

# MIS 5208 – Data Analytics for IT Auditors and Cybersecurity

## Lecture 02: The Nature of Fraud

Ed Ferrara, MSIA, CISSP

[eferrara@temple.edu](mailto:eferrara@temple.edu)

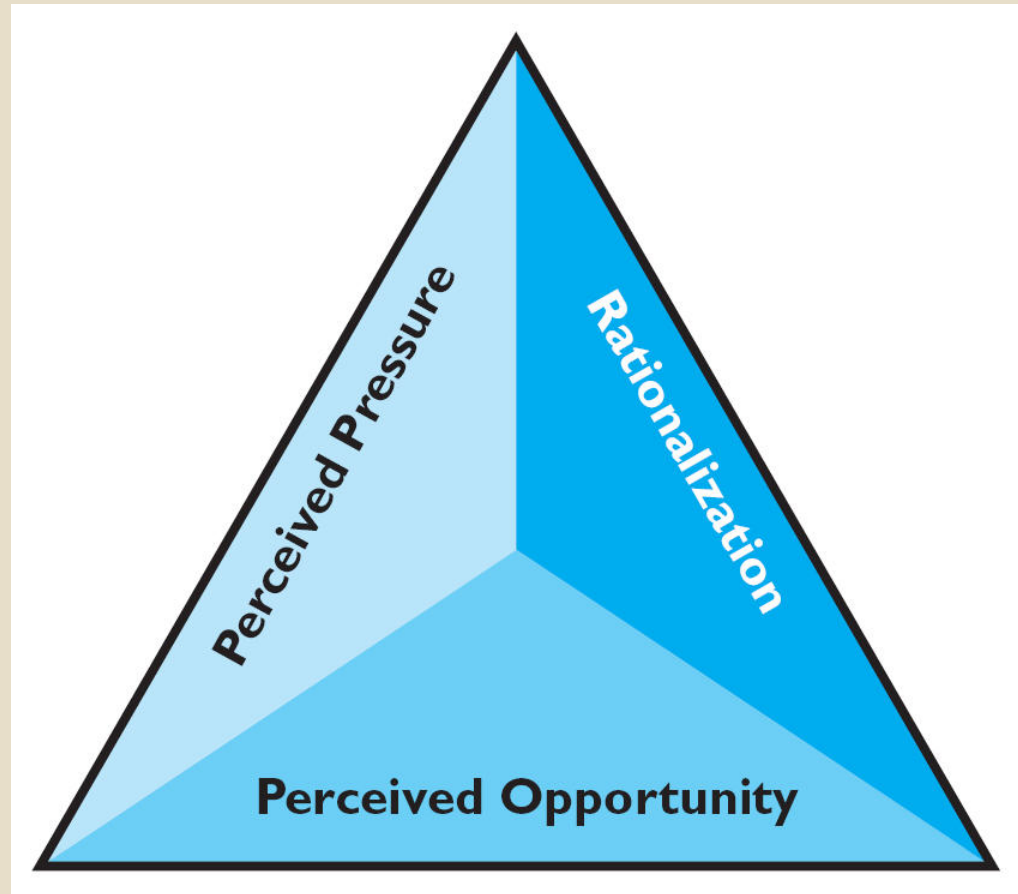
# Learning Objectives

- Know the Type of People the Commit Fraud
- Explain Why People Commit Fraud
- Describe the Fraud Triangle
- Explain the Scale of Fraud
- Understand How Pressure Contributes to Fraud
- Understand Why Opportunity is Necessary for Fraud
- Why Do People Rationalize Fraud?
- How Are People Recruited for fraud Schemes?

# Reasons to Commit Fraud

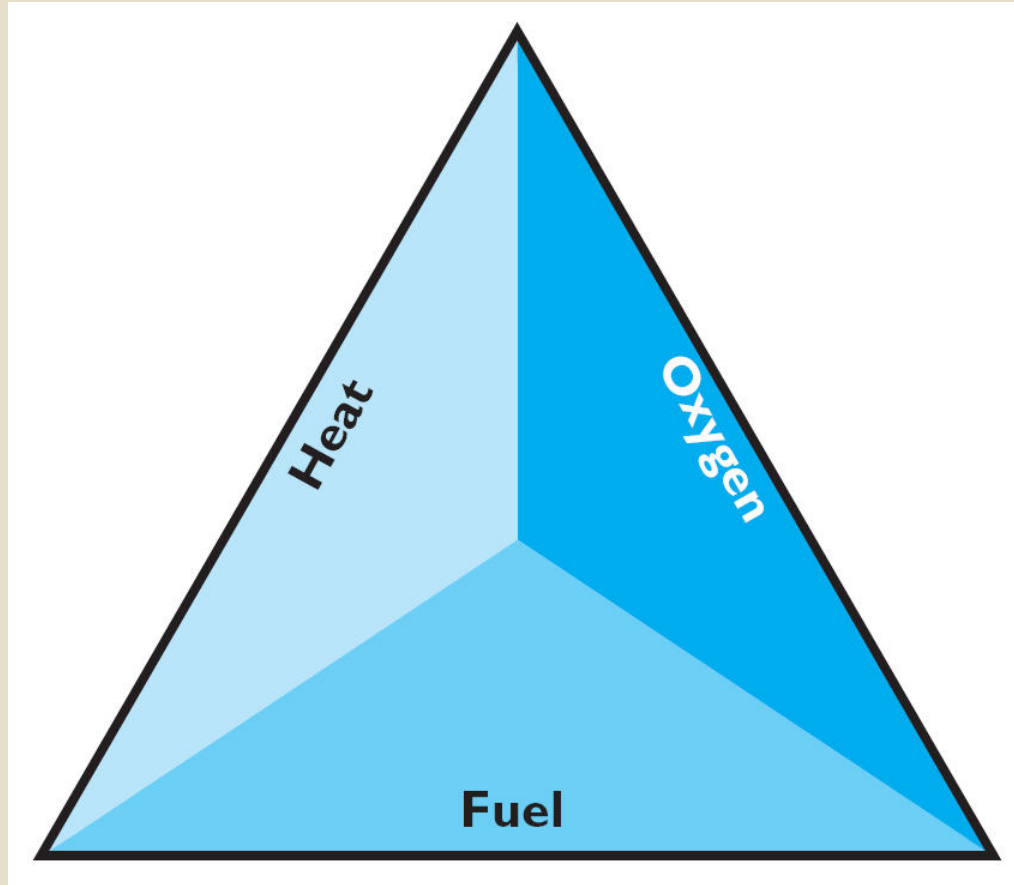
- A combination of the following (Fraud Triangle):
  - Pressure
  - Opportunity
  - Rationalization
- Immediate financial need
- The fraud gets larger and larger as confidence in the fraud gets higher and higher

