

**SEPTEMBER 2016 EXPLORING THE NEXT GENERATION OF FRAUD ANALYTICS**



@jdruotolo

**James D. Ruotolo, CFE, Product & Marketing Director**  
*SAS Fraud & Security Intelligence Solutions*



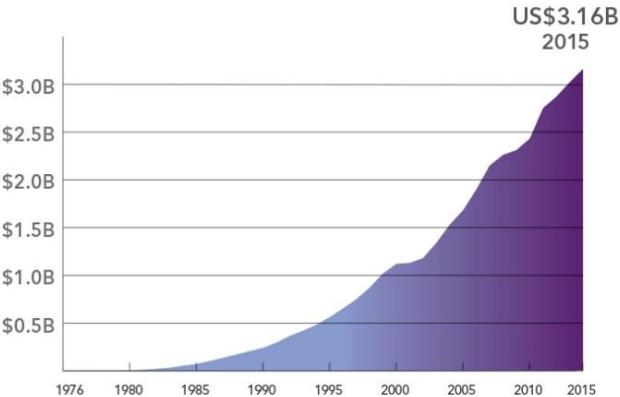
# INTRODUCTION



# INTRODUCTION

## SAS

### Continuous Revenue Growth Since 1976



*Recognized year over year by analyst firms and our customers, SAS' dominance in the analytics marketplace is reflected in our 40 years of consistent revenue growth since our inception, recently surpassing US \$3.16B in 2015, up 6.4% in constant currency over 2014.*

“ We owe our success to our commitment to innovation – **reinvesting 25% of our annual revenues into research & development** ensures that our products are best of breed. ”



**59**

COUNTRIES WITH  
SAS OFFICES



**80,000**

CUSTOMER SITES  
WORLDWIDE

ANALYSTS RANK SAS AS A LEADER IN:

ANALYTICS

DATA  
MANAGEMENT

DIGITAL  
MARKETING

ADVANCED AND  
PREDICTIVE  
ANALYTICS

CUSTOMER  
INTELLIGENCE

RETAIL

AGILE BI

BUSINESS  
INTELLIGENCE

FRAUD  
DETECTION



Fraud & Improper  
Payments



Regulatory  
Compliance



Security

# FRAUD ANALYTICS

## EXAMPLE SCENARIOS

Optimising transaction monitoring for financial institutions using Anti-Money Laundering platforms

### AML Optimization

Real-time detection of suspicious transactions to a recently created online banking payee

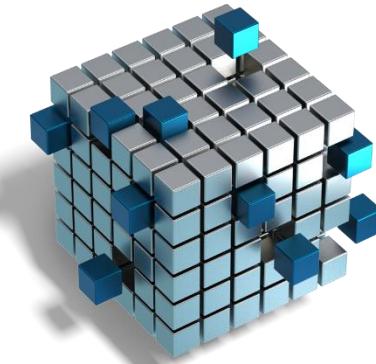
### Transactional Fraud

Detecting the individual who set up companies with the sole intent of avoiding payment of VAT or by obtaining money through undue claims.

### VAT Fraud

Detecting potential duty evasion in the movement of goods at the border

### Border Fraud



Detecting the customer who misrepresents their details to deceive a financial institution into opening a new account which they do not intend to repay

### Application Fraud

Detecting the married woman who owns 3 rental properties but declares herself a single mother with no income to obtain illegitimate state benefits.

### Benefits Fraud

Detecting the suspicious individual claiming injury & dubious medical treatment following a car accident.

