the scope of inquiry for Step 4.

The **type of project** for this case is an investigation, requiring a high degree (depth) of detail.

The **area** for this case is procurement.

The **statute of limitations** for financial crimes within the jurisdiction under which Acme Company falls is 3 years.

The **budget constraints** dictate you are the only investigator assigned to this case. You have been allocated 2 weeks to conduct the analysis and make recommendations for additional resources if needed. Otherwise, you will be expected to issue your report of findings at the end of the second week.

Fieldwork Schedule

If you were allotted 2 weeks to complete a case:

$$10 \text{ business days} = (8 \text{ hours per day}) * (10 \text{ days}) = 80 \text{ hours}$$



Folder name:

 C.6 Fieldwork Schedule

File name:

C.6.____ Fieldwork Schedule

PHASE	TIME ALLOCATION	
	Current	Recommended
Planning	hours	hours
Preliminary	hours	hours
Fieldwork	hours	hours
Reporting	hours	hours
Wrap Up	hours	hours
<i>total</i>	hours	hours

Workshop for Internal Fraud Investigations

PRACTICE CASE STUDY

Let's review the case background to identify any other scope limitations.

Go back to the background and triple underline what is relevant for this step.

At this point, you do not know if the allegations pertain to any particular individual. Therefore, you will have to examine activity related to all of the employees in the procurement department. Since you have been given a limited amount of time to conduct your analysis (only 2 weeks), you decide to examine activity over the last 2 ½ years. This is a good cut off period because it is within the statute of limitations and also around the time the procurement manager was promoted.

Step 4. Determine the scope of inquiry.

Based on the determinations, you wrote the scope as the following:

The Acme Company _____ investigation will cover _____ activity over the course of _____ years between the dates of _____ and _____.

Fieldwork will be conducted over a period of _____ beginning on _____ and ending on _____.

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Step 5: Data



Data

Determine the data required to perform the analysis.

Example: vendor master file, employee master file, purchases subledger

Determine the data required to perform the analysis.

Example:

- *vendor master file*
- *employee master file*
- *purchases subledger*

Case Study: General Analysis Steps – Step 5

PRACTICE CASE STUDY

Once the objectives, tests, and scope of the project have been determined, the type of data needed can be identified. Each company has a different I.T. infrastructure. Within that infrastructure, there are different systems. Each system captures different data items (fields). The names used here are for

informational purposes. You will need to familiarize yourself with the infrastructure, systems, and data items of the company you will be analyzing.

Considerations

Deciding which datasets you will need is a critical aspect to data analysis. If you are unsure, you should ask a supervisor or other subject matter expert to help you decide which datasets would be the most appropriate for your project. Alternatively, you could call someone in your I.T. department (*if confidentiality is not required*). They generally have a good understanding of what is available and may be able to help you decide what is needed.

Step 5. Determine the data required to perform the analysis.

Now let's determine which datasets you need to perform the initial tests.

Test for duplicate invoices or payments - For this test, you would need the _____.

It is a general ledger transaction level file that includes _____.

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PRACTICE CASE STUDY

Test for instances where the amount for the purchase order, invoice, and payment does not match - For this test,

you would need the _____.

Test for instances where the invoice or payment date is before the purchase order date or where the payment date is before the invoice or purchase order date - For this test, you would need the _____

Test for an increasing trend in purchasing returns - For this test, you would need the *purchase and returns allowance journal* which keeps a record of purchasing returns ¹⁰.

Test for an increasing trend in purchasing write-offs - Unless the amount is unusually high, e.g. from an extraordinary event ¹¹, the write-offs on inventory will be reported within the cost of goods sold account ¹². For this test, you would need the *account activity for the cost of goods sold account*. This should include the corresponding account entry, i.e. both debits and credits with the name of the other account.

Test for an increasing trend in cost of goods sold - For this test, you would need the *monthly income statements* which have both the cost of goods sold and revenue amounts.

Test for undisclosed relationships which could produce a conflict of interest scenario - For this test, you would need the _____ *master file* and the _____ *master file*. Since the scope is limited to the procurement function and the inquiry involves payments, we will only need employees in the purchasing and accounting departments. In addition, since Acme company maintains sub (meaning "subordinate", i.e. a lower level nesting) vendor files for *company key stakeholders* for vendors and *third-party disclosures* from employees, we will need those as well.

¹⁰ Remember that in accounting terms, the purchase and returns allowance account is a contra account with a normal credit balance which is applied against the purchases account where it has a normal debit balance.

¹¹ Remember that in accounting terms, an extraordinary event involving a write-off would require its own line item on the income statement for that period.

¹² If the amount is not large enough to be included in the extraordinary events general ledger account, but not small enough to be included in the cost of goods sold account, it is possible that this would be included in an expense account such as "Loss on Write Down of Inventory".

Workshop for Internal Fraud Investigations

Step 6: Owner



Owner

Identify the owner of the data. This is required to obtain access to the datasets.

Example: HR for the employee master file, Purchasing for the vendor master file, and Accounting for the purchases subledger

6

Determine the owner of the data. This is required to obtain access to the datasets.

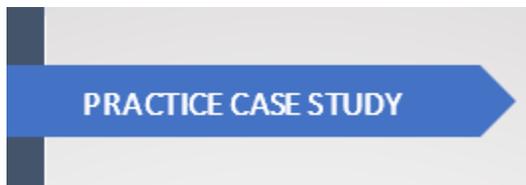
Example:

- **Purchasing** - vendor master file
- **HR** - employee master file
- **Accounting** - purchases subledger

If you don't know who the owner is, think through:

- I need that file, what system would the file be generated from?
- Who owns or is responsible for that system?
- If you don't know or if you are having a hard time determining that, you can ask your IT auditor or you could just call someone in your IT department directly.

Case Study: General Analysis Steps – Step 6



Direct SQL queries are best.

In order to ensure access to the datasets, it is best to be given permission to run SQL queries on the database. This practice ensures the analyst/auditor/investigator has access to the full population of data. Likewise, it is advisable if the information systems or information technology (I.T.) employee is suspected of possible collusion. There have been cases where the I.T. administrator was in collusion with the primary fraudster and was a coconspirator. As a result, the I.T. administrator provided only partial data and purposefully withheld incriminating records as a means to cover up their direct involvement in the fraud scheme. Thus, accessing the database directly is the best way to ensure you have full access.

Requests sent to an I.T. administrator is second best.

Sometimes, the analyst/auditor/investigator does not have the required skillset to perform direct SQL queries on the database. Other times, the team may not be given permission to access the database directly. This can be a matter of I.T. policy applicable to both internal and external teams or access could simply be withheld in that specific instance. Either way, direct access is not always possible. When that happens, the next best source of datasets is to obtain them from the I.T. administrator.

Try to avoid obtaining datasets from the business owners (departments). You cannot be certain you will be provided with all of the requested data. It is better to obtain the dataset from an I.T. administrator. If you are provided datasets from the business owner, it is best practice to also obtain the dataset from an I.T. administrator and verify the results are exactly the same. If not, then you have another direction of inquiry as to the reason why.

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PRACTICE CASE STUDY

Step 6. Identify the owner of the data.

You determine that in this case direct access to the data is not possible. Therefore, the datasets identified in Step 5 of the general analysis steps will have to be requested from I.T.

As a reminder, in Step 5 you determined you would need the following files:

- purchases subledger
- purchase and returns allowance journal
- account activity for the cost of goods sold account
- monthly income statements
- employee master file
- vendor master file
- company key stakeholders
- third-party disclosures

As you review the files you will need, you suddenly remember you had heard that Susan Dills, the I.T. administrator, was on leave (holiday). Susan had not taken a vacation in over a year. It was much overdue, but now you weren't sure who should receive the request in her absence.

After a quick call to the I.T. department, you learn that John O'Conner was the person covering for Susan while she was away. However, John was new to the company and not very familiar with the accounting system. John suggested he could compile the datasets for the general files, but that it might be better to ask the accounting department for the 2 nonstandard files and the 1 report. He said he knew the work you were doing was really important and it just might make more sense to ask Anita Check in accounting to retrieve those.

It is not ideal. The investigation involves purchasing and those payments could involve people in accounting as well. You decide that it seems like the best option at the moment. If needed, you could ask Susan to compile them when she returns from vacation (if it's within your 2-week timeframe). You ask John for his email address and let him know you will be sending a written request over shortly.

With that information you can complete Step 6.

Consideration: If you were going to perform direct SQL queries, you would need to know who the owner of the data was in order to obtain permission for access if you didn't have it already. However, in this case, John from I.T. and Anita from accounting will be retrieving the datasets for you.

Step 6. Identify the owner of the data:

John O'Conner, I.T. department: John will compile the standard files for you.

- purchases subledger
- employee master file
- vendor master file
- company key stakeholders
- third-party disclosures

Anita Check, accounting department: Anita will provide the nonstandard files and the report (income statements).

- purchase and returns allowance journal
- account activity for the cost of goods sold account
- monthly income statements

Workshop for Internal Fraud Investigations

Step 7: Request



Request

Request the data. Make a formal request for the data.

Example: Written request to each owner

7

Request the data. Make a formal request for the data if no direct access, e.g. SQL or API.

Example: written request to each owner

SQL

Structured Query Language is a standard computer language for relational database management and data manipulation. SQL is used to query, insert, update and modify data.

API

Application Programming Interface

Considerations.

