WEALTH ADVISORY | OUTSOURCING | AUDIT, TAX, AND CONSULTING

Fraud Prevention Using Data Analytics - AGA PDT 2019

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Create Opportunities

About CliftonLarsonAllen LLP

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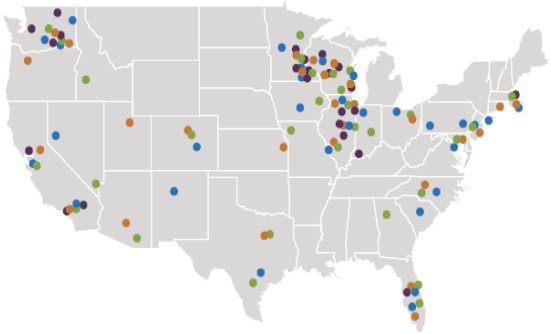


Among the nation's top 8 accounting and consulting firms with:

- More than 110 locations
- 600+ principals
- 18+ industries
- 5,400 people
- $850M in revenue
- 100s of services

Firm Overview

CLA has over 110 office locations throughout the United States, over 5,500 employees, and is a member of the global NEXIA network. CLA is positioned to provide the level of knowledge, insight, and specific experience you expect in a service provider. While our overall size allows us the chance to provide clients with endless possibilities and service opportunities, our local office structure allows our teams to work closely with your staff while getting familiar with your business, thus keeping us in the loop of your future objectives.

Objectives

- Discuss fraud
- Discuss the overall process of how data analytics is applied
- Discuss how data analytics can be used to better identify risks and improve our efficiency.
- Demonstrate the power of data analytics using case studies.

Forensic Thinking

Overt/Covert Investigative Techniques

- **Data Analytics of financial records**
- Search warrants
- **Interviews**
- Undercover agents
- **Cooperating witnesses/sources**
- Title IIIs
- Surveillance
- Database checks
- Computer Forensics
- Consensual monitoring
- Mail cover
- Trash cover
- Polygraph
- **Liaison with counterparts**
- Toll register

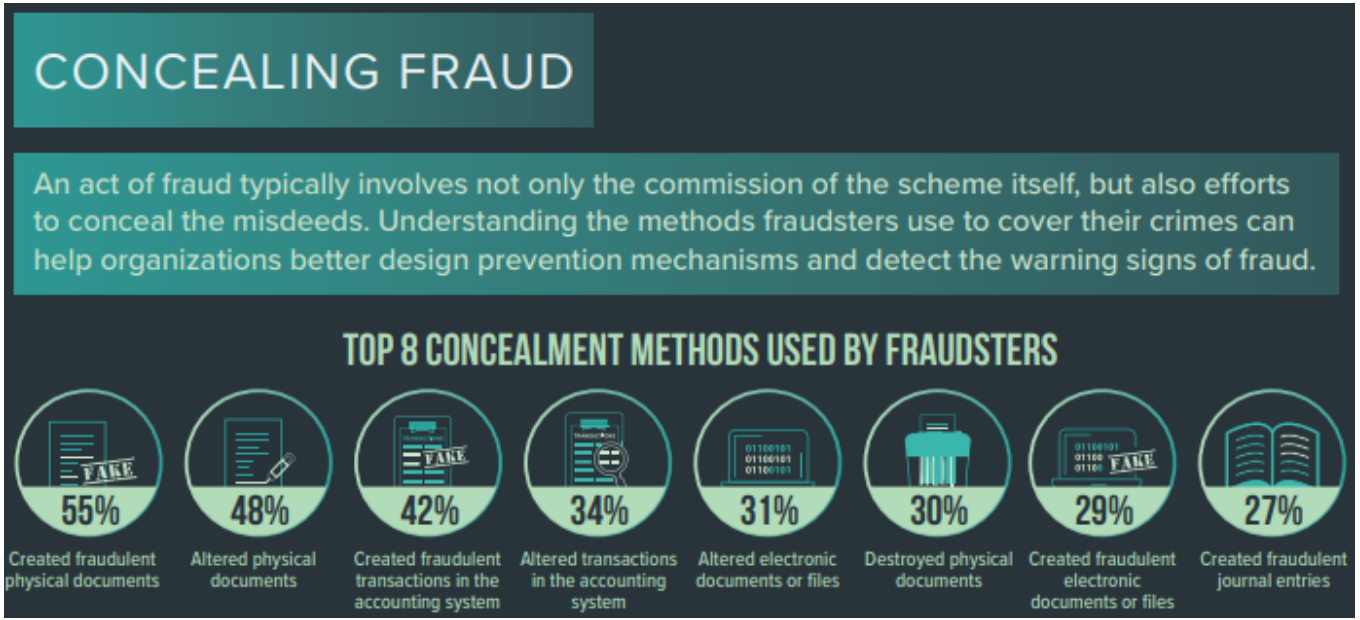
Frequency and Cost of Fraud

- The typical organization loses 5% of annual revenue to fraud.

The longer the duration of a scheme, the higher the median loss.

FIG. 7 **How does the duration of a fraud relate to median loss?**

Concealment



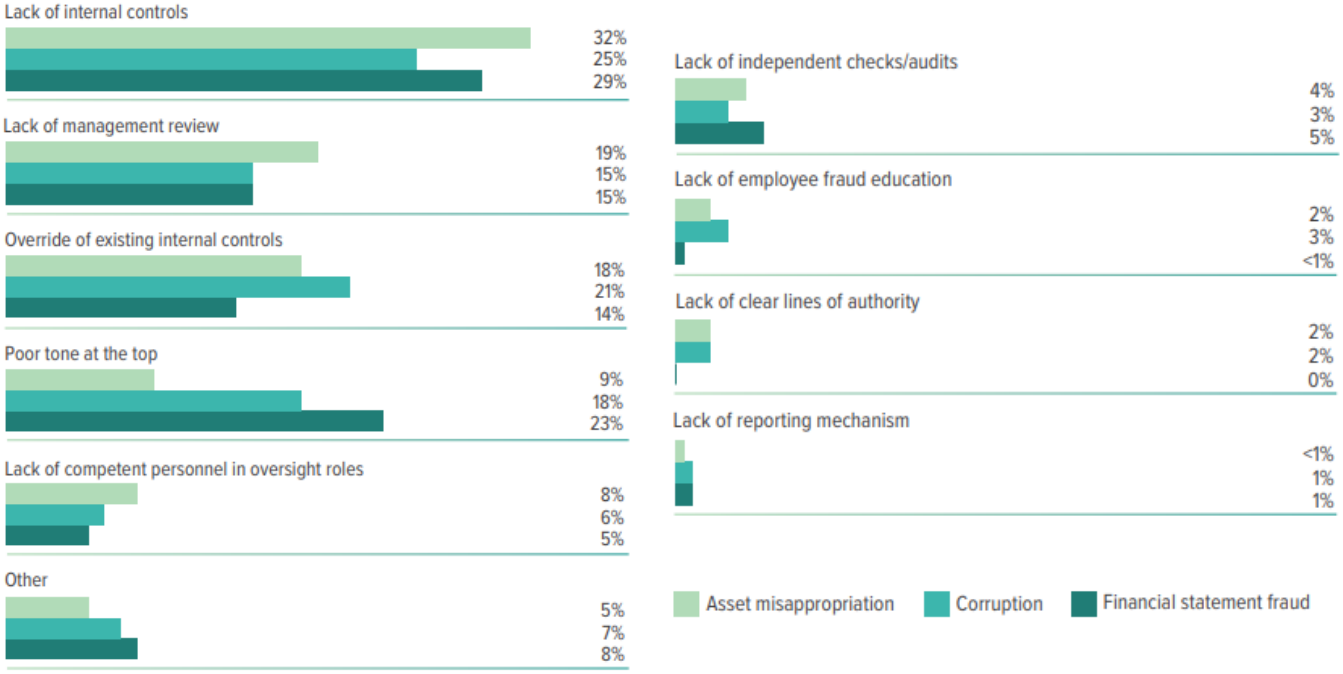
Maintaining Skepticism

- Acknowledge that fraud risk exists
- Encourage open and candid discussion
- If I were to try to commit fraud, how would I do it?
- Continuously assess the risk of management and control override
- Openly display your skepticism to set the tone at the top and spread awareness
- Take swift action when fraud event occur and make the event of action (not the details) known internally