### Claims Fraud

## ORGANIZATIONS WITHOUT ADVANCED FRAUD ANALYTICS

80%

20%

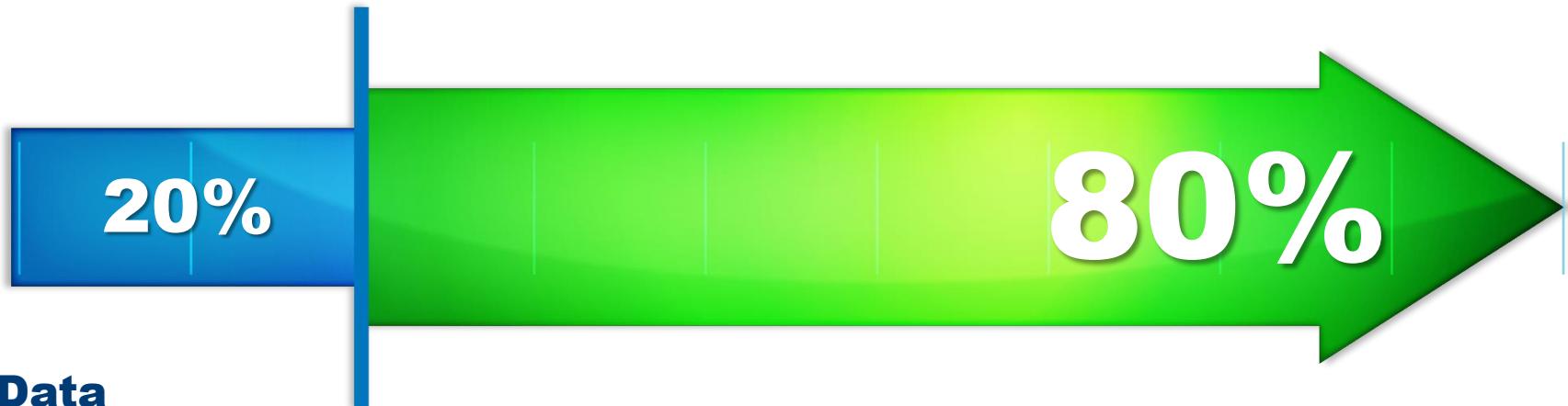
### Search & Discovery

Identifying relevant information, searching multiple data sources, “formatting” data for a specific tool, processing, applying “analytical techniques” within a tool, typically ad-hoc and manual in nature. **Must have a “starting point” to know where to focus.**

### Actionable Analysis

Applying specific tradecraft, vetting of information

## **ORGANIZATIONS** WITH ADVANCED FRAUD ANALYTICS



**Data  
Acquisition,  
Integration, &  
Automated  
Analytics**

### **Actionable Analysis**

More time to look at High Value Targets and the most impactful information to the organization.

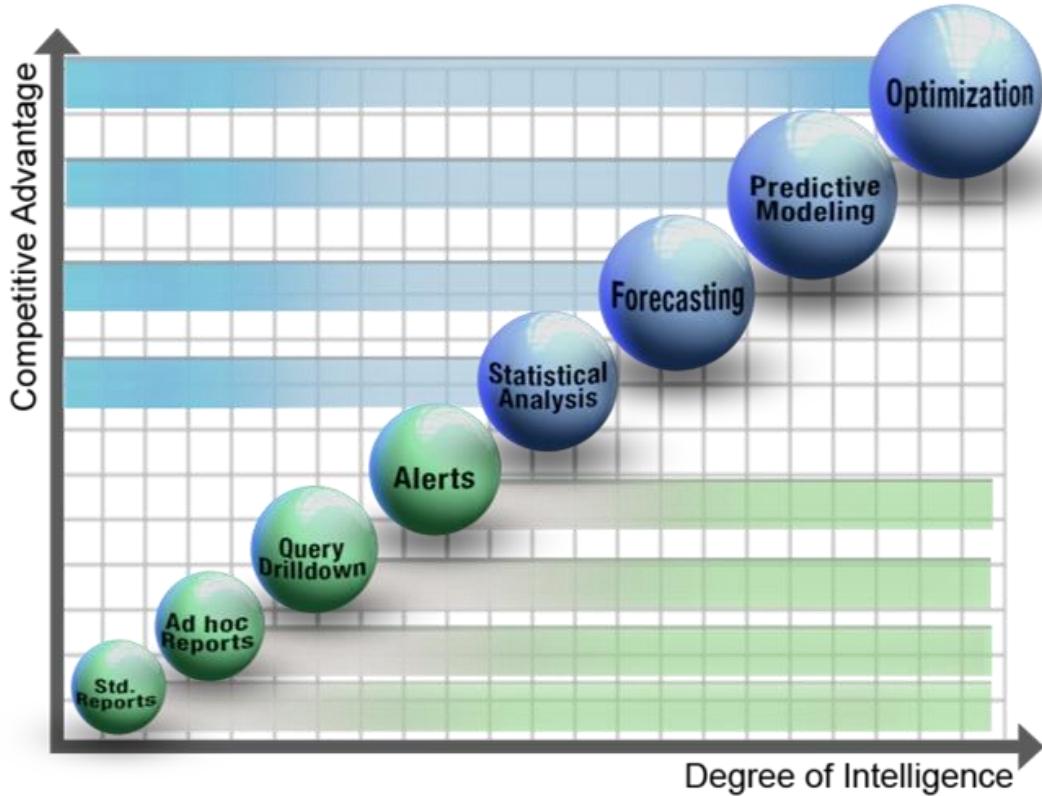
**Analytics informs users where to focus.**