The following are considerations:

- If your team already has a **template** they use to request datasets, then use that template. However, if you are starting from scratch, you can use the template in the Case Study as a starting point.
- A decision will need to be made ahead of time to **disclose the active investigation**. Depending on the circumstances of the case, you may or may not want to notify the I.T. department about the possibility of an investigation.
- The **host system** will need to be based on the specifics of the company and where their data resides. If you are unaware of the host system, you can call the I.T. administrator and request that information verbally.
- The **data format** for the purposes of this course will be a .CSV file. This is because the course has been designed for analyzing data using spreadsheets. However, there are alternative ways to analyze data using various software applications. The criteria for each software are different. For example, the best way to receive data for some software is as a flat file format (no delimiters), e.g. .TXT file. Also, notice that the request is for data in a format that can be easily analyzed. The request is not for a PDF file that will have to be entered into a spreadsheet manually. For information on converting bank statements from PDF to a spreadsheet, watch this *FraudCast* video: <https://fraud-doctor.com/fraudcast-bank-statement-review-automation/>

Workshop for Internal Fraud Investigations

- The **data delivery medium** will depend on the reason for the analysis. For example, during an analyst review or internal audit, it might be best to have the data placed on the secure department specific public network folder as an easy means to transfer the data. However, for external audits and independent fraud investigations, it may be best to receive the data on an external hard drive for large volume or a CD-ROM for small volume datasets.
- The **control totals** should be provided as the sum for each amount field.

Record

A record is a set of related values, e.g. a row in a table (Askham et al, 2013).

Case Study: General Analysis Steps – Step 7

PRACTICE CASE STUDY

You requested the data from General Analysis Steps – Step 5 from the data owners you identified in General Analysis Steps – Step 6.

John O’Conner, I.T. department: John will compile the standard files for you.

- purchases subledger
- employee master file
- vendor master file
- company key stakeholders
- third-party disclosures

Anita Check, accounting department: Anita will provide the nonstandard files and the report (income statements).

- purchase and returns allowance journal
- account activity for the cost of goods sold account
- monthly income statements

On the next page, you will note the first data request letter to John O’Conner for the purchases subledger. One request letter was needed for each file.

Workshop for Internal Fraud Investigations

PRACTICE CASE STUDY

Date: 8 AUG 2017 01:16PM

From: Pat Smith <pat.smith@acme.com>

To: John O'Conner
<john.oconner@acme.com>



Subject: Data Request Letter – Purchases Subledger

John,

As part of our investigation (case file number AC-20XX-US-01), we will be performing certain investigative tests in the procurement area using data analysis software. For the specific tests we need to perform, we require the purchases subledger file be available for us by the date requested below.

We will need this file in a .CSV format. Please do not transfer the file to ASCII in the download if you are downloading the file from a mainframe computer (for flat files with no delimiters).

Please provide a copy of the data specified below:

Host System	Oracle, OS/390
File/Table Requested	Purchases Subledger – It is a general ledger transaction level file that includes payments and the relative invoices and purchase orders.
Time Period	From January 1, 20XX, to June 30, 20XX, inclusive. (<i>Range: 2 ½ years</i>)
Filter Criteria	Include all transactions from all vendors.
Delivery Date	MM/DD/YYYY (<i>Turnaround time: 1 day</i>)
Data Format	.CSV format
Data Delivery Medium	Please place the file on a CD-ROM (space permitted) and I will pick it up from your office upon notification that it is available.

Please provide a summary report that includes record layout information, control totals, and a printed sample from the file (25 records). For your reference, a sample report has been attached (see below).

Do not hesitate to contact me should you have any questions or require additional information.

Regards,

Pat Smith
Senior Fraud Investigator
Special Investigations Division
Acme Company

Workshop for Internal Fraud Investigations

PRACTICE CASE STUDY

Sample Summary Report

ATTN: Jane Doe, Internal Audit 08/08/20XX

FROM: John Doe, IT

RE: Summary report for Supplies data

File: Transactions_supplies.fil

This file has a fixed record length of 59 and can be defined with the following record layout:

Field name	Type	Start	Length	Decimals/Format
inv_no	ASCII	1	7	
cust-no	ASCII	8	6	
terms	ASCII	14	6	
inv_amt	NUMERIC20	8	2	
sales_no	ASCII	28	6	
inv_date	DATE	34	8	YYYYMMDD
amt_rec	NUMERIC42	10	2	
balance	NUMERIC52	8	2	

Control totals:

There are 358 credit transactions with invoice dates in the calendar year 20XX. Control totals are as follows:

- Record count: 1264
- Total of:
 - inv_amt: \$2,213,014.23
 - amt_rec: \$74,137.99
 - balance: \$2,138,876.24

PRACTICE CASE STUDY

Printed sample:

invoice number	customer number	terms	invoice amount	sales number	invoice date	amount received	bal
070104397	11663	net30	4.75	000100	20000101	0.00	4.75
070104677	13808	net20	6.87	000101	20000101	6.87	0.00
070104657	12433	net10	4.00	000102	20000102	2.00	2.00
070104327	11663	net30	2.50	000103	20000102	2.50	0.00

You receive a clarification email from John O’Conner:

Date: 9 AUG 2017 9:18AM

From: John O’Conner <john.oconner@acme.com>

To: Pat Smith <pat.smith@acme.com>

Subject: Data Request Letter – Third-Party Disclosures Clarification

Pat,

I just wanted to send a quick note about the third-party disclosures file. Your request asked for the third-party disclosures for “all employees and all vendors”.



Host System	Oracle, OS/390
File/Table Requested	Third-Party Disclosures File – It is a master sub employee listing of certification and disclosures by employee for each vendor’s key stakeholders.
Time Period	Through June 30, 20XX, inclusive. (Range: from inception)
Filter Criteria	Include all employees and all vendors.
Delivery Date	MM/DD/YYYY (Turnaround time: 1 day)
Data Format	.CSV format
Data Delivery Medium	Please place the file on a CD-ROM (space permitted) and I will pick it up from your office upon notification that it is available.

Workshop for Internal Fraud Investigations

PRACTICE CASE STUDY

However, when you requested the employee master file, you only wanted to see the procurement and accounting employees.

Host System	Oracle, OS/390
File/Table Requested	Employee Master File – It is a master listing of employees with their contact information, payroll classifications, and banking details.
Time Period	Through June 30, 20XX, inclusive. (Range: from inception)
Filter Criteria	Include only employees from the procurement and accounting departments.
Delivery Date	MM/DD/YYYY (Turnaround time: 1 day)
Data Format	.CSV format
Data Delivery Medium	Please place the file on a CD-ROM (space permitted) and I will pick it up from your office upon notification that it is available.

I assumed you only wanted the procurement and accounting employee third-party disclosures. Therefore, I filtered the file by those two departments only.

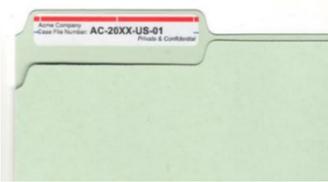
Lastly, you will note that only 4 employees are listed in the filtered (procurement and accounting) third-party disclosures. This is because by policy we only required employees that have authorization rights to disclose by certification. The rest of the employees are required to voluntarily disclose if a potential conflict of interest arises from a relationship (both internal and external to the organization), but we don't make them certify "yes/no". Since there are only 4 employees that can authorize purchase orders, invoices, or payments in the procurement and accounting departments, the file I gave you reflects those employees only.

If you need the other departments, please let me know and I will get those to you ASAP. Thanks!

Regards,

John O'Conner
 Administrator
 Information Technology
 Acme Company

PRACTICE CASE STUDY



1. You write him back and confirm.
2. You file the communications in the case file.

Workshop for Internal Fraud Investigations

Step 8: Receive



Receive

Receive the data from the requestee.

NOTE: chain of custody protocol (investigations)

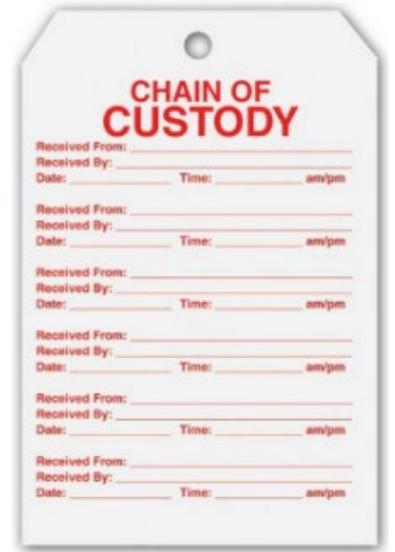
Working copy (analysis)

8

Receive the data from the requestee.

NOTE: for investigations

- *chain of custody*
- *working copy (analysis)*



RULE

During an investigation, treat every analysis as if it will be presented in court.



Name elements that should be captured on the chain of custody:

Chain of Custody

Refers to the foundation the prosecution needs to establish for certain types of exhibits to be admitted into evidence. Prosecutors must establish an unbroken chain of custody in order to get an exhibit into evidence (Bergman, 2019).

Working Copy

A copy is made of the original file placed into evidence that is then used for the purpose of conducting the analysis.

Workshop for Internal Fraud Investigations

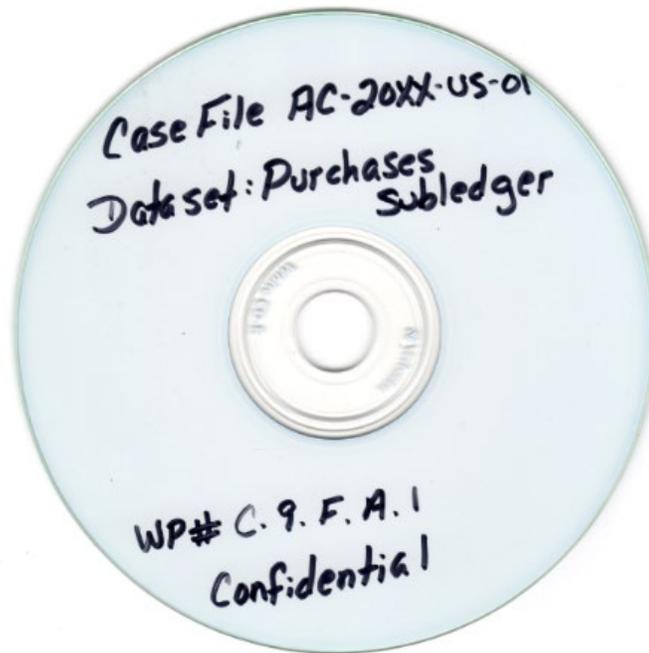
Case Study: General Analysis Steps – Step 8

PRACTICE CASE STUDY

Then next day, you get a call from John O'Conner in I.T. and he tells you the five datasets you requested are ready. You let him know you will be right over.