Weaknesses That Contribute to Fraud

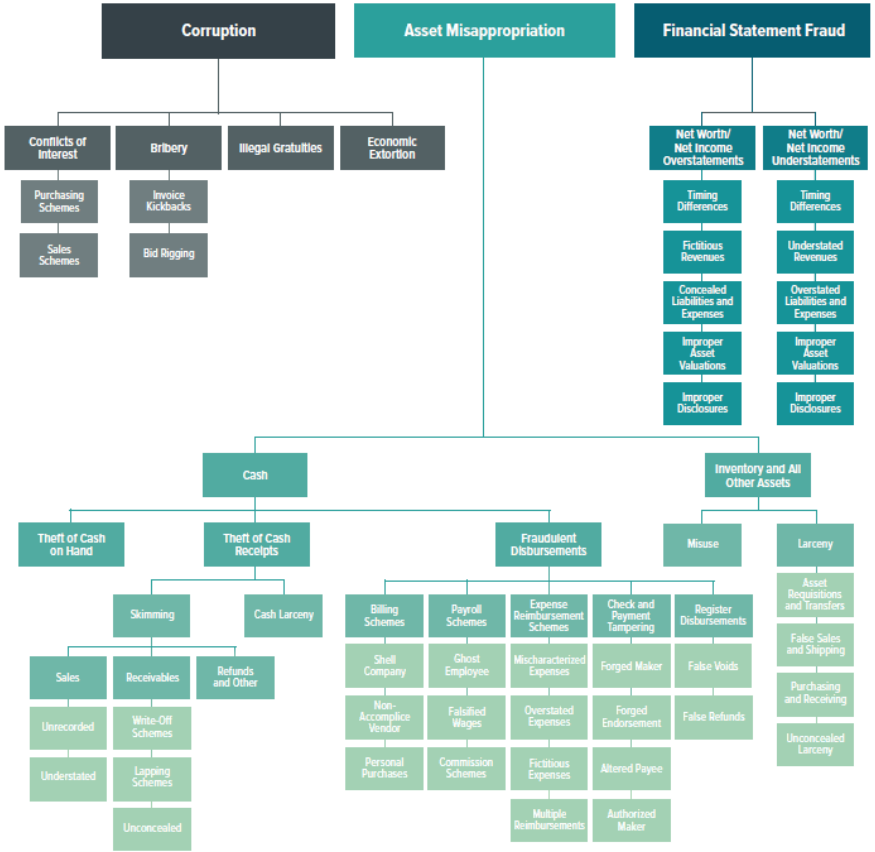
FIG. 22 **What are the primary internal control weaknesses that contribute to occupational fraud?**

FIG. 23 **How do internal control weaknesses vary by scheme type?**



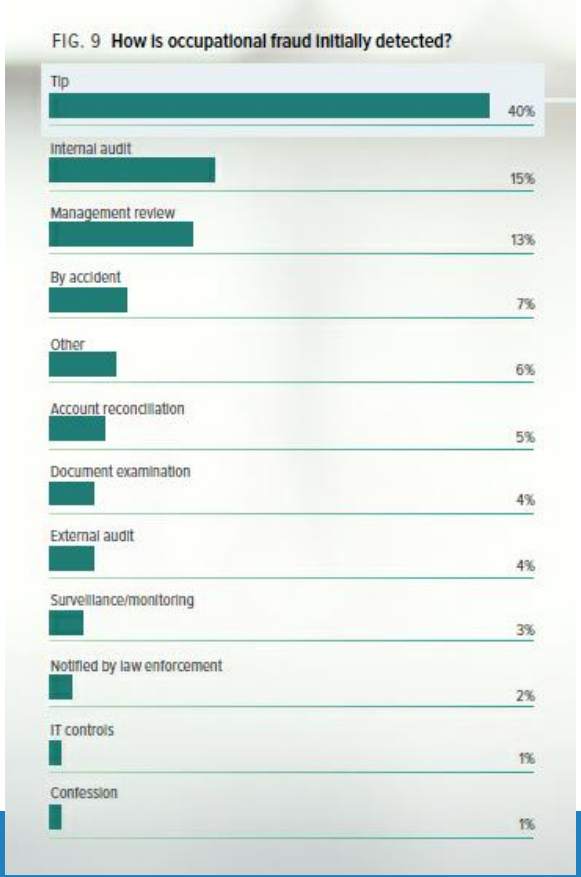
Fraud Types

The Fraud Tree



Internal Controls

How is Fraud Detected?



Controls – Segregation of Duties

Organizations with limited resources can still have effective segregation of duties controls.

- Focus on preventive controls rather than detective controls.
- Alternate sequential tasks, so that no one person has complete responsibility for the entire transaction.
- Functions to separate:
  - Authorization,
  - Payment,
  - Custody, and
  - Recording.
- Consider outsourcing if there simply are not enough people to separate the necessary functions.

Preventive Controls

Designed to prevent fraud before it has occurred

- Provide employees fraud awareness training
- Implement policies and procedures
- Segregate Duties
- Establish passwords and physical safeguards to restrict unauthorized access
- Ensure alignment of responsibilities, authority and incentives

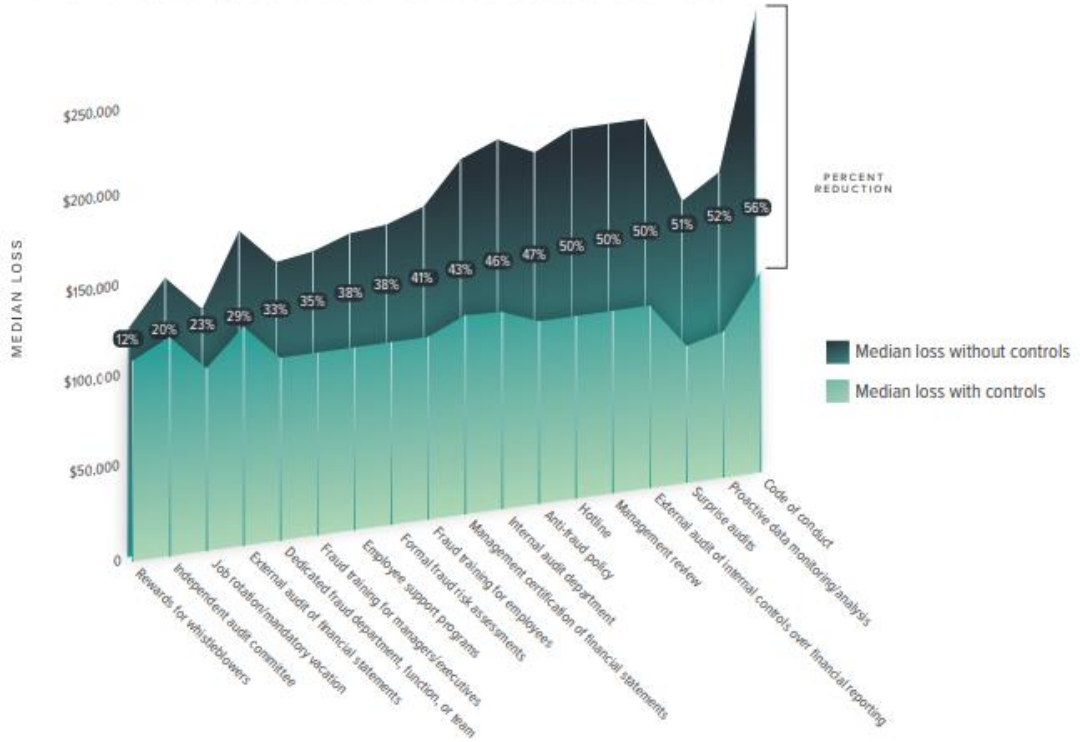
Detective Controls

Designed to detect fraud <u>after</u> it has occurred

- Establish a fraud reporting system (i.e. whistleblower hotline)
- Use reconciliations, independent reviews, physical inspections/counts and analysis
- Review exception reports and ensure that they are cleared by persons with appropriate authority
- Utilize technology to perform data analysis and comparison and continuous auditing techniques
- Perform surprise audits

Effectiveness of Controls

FIG. 18 How does the presence of anti-fraud controls relate to median loss?