# FRAUD ANALYTICS METHODOLOGY



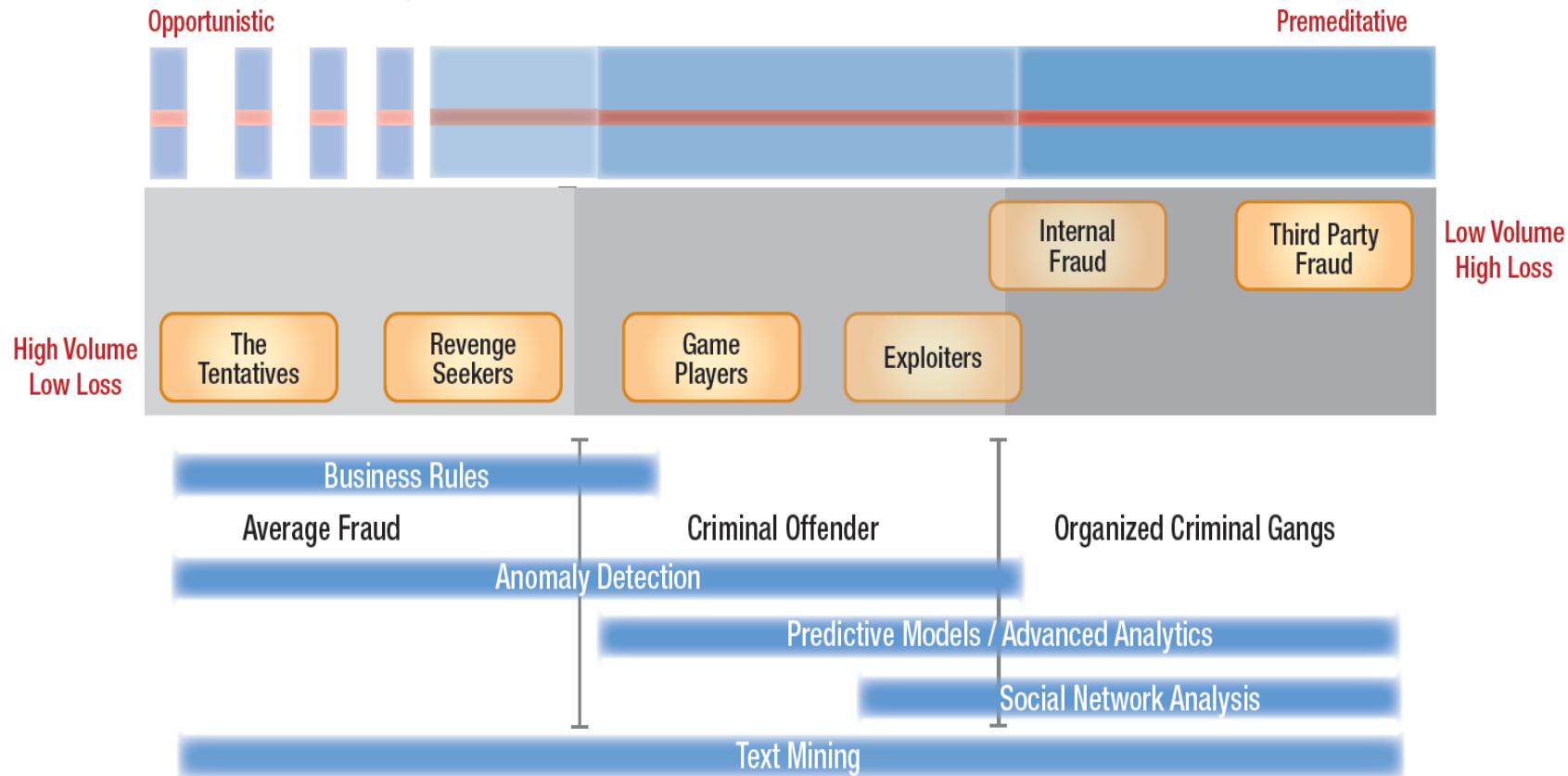
# ANALYTICS

## MATURITY



# FRAUD ANALYTICS

## USING A HYBRID APPROACH



# Does your data strategy support your business strategy?



**TOO MUCH DATA**  
in too many places



**POOR QUALITY DATA**  
cannot be trusted



**INCONSISTENT DATA**  
across multiple sources

# FRAUD ANALYTICS

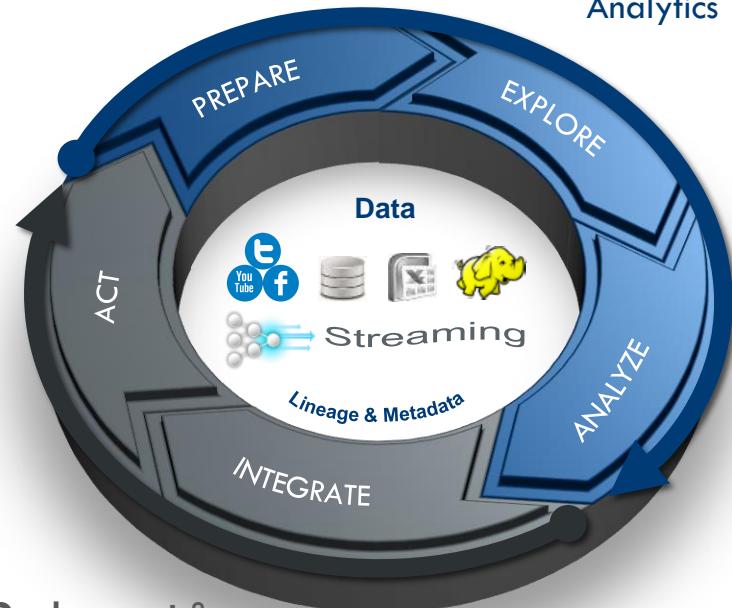
## LIFECYCLE & ANALYTIC CULTURE

Analytics is not a once-and-done exercise. It requires **ongoing attention**.

For the best results, plan to **constantly update analytic models** to incorporate new data sources and investigative outcomes.

Build or (partner with) a group dedicated to fraud analytics in your organization. **Foster an analytic culture**.