When you arrive at John's office, he hands you five CD-Roms, each with a requested dataset. You fill out an *evidence custody form* (not included here) for each of the five CD-Roms as you take custody of the physical evidence. You and John both sign each form in the respective places. He makes a photocopy of each form and keeps the copies since you must maintain the originals. You thank him for the quick turnaround time and head back to your office.

As soon as you return, you write the case file, dataset name, workpaper number, and note “confidential” on each CD-Rom. Then you catalog the evidence in the *chain of custody form*.



You give Anita Check a call and ask for the status of your requests, but you got her voice mail. You leave a message and decide to follow-up with her later. For now, you can tag your physical evidence, file the evidence custody form, and update your *chain of custody form*.



Workshop for Internal Fraud Investigations

Step 9: Data Quality Assessment



Data Quality Assessment

Assess the quality of the data based on the data quality dimensions of:

- completeness;
- uniqueness;
- timeliness;
- validity;
- accuracy; and
- consistency.

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Assess the quality of the data based on the data quality dimensions of:

- *completeness*
- *uniqueness*
- *timeliness*
- *validity*
- *accuracy*
- *consistency*



RULE

All **key** data elements must be assessed before any analysis can be performed.



What about data integrity?



Data Quality Dimensions

Something (data item, record, data set or database) that can either be measured or assessed in order to understand the quality of the data (Askham et al, 2013).

Data Integrity

is the overall completeness, accuracy and consistency of data. This can be indicated by the absence of alteration between two instances or between two updates of a data record, meaning data is intact and unchanged. Data integrity is usually imposed during the database design phase through the use of standard procedures and rules. Data integrity can be maintained through the use of various error-checking methods and validation procedures (Techopedia, n.d.).

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Completeness

Definition - The proportion of stored data against the potential of "100% complete".

Measure – A measure of the absence of _____ (null or empty string)

values or the presence of _____ values.

Unit of Measure – percentage.

Questions to ask include:

- What data is _____ or _____?
- What data is not _____?

Tests are often:

- to ensure key _____ fields are _____;
- to ensure no transactions are _____, i.e. _____; and
- for _____ in sequences.

Red flag tests often include:

- Test for transactions where invoices are not associated with a corresponding _____ number;
- Test for lack of authorization of key documents such as purchase order, _____, or payment; and
- Test for lack of related third-party _____ when employees are required to certify independence.

Example Conclusion: The data quality assessment for completeness analysis determined the following results: 99.60% of the dataset was complete such that 2 of the 501 records (0.40%) were blank.

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Uniqueness

Definition – No thing will be recorded more than _____ based upon how that thing is identified.

Measure – Analysis of the number of things as assessed in the 'real world' compared to the number of records of things in the dataset. The real world number of things could be either determined from a different and perhaps more reliable dataset or a relevant external comparator.

Unit of Measure – percentage.

Questions to ask include:

- Is there a _____ of the dataset?
- What records or *attributes* are _____?

Tests often include:

- Duplicate _____ (entire record)
- Duplicate _____ (partial record when uniqueness is expected)

Red flag tests often include:

- Test for duplicate vendor address to other vendors;
- Test for duplicate vendor address to employees;
- Test for duplicate vendor bank account numbers to other vendors;
- Test for duplicate vendor bank account numbers to employees;
- Test for duplicate invoice numbers for the same vendor; and
- Test for employee names, spouses and emergency contacts matched to vendors' due diligence where names are the same as key personnel at the vendor (owner, president, partner, C-level executive, board of directors, etc).

EXAMPLE CONCLUSION: The data quality assessment for uniqueness analysis determined the following results: 99.08% of the dataset was unique such that 23 of the 2,505 record attributes tested (0.92%) were duplicates.

Comparator

A device for comparing something with a similar thing or with a standard measure (Merriam-Webster, n.d.).

Attribute

An intelligible feature by which a thing may be identified; quality (Merriam-Webster, n.d.).

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Timeliness

Definition – the degree to which data represents reality from the required _____.

Measure – Time _____.

Unit of Measure – time.

Questions to ask include:

- What is the _____ in time between data point A and data point B?
- Was the record _____ as soon as possible after collection?
- Is the data made available frequently enough to inform management _____?

Tests often include:

- Test for average _____ from date of invoice; and
- Test for time to _____ the invoice.

Red flag tests often include:

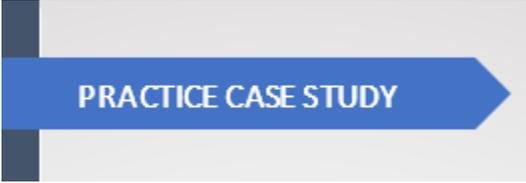
- Test for payments made in less than the payment terms, e.g. paid in 5 days when the terms are Net 30; and
- Test for short times to authorize, e.g. between opening the file to be authorized and submitting the file as authorized.

Considerations for red flag tests:

- When examining early invoice payments, be sure to **compare to the terms**. For example, you would not expect to observe average or individual payments made within 8 days of the invoice date when the terms are Net 30. It would be unusual for a company to pay invoices within 8 days when the terms require the balance of the invoice be paid in full within 30 days. Does that mean it is fraud? No, it does not prove fraud. It provides a direction of inquiry.
- Another example where terms could impact the analysis regarding early invoice payments is when the terms are 2/10 Net 30 which is sometimes presented as 2%/10 Net 30. This means that a **cash discount** of 2% will be provided if the invoice is paid within 10 days from the date of invoice; otherwise the full balance of the invoice is due within 30 days. In these instances, it is not unusual to observe payments made within 10 days of the invoice date.
- Look for **changes in baseline behavior**. For example, if a company typically pays within a certain number of days and suddenly or even sporadically pays much earlier, this could be a red flag. For example, if the average number of days the company pays is 28 from the invoice date and they suddenly have one or a few invoices paid within, for instance, 5 days from the date of invoice, this would be a red flag. The direction of inquiry would be all the invoices within scope for that vendor with particular attention paid to the outlier payments.

Workshop for Internal Fraud Investigations

Case Study: General Analysis Steps – Step 9



PRACTICE CASE STUDY

Now that you have received some of the files, you can perform the data quality assessment while you wait on the remaining datasets to come from the accounting department.

Let's start with the **purchases subledger** ¹³.

¹³ The colors represent cells in the spreadsheet where: **yellow** is a data entry field, **grey** is a calculated field.

Workshop for Internal Fraud Investigations

PRACTICE CASE STUDY

You perform the data quality assessment. Here is the summary tab from the **timeliness** tests:

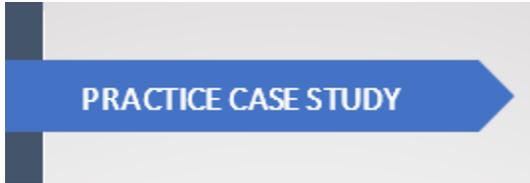
OVERVIEW			
Case File Number	AC-20XX-US-01		
Analyst Name	Pat Smith		
Title	Senior Fraud Investigator		
Department	Special Investigations Unit		
Employer	Acme Company		
Reviewer Name			
Title			
Department	Special Investigations Unit		
Employer	Acme Company		
OBJECTIVE			
Data quality assessment for timeliness to measure the time difference between attributes.			
SCOPE			
Dates are between MM/DD/YYYY and MM/DD/YYYY.			
The date of the assessment was on 8/17/2018.			
The dataset used was C.11.7.9 Purchases Subledger			
The working copy file name was C.11.7.9.a Purchases Subledger analysis			
ANALYSIS STEPS			
Number of records	10,906	Number of fields (columns)	17
		Number of data points (cells)	185,402

Workshop for Internal Fraud Investigations

PRACTICE CASE STUDY

Test 5: test for invoices paid on time or early					
Test_5:	(a) Terms in days only =RIGHT(M2,2)				
	(b) Payment in days per terms =H2-(E2+X2) format: general				
	(c) Invoices paid late = Data tab > highlighted Test_5(b) column > filter command > [select all >= 1] > COUNT less 1 for the header row				
	(d) Invoices paid early =IF(\$Y2<0,1,"")				
	(e) Invoices paid on time =IF(\$Y2=0,1,"")				
	(f) Invoices paid late =IF(\$Y2>0,1,"")				
Results:	10,906	total invoices tested		9,305	invoices paid early
	422	invoices paid late		1,179	invoices paid on time
	10,484	invoices paid on time or early		422	invoices paid late
Test 6: test for invoices paid within +/- 5% of the due date					
Test_6:	(a) The lower end of the range =X2-(X2*0.05)				
	(b) The upper end of the range =X2+(X2*0.05)				
	(c) If paid within +/-5% =IF(AND(H2-E2>=Y2,H2-E2<=Z2),"",1)				
Results:	10,906	total invoices tested.			
	7,958	invoices not paid within +/- 5% of the due date.			
	2,948	invoices paid within +/- 5% of the due date.			