Use Effective Planning and Risk Assessment to Direct Analytics

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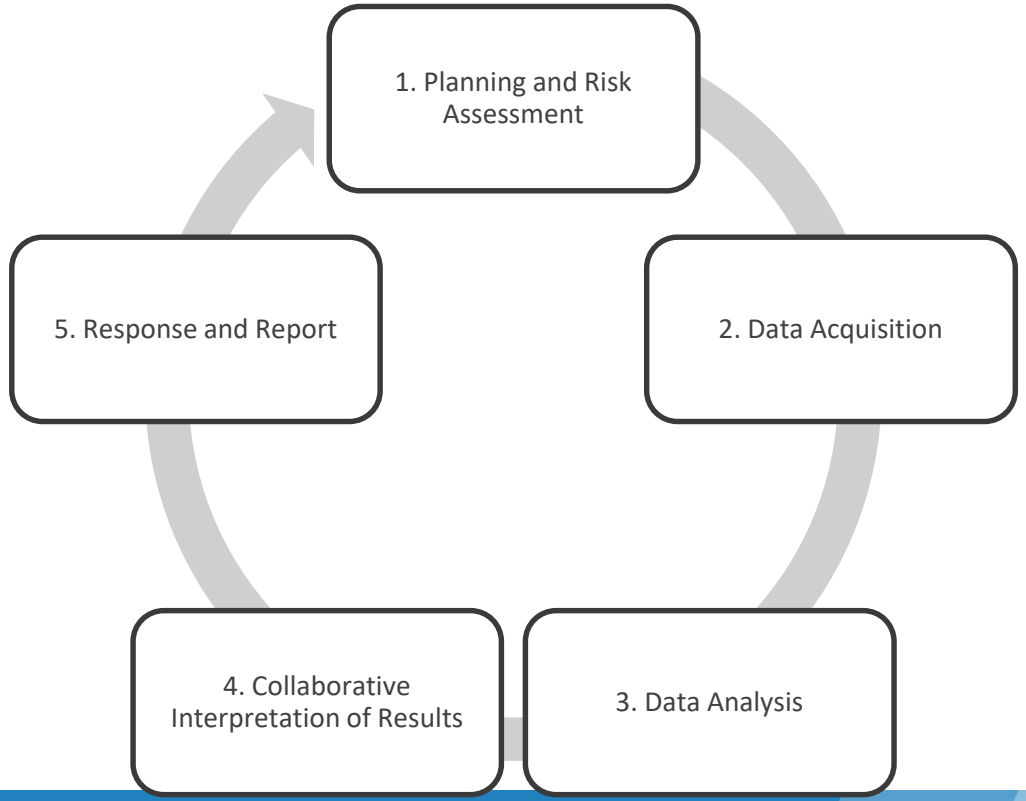
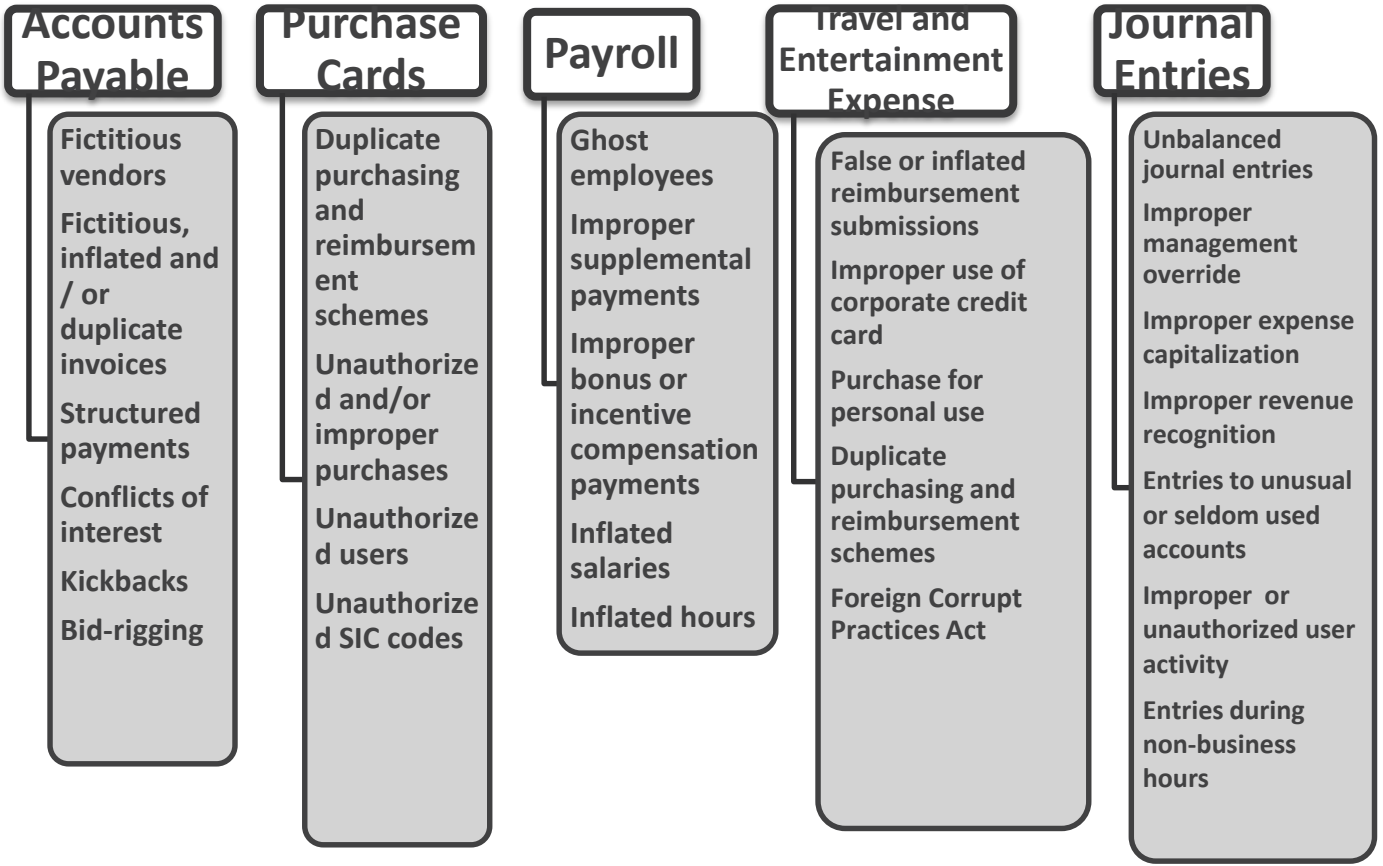
Data Analysis Methodology – 5 Phases



Example Areas of Focus and Analyses that may be considered:

Types of Risks and Areas of Analysis



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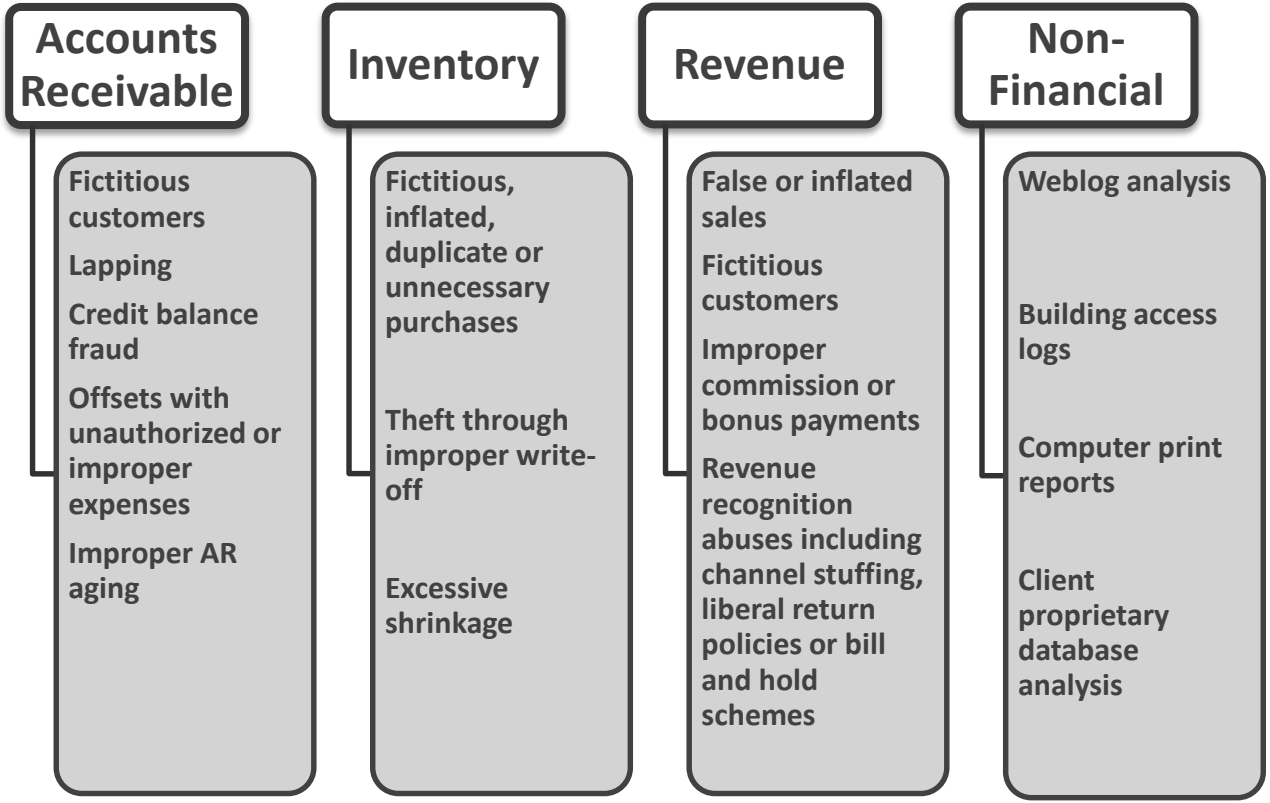