# The Fraud Triangle

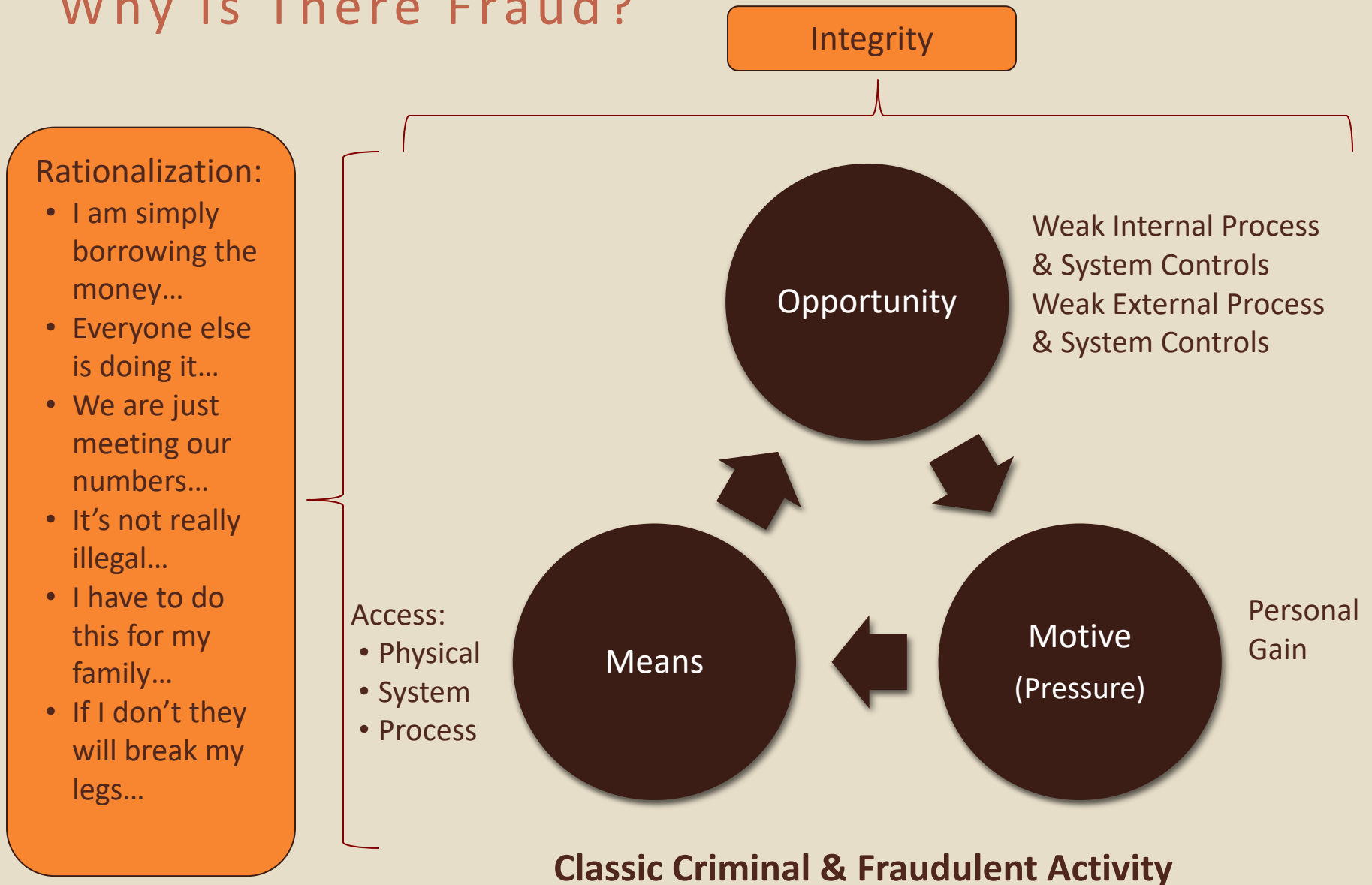




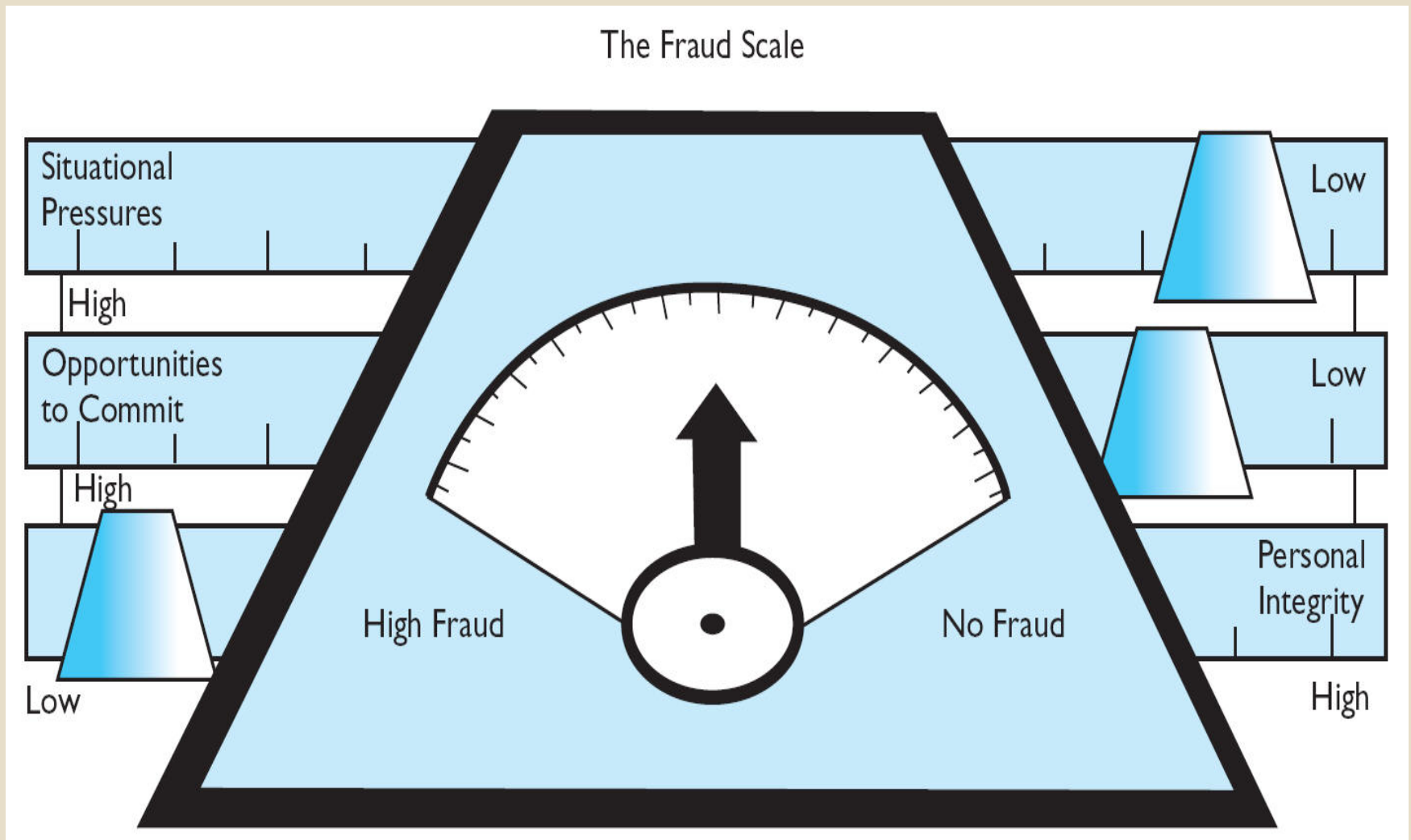
# The Fire Triangle



# Why Is There Fraud?



# The Fraud Scale



# Pressure

- Divided into four main groups:
  - Financial
  - Vice
  - Work-related
  - Other
- Approximately 95 percent of all frauds involve either financial or vice-related pressures.



Managing Stress at Work

# Financial Pressure



Vice





## Real-life examples:

- Dad that embezzled his six-year-old son's allowance
- Women who stole money to fund her children's drug addiction
- Man that used company money to fund his drug addiction
- The parents who took their newborn baby from the hospital with heroin under its tongue



# Pressure

- Work-Related Pressures
- “Get even with the employer”
- Motivated by these factors:
  - Getting little recognition
  - Feeling job dissatisfaction
  - Fear of losing one’s job
  - Being overlooked for a promotion
  - Feeling underpaid
- Work-Related Pressures
- Real-life example:
  - The worker that worked 12- and accepted kickbacks to c



# Wells Fargo Struggling in Aftermath of Fraud Scandal

By MICHAEL CORKERY JAN. 13, 2017



New credit card applications were down 43 percent in the fourth quarter, Wells Fargo said, and new checking account openings fell 40 percent. *Taylor Smith for The New York Times*

## RELATED COVERAGE



YOUR MONEY

You Don't Want What Wells Fargo Is Selling. What Should It Do Now? JAN. 13, 2017

Source: Corkery, M. (2017). Wells Fargo Struggling in Aftermath of Fraud Scandal *The New York Times*. Retrieved from <https://nyti.ms/2isLUrj>

# Case Study – Large Dutch Bank



+



+



=

# Case Study – Conde Nast

TARCO 4/03/2011 @ 3:27PM | 223,040 views

## Conde Nast Paid \$8 Million To Scammer Who Sent One Email

The account holding the larger sum was in the name of Quad Graph. If that seems vaguely familiar, it's maybe because it's very similar to [Quad/Graphics Inc.](#), a publicly traded company that prints famous magazines like the Condé Nast titles and, for that matter, Forbes. The account with the smaller sum was in the name of one Andy Surface, whose picture also adorns this post. You'll learn a little more about him; the feds say both accounts were in his *Portfolio*.

The really scary part is that this deal went down as easily as a stroll through the *Golf World*. We can't summarize it any better than the lawsuit:

“ In early November, Condé Nast received an “Electronic Payment Authorization” form by email at its offices in ... New York. The form appeared to have been sent by Quad/Graphics. The form requested that Condé Nast direct payments for Quad Graphics to the Quad Graph Account, and provided account information. Condé Nast filled out the form and returned it by facsimile from its offices in ... New York to the facsimile number provided in the form. Following Condé Nast's receipt of the “Electronic Payment Authorization” form, Condé Nast started making payments for Quad/Graphics bills by ACH transfer from a Condé Nast account with [JPMorgan Chase](#) Bank in New York to the Quad Graph Account.



Andy Surface

<http://www.forbes.com/sites/williambarrett/2011/04/03/conde-nast-paid-8-million-to-scammer-who-sent-one-email/print/>

# Case Study - Sunbeam

**The New York Times**

## **S.E.C. Accuses Former Sunbeam Official of Fraud**

By FLOYD NORRIS

Published: May 16, 2001

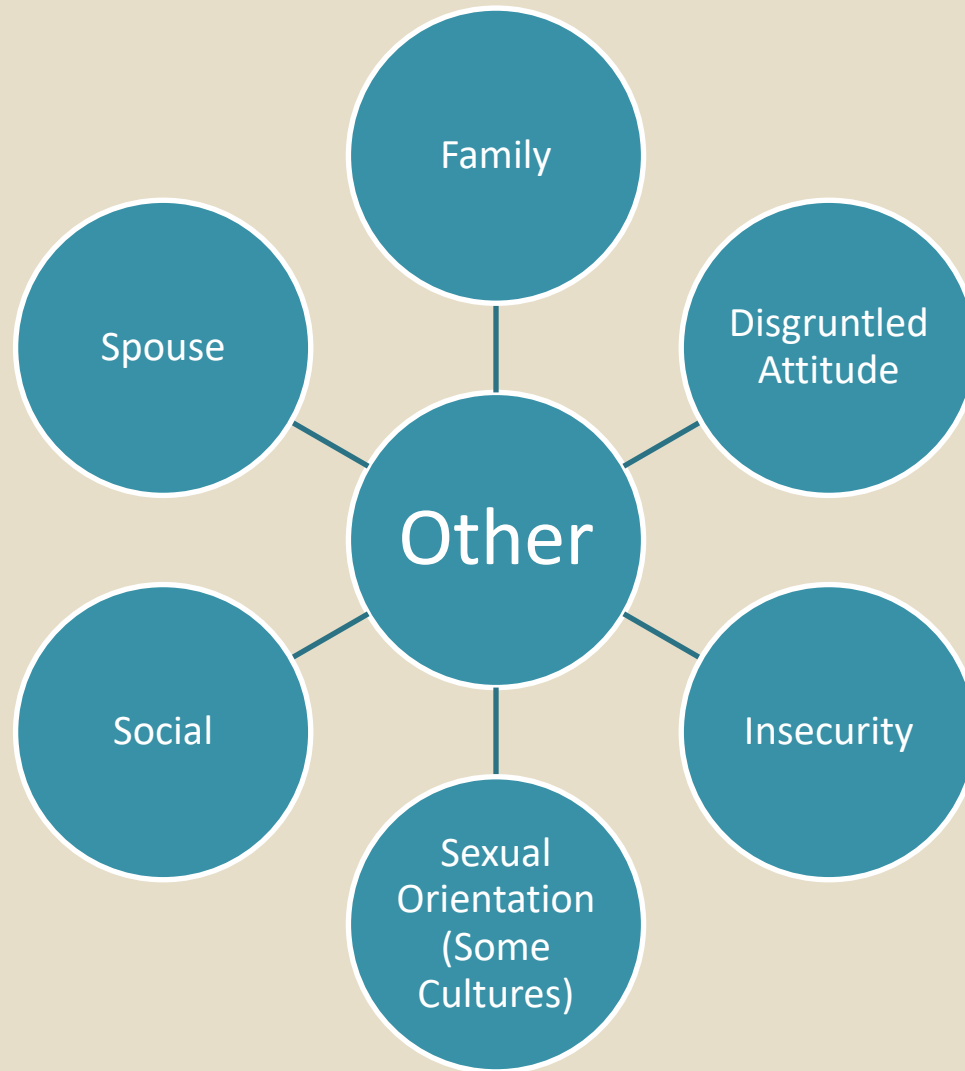
Albert J. Dunlap directed a huge accounting fraud as chief executive of the Sunbeam Corporation and was aided by a partner of Arthur Andersen, the firm that audited Sunbeam's books, the Securities and Exchange Commission contends in a civil case filed yesterday.