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Test 7: test for vendors with all invoices paid within +/- 5% of the due date					
Test_7:	Pivot Table: highlight only the table in "Purchases Subledger" tab > insert > PivotTable > PivotTable > Table/Range: entire table > new worksheet > OK > Choose Fields: fields: Vendor ID Number, Count of Invoice Number, Test_6(c) columns: Sum Values rows: Vendor ID Number sum values: Sum of Count of Invoice Number, Sum of Test_6(c)				
Results:	0	vendors with all invoices paid within +/- 5% of the due date.			
	197	total number of vendors			
	Vendor ID	Number of Invoices in Total	No. Inv. Paid within +/- 5%	%	All invoices paid within +/- 5%
	<i>See tab "Test_7"</i>				
					0

CONCLUSION					
The data quality assessment for timeliness analysis determined the following results:					
	96.13%	of the dataset was timely such that 10484 of the 10906 invoices tested were were paid on time or early, with 422 3.87% invoices paid late.			
	27.03%	of the dataset was timely such that 2948 of the 10906 invoices tested were were paid within +/- 5% of the due date, with 7958 72.97% outside that range.			
	0.00%	of the dataset by vendor was timely such that 0 of the 197 vendors tested were were paid within +/- 5% of the due date, with 197 100.00% outside that range.			

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Validity

Definition – Data are valid if it conforms to the _____ (format, type, range) of its definition.

Measure – _____ between the data and the metadata or documentation for the data item.

Unit of Measure – Percentage of data items deemed _____ to _____.

Questions to ask include:

- What data is stored in a non-standard _____?
- Does the information collected _____ what it is supposed to measure?
- Does the data match the _____?
- Is the margin of error less than the expected change being measured, e.g. if a change of only 2% is expected and the margin of error in a survey used to collect the data is +/- 5 percent, then the tool is not precise enough to detect the change?
- Is the data _____?
- Do collected results fall within a plausible range, i.e. reasonableness test?
- Is the data within the _____ requested?

Tests often include:

- Test for scope _____;
- Test to ensure the _____ definition matches the data type, i.e. format of the data in that field; and
- Test to ensure _____ fields are in a useable format.

Red flag tests often include:

- Test for dates outside of the scope date range, e.g. dates from 1900 or dates in the future;
- Test for symbols in name fields when none are expected;
- Test for dates formatted as text instead of dates; and
- Test for amounts formatted as text instead of figures.

Syntax

In programming, syntax refers to the rules that specify the correct combined sequence of symbols that can be used to form a correctly structured program using a given programming language. Programmers communicate with computers through the correctly structured syntax, semantics and grammar of a programming language (Techopedia, n.d.).

Metadata

Is data about data. In other words, it is data that is used to describe another item's content (Techopedia, n.d.), e.g. the metadata in an email header describes elements about that email.

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Accuracy

Definition – The degree to which data correctly _____ the "real world" object or event being described.

Measure – The _____ to which data mirrors the characteristics of the real-world object or objects it represents.

Unit of Measure – The percentage of data entries that pass the data accuracy rules.

Questions to ask include:

- What data is _____?
- Is the _____ for the date producing an accurate result, e.g. Was MM/DD/YYYY entered as DD/MM/YYYY?
Note. This difference in the discrete measurement is often seen in context between United States and Europe.

Do the _____ match for amount fields and number of records?

Do _____ fields calculate properly, e.g. Is the student age derived from (the current date) less (date of birth) accurate?

Note. This continuous measurement is dynamic based on the current date which changes every day.

Tests often include:

- Test to ensure _____ totals match for amount fields;
- Test to ensure _____ totals for total number of records matches what was provided; and
- Test for reliability of _____ fields, e.g. vendor balance is correct.

Red flag tests often include:

- Determine total credit memos by year for each vendor with highest relative frequency (percentage); and
- Determine total purchases by year for each vendor with highest relative frequency (percentage).

Discrete Measurement

Checking whether something which is an absolute measure is true or false e.g. gender, date of birth, birth place (Askham et al, 2013).

Continuous Measurement

Items checked periodically e.g. age, weight or height, which change over time (Askham et al, 2013).

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Consistency

Definition – The _____ of difference, when comparing two or more representations of a thing against a definition.

Measure – Analysis of _____ and/or value *frequency*.

Unit of Measure – Percentage.

Questions to ask include:

- What data values give _____ information?
- When the same data collection method is used to measure / observe the same thing multiple times, is the _____ result produced each time?

Tests often include:

- Test to ensure the date of birth indicated in the field is the same value as listed on the application form; and
- Test for instances where aggregate invoice amounts are greater than the purchase order.

Red flag tests often include:

- Test for invoice amounts greater than the purchase order amount where there is no change order to account for the difference; and
- Test for invoice amounts greater than the purchase order amount where the invoiced item is for services.

Frequency

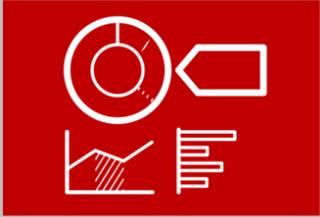
The number of times a value is identified in the dataset.

Aggregate

Taking all units as a whole (Merriam-Webster, n.d.), e.g. the sum of the invoices from a particular vendor.

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Step 10: Statistics



Stats

Calculate base statistics on the dataset prior to performing any analysis.

Example: COUNT the number of records with:

- + positive values
- - negative values
- 0 zero values
- N total records

Mean, std dev, etc

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Calculate base statistics on the dataset prior to performing any analysis.

Example: COUNT the number of records with

- + positive values
 - - negative values
 - 0 zero values
 - N total records
-
- μ Mean
 - δ Standard deviation

Mean

The mathematical *mean* is the average from the sum of the values in the dataset and dividing that number by the total number of values (records).

Median

The middle value in an ordered set, i.e. the list of numbers.

Case Study: General Analysis Steps – Step 10



After completing the data quality assessment on all the datasets received, you calculated the statistics for each dataset.

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Step 11: Limitations



Limitations

Ensure the attributes are within any preset limitations for specific analysis.

Example: Benford's Law – skew to the left, not bimodal, dataset is large enough

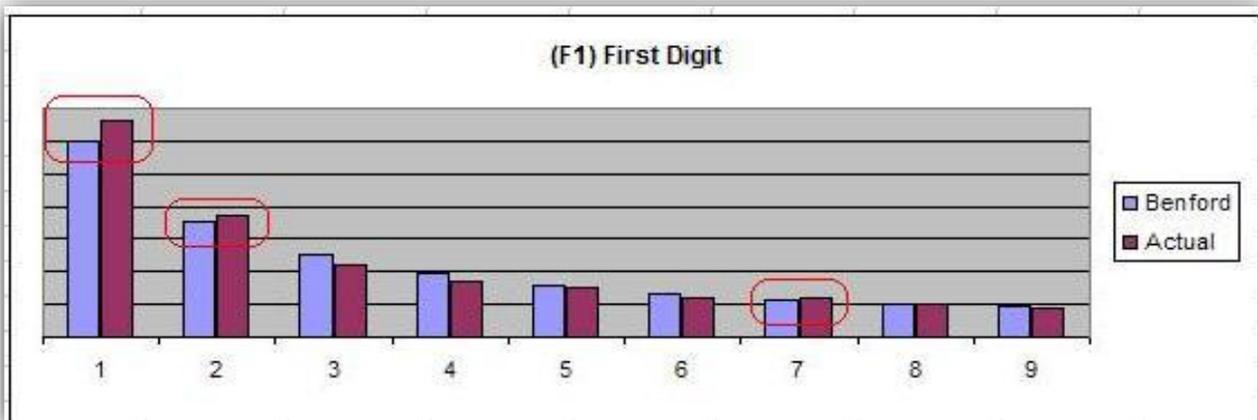
Ensure the attributes are within any preset limitations for specific analysis.

Example: with Benford's law

- skew to the left (histogram)
- not bimodal
- dataset is large enough

Mode

The value that occurs most often.



Case Study: General Analysis Steps – Step 11

PRACTICE CASE STUDY

After completing the statistics on all the datasets received, you ensured the attributes for each dataset were within prerequisite limitations for specific analysis determined in General Analysis Steps – Step 3.

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Step 12: Analysis



Analysis

Document each step such that any other person unfamiliar with the project / case can come behind you and get the same results by following your instructions.

NOTE – This is not accomplished with a simple audit log

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Document each step such that any other person unfamiliar with the project / case can come behind you and get the same results by following your instructions.

NOTE: This is not accomplished with a simple audit log.

Example Analysis: Benford's Law tests

D1	first digit
D1D2	first digit, second digit
D1D2D3	first digit, second digit, third digit
L1	last digit
L1L2	last digit, second to last digit
D2	second digit

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Case Study: General Analysis Steps – Step 12



After completing the analysis, the you determine the following results:



Testing:



Fraud Indicator:



Results:

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PRACTICE CASE STUDY

After completing the analysis, the you determine the following results:



Testing:



Fraud Indicator:



Results:

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PRACTICE CASE STUDY

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Fraud Indicator:



Results:

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Results:

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Results:

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After completing the analysis, the you determine the following results:



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Results:

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After completing the analysis, the you determine the following results:



Testing:



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Results:

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PRACTICE CASE STUDY

After completing the analysis, the you determine the following results:



Testing:



Fraud Indicator:



Results:

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Step 13: Investigate



Investigate

Investigate rule exceptions. This provide specific direction of inquiry for document examination and interviews.

NOTE: upload PDFs of relevant docs, analysis copies, summary, meeting notes, & review

13

Investigate rule exceptions. This will provide the specific direction of inquiry for documents, examination and interviews.

Gather evidence:

- *examine original documents*
- *interview relevant people*

Depending on what you find, you may have to go _____ to a _____

_____.

New information could require a different:

- Area (step 1);
- Objective (step 2); and
- Tests (step 3).



RULE

Everything before Step 13 is
only a Direction of Inquiry.
It is NOT evidence.



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Step 14: Reporting



Reporting

Document the findings in a formal report.

Different Types:

- internal audit **;
- external audit; and
- investigative.