General Ledger

- Ensure reconciliation and completeness of systems and subledgers flowing in the trial balance
- Assess and review the activity of subledgers, understand manual vs. automated
- Identify user access, user threshold level controls and consistency of access and control across the organization
- Trend results over time, such as monthly:
  - Account level results
  - Business unity level results
  - Geography based results
  - Relevant Revenue and Expense groupings
- Identify suspicious entries such has transactions to suspense accounts, reversals, or entries occurring with strange timing

Cash Disbursement

- Understand vendor relationships,
  - Identify key vendors
  - Identify new/unapproved vendors
  - Identify related party vendors
  - Identify vendors receiving suspicious recurring or one-time payments
- Reconcile Inter-company and Inter-branch transactions
- Identify duplicate payments
- Identify payments that were structured to evade threshold level controls
- Identify unapproved disbursements
- Understand out of sequence payments
- Understand compliance with threshold level controls
- Analyze disbursements by vendor type, review for reasonableness
- Trend vendor level disbursements by time period to identify increasing or strange trends

Payroll

- Ensure all paid employees are on the appropriate approved lists
- Ensure paid employees are receiving correct salary and hourly rates
- Analyze and understand overtime payments
- Identify payments made before hire date over after term date
- Understand bonus, commission and other non-standard payments
- Analyze pay and pay rates by:
  - Business Unit
  - Geography
  - Job Function
- Understand headcount by functional area
- Identify manual adjustments to payroll
- Ensure hours logged in timekeeping software is reasonable, identify employees with excessive overtime
- Review employee master file for:
  - Unusual updates and changes
  - Multiple employees that share contact information and/or bank accounts
  - Missing or unusual personal information
  - Assess Active and Inactive employees for reasonableness

Travel and Expense Reimbursement

- Group payments by meaningful classifications, such as hotel, airfare, meals, mileage, transportation, etc.
- Group payments by meaningful classifications, such as administrative, sales, production, etc.
- Group payments by employee,
- Identify duplicate submissions. This can be run on invoice number, amount, employee, month, description.
- Conduct digital frequency testing. Often, transactions that occur more often than expected are a result of subjective or created amounts. Look for evasion of approval limits, irregular amounts and number invention.
- Identify payments made outside of understood business hours.
- Organizations commonly use credit cards for business expenses. Each credit card transaction will include a Standard Industry Code (SIC), which classifies the expense by meaningful type, such as airfare, lodging, dining, etc. These codes can be used to analyze expenses
- Identify gifts and charitable donations.
- Identify Multiple Gifts to the same person
- Identify instances where the submitter is the same as the approver
- Identify excessive cash reimbursements
- Understand excessive mileage
- Identify abuse and non-compliance with policies

Applying Forensic Techniques to Design Analytics that Address Risk

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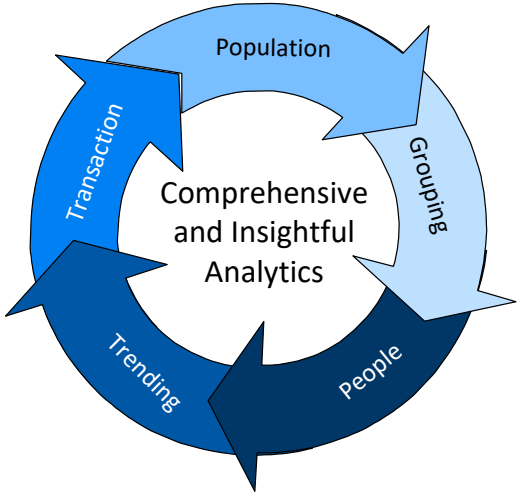
Skepticism and Forensic Thinking

Add value through application of “forensic thinking”:

- An investigative mindset - more than skeptical
- An understanding of fraud schemes and indicia of fraud
- Experience in dealing with fraud, risk and compliance issues
- Knowledge of certain investigative, analytical and technology-based techniques
- Knowledge of legal process (pitfalls, ramifications, etc. on engagements that may be subject to litigation)

Design and Perform Tests

Design a well rounded and comprehensive set of tests. Give specific consideration to learned insight. Assess known risk, collaborate to identify unknown risk.



Analytic tests selected from the following five categories will provide insight into the areas being examined.

1. **Population Analytics** – Conducted to gain an understanding of the entire population.
2. **Grouping Analytics** – Summarize transactions into meaningful groups.
3. **People Analytics** – Designed to provide insight into who benefits from a transaction and who is responsible for the transaction.
4. **Trending Analytics** – Provide interpretive value by showing data results over time.
5. **Transaction Analytics** – Isolate transactions exhibiting particular traits or have a certain “DNA”.

Proactive Application of Data Analytics: Techniques to Apply to Multiple Populations to Address Risk

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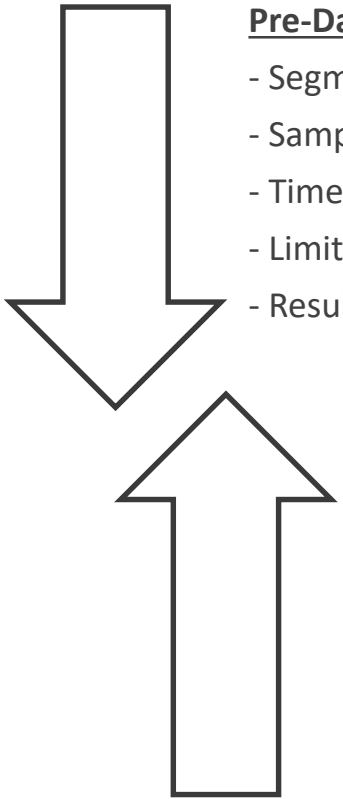
Pre and Post Data Analytic Approach



Pre-Data Analytics

- Segmented by business unit, time period, geography
- Sample Based Approach
- Time consuming
- Limited findings and measurement of policy adherence
- Results and insights not utilized outside of internal audit group

Post -Data Analytics

- Holistic enterprise wide scope, includes **100% of transactions**
- Utilize long periods of results to generate better understand and identify anomalies
- Deploy a **Risk-Based** Approach
- More Efficient and periodic reporting; can be done near real time
- Actionable measurement of compliance
- Insights valued and utilized by the management outside of internal audit
- Abuses identified more timely resulting in cost savings

Steps 1 and 2: Planning and Data Acquisition

Planning and Risk Assessment – Involved a short face to face meeting

- Policy Non-compliance
- Fraudulent submission
- Have better insights into:
  - Cash transactions that were generally low visibility
  - Expense types
  - Seasonality
  - Spending levels by business Unit
  - Understand Key Vendors