Discovery &  
Development of  
Analytics



Deployment &  
Automated  
Decisioning



# **ANALYTICS IN ACTION**

## **INSURANCE CLAIM FRAUD**



## SAS® Social Network Analysis

Filter
Sort
X
Search

Filters	TIN	Provider Name	Provider Billing State	Alert Score	NICB Alert	Age (In Months)	Open Claims	Total Claims	Total Claimants	Last Service Date	Total Billed	Total Allowed	Total Paid	Claim Loss States	Alert Date	Alert Status	Alert Status Date
▶ TIN	783904837	Accident Specialists	FL	990	N	8	3	8	18	06/25/16	\$101,967.00	\$63,704.00	\$49,806.00	FL	06/25/16	Assign	06/25/16
▶ Provider Name	471230944	Lifeway Rehab	MD	910	Y	8	2	12	20	06/10/16	\$73,670.00	\$25,933.00	\$25,933.00	MD, PA	06/10/16	Assign	06/10/16
▶ Provider Billing State	394830293	Max Medical Center	NY	900	Y	8	1	10	19	05/26/16	\$51,433.00	\$30,944.00	\$30,944.00	NY, NJ, PA	06/10/16	Accept	06/12/16
▶ Alert Score	585239723	Dr. Michael Crabtree	NC	885	N	5	5	7	13	06/05/16	\$68,026.00	\$41,006.00	\$41,006.00	NC	06/10/16	Assign	06/10/16
▶ NICB Alert	495826014	FastTrack Imaging Center	FL	880	N	5	2	5	9	06/20/16	\$52,987.00	\$36,540.00	\$36,540.00	FL	06/25/16	Assign	06/25/16
▶ Age (In Months)	369875123	RA Equipment and Supplies	FL	865	N	6	2	6	13	05/11/16	\$49,681.00	\$30,014.00	\$30,014.00	FL	06/25/16	New	
▶ Open Claims	315863904	Labtech Radiology	MI	860	Y	3	3	8	20	06/24/16	\$38,123.00	\$28,024.00	\$28,024.00	MI	06/25/16	New	
▶ Total Claims	301201101	Princeton Med Center	NJ	850	Y	3	1	5	8	06/06/16	\$31,004.00	\$20,581.00	\$20,581.00	NJ	06/10/16	Decline	06/11/16
▶ Total Claimants	294582654	Palm City Chiropractors	FL	830	Y	2	2	7	11	05/04/16	\$28,050.00	\$16,123.00	\$16,123.00	FL	06/25/16	Assign	06/25/16
▶ Last Service Date	250450250	Indico Clinics	MI	820	N	1	1	4	10	06/25/16	\$16,980.00	\$8,650.00	\$8,650.00	MI	06/25/16	New	
▶ Total Billed	883746382	Sun City Rehabilitation	FL	808	Y	9	6	13	17	06/10/16	\$83,727.00	\$63,828.00	\$63,828.00	FL	06/10/16	Assign	06/10/16
▶ Total Allowed	181673653	Grove Park Chiropractic Center	NC	803	N	4	4	9	14	06/17/16	\$77,490.00	\$59,400.00	\$59,400.00	NC	06/25/16	New	
▶ Total Paid	901827361	RZ Medical Center	NY	797	N	7	10	15	21	05/25/16	\$108,398.00	\$82,018.00	\$82,018.00	NY, NJ	06/10/16	New	
▶ Claim Loss States	114827636	Tampa Healing Center	FL	795	N	4	2	6	10	05/30/16	\$54,930.00	\$28,736.00	\$28,736.00	FL	06/10/16	Assign	06/10/16
▶ Alert Date	182736490	Dr. Henry Peterson	NY	790	Y	5	4	6	9	05/16/16	\$38,929.00	\$29,187.00	\$29,187.00	NY	06/10/16	Assign	06/10/16
▶ Alert Status	138271829	Professional Acupuncture	MD	786	N	7	4	8	11	06/08/16	\$63,792.00	\$48,291.00	\$48,291.00	MD	06/10/16	Hold	06/13/16
▶ Alert Status Date	283948270	Miami Chiropractic Group	FL	784	N	13	6	11	14	06/13/16	\$80,174.00	\$63,847.00	\$63,847.00	FL	06/25/16	Assign	06/25/16
▶ Assigned To	628203048	Dade Pain Management Specialists	FL	782	N	8	5	10	13	05/22/16	\$65,928.00	\$52,918.00	\$52,918.00	FL	06/10/16	New	
	339283720	Hurley's Pain and Rehab	NY	779	N	2	4	7	10	06/03/16	\$43,928.00	\$35,983.00	\$35,983.00	NY	06/10/16	New	
	148202837	Total Care Physical Therapy	NY	774	Y	3	3	5	8	06/08/16	\$38,928.00	\$29,827.00	\$29,827.00	NY	06/10/16	Assign	06/10/16

## SAS® Social Network Analysis

Details SAS Social Network Analysis

Provider TIN: 783904837

Alert Status: Assign

Assigned To: Ross Bright

Provider Score: 990

Provider Name: Accident Specialists

Alert Type(s): N/A

Peer Group: Physical Therapy

Open Claims: 3

Total Claims: 8

Claimant Count: 18

Last Service Date: 06/25/2016

Total Billed: \$101,967

Total Allowed: \$63,704

Total Paid: \$49,806

Provider Aze: 8 months

Scorecard Quarterly Profile Procedure Codes Claimant State Information Peer Group Information