** review, audit, follow-up

14

Document the findings in a formal report.

Different types:

- *internal audit (review, audit, or follow-up)*
- *external audit*
- *investigative*
- *root cause*



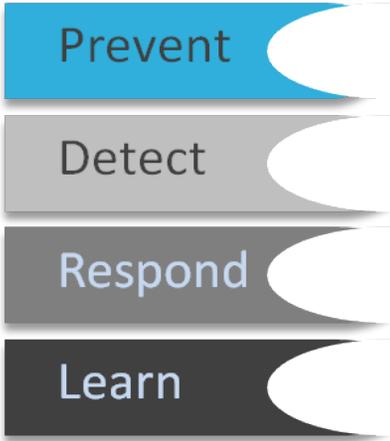
RULE

Use the past verb tense when **reporting findings**.



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NOTES



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Appendices

Appendix A - Glossary of Terms

Abuse - is behavior that is deficient or improper when compared with behavior that a prudent person would consider reasonable and necessary business practice given the facts and circumstances, but excludes fraud and noncompliance with provisions of laws, regulations, contracts, and grant agreements (GAO, July 2018).

Abuse also includes misuse of authority or position for personal financial interests or those of an immediate or close family member or business associate (GAO, July 2018).

Admission - When an interviewee is regretful about something.

Affirmative Act of Fraud - Those actions that establish that a particular action *was* deliberately done for the purpose of deceit, subterfuge, camouflage, concealment, some attempt to color or obscure events, or make things seem other than what they are (IRS, 2014, §25.1.1.3).

Aggregate - Taking all units as a whole, e.g. the sum of the invoices from a particular vendor.

Annualized Loss Expectancy (ALE) - The product of the annualized rate of occurrence (ARO) and the single -loss expectancy (SLE). It is often used to justify the cost of implementing countermeasures to protect an asset.

Annualized Rate of Occurrence (ARO) - An estimate of how often a fraud event would materialize each year. In other words, how often a threat would be successful in exploiting a vulnerability.

Appropriated Funds (APF) - Within the federal government *Appropriated Funds* refer to moneys allocated by legislation passed by Congress and signed by the President. Appropriated Funds are usually specified in Congress's yearly budget or continuing resolution. This money comes primarily from Federal Income Tax and other federal taxes. Appropriated Funds may only be used for the purpose they have been appropriated for (FederalPay.org, n.d.).

API – Application programming interface.

Asset Misappropriation - Theft of assets. *Asset misappropriation* schemes include those frauds in which a perpetrator employs trickery or deceit to steal or misuse an organization's resources. The distinguishing elements of asset misappropriation are that an organization's assets are taken through trickery or deceit, rather than by force (Albrecht, Kranacher, & Albrecht, n.d., p. 1).

Assurance – *Assurance* services involve the internal auditor's objective assessment of evidence to provide opinions or conclusions regarding an entity, operation, function, process, system, or other subject matters. The nature and scope of an assurance engagement are determined by the internal auditor. Generally, three parties are participants in assurance services: (1) the person or group directly involved with the entity, operation, function, process, system, or other subject matter — the process owner, (2) the person or group making the assessment — the internal auditor, and (3) the person or group using the assessment — the user (Institute of Internal Auditing, 2016).

Attribute - An intelligible feature by which a thing may be identified; quality (Merriam-Webster, n.d.).

Audit Assurance - An independent audit is an important service for providing users with assurance on entities' historical financial statements (International Federation of Accountants, n.d.).

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Audit Risk - the risk of a material misstatement multiplied by the risk of the auditors' failure to detect the misstatement.

Audit Sampling - The application of an audit procedure to less than 100 percent of the items within an account balance or class of transactions for the purpose of evaluating some characteristic of the balance or class (AICPA, n.d., AU 350.01).

Billing Schemes - Any scheme in which a person causes his or her employer to issue a payment by submitting invoices for fictitious goods or services, inflated invoices or invoices for personal purchases. Billing schemes use the company's accounting system to steal funds by submitting bogus claims in one form or another (Singleton & Singleton, 2010).

Bribery - *Bribery* is the offering, giving, receiving, or soliciting anything of value to influence an official act or business decision (Wells, 2010).

The term "official act" means that traditional bribery statutes proscribe only payments made to influence the decisions of government agents or employees. Commercial bribery cases deal with the acceptance of under-the-table payments in return for the exercise of influence over a business transaction (Kranacher, Riley, & Wells, 2010).

Cash - *Cash* misappropriation involves the misuse or theft of an organization's cash (Bell, 2015, p. 12).

Cash Larceny - A *cash larceny* may be defined as the intentional taking of an employer's cash (the term cash includes both currency and checks) without the consent and against the will of the employer.

Cash larceny involves the theft of cash by employees after it has been recorded on the entity's books. For this reason it is easier to detect larceny than it is to detect skimming (ACFE, 2010).

Cash Skimming - *Skimming* is the process by which cash is removed from the entity before it enters the accounting system. This is an "off-book scheme" because the receipt of the cash is never reported to the entity. This aspect of skimming schemes means they leave no direct audit trail. Consequently, it may be very difficult to detect that the money has been stolen.

Skimming can occur at any point where cash enters a business, so almost anyone who deals with the process of receiving cash may be in a position to skim money. This includes salespeople, tellers, waitpersons, and others who receive cash directly from customers (ACFE, *Other People's Money*, 2012).

Chain of Custody - *Chain of custody* typically refers to the foundation the prosecution needs to establish for certain types of exhibits to be admitted into evidence. Prosecutors must establish an unbroken chain of custody in order to get an exhibit into evidence (Bergman, 2019).

Channel Stuffing - A *channel stuffing* scheme occurs when a company offers its customer incentives to purchase products in the current period when the customer otherwise would not have purchased that quantity or at that time. Examples of incentives include deep discounts and offering extended credit terms.

Note: Also known as "trade loading" (ACFE, 2005, p. 1.313).

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Check Tampering - *Check tampering* is any scheme in which a person steals his or her employer's funds by intercepting, forging or altering a check drawn on one of the organization's bank accounts (ACFE, 2012, p. 12).

Check tampering is unique among fraudulent disbursements because it is the one group of schemes in which the perpetrator physically prepares the fraudulent check (Wells, 2010).

Circumstantial Evidence – indirect evidence used to infer something based on a series of facts separate from the fact the argument is trying to prove (adapted from i-Sight, n.d.).

Comparator - A device for comparing something with a similar thing or with a standard measure (Merriam-Webster, n.d.).

Concealed Liabilities & Expenses - Schemes in which financial statements are misstated by improperly recording liabilities and/or expenses (ACFE, 2006, p. 16).

Conclusions - are based upon observations of the evidence and is a synthesis of key points. The *conclusion* communicates why the report should matter to the reader (adapted from USC Libraries, 2019).

Conflicts of Interest - A *conflict of interest* is a situation that has the potential to undermine the impartiality of the person because of the possibility of a clash between the person's self-interest and professional or public interest (Kapka).

Continuous Measurement - Items checked periodically e.g. age, weight or height, which change over time (Askham et al, 2013).

Contracting - the activities around the chance to win the work up to the point the contract is awarded, i.e. anything issued or provided for the opportunity to bid or win a contract. For example: pricing structure, RFI, RFP, RFQ, attestations, accounting protocols, capability statements, agreements struct between two parties, etc.

Contracts with Multiple Deliverables - A fraud scheme where the full amount of the contract is recognized when services are still unfulfilled.

Control Risk - the risk that material misstatements that could occur will not be prevented or detected on a timely basis by an entity's internal controls. Inherent and Control Risk (auditee risk) are evaluated (auditor's judgment and professional skepticism) to determine the level of testing appropriate.

Core Fraud Schemes - fraud schemes that apply to any business in any industry.

Corroborate - to confirm or give support to someone else's statement, theory, or finding.

Corruption - Any scheme in which a person uses his or her influence in a business transaction to obtain an unauthorized benefit contrary to that person's duty to his or her employer (ACFE, 2006, p. 10).

The misuse of power, office, or authority for private benefit—through bribery, extortion, influence peddling, nepotism, fraud, speed money or embezzlement (Matsheza, 2008).

Data Quality Dimensions - Something (data item, record, data set or database) that can either be measured or assessed in order to understand the quality of the data (Askham et al, 2013).

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Data Integrity - is the overall completeness, accuracy and consistency of data. This can be indicated by the absence of alteration between two instances or between two updates of a data record, meaning data is intact and unchanged. Data integrity is usually imposed during the database design phase through the use of standard procedures and rules. Data integrity can be maintained through the use of various error-checking methods and validation procedures (Techopedia, n.d.).

Defamation - the legal term for the torts of *libel* and *slander* where statements are untrue, published to a third party or parties, on an unprivileged occasion, and damages the reputation of the subject.

Demonstrative Evidence - An object or document is considered to be *demonstrative evidence* when it directly demonstrates a fact. It's a common and reliable kind of evidence. Examples of this kind of evidence are photographs, video and audio recordings, charts, etc. (adapted from i-Sight, n.d.).

Detection Risk - the risk that risk that audit evidence will fail to detect material misstatements.

Digital Evidence - *Digital evidence* can be any sort of digital file from an electronic source. This includes email, text messages, instant messages, files and documents extracted from hard drives, electronic financial transactions, audio files, video files (adapted from i-Sight, n.d.).

Direct Evidence - The most powerful type of evidence, *direct evidence* requires no inference. The evidence alone is the proof. This could be the testimony of a witness who saw first-hand an incident of the crime (adapted from i-Sight, n.d.).

Discrete Measurement - Checking whether something which is an absolute measure is true or false e.g. gender, date of birth, birth place (Askham et al, 2013).

Documentary Evidence - Most commonly considered to be written forms of proof, such as letters or wills, *documentary evidence* can also include other types of media, such as images, video or audio recordings, etc. (adapted from i-Sight, n.d.).