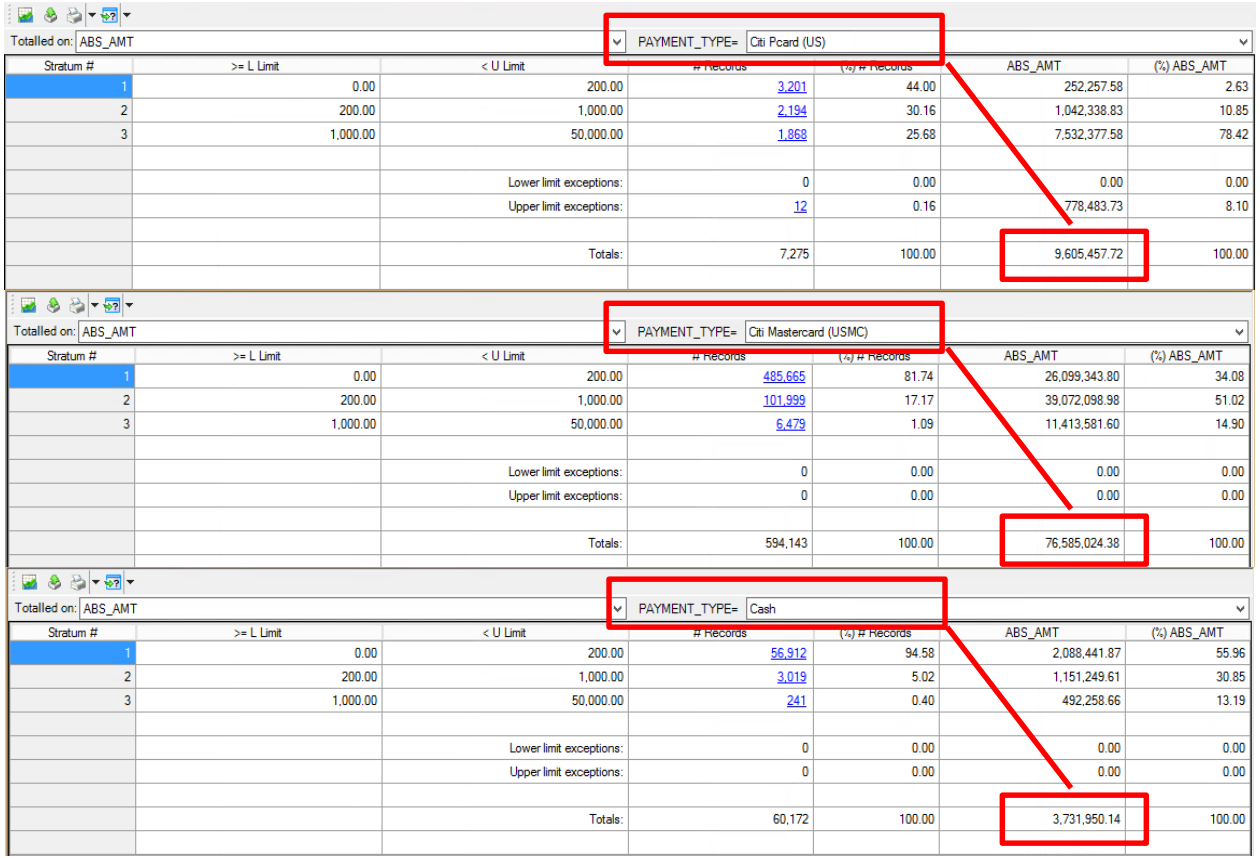
- Data Acquisition
  - Concur, readily available
  - Employee Time Records
  - Others – building access logs, network logs

Steps 3 and 4: Data Analysis and Interpretation

- Data Analysis – was performed in approximately four hours, that same day and on the plane home. Analytics of the following types were performed:
  - Population
  - Trending
  - Grouping
  - People
  - Specific Risk
- Collaborative Interpretation of Results – face to face brainstorming and review meeting took place, key analytics were walked through and explained, the organization's specific considerations were included into the analysis in real time to refine and improve analysis.

Technical Data Analysis – Population Testing

- 16 months of information
- 661,000 transactions
- $87.8 million in expense
- 3,397 Employees, ranging from near 0 to $3.2M in spend
- Approximately 46K Vendors, approximately the top 0.1% or 40 responsible for receiving $48M+ or 55%
- Max Single Item Spend $99.4K
- Max Month, March 2015 $9.5M



Totalled on: ABS_AMT — PAYMENT_TYPE= Citi Pcard (US)

Stratum #	>= L Limit	< U Limit	# Records	(%) # Records	ABS_AMT	(%) ABS_AMT
1	0.00	200.00	3,201	44.00	252,257.58	2.63
2	200.00	1,000.00	2,194	30.16	1,042,338.83	10.85
3	1,000.00	50,000.00	1,868	25.68	7,532,377.58	78.42
		Lower limit exceptions:	0	0.00	0.00	0.00
		Upper limit exceptions:	12	0.16	778,483.73	8.10
		Totals:	7,275	100.00	9,605,457.72	100.00

Totalled on: ABS_AMT — PAYMENT_TYPE= Citi Mastercard (USMC)

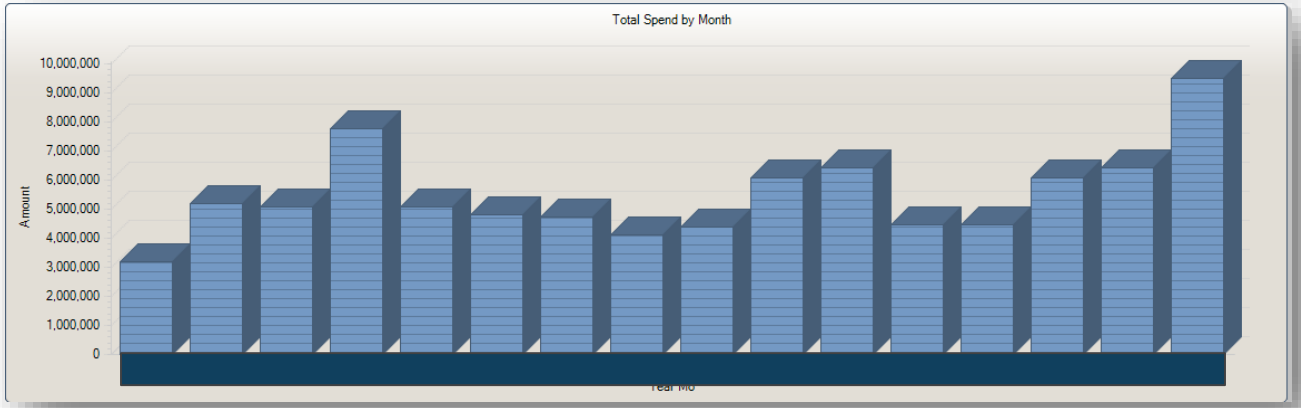
Stratum #	>= L Limit	< U Limit	# Records	(%) # Records	ABS_AMT	(%) ABS_AMT
1	0.00	200.00	485,665	81.74	26,099,343.80	34.08
2	200.00	1,000.00	101,999	17.17	39,072,098.98	51.02
3	1,000.00	50,000.00	6,479	1.09	11,413,581.60	14.90
		Lower limit exceptions:	0	0.00	0.00	0.00
		Upper limit exceptions:	0	0.00	0.00	0.00
		Totals:	594,143	100.00	76,585,024.38	100.00

Totalled on: ABS_AMT — PAYMENT_TYPE= Cash

Stratum #	>= L Limit	< U Limit	# Records	(%) # Records	ABS_AMT	(%) ABS_AMT
1	0.00	200.00	56,912	94.58	2,088,441.87	55.96
2	200.00	1,000.00	3,019	5.02	1,151,249.61	30.85
3	1,000.00	50,000.00	241	0.40	492,258.66	13.19
		Lower limit exceptions:	0	0.00	0.00	0.00
		Upper limit exceptions:	0	0.00	0.00	0.00
		Totals:	60,172	100.00	3,731,950.14	100.00

Technical Data Analysis – Trending

Total Spend by Month:

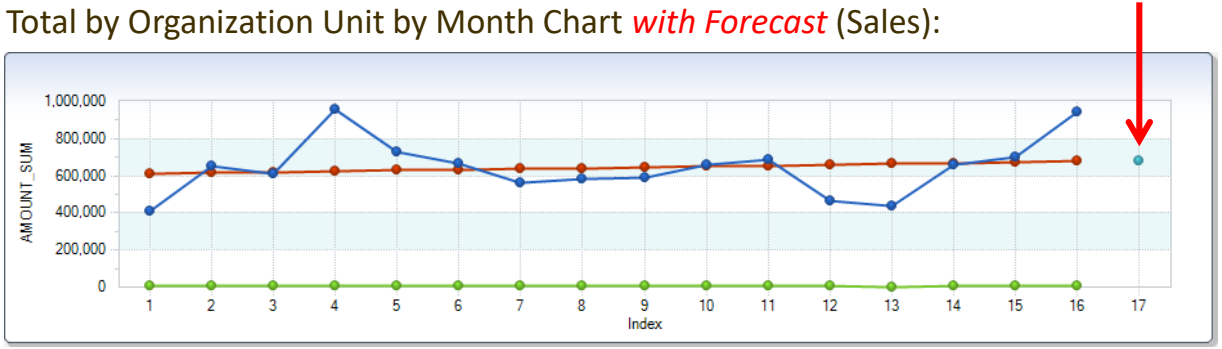


Total Spend by Organization Unit by Month:

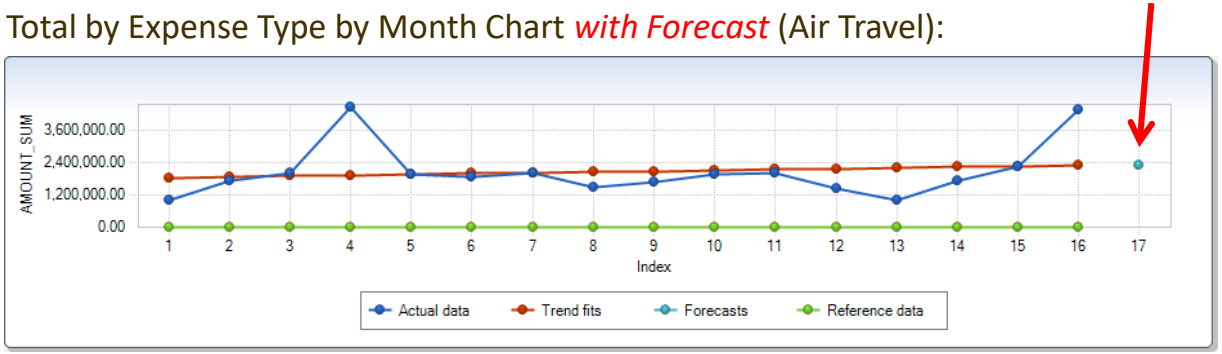
National	665,719.38	563,348.13	582,170.35	588,236.45	660,090.57	686,491.11	465,757.14	434,550.75	657,940.25	699,898.34	946,724.17	10,311,991.86
Sales 1	391,357.76	365,231.62	358,627.19	304,965.75	390,814.25	514,377.47	288,773.78	373,002.87	461,207.66	495,178.76	879,552.10	6,897,742.54
Sales 2	307,168.09	242,949.41	256,624.76	303,466.47	396,986.47	522,523.76	402,678.32	414,317.62	463,796.21	492,884.04	536,727.73	6,138,792.70
Sales 3	335,701.15	293,983.94	270,618.60	251,695.53	409,564.52	387,581.81	257,419.79	268,089.73	489,001.39	433,051.24	645,647.24	5,783,076.80
Sales 4	321,704.36	292,613.60	260,628.04	340,778.26	301,002.45	317,735.73	194,770.17	151,560.63	281,324.95	384,869.14	506,774.13	5,082,430.38
Development	245,993.31	240,532.54	207,405.49	217,353.66	343,602.39	302,313.58	233,916.88	373,322.98	370,185.32	318,718.21	727,326.00	4,942,486.55
Communications	242,743.44	228,362.71	235,138.57	264,117.37	262,961.05	305,150.15	210,898.78	225,144.92	387,657.75	379,238.71	554,755.89	4,860,984.30
Manufacturing	87,225.50	110,853.20	70,803.00	83,826.39	613,783.43	521,454.77	203,393.11	314,719.65	486,928.70	457,757.44	1,284,324.71	4,721,095.53
Corporate	260,231.14	210,934.61	232,796.48	215,543.28	334,921.16	384,121.63	265,707.22	232,062.64	268,989.24	321,112.11	383,550.77	4,657,979.13
Supply Chain	277,258.50	246,122.04	202,976.78	213,377.40	283,782.49	266,861.10	280,411.63	241,180.15	270,529.12	302,054.38	550,005.19	4,430,020.89

Technical Data Analysis – Trending

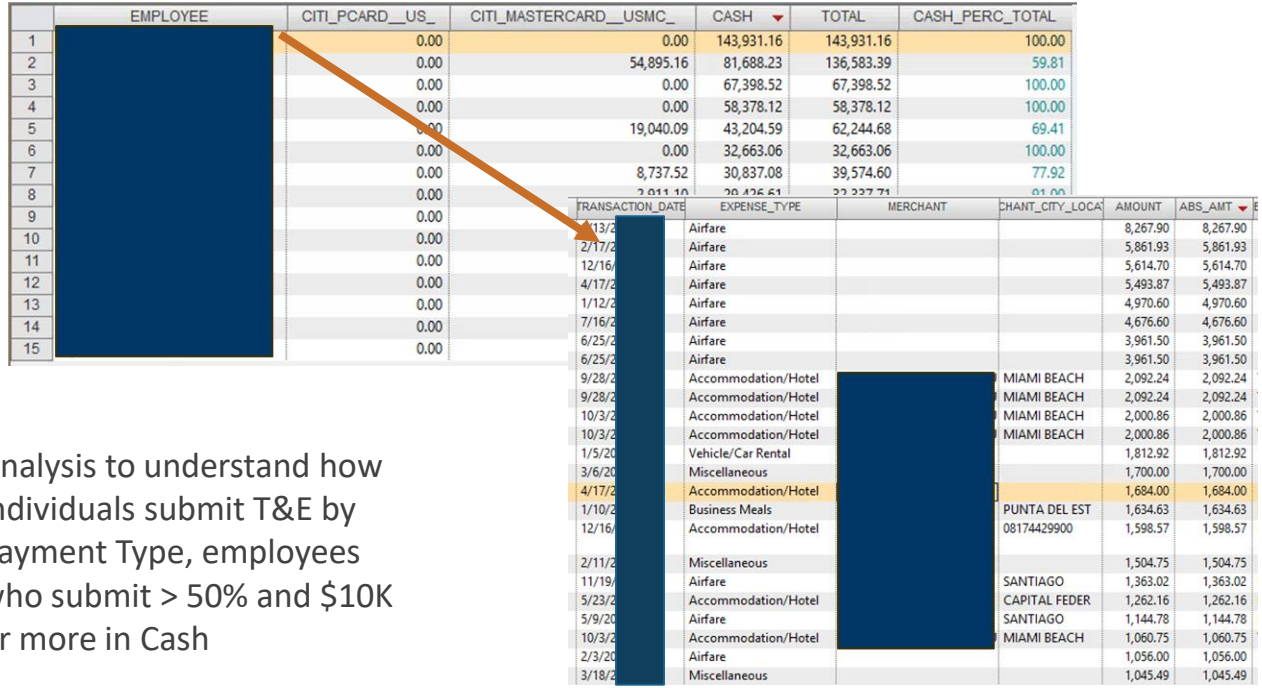
Total by Organization Unit by Month Chart *with Forecast* (Sales):



Total by Expense Type by Month Chart *with Forecast* (Air Travel):



Technical Data Analysis – People



	EMPLOYEE	CITI_PCARD__US_	CITI_MASTERCARD__USMC_	CASH	TOTAL	CASH_PERC_TOTAL
1	[redacted]	0.00	0.00	143,931.16	143,931.16	100.00
2		0.00	54,895.16	81,688.23	136,583.39	59.81
3		0.00	0.00	67,398.52	67,398.52	100.00
4		0.00	0.00	58,378.12	58,378.12	100.00
5		0.00	19,040.09	43,204.59	62,244.68	69.41
6		0.00	0.00	32,663.06	32,663.06	100.00
7		0.00	8,737.52	30,837.08	39,574.60	77.92
8		0.00	2,911.10	29,426.61	32,337.71	91.00
9		0.00				
10		0.00				
11		0.00				
12		0.00				
13		0.00				
14		0.00				
15		0.00				

TRANSACTION_DATE	EXPENSE_TYPE	MERCHANT	CHANT_CITY_LOCA	AMOUNT	ABS_AMT
[redacted]	Airfare			8,267.90	8,267.90
2/17/2	Airfare			5,861.93	5,861.93
12/16/	Airfare			5,614.70	5,614.70
4/17/2	Airfare			5,493.87	5,493.87
1/12/2	Airfare			4,970.60	4,970.60
7/16/2	Airfare			4,676.60	4,676.60
6/25/2	Airfare			3,961.50	3,961.50
6/25/2	Airfare			3,961.50	3,961.50
9/28/2	Accommodation/Hotel	[redacted]	MIAMI BEACH	2,092.24	2,092.24
9/28/2	Accommodation/Hotel		MIAMI BEACH	2,092.24	2,092.24
10/3/2	Accommodation/Hotel		MIAMI BEACH	2,000.86	2,000.86
10/3/2	Accommodation/Hotel		MIAMI BEACH	2,000.86	2,000.86
1/5/20	Vehicle/Car Rental			1,812.92	1,812.92
3/6/20	Miscellaneous			1,700.00	1,700.00
4/17/2	Accommodation/Hotel			1,684.00	1,684.00
1/10/2	Business Meals		PUNTA DEL EST	1,634.63	1,634.63
12/16/	Accommodation/Hotel		08174429900	1,598.57	1,598.57
2/11/2	Miscellaneous			1,504.75	1,504.75
11/19/	Airfare		SANTIAGO	1,363.02	1,363.02
5/23/2	Accommodation/Hotel		CAPITAL FEDER	1,262.16	1,262.16
5/9/20	Airfare		SANTIAGO	1,144.78	1,144.78
10/3/2	Accommodation/Hotel		MIAMI BEACH	1,060.75	1,060.75
2/3/20	Airfare			1,056.00	1,056.00
3/18/2	Miscellaneous			1,045.49	1,045.49

Analysis to understand how individuals submit T&E by Payment Type, employees who submit > 50% and $10K or more in Cash

Technical Data Analysis – People

"Relatively Large Spender" Analysis

Stats were calculated for all 99 expense types (Airfare, Accommodation/Hotel, meals, etc.) including Max, Min, Ave, Standard Deviation.