Mr. Dunlap, who embraced the nickname Chainsaw Al, became a corporate star in the 1990's, making tens of millions for himself as he laid off thousands of employees in the name of efficiency. Sunbeam's stock leaped nearly 50 percent the day he was hired to run the company in 1996, and his memoirs became a best seller. But the S.E.C. suit, filed in federal court in Miami, said the Sunbeam turnaround directed by Mr. Dunlap was a sham.

The executives "orchestrated a fraudulent scheme to create the illusion of a successful restructuring of Sunbeam and facilitate the sale of the company at an inflated price," the S.E.C. said.

"This case is the latest in our ongoing fight against fraudulent earnings-management practices" that have cost investors billions of dollars, said Richard H. Walker, the commission's director of enforcement.

# Pressure – Other



Opportunity



# Opportunity

## Six major factors that increase opportunity:

- Lack of controls
- Inability to judge performance quality
- Failure to discipline fraudsters
- Lack of access to information
- Ignorance, apathy and incapacity
- Lack of audit trail

# Controls



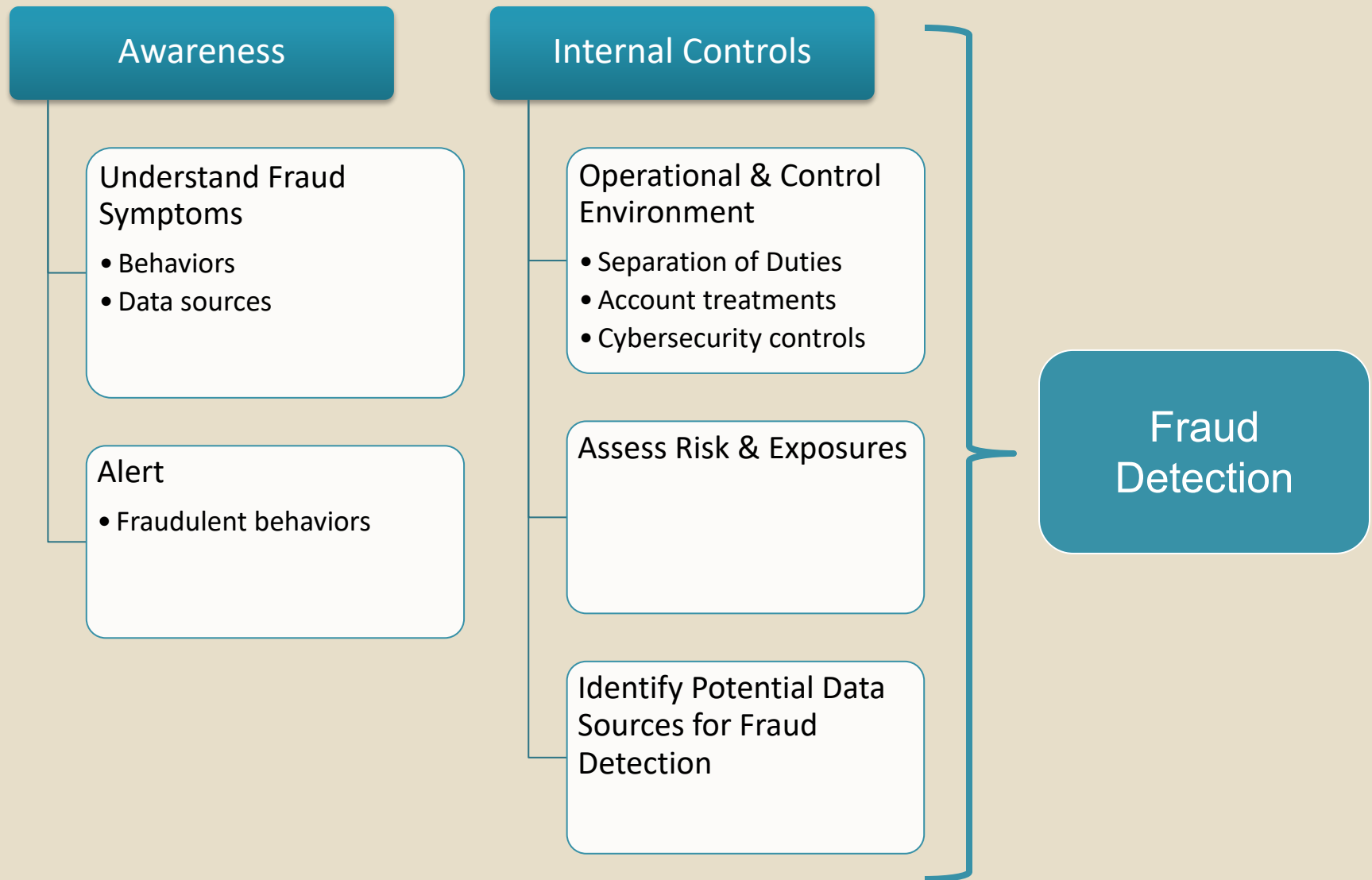
# Controls to Prevent/Detect Fraud

- Internal Control Framework
  - From Committee of Sponsoring Organizations (COSO)
  - Control Environment
  - The Accounting System
  - Control Activities
- Control Environment
  - Management's Role and Example
  - Management Communication
  - Appropriate Hiring
  - Clear Organizational Structure
  - Effective Internal Audit Department

# Controls to Prevent/Detect Fraud

- Accounting Systems
  - Transactions are...
    - Valid
    - Properly authorized
    - Complete
    - Properly classified
    - Reported in the proper period
    - Properly valued
    - Summarized correctly
- Control Activities or Procedures:
  - Segregation of duties, or dual custody
  - System of authorizations
  - Independent checks
  - Physical safeguards
  - Documents and records

# Fraud Awareness & Internal Controls



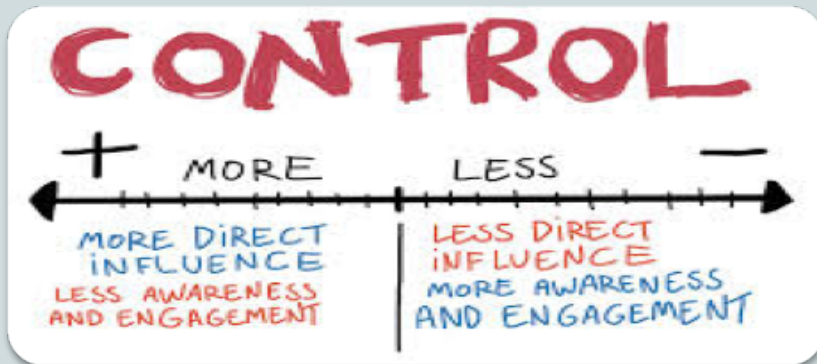
# Responsibility for Fraud Detection (RACI)

Responsible	Accountable	Consulted	Informed
Internal Audit External Audit	Executive Management	Legal Counsel Enterprise Risk Line Management	Interested parties (e.g. shareholders, governmental regulators, etc.)

Concept	Definition
Responsible	The person or group that does the work
Accountable	The person or group that gets fired if something goes wrong
Consulted	The person or group that is asked for their opinion and guidance
Informed	The person or group that is informed of the issue

# Cyber Fraud – Financial Service Company

Rationalization	Opportunity	Motive (Pressure)	Means
If I don't do this they are going to break my legs or worse.	Custodian had physical access to the bank funds transfer room.	Gambling indebtedness to organized crime	Poor physical, process and system controls



## Control Weakness

- Internal / External parties
- Example: Received quantity less than ordered quantity – but payment made for full amount

## Key Fields

- Data manipulation
- Privileged user abuse
- Example: Create fictitious vendors, changing address and bank account.

# Rationalization

# Rationalization

- Common rationalizations by perpetrators
  - I deserve more
  - I am only borrowing the money and will pay it back
  - Nobody will get hurt
  - It's for a good purpose
  - I pay more than my fair share of taxes
  - The government wastes money