Earnings Management - A subtler variant of earnings manipulation... [where *earnings management*] attempts to exploit the interpretive opportunities inherent in GAAP to produce reported earnings that confirm to outside expectations (Avey, Bakersville, & Brill, 2006, p. 10.2.2).

Earnings Manipulation - The direct alteration of accounting data for the purpose of fraudulently changing reported net income (Avey, Bakersville, & Brill, 2006, p. 10.2.1).

Economic Extortion - *Economic extortion* cases are the "Pay up or else..." corruption schemes; basically, the flip side of bribery schemes. Instead of a vendor offering a payment to influence a decision, an employee demands that a vendor pay him in order to make a decision in that vendor's favor. If the vendor refuses to pay, he faces some harm such as loss of business with the extorter's company. In any situation where an employee might accept bribes to favor a particular company or person, the situation could be reversed to a point where the employee extorts money from a potential purchaser or supplier (ACFE, 2010).

Enterprise Risk Management (ERM) - the culture, capabilities and practices, integrated with strategy-setting and performance, that organizations rely on to manage risk in creating, preserving and realizing value (COSO & WBCSD, 2018).

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Exculpatory Evidence - This type of evidence can exonerate a defendant in a – usually criminal – case. Prosecutors and police are required to disclose to the defendant any *exculpatory evidence* they find or risk having the case dismissed (adapted from i-Sight, n.d.).

Expense Reimbursements - *Expense reimbursement* schemes occur when employees make false claims for reimbursement of fictitious or inflated business expenses. Expense reimbursements are usually paid by organizations in the following manner: An employee submits a report detailing an expense incurred for a business purpose, such as a business lunch with a client, airfare, or hotel bills associated with business travel.

In preparing the expense report, the employee usually must explain the business purpose for the expense as well as the time, date and location in which it was incurred. Attached to the report should be supporting documentation for the expense, typically a receipt. The report usually must be authorized by a supervisor in order for the expense to be reimbursed (Kranacher, Riley, & Wells, 2010).

Expert Witness - is someone that has been designated by a judge as such who testifies in court as to the facts both known to him/her as well as those inferred based on their expertise and experience. An opinion as to the legal guilt or innocence of an individual is allowed.

Fact Witness - is someone that testifies in court as to the facts they have observed directly. An opinion as to the legal guilt or innocence of any individual is strictly prohibited.

Financial Statement Fraud - *Financial statement fraud* is the deliberate misrepresentation of the financial condition of an enterprise accomplished through the intentional misstatement or omission of amounts or disclosures in the financial statements to deceive financial statement users.

Financial statement fraud usually involves overstating assets, revenues, and profits and understating liabilities, expenses, and losses (ACFE, 2010).

Fixed Assets - property with a useful life greater than one reporting period, and which exceeds an entity's minimum capitalization limit (Bragg, 2019).

Forensic – Criminal investigation.

Forensic Evidence - *Forensic evidence* is scientific evidence, such as DNA, trace evidence, fingerprints or ballistics reports, and can provide proof to establish a person's guilt or innocence (adapted from i-Sight, n.d.).

Fraud – A knowing misrepresentation of the truth or concealment of a material fact to induce another to act to his or her detriment (*Black's Law Dictionary*, 2004).

Fraud Amount - is the total amount of fraudulent transactions. Keep in mind that this is the sum of the absolute value of the transactions.

Fraud Investigation – An investigation to prove or disprove allegations of a crime, specifically fraud.

Fraudulent Disbursements - *Fraudulent disbursement* schemes are those in which a distribution of funds is made from some company account in what appears to be a normal manner, but is actually fraudulent. The method for obtaining the funds may be the forging of a check, the submission of a false invoice, the doctoring of a time card, and so on. The key difference between fraudulent disbursement schemes and cash larceny schemes is in the former, the money is moved from the company in what appears to be a legitimate disbursement of funds (Singleton & Singleton, 2010).

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Fraudulent Statements - A statement related to a material fact and known to be untrue or made with reckless indifference as to its truth or falsity. A statement or representation may also be "false" or "fraudulent" when it constitutes a half truth, or effectively conceals a material fact (Bell, 2015, p. 18).

Free Recall - When an interviewee is asked to say everything they remember about a topic or event without regard to chronology.

Frequency - The number of times a value is identified in the dataset.

GAAP - The standards set by the Financial Accounting Standards Board (FASB) and the Governmental Accounting Standards Board (GASB) which determine how financial statements are prepared are known collectively as Generally Accepted Accounting Principles (GAAP) (FAF, "About GAAP").

Golden Copy – Also known as "Golden Record" which serves as the official, master version of a record of data. It is the original transaction.

Governance - an assembly of predictable and acknowledged activities that an organization's leaders set in place and through which they lead and manage an organization.

Green Book - In the United States, the Government Accountability Office's (GAO) *Standards for Internal Control in the Federal Government* are commonly referred to as the "Green Book" (GAO, "The Green Book").

Illegal Gratuities - *Illegal Gratuities* are similar to bribery schemes except there is not necessarily an intent to influence a particular business decision before the fact. In the typical illegal gratuities scenario, a decision is made that happens to benefit a certain person or company. The party who benefited from the decision then gives a gift to the person who made the decision. The gift could be anything of value. An illegal gratuity does not require proof of an intent to influence (ACFE, 2010).

Impact - The magnitude of each event.

Improper Asset Valuations - Schemes in which the value of an organization's assets is fraudulently misstated in the organization's financial statements (ACFE, 2006, p. 16).

Improper Disclosures - Schemes in which management fails to disclose material information in its financial statements in an attempt to mislead users of the financial statements (ACFE, 2006, p. 16).

Indicator of Fraud - Serve as a sign or symptom, or signify that actions *may* have been done for the purpose of deceit, concealment or to make things seem other than what they are. Indications, in and of themselves, do not establish that a particular action was done (IRS, 2014, §25.1.1.3).

Inherent Risk - the risk of material misstatement occurring in an assertion assuming no related internal controls related to the nature of the client, industry, or general ledger account.

Integer - a whole number.

Internal Auditing – *Internal auditing* is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes (Institute of Internal Auditing, 2009).

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Interviewee - The person being interviewed.

Interview - A face-to-face consultation to seek advice or information from a professional who is an expert in the things they are being asked to provide.

Interviewer - The person conducting the interview.

Inventory - Any scheme involving the theft or misappropriation of physical, non-cash assets such as *inventory*, equipment or supplies (ACFE, 2006, p. 15).

Issuance Date - The date the report was issued.

Known Loss - is the known amount of fraud based on evidence gathered during the course of the investigation.

Larceny - Theft of an asset after it has been recorded in the books and records of the organization (Bell, 2015, p. 14).

Libel - defamatory statements in writing.

Likelihood - The product of the probabilities of 2 or more independent events equal the probability that they both occur (Carlberg, 2018).

Mean - The mathematical *mean* is the average from the sum of the values in the dataset and then dividing that number by the total number of values (records).

Median - The middle value in an ordered set, i.e. the list of numbers.

Mens Rea - Refers to criminal intent. It refers to the state of mind statutorily required in order to convict a particular defendant of a particular crime. Establishing the *mens rea* of an offender is usually necessary to prove guilt in a criminal trial. It is premised upon the idea that one must possess a guilty state of mind and be aware of his or her misconduct; however a defendant need not know that their conduct is illegal to be guilty of a crime. Rather, the defendant must be conscious of the "facts that make his conduct fit the definition of the offense" (Cornell Law, n.d.).

Metadata - Is data about data. In other words, it is data that is used to describe another item's content (Techopedia, n.d.), e.g. the *metadata* in an email header describes elements about that email.

Methodology - The standard testing plan which details what should be examined for each objective.

Minor Property - non-expendable property (minor fixed tangible assets) is that which ordinarily retains its original identity during its period of use, is not fully consumed in normal use, has a unit acquisition value of \$2,500 or more and has a life expectancy of more than two years. When purchases are made in bulk for like items (example: a set of chairs) and the total cost is \$2,500 or more, regardless of the unit cost, the items may be capitalized and depreciated for federal financial reports (FFR) only (CNIC Instruction 7000.3, 2012).

Mission - The overall goal for an organization; it's reason for existence. The primary purpose of a *mission statement* is to communicate to current and prospective employees, customers, investors, suppliers, and competitors what the organization stands for and what it is trying to achieve (Daft, 2010/2013, p. 58).

Mode - The value that occurs most often.

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Misnomer – (mis·no·mer | \ ,mis-'nō-mər) A use of a wrong or inappropriate name (Merriam-Webster.com, n.d.).

Non-Appropriated Funds (NAF) - *Non-Appropriated Funds* refer to revenue earned by government departments, organizations or agencies by means other than taxation. Many government entities earn revenue and use those non-appropriated funds to pay for employee salaries and other expenses that are not explicitly authorized in Congress's Budget (FederalPay.org, n.d.).

Non Cash - Employees target inventory, equipment, supplies, and other *non-cash* assets for theft in a number of ways. These schemes can range from stealing a box of pens to the theft of millions of United States Dollars (USD) worth of company equipment (Bell, 2015, p. 15).

Nonsampling Risk - any factor that causes an erroneous conclusion not related to sampling, such as (1) incorrect audit procedures for a given objective or (2) nonrecognition of errors.

Occupational Fraud - is defined as the use of one's occupation for personal enrichment through the deliberate misuse or misapplication of the employing organization's resources or assets (ACFE, 2016, p. 6).

Opinions - In the law of evidence, *opinion* is an inference or conclusion drawn by a witness from facts some of which are known to him and others assumed... (*Black's Law Dictionary*, n.d.).

Partial Shipments - A fraud scheme are where incomplete products are delivered or when the customer is not ready for them yet.