Large was defined as any single expense that was 3 times the standard deviation from the average and greater than $1,000 for the pay type.

> For example, for Accommodation/Hotel there were 126,623 transactions, the average was $260.92, the standard deviation was $266.49. Any Accommodation/Hotel Expense that was greater than $1,060.39 would be considered "Relatively Large." The math is (3*266.49+260.92)

There were 4,192 expenses that satisfied this criteria

We then summarized these items by employee to measure who had the most items

	EMPLOYEE	NO_OF_RECS1	AMOUNT_SUM
1	[redacted]	66	259,123.19
2		45	198,947.58
3		37	144,116.09
4		36	1,393,594.23
5		32	92,164.43
6		30	112,875.86
7		24	67,394.28
8		22	47,596.31
9		22	86,854.72
10		22	146,801.80
11		20	63,252.58
12		18	117,478.85
13		18	57,202.95
14		17	62,630.37
15		17	22,342.90
16		17	47,791.51
17		17	43,020.06
18		17	44,109.82
19		16	34,200.12
20		16	44,002.60
21		15	83,907.01
22		14	32,315.51
23		14	31,447.91
24		12	28,289.05
25		12	15,846.29

Technical Data Analysis - Grouping

L Limit	< U Limit	# Records	(%) # Records	AMOUNT_SUM	(%) MOUNT_SUI
0.00	10,000.00	36,486	98.03	17,969,980.42	20.46
10,000.00	20,000.00	343	0.92	4,755,775.97	5.42
20,000.00	30,000.00	116	0.31	2,829,281.59	3.22
30,000.00	40,000.00	46	0.12	1,563,834.48	1.78
40,000.00	50,000.00	41	0.11	1,839,362.81	2.09
50,000.00	60,000.00	23	0.06	1,293,176.37	1.47
60,000.00	70,000.00	14	0.04	905,771.99	1.03
70,000.00	80,000.00	13	0.03	980,086.88	1.12
80,000.00	90,000.00	11	0.03	929,713.50	1.06
90,000.00	100,000.00	11	0.03	1,051,039.53	1.20
	Lower limit exceptions:	39	0.10	-93,392.64	-0.11
	Upper limit exceptions:	77	0.21	53,791,760.48	61.25

Grouped by Name, 37,220 Merchants paid, average of $2,359
Less than 2% of the vendors account for approximately 80% of the dollar value (including Cash)

Total Spend by Vendor

Cash

	MERCHANT_NORMALIZED	NO_OF_RECS	AMOUNT_SUM
1	[redacted]	28298	6,703,156.24
2		40252	6,353,686.40
3		60179	3,729,449.54
4		9240	3,444,437.70
5		10815	3,353,821.11
6		9142	3,256,997.78
7		7370	2,807,583.39
8		8664	1,784,824.67
9		8599	1,423,081.64
10		8006	1,365,239.84
11		8457	1,348,715.15
12		4976	970,902.36
13		3259	886,529.83
14		4262	839,464.64
15		3550	747,458.69
16		3820	644,498.24

Technical Data Analysis - Grouping

Cash Transactions grouped by employee and expense type, sorted descending by total **amount**

EMPLOYEE	EXPENSE_TYPE	_OF_RE	BS_AMT_SU	AVE
[redacted]	Accommodation/Hotel	200	68,928.81	344.64
	Airfare	14	48,237.70	3,445.55
	Airfare	58	48,040.46	828.28
	Employee Reward & Recognition	8	41,900.89	5,237.61
	Accommodation/Hotel	119	36,775.96	309.04
	Airfare	23	25,057.70	1,089.47
	Accommodation/Hotel	46	20,313.95	441.61
	Accommodation/Hotel	52	19,978.09	384.19
	Chain Accounts Spending	23	19,287.67	838.59
	Accommodation/Hotel	41	18,947.27	462.13
	Accommodation/Hotel	72	18,510.22	257.09
	Accommodation/Hotel	37	17,186.96	464.51
	Miscellaneous	12	15,648.11	1,304.01
	Employee Meals	122	15,425.32	126.44
	Accommodation/Hotel	43	14,395.93	334.79
	Personal Car/Tradeout Mileage	32	13,703.27	428.23
	Miscellaneous	1	13,510.00	13,510.00
	Accommodation/Hotel	26	12,872.08	495.08
	Business Meals	132	12,751.34	96.60
	Accommodation/Hotel	31	11,389.65	367.41
	Airfare	18	11,350.39	630.58
	Personal Car/Tradeout Mileage	106	11,042.39	104.17
	Airfare	27	10,974.01	406.44
	Airfare	2	10,468.92	5,234.46
	Accommodation/Hotel	29	10,341.14	356.59

Cash Transactions grouped by employee and expense type, sorted descending by total **number of records**

EMPLOYEE	EXPENSE_TYPE	OF_R	ABS_AMT_SUM	AVE
[redacted]	Personal Car/Tradeout Mileage	241	9,254.37	38.40
	Personal Car/Tradeout Mileage	206	2,541.96	12.34
	Accommodation/Hotel	200	68,928.81	344.64
	Tolls & Parking Meters	196	3,053.87	15.58
	Personal Car/Tradeout Mileage	184	9,402.65	51.10
	Personal Car/Tradeout Mileage	168	5,959.05	35.47
	Personal Car/Tradeout Mileage	156	3,355.62	21.51
	Personal Car/Tradeout Mileage	150	6,732.62	44.88
	Tolls & Parking Meters	141	271.20	1.92
	Personal Car/Tradeout Mileage	139	7,051.38	50.73
	Personal Car/Tradeout Mileage	139	5,228.64	37.62
	Employee Meals	134	8,458.85	63.13
	Business Meals	132	12,751.34	96.60
	Personal Car/Tradeout Mileage	123	4,539.89	36.91
	Employee Meals	122	15,425.32	126.44
	Parking	120	454.00	3.78
	Accommodation/Hotel	119	36,775.96	309.04
	Personal Car/Tradeout Mileage	108	1,664.82	15.42
	Tolls & Parking Meters	108	674.23	6.24
	Personal Car/Tradeout Mileage	106	11,042.39	104.17
	Miscellaneous	104	635.31	6.11
	Personal Car/Tradeout Mileage	102	1,246.15	12.22
	Personal Car/Tradeout Mileage	100	5,691.89	56.92
	Personal Car/Tradeout Mileage	100	1,845.97	18.46
	Personal Car/Tradeout Mileage	99	5,075.54	51.27

Technical Data Analysis – Specific Risk

"Relatively Large" Analysis

- Grouped by Expense Type reveals areas of potential risk
- Individual items are large, grouping reveals potential risk

	EXPENSE_TYPE	NO_OF_RECS1	AMOUNT_SUM
1	Accommodation/Hotel	2209	3,362,344.77
2	Airfare	322	1,658,643.79
3	[redacted]	15	811,091.50
4	Miscellaneous	374	727,343.36
5	Business Meals	271	493,047.89
6	[redacted]	8	409,913.24
7		188	349,212.91
8		157	229,558.50
9		97	203,720.78
10		28	194,924.74
11		8	172,320.28
12		43	148,727.48
13		60	146,813.75
14		39	131,983.10

Round Dollar by Employee by Merchant

- Reveals risk of repeated round amounts to the same merchant

EMPLOYEE	MERCHANT	F_	AMOUNT_SUM
[redacted]	[redacted]	4	18,000.00
		3	3,000.00
		3	3,000.00
		3	3,000.00
		3	18,000.00
		3	6,000.00
		3	15,000.00
		2	2,000.00
		2	2,000.00
		2	2,000.00
		2	12,000.00
		2	6,000.00
		2	2,000.00
		2	34,000.00
		1	1,000.00

Selected Tests Performed by Areas

Population Analytics:

1. Population Stats – Max, Min, Ave, No of Records, Total
2. Cash vs. Credit Card vs. P-Card
3. Expenses by Geographic region
4. Stratification of expenses by amount, understand large and small and where the data lies
5. Benford's law to identify excessive frequency
6. Benford's law to identify impact of threshold controls
7. Perform completeness checking procedures
8. Identify lack of use and or implementation of controls such as blank description fields, generic usernames
9. Identify expenses to unauthorized SIC/MCC codes

Trending Analytics:

1. Late Report Submissions
2. Transactions on holidays, weekends, and on Personal time off days
3. Flights booked in close proximity to travel days
4. Trending expenses by Organization Unit by Month
5. Trending expenses by Type (Hotel, flights, mileage, meals, etc.) by month
6. Expenses by date
7. Organizational Unit monthly results and forecasting
8. Top "X" transactions by Type by Month
9. Top "X" transactions by Expense Type by Month