# Recruitment

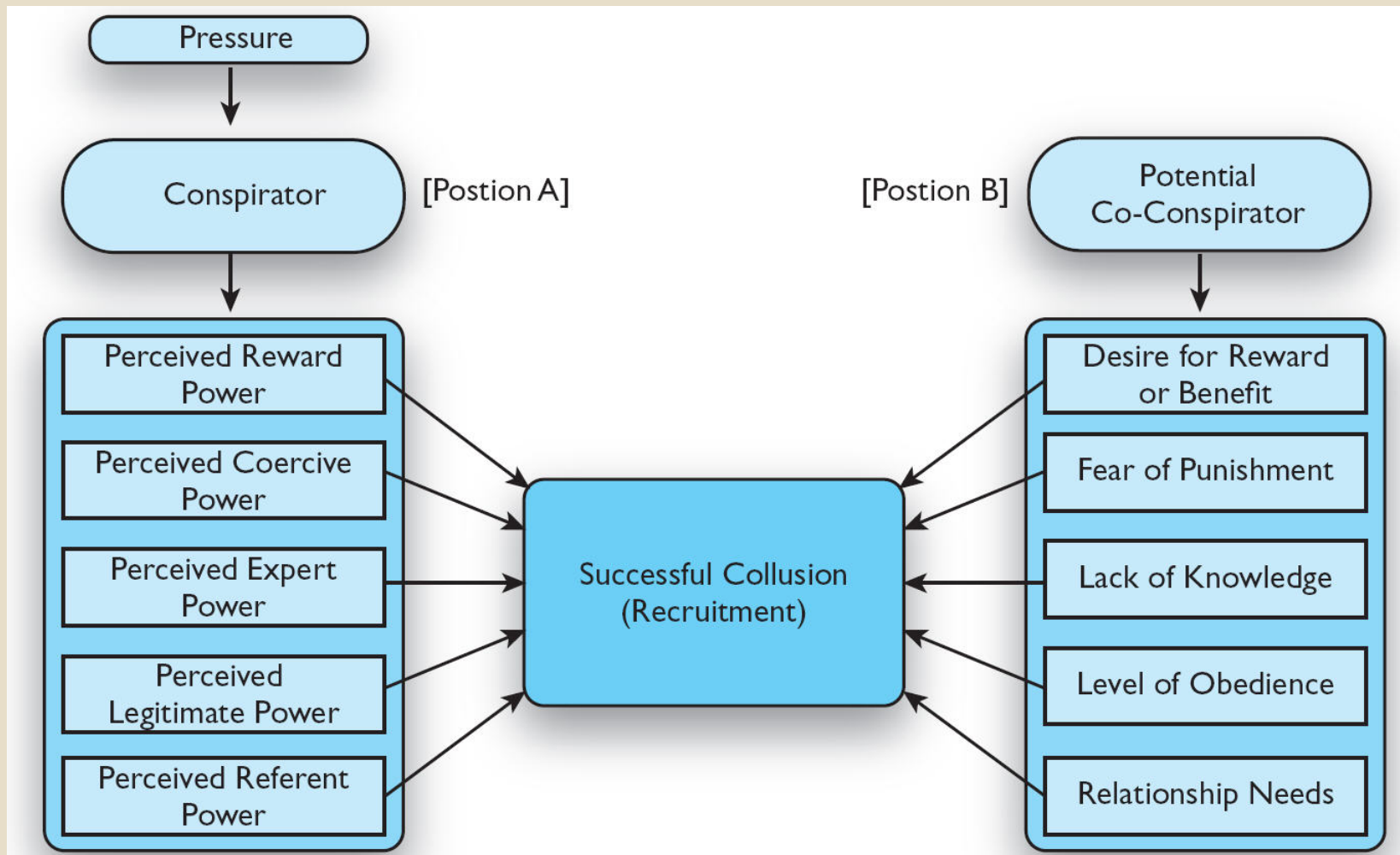
# Recruitment of Fraudsters

- Many frauds are committed by more than one person
- The majority of frauds—especially financial statement frauds—are collusive
- CFO survey results:
  - 67 percent received requests to misrepresent corporate results
  - 55 percent fought off the requests
  - 12 percent yielded

# Recruitment of Fraudsters

- Types of Power
  - Reward Power
    - A's ability to provide benefits to B
  - Coercive Power
    - A's ability to punish B if B does not comply with A
  - Expert Power
    - A's possession of special knowledge or expertise
  - Legitimate Power
    - A's legitimate right to prescribe behavior for B
  - Referent Power
    - The extent to which B identifies with A

# Recruitment of Fraudsters



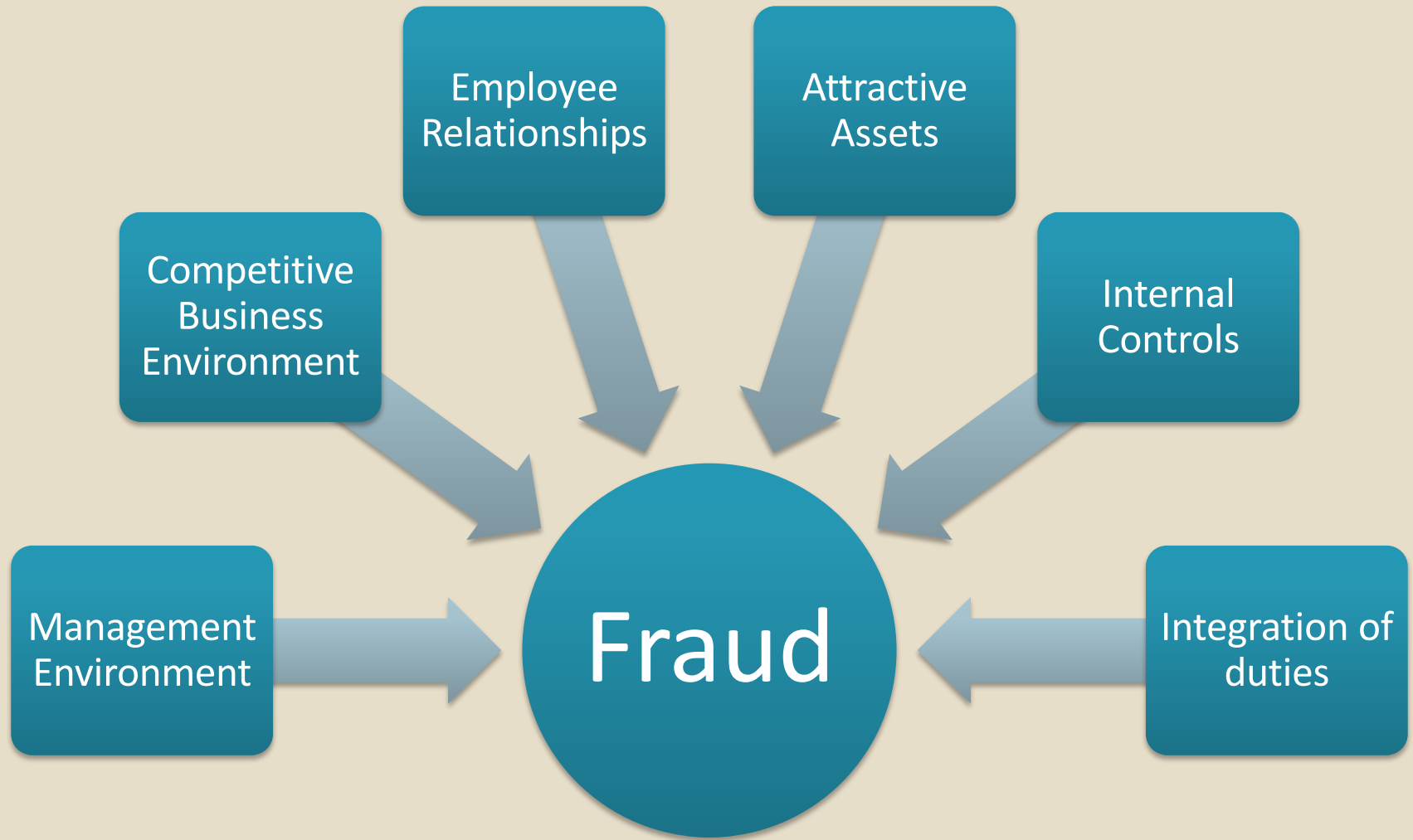
# Recruitment of Fraudsters

## **Remember this ...**

*By understanding the five types of power we can better protect ourselves from becoming involved in a fraudulent or other illegal act in the future. This knowledge will also aid in understanding how people become involved in a fraud, and as fraud examiners, help us to better detect fraud. For example, if someone asks us to do something that we may not fully understand (expert power), and we question the validity of doing such a thing, we should try to understand exactly what it is we are doing. We can also become more aware of our actions instead of focusing only on the rewards (reward power) of our actions. Remember, if something sounds too good to be true, it probably is!*

## Summary

# Risk Factors For Fraud



# Fraud Exposure

## Fraud Risk Assessment

- Risk assessment is a sometimes and controversial issue
- We will have an entire section on risk assessment
- Examine the risks and exposures to identify process and system weakness

## Develop Categories of Risk

- External environment
- Legal
- Regulatory
- Governance
- Strategy
- Operational
- Information
- Human resources
- Financial
- Technology

## Determining Fraud Exposure

- Sources of risk
- Review existing risk assessments
- Review risk assessment process
- Business Impact Analysts
- Types and sources of fraud
  - External environment
  - Governance
  - Legal
  - Regulatory
  - Operational
  - Strategy



Who Commits Fraud?

# Type of People That Commit Fraud

## **Remember this ...**

*Individuals involved in fraud are typically people just like you and me, but have compromised their integrity and become entangled in fraud. When doing business in the future, remember that fraud perpetrators will, unfortunately, often be those colleagues in whom you place a great amount of trust.*

# POSITION

The majority of occupational frauds were committed by staff at the employee or managerial level.



EMPLOYEE



MANAGER



OWNER/EXECUTIVE

# MEDIAN LOSS BY POSITION

The higher the fraudster's level of authority, the greater losses tended to be.



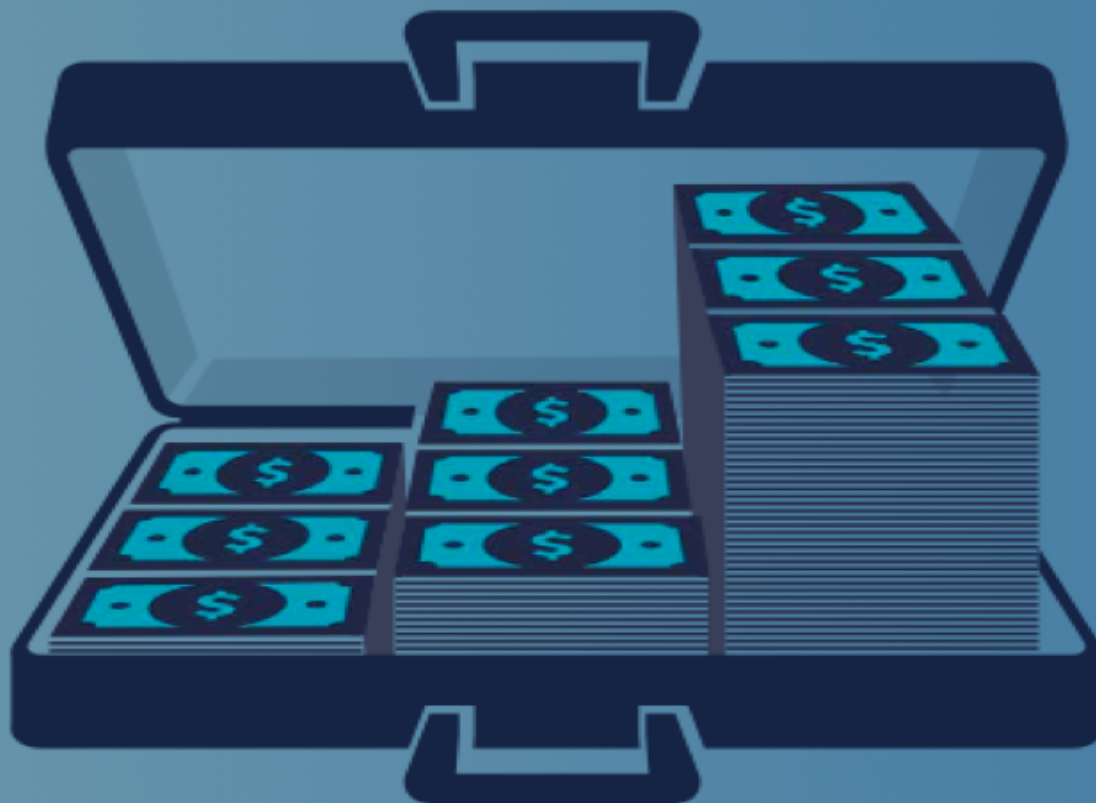
**\$75,000**  
EMPLOYEE

**\$130,000**  
MANAGER

**\$500,000**  
OWNER/EXECUTIVE

# MEDIAN LOSS BY POSITION

The higher the fraudster's level of authority, the greater losses tended to be.