## Scorecard

Score	Value	Description
990		Total Score
100	Physical Therapy	The primary specialty group of a provider based on volume of billed activity
80	Y	Average Monthly billed dollars, units, and services per claim is an outlier compared to peer group
75	Y	Anomalous use of CPT codes vs peer group related to Nerve Conduction (95900, 95903, 95904, 95911, 95912, 95913)
65	Level 4 of 4	Network Scenario: Ratio of providers on the watchlist that are associated to this provider
65	Level 2 of 3	Network Scenario: Ratio of claims associated to this provider that have been referred to SIU
62	Level 5 of 5	Ratio of associated claims flagged for scenario: An indicator that an attorney is associated to one of the exposure segments
58	Y	Bills tend to be received in bulk as opposed to spaced out with treatment
55	Y	High service line activity within the first 30 days after the loss
55	10	Number of bills using modifier 25 with only one diagnosis

1 - 23 of 23 results

&lt; 1 &gt; 23

Network Claims Network Providers Name and Address Info Rendering Practitioners Claimants Medical Summary Alert Log

Claim Number	Score	SIU Referral	Status	Status Date	Loss Date	Report Date	Policy Inception Date	Loss Type	Loss Description	Coverages	Indemnity Total	Indemnity Paid Provider	Policy State
569085	922	N	Closed	04/25/2016	12/15/2015	12/15/2015	03/20/2015	Sideswipe	Per Richard Murray of Accident Specialists, insd was exiting off Snyder parkway and didn't see clmnt veh on off-ramp. No EMS personnel called to scene.	Bodily Injury Liability, Collision, Personal Injury Protection, Property Damage Liability	\$8,193.00	\$4,596.00	FL
342543	912	Y	Closed	05/01/2016	01/17/2016	03/18/2016	02/15/2015	Rear End	Per Richard Murray of Accident Specialists, lnsd veh was backing up in wal-mart parking lot and hit in rear by clmnt veh passing through looking for a spot to park	Bodily Injury Liability, Collision, Personal Injury Protection, Property Damage Liability	\$13,102.00	\$12,334.00	FL
569837	903	Y	Closed	03/25/2016	10/15/2015	10/25/2015	10/01/2015	Intersection	4-way stop at Stonehenge subdivision and clmnt veh did not stop in time to avoid hitting insd. States that insd made abrupt stop. Force moved into 3rd veh	Bodily Injury Liability, Personal Injury Protection, Property Damage Liability	\$15,329.00	\$6,375.00	FL
598756	875	N	Open	06/05/2016	06/01/2016	06/05/2016	04/20/2013	Intersection	Per Steven Johnson of Accident Specialists, clmnt veh 2 couldn't stop in time at red light bumping insd through stop light intersection and into clmnt veh 3. Injuries reported on scene but no EMS	Bodily Injury Liability, Collision, Personal Injury Protection, Property Damage Liability	\$17,839.00	\$9,475.00	FL
489307	850	N	Open	06/20/2016	06/20/2016	06/20/2016	05/30/2016	Rear End	lnsd stopped suddenly to avoid soccer ball in street and clmnt vehicle travelling behind caused a rear end collision	Bodily Injury Liability, Collision, Personal Injury Protection, Property Damage Liability	\$9,340.00	\$5,745.00	FL
889576	816	Y	Closed	01/10/2016	11/20/2015	11/20/2015	05/30/2015	Other	To avoid hitting pedestrian, lnsd swerved sharply out of the way	Personal Injury Protection, Collision	\$8,475.00	\$5,480.00	FL