Selected Tests Performed by Areas

People Analytics:

1. Headcount – total, department
2. Spend by Employee by Business Unit
3. Identify Employees whose spend is increasing at “x” rate
4. Personal and Non- business expenses by Industry code
5. Compare Number of purchases and amount of purchase over time to other with similar job tiles
6. Identify employees with more volume and large dollar value of credit transactions
7. Identify employees who approved their own expense reports
8. Identify Employees who spent large amounts by expense type (for example a hotel stay of $1,250/night, when the average was $200 for hotel in city)
9. Identify employees with excessive lack of supporting documentation
10. Expenses at Merchants that are related parties to employees

Grouping Analytics:

1. T&E Spend by Organization Unit
2. T&E Spend per Expense Type
3. Calculate totals and average per day for travel by location, identify lavish locations and trips to known locations outside of the norm
4. Spend by Merchant, review merchant names for personal use (PayPal, Apple stores, etc.)
5. Group transactions by type by time period for reasonableness (for example, 2+ parking expenses per day)
6. Group by description and search for suspicious words, such as cash, consulting fees, misc., government official

Selected Tests Performed by Areas

Specific Risks:

1. Duplicates where the Amount, Date, and Employee were the same
2. Duplicates where the Amount, Month/Quarter and Employee were the same
3. Duplicates where the same item was charged to the credit card and P-card
4. Duplicates submitted within 90 days
5. Policy non-compliance
6. Hotel stays with no corresponding flights
7. ID Payments to electronic currency vendors (PayPal, google wallet, apple pay, bitcoin, etc.)
8. ID third party CC fraud, such as stolen CC numbers
9. Excessive mileage/parking/per diem
10. Excessive submission below threshold
11. Excessive travel in “x” period of time
12. Split (or structured) transactions that are broken down into smaller amounts
13. Mileage on the same days as rental car
14. Identify instances where the employee received a credit from the airline, for example booked a first class seat, then flew coach and took the difference

Case Studies

Victim | Private| Health Care

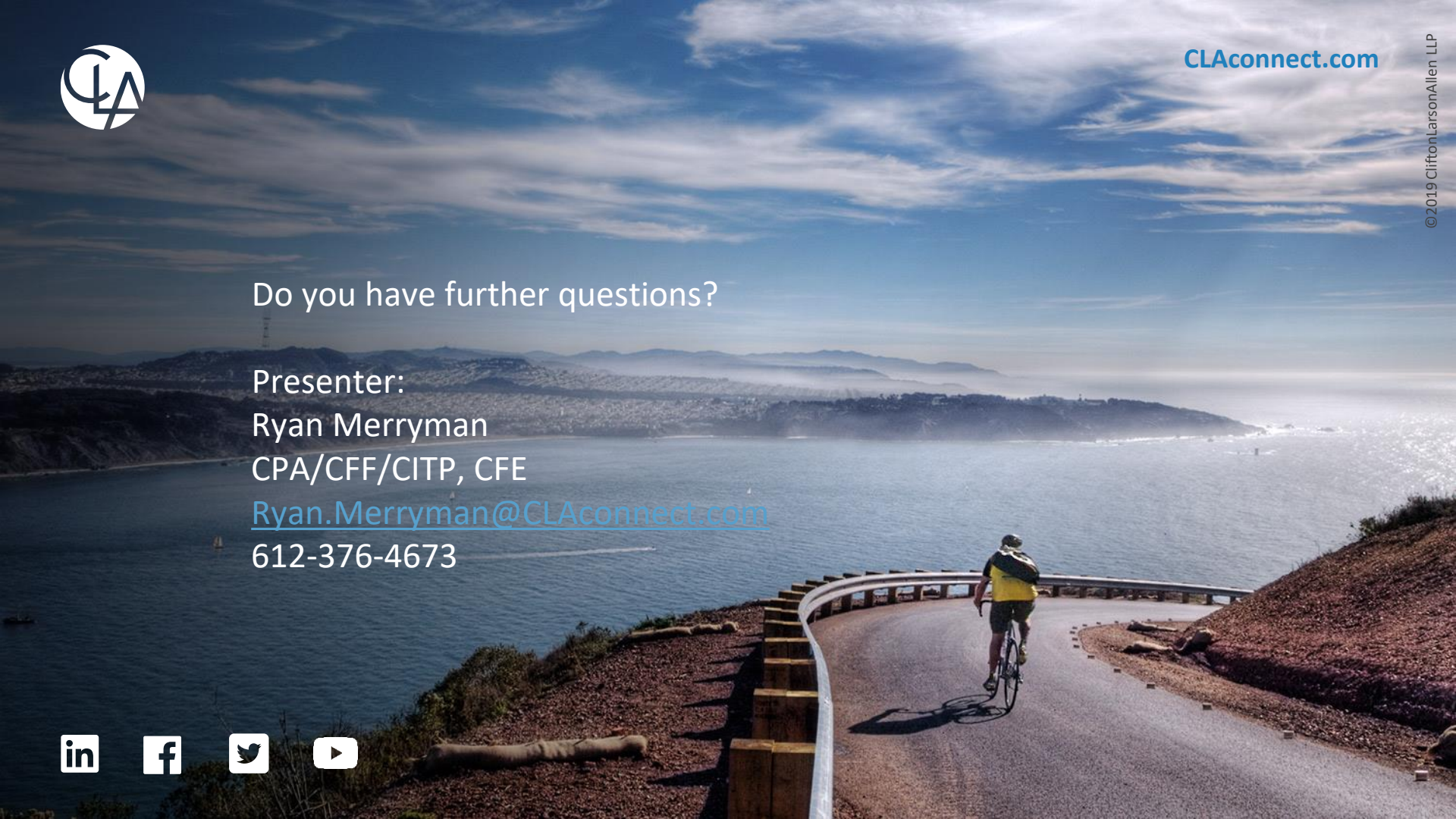
Check Misappropriation	
Organization Size	3,500 employees $12.5 billion in revenue in 2017
Perpetrator	Trusted long-term employee, customer service rep, female, married Single income earner with family medical problems (Pressure) Prior criminal history for theft from employer (Rationalization)
Scheme	• Submitted fictitious claims reimbursement forms and requested that checks be sent back to her office mailbox (Opportunity) • Supervisors did minimal review of check request forms (Opportunity) • Did not mail checks out but instead deposited into her bank account • Forged and used stamp endorsements to deceive bank tellers • Nearly **$700,000** loss over a period of 15 years
Results of Investigation	Administrative: Employee was terminated; company had to reimburse self-funded groups $680,000 for the amounts billed to them; implemented new internal controls Criminal: Referred to law enforcement; employee arrested; criminal proceedings underway Civil: Insurance claim under consideration

Victim | Public Service| County

Check Misappropriation/Fictitious Vendor/False Personal Expenses	
Organization Size	$1.5 million Public Works Department budget Serves a population of over 190,000 customers
Perpetrator	Accountant, long-term trusted employee, female, divorced, adult, children Alleged drug addiction and medical issues, financial issues (Pressures) Initially thought she would pay back (Rationalization)
Scheme	• Various schemes including: ○ Targeted multiple County programs in three funds to generate refund checks by falsifying documents and having checks mailed to addresses perpetrator had access to for eventual deposit into personal accounts (used several accomplices outside of the County) ○ Use of purchase order system to generate checks/wire transfers paid for contracted services the County did not receive (fictitious vendor) ○ Personal expenses charged to County credit cards and theft of petty cash • Given access to various systems with minimal oversight (Opportunity) • **$2.05 million** loss
Results of Investigation	Administrative: Employee terminated Criminal: Referred to law enforcement; employee arrested; criminal investigation ongoing Civil: No civil action taken; insurance claim submitted

Victim | Government Organization| Indian Reservation

Conflict of Interest/Kickbacks	
Organization Size	300+ employees $33 million in Federal Grant revenue each year $3 million additional TPR generated revenue from health clinic
Perpetrator	Trusted long-term employee, female, mid-50s, married Had 2 supervisors over past 35 plus years; no close supervision by either supervisor (Opportunity) Financial difficulties (Pressure) Should have been paid a higher salary or bonus for all her hard work (Rationalization)
Scheme	• Multiple schemes to extract money from the organization and contracts awarded to family and close friends who paid kickbacks in the form of vehicles • Undetermined loss over approximately the last 8 years
Results of Investigation	Administrative: Employee was terminated and other employees (current and past) are suspected of involvement Criminal: No referral to law enforcement yet



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Do you have further questions?

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