**\$75,000**  
EMPLOYEE

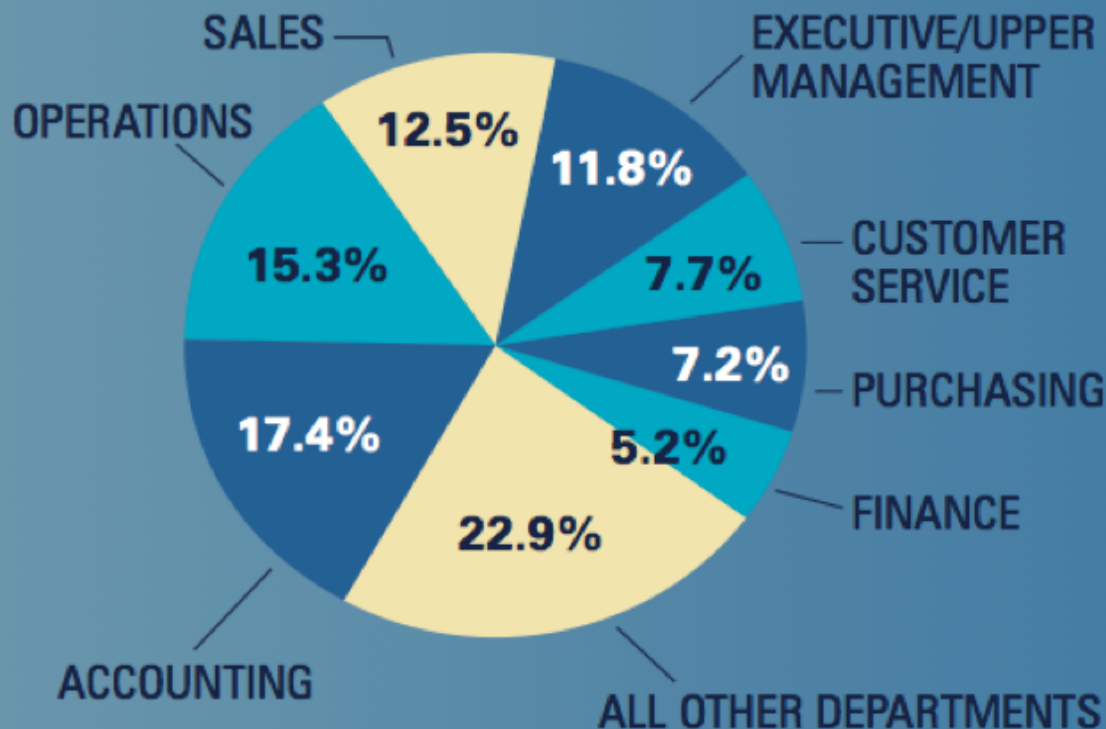
**\$130,000**  
MANAGER

**\$500,000**  
OWNER/EXECUTIVE



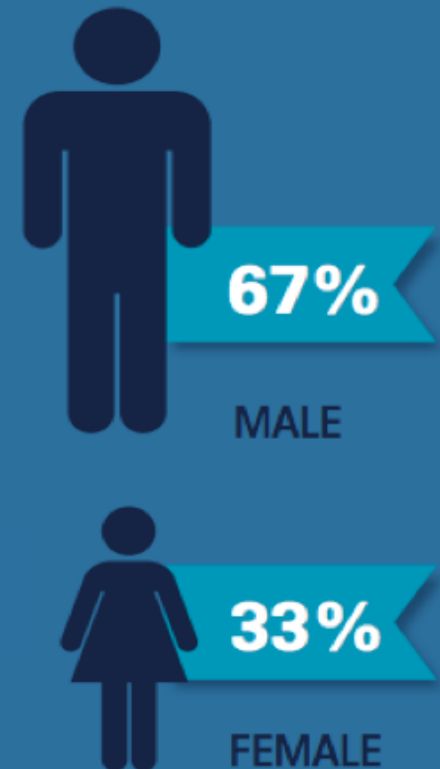
## DEPARTMENT

**77%** of all occupational frauds originated in one of seven organizational departments: accounting, operations, sales, executive/upper management, customer service, purchasing and finance.



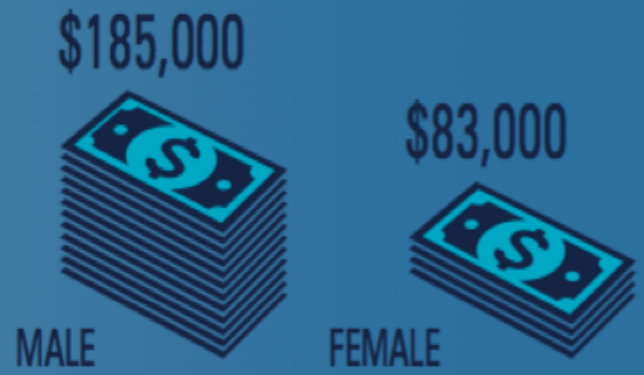
## GENDER

Male fraudsters outnumbered females two to one.



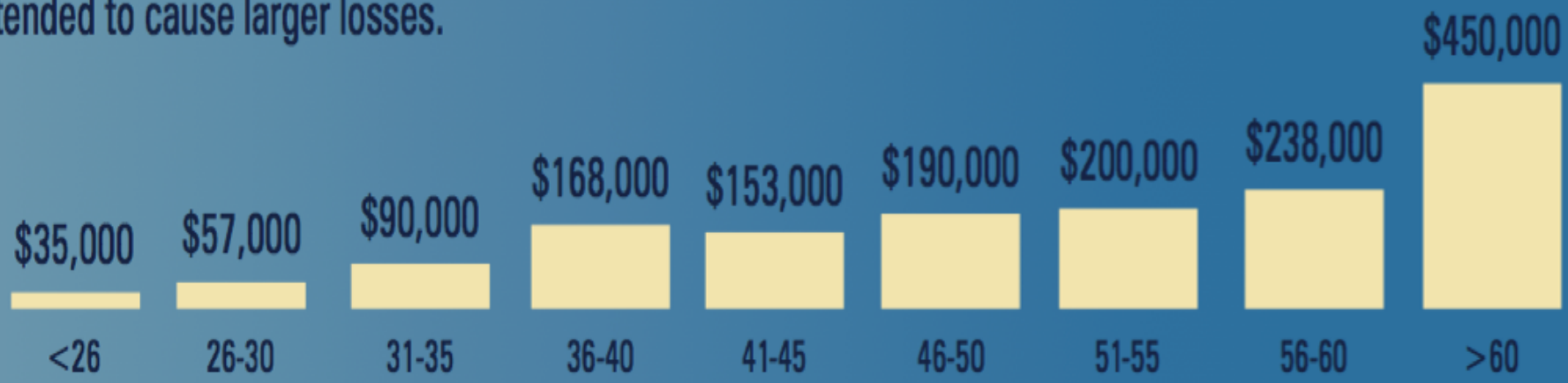
# MEDIAN LOSS BY GENDER

Losses attributed to males were **123%** higher than losses caused by females.



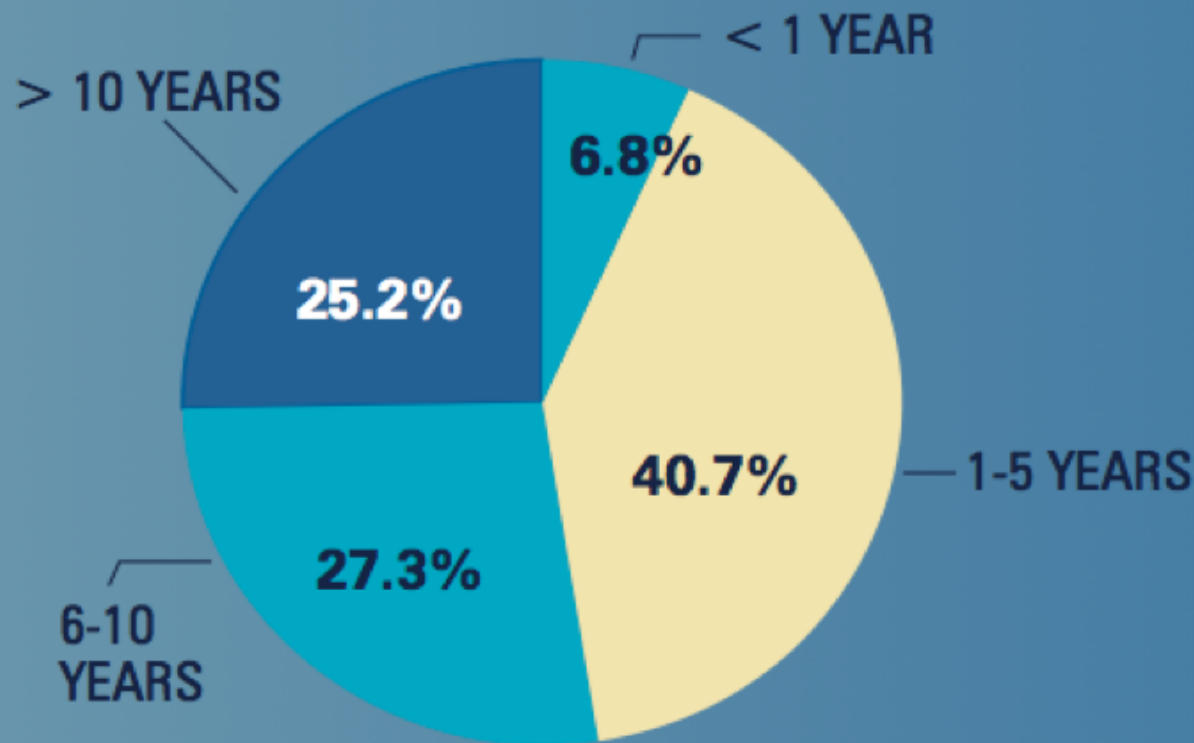
# AGE

**52%** of fraudsters were between 31 and 45 years old, but older fraudsters tended to cause larger losses.



# TENURE

**7%** of perpetrators committed fraud during their first year on the job. **53%** had been with their organizations for more than five years.