Payroll Schemes - *Payroll schemes* occur when an employee fraudulently generates overcompensation on his or her behalf. These schemes are similar to billing schemes, in that the perpetrator generally produces some false document or otherwise makes a false claim for a distribution of funds by his employer. In payroll schemes, the false claim generally occurs when the fraudster falsifies payroll records, timekeeping records, or some other document concerned with the payroll function (ACFE, *Other People's Money*, 2012).

P-Cards – See *Purchase Cards*.

Physical Evidence - Evidence that is in the form of a tangible object, such as fingerprints, CD Rom, or hard copy documents are considered to be physical evidence. *Physical evidence* is also known as "real" or "material" evidence. It can be presented in court as an exhibit of a physical object, captured in still or moving images, described in text, audio or video or referred to in documents (adapted from i-Sight, n.d.).

Plagiarism - the submission of material authored by another person, but represented as the investigator's own work, whether that material is paraphrased or copied verbatim or near-verbatim form; improper acknowledgement of sources in reports or presentations (adapted from USC Libraries, 2019).

Predication - Sufficient evidence has arisen such that should it be presented to another, a reasonable person would conclude that a crime may have been committed.

Primary Scheme - The principal fraud scheme which depicts the manner in which the fraudster attempted or committed the fraudulent act.

Purchase Cards - The General Services Administration (GSA) contract provides, at the request of federal ordering agencies, *purchase cards* ("p-cards") and associated services for civilian and military government employees to make purchases for official government use. The intended benefits, just as in other corporate credit programs

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outside the government, are to streamline payment procedures and reduce the administrative burden associated with purchasing supplies and services.

Purchasing - the activities after the work has been contracted. For example: fulfillment of the contract, subsequent receiving, deliverables of services & products, invoicing, payment, the accounting of the services and products, etc.

Record - A record is a set of related values, e.g. a row in a table (Askham et al, 2013).

Register Disbursements - Two basic fraudulent schemes take place at the register: false refunds and false voids (Albrecht, Albrecht, & Kimbleman, 2008).

Refunds and voided sales are transactions processed at the register when a customer returns an item of merchandise purchased from that store. The transaction entered on the register indicated the merchandise is being replaced in the store's inventory and the purchase price is being returned to the customer. In other words, a refund or void shows a disbursement of money from the register as the customer gets his money back.

Fraudulent refunds and voids represent a class of occupational fraud that is a hybrid between cash theft and fraudulent disbursements. Since these schemes appear on the books as legitimate disbursements of funds from the cash register, they are classified as fraudulent disbursements. In practice, an employee physically removes cash from his cash register and absconds with it. In that respect, such schemes are very similar to cash larceny schemes (ACFE, *Other People's Money*, 2012).

Representative Sample - has the same characteristics as the population from which the sample was taken.

Revenue Recognition Fraud - Occurs when the principles of *revenue recognition* are manipulated to falsify income.

Risk Appetite – The amount of risk an entity is willing to accept in the pursuit of its strategy and business objectives (COSO, 2016).

Risk Tolerance – Represented by the perpendicular intersection of the risk appetite and performance lines. By refining the definition of risk tolerance, the focus is now on determining the amount of risk that is acceptable for a given level of performance. Organizations are able to articulate the boundaries of acceptable risk in the context of performance. The determination of those boundaries enables an organization to better assess whether changing levels of performance remain within the limits of acceptable variation. No longer are either risk or performance considered static and separate, but rather constantly changing and influencing each other (COSO, 2016).

Round Tripping - Another approach to overstating revenue where the recording of transactions between companies and from which transactions there are no economic benefits to either company (Frank, Jansen, & Carey, 2011, pp. 463-464).

Example: A company provides a loan for a customer so the customer can purchase product with no expectation that the customer will repay the loan company (Frank, Jansen, & Carey, 2011, pp. 463-464). In this example, the secondary scheme would be: Corruption > Conflicts of Interest > Sales Schemes > Write-Off Sales.

Sampling Risk - the risk that an auditor reaches an incorrect conclusion because the sample is not representative of the population, resulting in sampling error.

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Scheme Category - (a) asset misappropriation, (b) corruption, (c) fraudulent statements.

Secondary Scheme - A secondary or supporting fraud scheme is one that is perpetrated so that the primary fraud scheme can be more successful (Bell, 2015, p. 8).

Seed Value - the random start point, i.e. the first item in the sample.

Side Agreements - A *side agreements* scheme arises when agreements or amendments to existing agreements are made outside the normal process. Examples of side agreement schemes include unrestricted rights of return, an extension of established payment terms, unrestricted rights to cancel, the rights to continued negotiations, and contingencies that void the sale. NOTE – classified by the associated corruption scheme.

Single Loss Expectancy (SLE) - The loss of value based on a single event.

Skimming - Theft of an asset before it has been recorded in the books and records of the organization (Bell, 2015, p. 14).

Slander - defamatory spoken statements.

Soft Sales - A fraud scheme when customers have not ordered the product and it was shipped anyway.

SQL – *Structured Query Language (SQL)* is a standard computer language for relational database management and data manipulation. SQL is used to query, insert, update and modify data. Most relational databases support SQL, which is an added benefit for database administrators (DBAs), as they are often required to support databases across several different platforms.

First developed in the early 1970s at IBM by Raymond Boyce and Donald Chamberlin, SQL was commercially released by Relational Software Inc. (now known as Oracle Corporation) in 1979. The current standard SQL version is voluntary, vendor-compliant and monitored by the American National Standards Institute (ANSI). Most major vendors also have proprietary versions that are incorporated and built on ANSI SQL, e.g., SQL*Plus (Oracle), and Transact-SQL (T-SQL) (Microsoft). (Techopedia, n.d.)

Statute of Limitations - Any law that bars claims after a certain period of time passes after an injury. The period of time varies depending on the jurisdiction and the type of claim.

Statutes of limitations exist for both civil and criminal causes of action, and begin to run from the date of the injury, or the date it was discovered, or the date on which it would have been discovered with reasonable efforts. Many statutes of limitations are actual legislative statutes, while others may come from judicial common law (Cornell Law School, n.d.).

Supplies - property consists of any property with a life expectancy of less than two years acquired by purchase, gift, or transfer such as (a) *Supplies* and materials which after issue are immediately consumed in use or become incorporated in other property, thus losing their separate identities (examples: paints, glue, fuel, preserving materials, radio and TV tubes, etc.); or (b) Articles which, when issued for immediate installation, are used to repair or complete other articles and, thereby, lose their identity (examples: spare and repair parts and components) (CNIC Instruction 7000.3, 2012).

Syntax - In programming, *syntax* refers to the rules that specify the correct combined sequence of symbols that can be used to form a correctly structured program using a given programming language. Programmers

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communicate with computers through the correctly structured syntax, semantics and grammar of a programming language (Techopedia, n.d.).

Testimonial Evidence - One of the most common forms of evidence, this is either spoken or written evidence given by a witness under oath. It can be gathered in court, at a deposition or through an affidavit (adapted from i-Sight, n.d.).

Testing Strategy - A high level document that sets the standard approach for the area and objectives for testing.

Timing Differences - Schemes in which financial statements are intentionally misstated by recording revenues in a different accounting period than their corresponding expenses (ACFE, 2006, p. 16).

Total Exposure - is the complete exposure to the company should the employee commit fraud from the first day of employment and with every transaction. This represents the maximum risk for fraud based on the total activity of the employee during their entire tenure.

Type 1 Error - conclude control risk is higher than it actually is or that a material error exists when it doesn't.

Type 2 Error - conclude control risk is lower than it actually is or that a material error doesn't exist when it does.

Up-Front Fees – A fraud scheme where the full amount of revenue is recognized when only the fees have been collected prior to the actual deliverable of products or services.

Validate - to prove that something is based on truth or fact.

Variance - is a summary measure obtained by multiplying each possible squared difference $[X_i - E(X)]^2$ by its corresponding probability $P(X_i)$ and then summing the resulting products (Basic Business Statistics..., 2004, p. 167).

Waste - According to the 2018 Yellow Book, *waste* is defined as the act of using or expending resources carelessly, extravagantly, or to no purpose. *Waste* can include activities that do not include abuse and does not necessarily involve a violation of law (GAO, July 2018).

Working Copy - A copy is made of the original file placed into evidence that is then used for the purpose of conducting the analysis.

Yellow Book - In the United States, the Government Accountability Office's (GAO) *Government Auditing Standards* (GAS) are commonly referred to as the "Yellow Book" (GAO, July 2018).

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Appendix B – Key by Module

MODULE 1. FRAUD LANDSCAPE – CORE FRAUD SCHEMES

Fraud Defined > Errors

True or false. Statement: “An error could be considered a fraud.”

Mens Rea - Refers to criminal intent. It refers to the state of mind statutorily required in order to convict a particular defendant of a particular crime. Establishing the mens rea of an offender is usually necessary to prove guilt in a criminal trial. It is premised upon the idea that one must possess a guilty state of mind and be aware of his or her misconduct; however a defendant need not know that their conduct is illegal to be guilty of a crime. Rather, the defendant must be conscious of the “facts that make his conduct fit the definition of the offense” (Cornell Law, n.d.).

Can an administrative violation, e.g. a policy violation, be considered a fraud? Yes or no: (circle one). It depends. Why or why not? If the policy violation is not considered a crime, then “No”. However, if the policy violation would be considered a crime, then it could be a fraud; where not all criminal acts are labeled as a fraud.

Asset Misappropriation > Cash > Fraudulent Disbursements

Here, the subschemes of “Fraudulent Disbursements” are:

- Billing Schemes;
- Check Tampering;
- Expense Reimbursements;
- Payroll Schemes; and
- Register Disbursements.