1 - 8 of 8 results

&lt; 1 &gt; 8

SAS Social Network Analysis

Details SAS Social Network Analysis

Provider TIN:	783904837
Alert Status:	Assign
Assigned To:	Ross Bright
Provider Score:	990
Provider Name:	Accident Specialists
Alert Type(s):	N/A
Peer Group:	Physical Therapy
Open Claims:	3
Total Claims:	8
Claimant Count:	18
Last Service Date:	06/25/2016
Total Billed:	\$101,967
Total Allowed:	\$63,704
Total Paid:	\$49,806
Provider Age:	8 months
Claim Loss States:	FL
Provider Billing State:	FL
Billing Address:	<a href="#">6940 Bird Rd Miami FL 33155</a>
Provider Treatment State:	FL
Treatment Address:	<a href="#">6940 Bird Rd Miami FL 33155</a>

**Scorecard**

Scorecard	Score	Value	Description
Scorecard	990		Total Score
	100	Physical Therapy	The primary specialty group of a provider based on volume of billed activity
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	58	Y	Bills tend to be received in bulk as opposed to spaced out with treatment
	55	Y	High service line activity within the first 30 days after the loss
	55	10	Number of bills using modifier 25 with only one diagnosis
	50	Y	High number of modalities used during treatment sessions
	47	Y	Treats excessively for sprain related injuries
	45	Level 4 of 4	Network Scenario: Ratio of high scoring providers that are associated to this provider
	45	Level 5 of 5	Network Scenario: Ratio of claims associated to this provider that are high scoring
	45	Level 2 of 4	Ratio of associated claims flagged for scenario: Claim was reported more than seven (7) days after the loss occurred
	40	Y	Anomalous use vs peer group of CPT code for Therapeutic Exercises (97110)

1 - 23 of 23 results

Network Claims Network Providers Name and Address Info Rendering Practitioners Claimants Medical Summary Alert Log

TIN	Provider Name	Score	First Service Date	Last Service Date	Provider Type	Provider Age (In Months)	Rendering Practitioners	Network Claims	% Network Claims	Total Claims	% Total Claims	Total Billed	Total Allowed	Total Paid	Billing Address
783904837	Accident Specialists	990	10/25/2015	06/25/2016	Medical	8	Harry Lawson, Megan Lawson	8	100	8	100	\$101,967.00	\$63,704.00	\$49,806.00	<a href="#">6940 Bird Rd Miami FL 33155</a>
838384732	PV Physical Therapy	801	01/04/2015	06/25/2016	Medical	18	Daniel Develo	6	75	14	42.86	\$61,347.00	\$58,934.00	\$52,334.00	<a href="#">10933 Sherri Ln Miami FL 33183</a>
363525384	Kirkpatrick and Smith LLC				Attorney			6	75	13	46.15	\$54,568.00	\$40,572.00	\$45,948.00	<a href="#">10793 W Flagler St Miami FL 33174</a>
298403978	Diagnostic Professionals	750	06/06/2015	11/08/2015	Medical	12		5	63	10	50	\$43,655.00	\$43,655.00	\$36,500.00	<a href="#">15422 S Dixie Hwy Miami FL 33157</a>
172638943	Beverly Place Acupuncture	721	10/04/2014	02/06/2016	Medical	19		5	63	12	42	\$28,930.00	\$25,738.00	\$22,763.00	<a href="#">11123 Sherri Ln Miami FL 33183</a>
389483726	Snappy Imaging	820	01/22/2014	05/18/2016	Medical	28		3	38	24	13	\$98,432.00	\$65,838.00	\$73,215.00	<a href="#">256 Brickell Ave Miami FL 33131</a>
394837448	Miller Chiropractic Center	835	11/10/2015	05/26/2016	Medical	7		2	25	7	29	\$54,360.00	\$40,632.00	\$40,632.00	<a href="#">3452 SW 148th Ave Miami FL 33185</a>

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SAS Social Network Analysis

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## SAS® Social Network Analysis

Details SAS Social Network Analysis

Provider TIN: 783904837

Alert Status: Assign

Assigned To: Ross Bright

Provider Score: 990

Provider Name: Accident Specialists

Alert Type(s): N/A

Peer Group: Physical Therapy

Open Claims: 3

Total Claims: 8

Claimant Count: 18

Last Service Date: 06/25/2016

Total Billed: \$101,967

Total Allowed: \$63,704

Scorecard Quarterly Profile Procedure Codes Claimant State Information Peer Group Information