# Money Laundering

# How Do Criminals Think About Money?

- A large percentage of your money (wealth) is illegal
- The government will seize this money (wealth) if detected and caught
- Therefore criminals need to:
  - Hide their wealth
  - Transport / Transfer in order to hide
  - Transform the wealth from illegally sourced funds to legally sourced funds
  - Enjoy



# Fraud vs. Money Laundering

## Fraud

- Secure cash or property under false pretenses
- Companies or individuals that are victims of fraud incur financial losses.

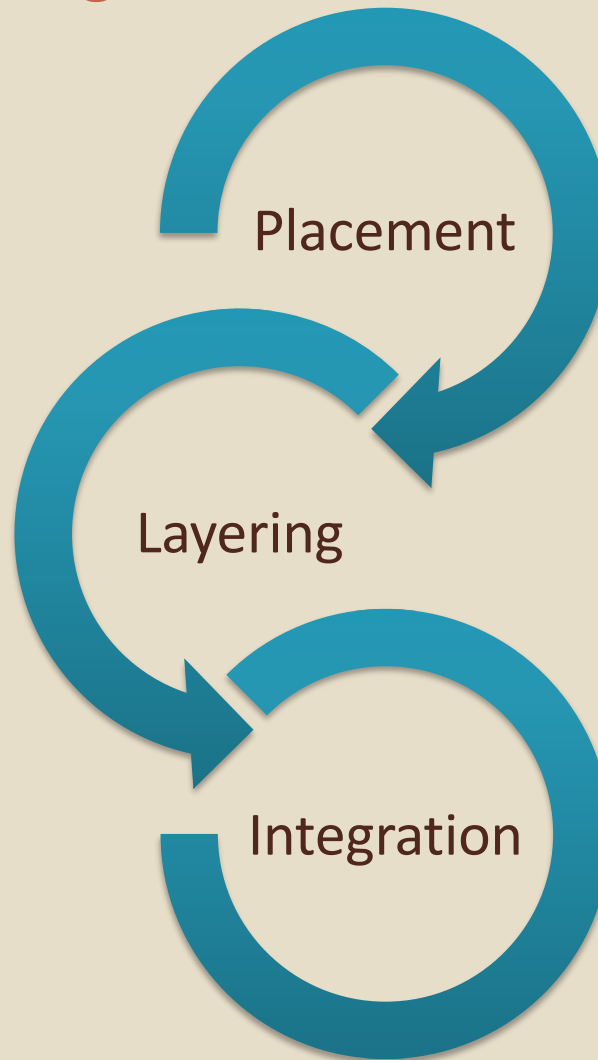
## Money Laundering

- Companies or individuals the launder money do not incur financial losses
- Money laundering separates the source of the cash
- Loss is only experienced if the government seizes funds due to illegal activity

# Money Laundering

*An estimated 900 billion to 1 trillion US dollars of illicit funds circulating worldwide Approximately 500 to 600 billion US dollars associated with the drug trade About 300 billion US dollars associated with United States drug sales.*

*Aggregate money laundering is estimated to be 2% to 5% of the world's gross domestic product (GDP)*

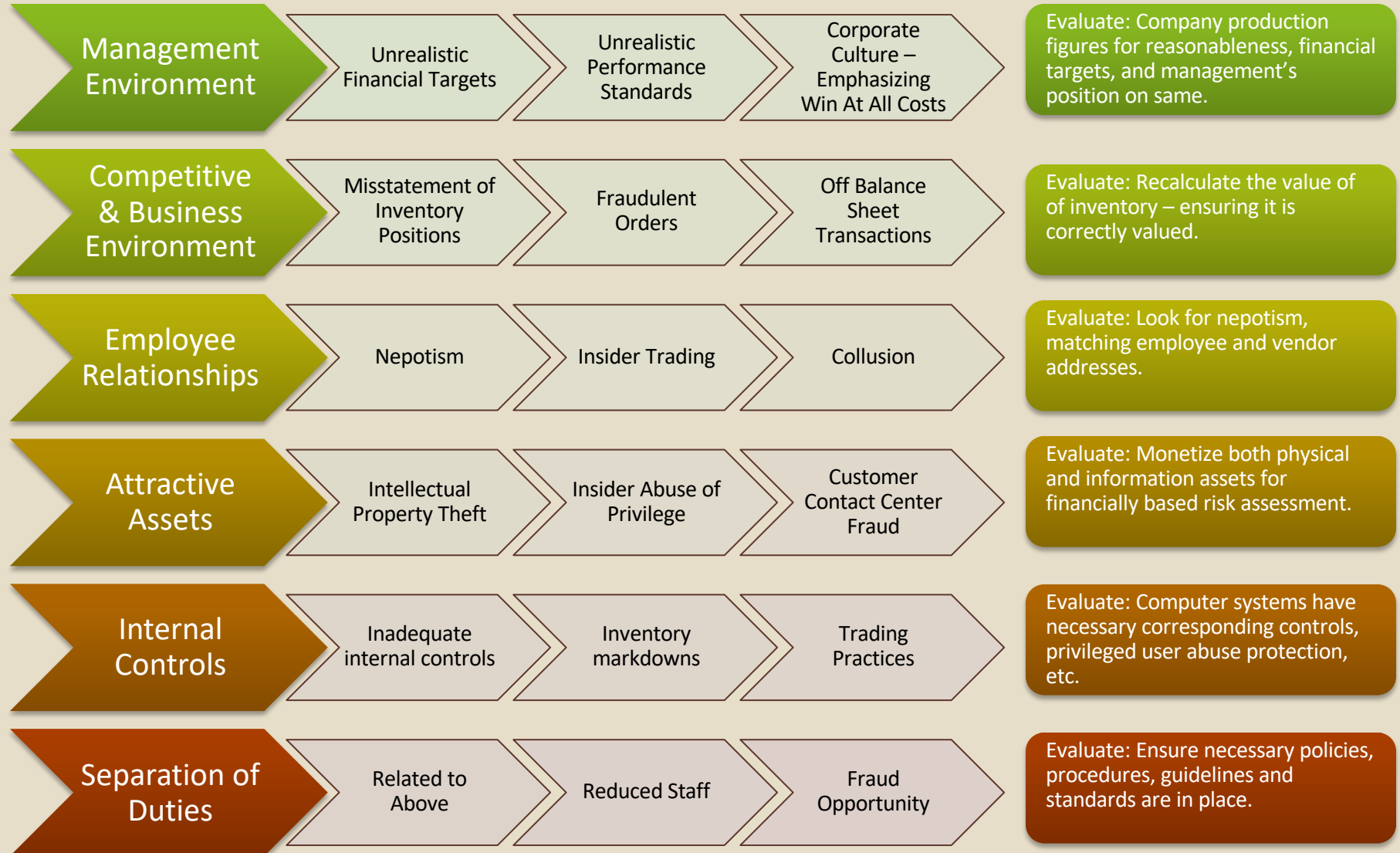


Physical introduction of bulk cash into the financial system – cash deposits, and cash equivalent purchases – currency smuggling

Separating the proceeds of criminal activity for their source through complex layers of transactions – using more than one financial institution – obscuring the audit trail

Placing the laundered funds back into the economy – entering as apparently legitimate funds. Accomplished through real-estate purchases, shell companies, and securities investments.