Asset Misappropriation > Cash > Fraudulent Disbursements > Expense Reimbursements

The Internal Revenue Service (IRS) requires any expense at or above what amount to be accompanied by a receipt and expense report? \$ 75.00

Receipts and expense reports must contain information sufficient to substantiate ___ for each expense:

- Merchant;
- Location;
- Amount;
- Date; and
- Essential character of the expenditure.

Asset Misappropriation > Non Cash

What is an example of a *misuse* scheme? When an employee uses company equipment without permission on the weekends for his/her side business, e.g. bulldozer. The company machine obtains wear and tear not associated with legitimate business use. (or) Using the company car for personal trips.

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Corruption > Conflicts of Interest

Organizations often can and do perform activities where conflicts of interest exist, e.g. internal audit. The point is that the activity should be:

- managed through monitoring activities; and
- determined when it becomes unfair.

Primary and Secondary Fraud Schemes

Name two fraudulent statement schemes that will always be secondary schemes as opposed to being a primary scheme: Fraudulent Statements > Non Financial > Employment Credentials (secondary to, e.g. payroll fraud) and Fraudulent Statements > Non Financial > Internal Documents.

Practice *identifying a secondary scheme*:

A company provides a loan for a customer so the customer can purchase product with no expectation that the customer will repay the loan company (Frank, Jansen, & Carey, 2011, pp. 463-464).

In this example, the primary scheme would be: Fraudulent Statements > Financial > Asset/Revenue Overstatements > Revenue Recognition > Round Tripping

The secondary scheme would be: Corruption > Conflicts of Interest > Sales Schemes > Write-Off Sales.

Establish Predication

The purpose of a fraud investigation is to prove or disprove allegations of fraud.

During the investigation, you will be tasked with obtaining and evaluating evidence that both proves and disproves the allegations of fraud.

You are equally required to consider the possibility that the allegations are false.

Organizations should require that predication must be established before an investigation can be launched.

MODULE 2. FRAUD LANDSCAPE – DATA ANALYSIS

Model Calculations Paradigm of “Garbage In – Garbage Out”

The importance of the model calculations paradigm of “Garbage In – Garbage Out” is ____.

Even with a perfect model, if the data inputs are “garbage”, the results will become “garbage” and thus unusable.

General Analysis Steps

When you analyze data for any reason, you should use these general analysis steps.

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Case Study: General Analysis Steps – Step 1

Step 1. Identify the area to be examined. Procurement

Thus, the area to be examined in this case is "Procurement".

Case Study: General Analysis Steps – Step 2

Step 2. Determine the objective of the tests to be performed.

Now that the area to be examined has been identified as "Procurement" from Step 1, procurement department

there are employees who are benefiting from the procurement process

Based on the details provided within the background, there are allegations involving the procurement department. Specifically, the special projects manager alleges that "there are employees who are benefiting from the procurement process". Therefore, for Step 2. Determine the objective of the tests to be performed: Identify questionable or unusual vendor disbursements.

Step 3: Tests

Refer to the risk register for tests to perform.

Case Study: General Analysis Steps – Step 3

Now that the objective of the tests to be performed was identified as "Identify questionable or unusual vendor disbursements" from Step 2, you will need to determine the tests to be performed for Step 3.

Step 3. Determine the tests to be performed.

The relevant portion of the background is: procurement department. Allegations that "there are employees who are benefiting from the procurement process." Therefore, the objective of the tests to be performed: Identify questionable or unusual vendor disbursements where vendors are linked to employees of ACME.

Under the asset misappropriation category, one potential fraud scheme for this case could include billing schemes: Asset Misappropriation > Cash > Fraudulent Disbursements > billing schemes

At this early stage, you should remain at the subcategory level. As the investigation progresses, you can examine the records further for the possibility of more precise schemes underneath the subcategory of billing schemes such as...

Another potential fraud scheme for this case would include: Asset Misappropriation > Non Cash > Non Cash Larceny.

Under the corruption category: Corruption > Bribery > Kickbacks could apply.

In this case study, the allegations include both employees and vendors. Thus, it is likely going to involve an element of: Corruption > Conflicts of Interest

Initial tests for billing schemes could include:

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- Test for duplicate invoices or payments.
- Test for instances where the amount for the purchase order, invoice, and payment does not match.
- Test for instances where the invoice or payment date is before the purchase order date or where the payment date is before the invoice or purchase order date.

Initial tests for non cash larceny could include:

- Test for an increasing trend in purchasing returns.
- Test for an increasing trend in purchasing write-offs.

Initial tests for kickbacks could include:

- Test for an increasing trend in cost of goods sold.

Initial tests for conflict of interest could include:

- Test for undisclosed relationships which could produce a conflict of interest scenario.

Step 4: Scope

The statute of limitations for fraud in (country) _____ is (timeframe) _____.

Is a policy violation a crime? It depends on the policy. If violating the policy will also cause a law to be broken, then “yes”. If not, then “no”. It would merely be an administrative issue at that point.

Case Study: General Analysis Steps – Step 4

Step 4. Determine the scope of inquiry.

If you were allotted 2 weeks to complete a case:

$$10 \text{ business days} = (8 \text{ hours per day}) * (10 \text{ days}) = 80 \text{ hours}$$

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PHASE	TIME ALLOCATION	
	Current	Recommended
Planning	hours	32 hours
Preliminary	hours	
Fieldwork	hours	32 hours
Reporting	hours	12 hours
Wrap Up	hours	4 Hours
<i>total</i>	hours	80 hours

File name:

C.6.1 Fieldwork Schedule

Based on the above determinations, you wrote the scope as the following:

The Acme Company purchasing investigation will cover purchasing activity over the course of 2 ½ years between the dates of 1 JAN 2015 and 30 JUNE 2017. Fieldwork will be conducted over a period of 2 weeks beginning on 8 AUG 2017 and ending on 22 AUG 2017.

Case Study: General Analysis Steps – Step 5

Test for duplicate invoices or payments - For this test, you would need the purchases subledger. It is a general ledger transaction level file that includes payments and the relative invoices and purchase orders.

Test for instances where the amount for the purchase order, invoice, and payment does not match - For this test, you would need the purchases subledger.

Test for instances where the invoice or payment date is before the purchase order date or where the payment date is before the invoice or purchase order date - For this test, you would need the purchases subledger.

Test for an increasing trend in purchasing returns - For this test, you would need the purchase and returns allowance journal which keeps a record of purchasing returns.

Test for undisclosed relationships which could produce a conflict of interest scenario - For this test, you would need the employee master file and the vendor master file. Since the scope is limited to the procurement function and the inquiry involves payments, we will only need employees in the purchasing and accounting departments. In addition, since Acme company maintains sub (meaning

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"subordinate", i.e. a lower level nesting) vendor files for *company key stakeholders* for vendors and *third-party disclosures* from employees, we will need those as well.

Step 8: Receive

Name elements that should be captured on the chain of custody: _____

evidence description, evidence received from or prepared by, person taking initial custody, released to

Step 9: Data Quality Assessment

Data integrity is the overall completeness, accuracy, and consistency of data.

Completeness

Measure – A measure of the absence of blank (null or empty string) values or the presence of non-blank values.

Questions to ask include:

What data is missing or unusable?

What data is not referenced?

Tests are often:

to ensure key key fields are populated;

to ensure no transactions are missing, i.e. BLANKS; and

for gaps in sequences.

Red flag tests often include:

Test for transactions where invoices are not associated with a corresponding purchase order number;

Test for lack of authorization of key documents such as purchase order, invoice, or payment; and

Test for lack of related third-party disclosures when employees are required to certify independence.

Uniqueness

Definition – No thing will be recorded more than once based upon how that thing is identified.

Questions to ask include:

Is there a single view of the dataset?

What records or attributes are repeated?

Tests often include:

Duplicate record (entire record)

Duplicate attribute (partial record when uniqueness is expected)

Timeliness

Definition – the degree to which data represents reality from the required point in time.

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Measure – Time difference.

Questions to ask include:

What is the delay in time between data point A and data point B?

Was the record updated as soon as possible after collection?

Is the data made available frequently enough to inform management decisions?

Tests often include:

Test for average payment in days from date of invoice; and

Test for time to authorize the invoice.

Validity

Definition – Data are valid if it conforms to the syntax (format, type, range) of its definition.

Measure – Comparison between the data and the metadata or documentation for the data item.

Unit of Measure – Percentage of data items deemed valid to invalid.

Questions to ask include:

What data is stored in a non-standard format?

Does the information collected measure what it is supposed to measure?

Does the data match the rules?

Is the data corrupted?

Do collected results fall within a plausible range, i.e. reasonableness test?

Is the data within the date range requested?

Tests often include:

Test for scope date range;

Test to ensure the field definition matches the data type, i.e. format of the data in that field; and

Test to ensure name fields are in a useable format.

Accuracy

Definition – The degree to which data correctly describes the "real world" object or event being described.

Measure – The degree to which data mirrors the characteristics of the real-world object or objects it represents.

Questions to ask include:

What data is incorrect?

Is the entry format for the date producing an accurate result, e.g. Was MM/DD/YYYY entered as DD/MM/YYYY?

Do the control totals match for amount fields and number of records?

Do calculated fields calculate properly, e.g. Is the student age derived from (the current date) less (date of birth) accurate?

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Tests often include:

Test to ensure control totals match for amount fields;

Test to ensure control totals for total number of records matches what was provided;

and

Test for reliability of calculated fields, e.g. vendor balance is correct.

Consistency

Definition – The absence of difference, when comparing two or more representations of a thing against a definition.

Measure – Analysis of pattern and/or value *frequency*.

Questions to ask include:

What data values give conflicting information?

When the same data collection method is used to measure / observe the same thing multiple times, is the same result produced each time?

Step 13: Investigate

Depending on what you find, you may have to go back to a prior step.