# Risk Factors for Fraud



# Fraud Schemes – A Data Driven Approach

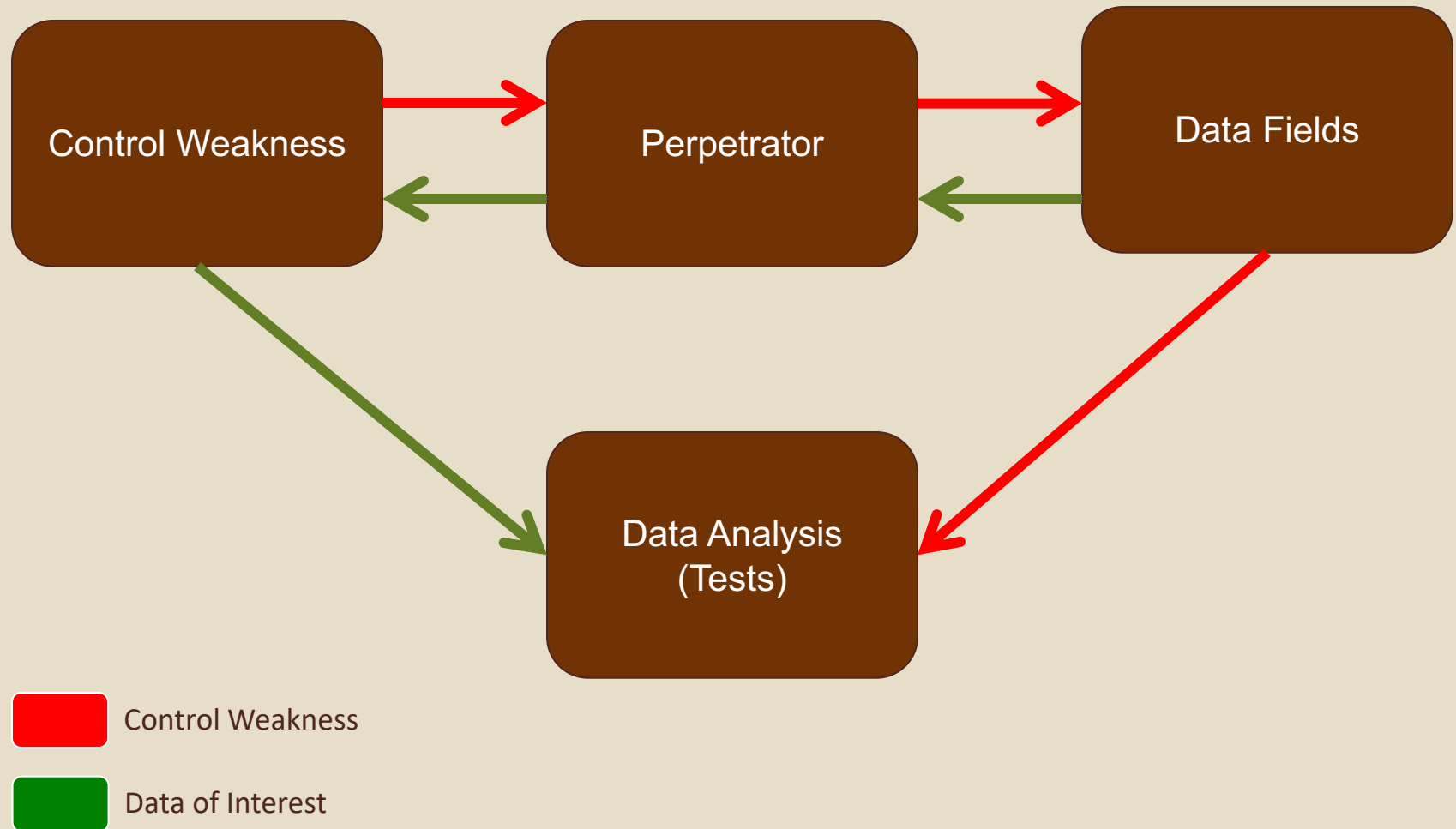
## Control Weaknesses Approach

- Examine key controls
- Determine vulnerabilities
  - System
  - Process

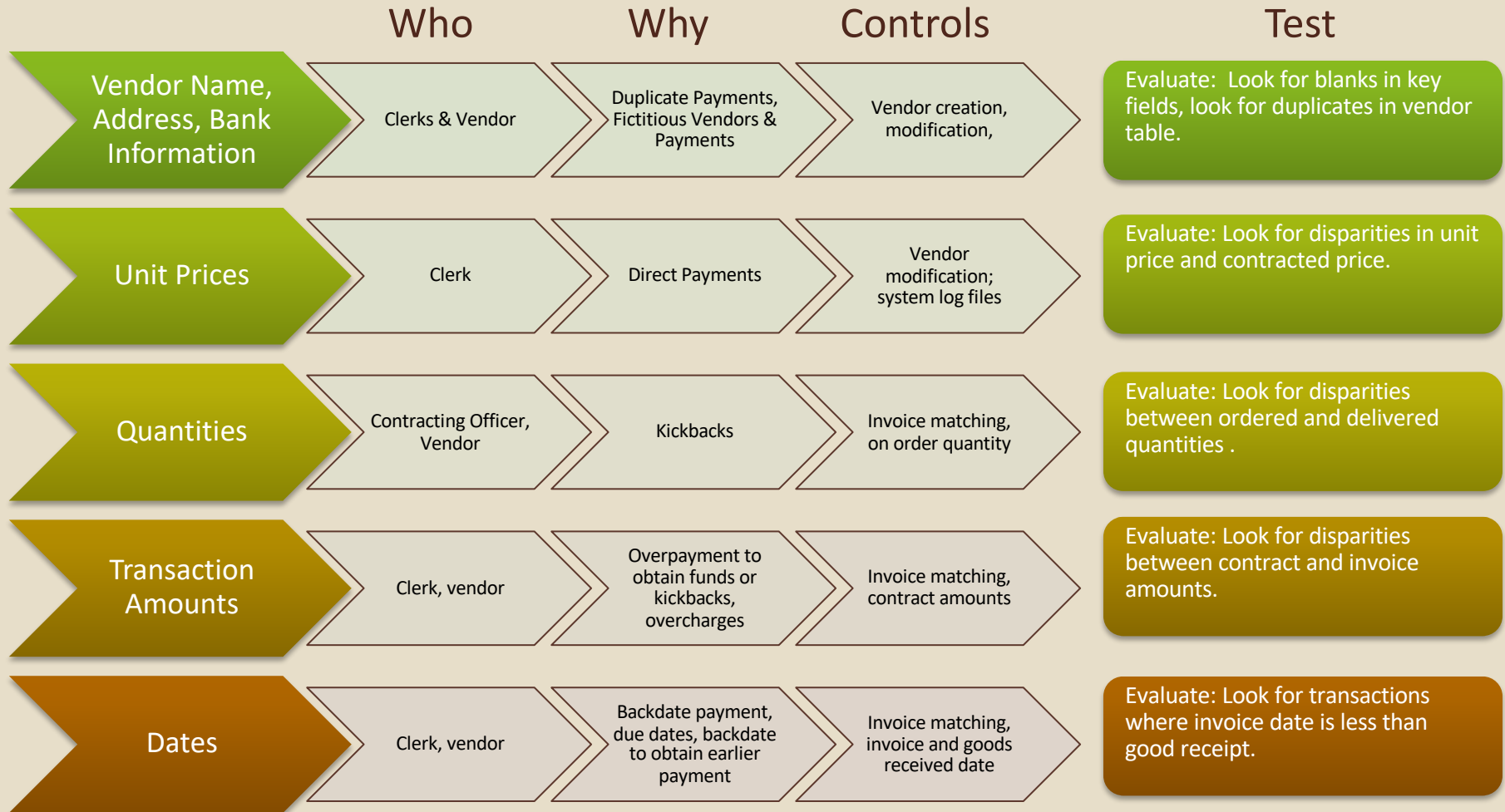
## Key Fields

- Focus on data entry
- Which data can be changed?
- What is the impact?

# Fraud Exposure Identification



# Key Data





# Investigating Fraud

Which of these is true?

An audit will:

Detect all material errors and irregularities in the financial statements



Discover all illegal acts committed by the client



Ensure the financial health of the entity

# Auditors Responsibilities

- **Errors - Unintentional misstatements**

- Mistakes in gathering or processing accounting data
- Incorrect accounting estimates
- Mistakes in the application of accounting principles

- **Irregularities - Intentional misstatements, manipulation, falsification, or alteration of accounting records & supporting documents**

- Misrepresentation or intentional omission of events, transactions, or other significant information
- Intentional misapplication of accounting principles

# Fraud Standards

# Software Accounting Standards

## SAS 1 and 22

- Plan and perform the audit to provide reasonable assurance that financial statements are free of material misstatements caused by error or fraud.

## SAS 47

- Audit risk, materiality and misstatements in financial statements

## SAS 54

- Detection of illegal acts (AU Section 317)

## Section 301 of the Private Securities Litigation Reform Act

- Private Securities Litigation Reform Act of 1995

## Section 10(a) of the Exchange Act

- Requires the inclusion of certain procedures in accordance with generally accepted accounting standards (GAAS).
- Audit procedures provide reasonable assurance of detecting illegal acts
- Audit procedures will identify related party transactions material to financial statements
- Evaluate if there is substantial doubt about the ability of the company to stay in business.

## SAS 82

- Auditor's responsibility related to fraud in a financial statement
- Provides guidance on what auditors should do to meet these responsibilities
- Describes:
  - Fraudulent Financial Reporting
  - Misappropriation of Assets

# SAS 82 Requirements

- **Consider the presence of fraud risk factors.** - SAS No. 82 provides examples (detailed below) of risk factors an auditor may consider for fraud related to a) fraudulent financial reporting, and b) misappropriation of assets misstatements. An auditor should become familiar with these risk factors and be alert for their presence at the client's.
- **Assess the risk of material misstatement of the financial statements due to fraud.** SAS No. 82 requires an assessment as to the risk of material misstatement due to fraud. This assessment is separate from but may be performed in conjunction with other risk assessments (for example, control or inherent risk) made during the audit. SAS No. 82 also requires reevaluation of assessments if other conditions are identified during fieldwork.
- **Develop a response.** Based on assessments of risk, SAS No. 82 requires development of appropriate audit response. In some circumstances, an auditor's response may be that existing audit procedures are sufficient to obtain reasonable assurance that the financial statements are free of material misstatement due to fraud. In other circumstances, auditors may decide to extend planned audit procedures.
- **Document certain items in work papers.** SAS No. 82 requires auditors to document evidence of the performance of their assessment of risk of material misstatement due to fraud. Documentation should include risk factors identified as being present as well as the auditor's response to these risk factors.
- **Communicate to management.** If it is determined that there is evidence that a fraud may exist, an auditor should apprise the appropriate level of management, even if the matter may be considered inconsequential. SAS No. 82 also requires an auditor to communicate directly with the audit committee (or equivalent) if the matter involves fraud that would materially misstate the financial statements or fraud committed by senior management

# Fraud Investigation

# Fraud Types

- Billing
- Cash Larceny
- Cash on Hand
- Check Tampering
- Corruption
- Financial Statement Fraud
- Non-Cash
- Payroll
- Register Disbursements
- Skimming

# Fraud Analysis: Useful Information

- Issues
  - Conflicts of interest
  - Unknown relationships
  - Abnormal patterns of activity
  - Errors in key processes
  - Control weaknesses
  - Hindsight, insight, foresight
- Business Operations and Expense Areas
  - Accounts payable
  - Claims
    - Damaged Goods
    - Healthcare
    - Insurance
    - Loss
  - Expense reimbursement
  - General Ledger
  - Travel and Entertainment



# Vendor Attribute Capture

- Total number of vendors
- Vendors without:
  - Addresses
  - TAX ID
  - Are they receiving payment?
  - Electronic transfers
  - Paper checks

# Vendor Activity Assessment

- Number of Vendors
- Frequency of Use
- Number of Active Users Compared Against Total Vendors
- Unused Vendors can be source of internal abuse
- Vendor Identity Abuse

# Name Mining

- Looking for Fictitious Vendors
  - Fictitious Names
    - Use their initials in the name of a vendor
    - Anagrams
    - Others
      - Substitution
      - Insertion and Omission
      - Transposition
      - Number Substitution

# Employee Vendor Relationships

- Employee and Vendor Name are Different
  - Common Addresses
    - 201 College Avenue
    - 669 West Chestnut Street
  - Phone Number
  - TAX ID
  - Zip Codes



# Proximity Analysis

- Mailbox Services
- Anonymous
- These mail drop have the appearance of a physical address
- Proximity location of vendor to actual employees
  - Employee Addresses
  - Vendor Addresses
- Proximity Analysis



The screenshot shows the MailLink website homepage. At the top, there's a header with the 'MailLink' logo, contact information (848 N. Rainbow Blvd., Las Vegas, NV 89107, Phone: 702-258-2968, Fax: 702-258-3357), a BBB Reliability Program logo, and a 'Mail Forwarding Made Easy' banner. Below the header, there's a navigation bar with links: Mail Forwarding, Local Rental, Store Services, Find Us In Las Vegas, F.A.Q., Contact Us, and Home. A login section for 'Client E-mail' and 'Password' is present, along with a 'Go' button and a 'Forgot My Password' link. The main content area features a 'Mail Forwarding' section with a 'No State Income Tax' and 'Free Resident Agent' benefit, and a 'Mailbox Rentals - Est. 1987' section. A graphic on the left shows a document with a green plus sign and the text 'WE NOW OFFER SCANNING OF MAIL FOR YOUR TIME SENSITIVE NEEDS'. A McAfee SECURE logo is in the bottom right corner.

**MailLink**  
848 N. Rainbow Blvd.  
Las Vegas, NV 89107  
Phone: 702-258-2968  
Fax: 702-258-3357

**Mail Forwarding Made Easy**  
View Your Mail Online  
Prestigious Vegas Street Address  
**FREE Resident Agent**  
**LEARN MORE**  
**SIGN UP NOW!!!**

New Customers: For More Information, Call Toll Free: 888-267-1109 Sunday, January 11, 2015

**Mail Forwarding** **Local Rental** **Store Services** **Find Us In Las Vegas** **F.A.Q.** **Contact Us** **Home**

Client E-mail:  Password:  **Go** [Forgot My Password](#)

**Mail Forwarding**

**No State Income Tax • Free Resident Agent**

**Mailbox Rentals - Est. 1987**

Our online mailboxes have complete online access with account management including viewing mail descriptions, optional scanning of mail, adding money online, setting ship dates and methods, and changing the forwarding address as often as you wish.

We offer UPS, Fed Ex, DHL, US postal Service, and many other services. We have mailbox customers located all over the country, many have corporations, some are RV'ers, some are part time residents, and everyone gets the best mail forwarding service possible.

Is your mail forwarding facility charging you too much and giving you no service.WHY? Mail Forwarding wherever you are. We are open 9-5 Monday through Friday and 9-1 Saturdays PST

**WE NOW OFFER SCANNING OF MAIL FOR YOUR TIME SENSITIVE NEEDS**

**McAfee SECURE**  
CLICK TO VERIFY

# Vendor Trending Analysis

- Accounts Payable
- Claims Payable
- Fraud Payment Acceleration
  - Small initial amounts of fraud
  - Amounts and frequency increases
    - Test Phase
    - Confidence Phase
    - Greed Phase
- Trend Payments to Vendors
- Valley and Spike Payment Patterns
  - Long periods of inactivity between periods of very high activity
  - Unusually high periods of activity

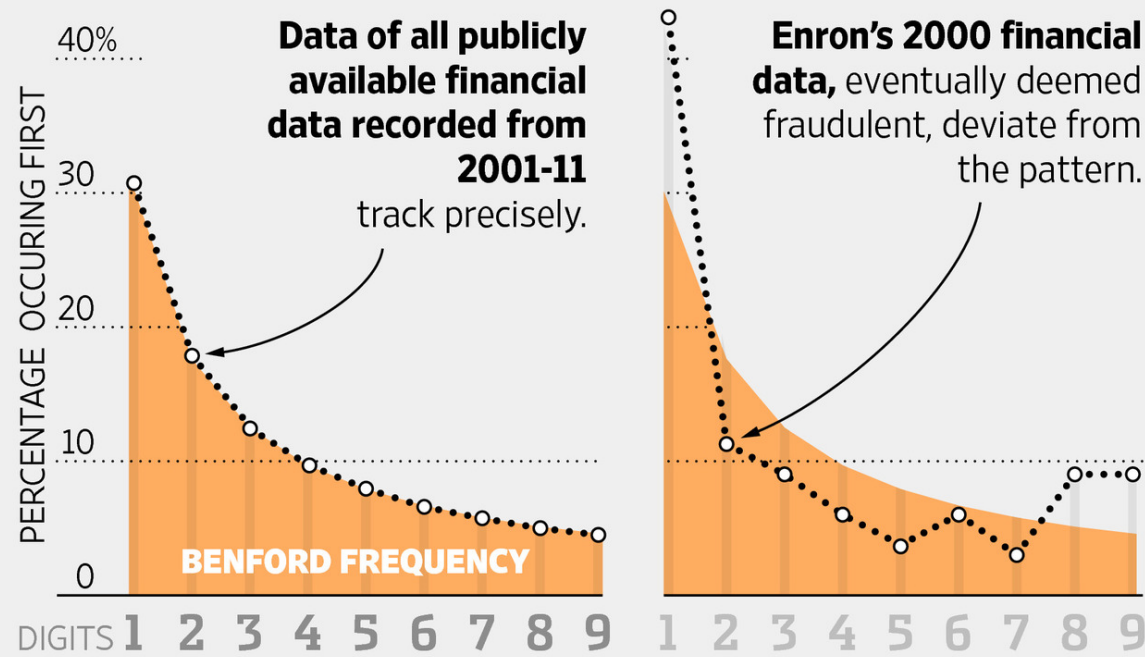
# Payment Trend Analysis

- Calendar
  - By Day of Week
  - By Day of Month
  - By Month
  - Checks created on weekends (Saturdays and Sundays)
    - Date created
    - Date posted
- Benford's Law
  - The first digit should be a 1... (30% of the time)

# Benford's Law

## Who's No. 1?

Benford's Law expects 30.1% of numbers in a list of financial transactions to begin with '1.' Each successive digit should represent a progressively smaller proportion. Below, orange indicates the expected Benford frequencies. When digits stray from the pattern, fraud may be to blame.



Source: Dan Amiram, Columbia University

The Wall Street Journal



# Check Sequence Analysis

- G/L
- Cash Receipts
- Identify Gaps in Check Sequences

# Expense, Payroll, and Vacation Controls

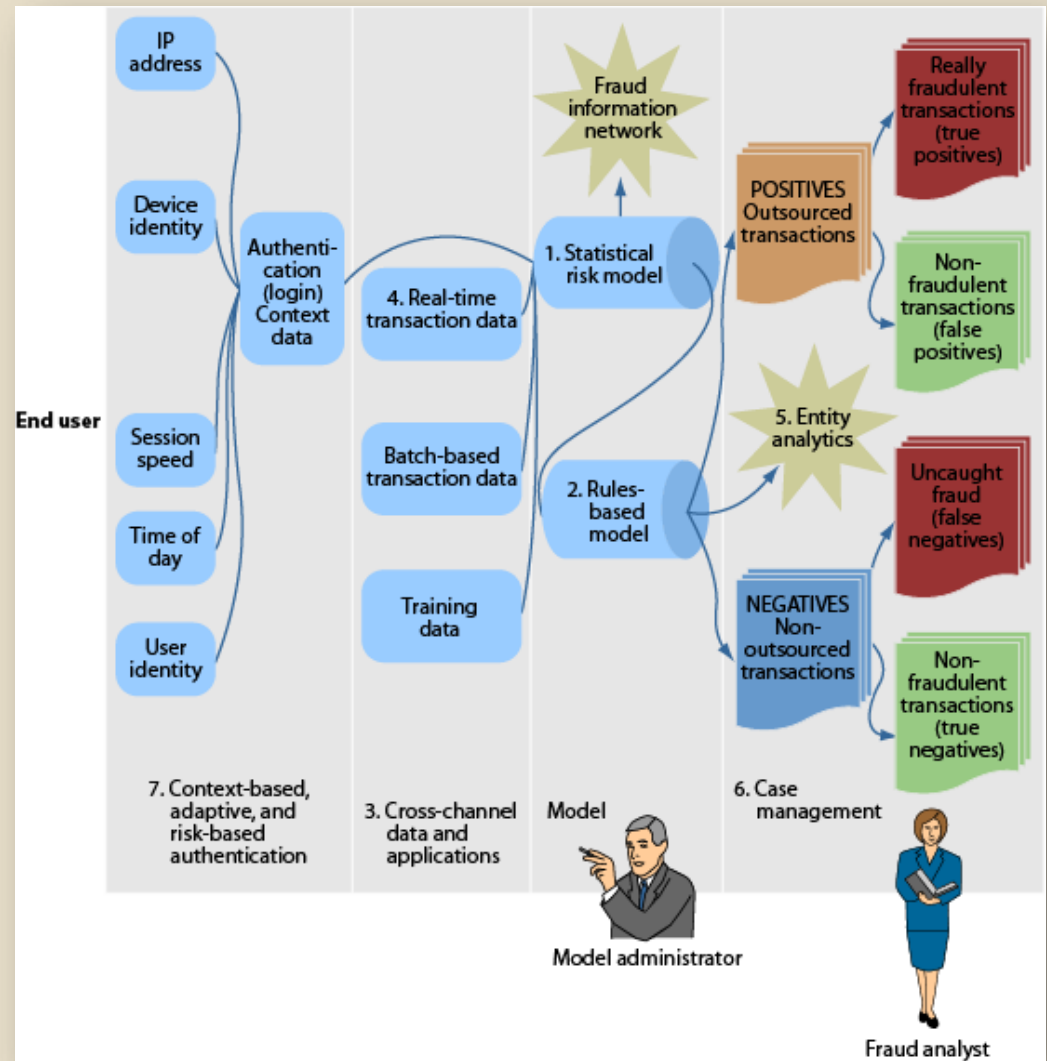
- Analysis of Overtime Hours
  - Reasonableness
  - Consistent with role
- Holiday Hours
  - Reasonableness
  - Consistent with role
- Purchasing Cards
  - Spending over approval limits
  - Split transactions to avoid limit
  - Collusion between subordinate and supervisor to avoid approval scrutiny
- Vacation Hours
  - Reasonableness
  - Consistent with role
  - Large amounts of vacation outside of guidelines

# Other Analysis Areas

- System Access Logs
- Maintenance Files
- Social Media
  - The Price is Right Fraud
- Physical Investigations
  - Surveillance

# Continuous Auditing

- Programmatic Auditing
- System Based



Next Lecture: Why People Commit Fraud