## Scorecard

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55	Y	High service line activity within the first 30 days after the loss

1 - 23 of 23 results

Network Claims	Network Providers	Name and Address Info	Rendering Practitioners	Claimants	Medical Summary	Alert Log	.....							
Claim Number	SIU Referral	Status	Name	Claimant Address	Claimant State	Age	First Service Date	Last Service Date	Days Between Loss and First Visit	Total Number of Visits	Billed Amount	Allowed Amount	Paid Amount	Injury Description
342543	Y	Closed	Juan Hernandez	<a href="#">6730 SW 32nd Terrace Miami FL 33155</a>	FL	24	01/21/2016	04/27/2016	3	15	\$7,493.00	\$8,211.00	\$4,093.00	right shoulder and back
569837	Y	Closed	Gabriel Anderson	<a href="#">416 Kensington Ct Louisville KY 40208</a>	KY	45	10/25/2015	01/10/2016	0	3	\$6,292.00	\$6,292.00	\$3,245.00	strained back
489307	Y	Closed	Roy Schroeder	<a href="#">1511 Certosa Ave Coral Gables FL 33146</a>	FL	30	11/25/2015	01/08/2016	5	30	\$5,209.00	\$3,000.00	\$2,894.00	multiple upper body injuries
569085	Y	Closed	Stephen Abbott	<a href="#">1430 Cecilia Ave Coral Gables FL 33146</a>	FL	23	11/28/2015	12/21/2015	8	8	\$4,564.00	\$3,276.00	\$2,586.00	sprain/strain
342543	Y	Closed	Roberto Cajeros	<a href="#">6859 SW 38th St Miami FL 33155</a>	FL	22	01/19/2016	02/25/2016	1	5	\$7,590.00	\$4,156.00	\$4,156.00	sore neck and back
342543	Y	Closed	Anastasia Toussaint	<a href="#">6884 Miller Drive Miami FL 33155</a>	FL	25	01/20/2016	04/15/2016	2	12	\$7,353.00	\$4,085.00	\$4,085.00	neck and back
889576	Y	Closed	Reginald Bender	<a href="#">426 Kensington Ct Louisville KY 40208</a>	KY	40	02/25/2016	03/22/2016	123	24	\$6,110.00	\$5,110.00	\$3,130.00	sore back
598756	N	Closed	Henry Serrano	<a href="#">11035 SW 93rd St Miami FL 33176</a>	FL	18	01/09/2016	04/10/2016	25	14	\$3,893.00	\$2,341.00	\$1,545.00	lower back and lower body
384776	N	Closed	Anna Rojas	<a href="#">660 Conde Ave Coral Gables FL 33156</a>	FL	25	03/17/2016	04/15/2016	1	5	\$2,664.00	\$1,480.00	\$1,480.00	sprain/strain
489307	N	Open	Sergio Ramos	<a href="#">1533 Mendavia Ave Coral Gables FL 33146</a>	FL	53	06/20/2016	06/20/2016	0	1	\$7,574.00	\$1,734.00	\$2,945.00	shoulder pain
789056	N	Open	Julia Abreu	<a href="#">6255 Chapman Field Dr Miami FL 33156</a>	FL	40	05/30/2016	06/23/2016	3	5	\$5,030.00	\$2,015.00	\$2,015.00	back pain
598756	N	Open	Michael McClure	<a href="#">11101 N Snapper Creek Dr Miami FL 33173</a>	FL	35	06/06/2016	06/18/2016	1	5	\$5,829.00	\$5,829.00	\$3,184.00	pain in lower back
789056	N	Open	Miguel Pineda	<a href="#">6355 Moss Ranch Rd Miami FL 33156</a>	FL	45	05/28/2016	06/20/2016	1	8	\$5,394.00	\$3,345.00	\$2,306.00	whiplash injury
789056	N	Closed	Joel Roschback	<a href="#">10940 SW 91st St Miami FL 33176</a>	FL	21	12/23/2015	02/15/2016	8	6	\$3,792.00	\$2,765.00	\$1,568.00	back pain and stiffness

1 - 18 of 18 results

SAS Social Network Analysis

Details SAS Social Network Analysis

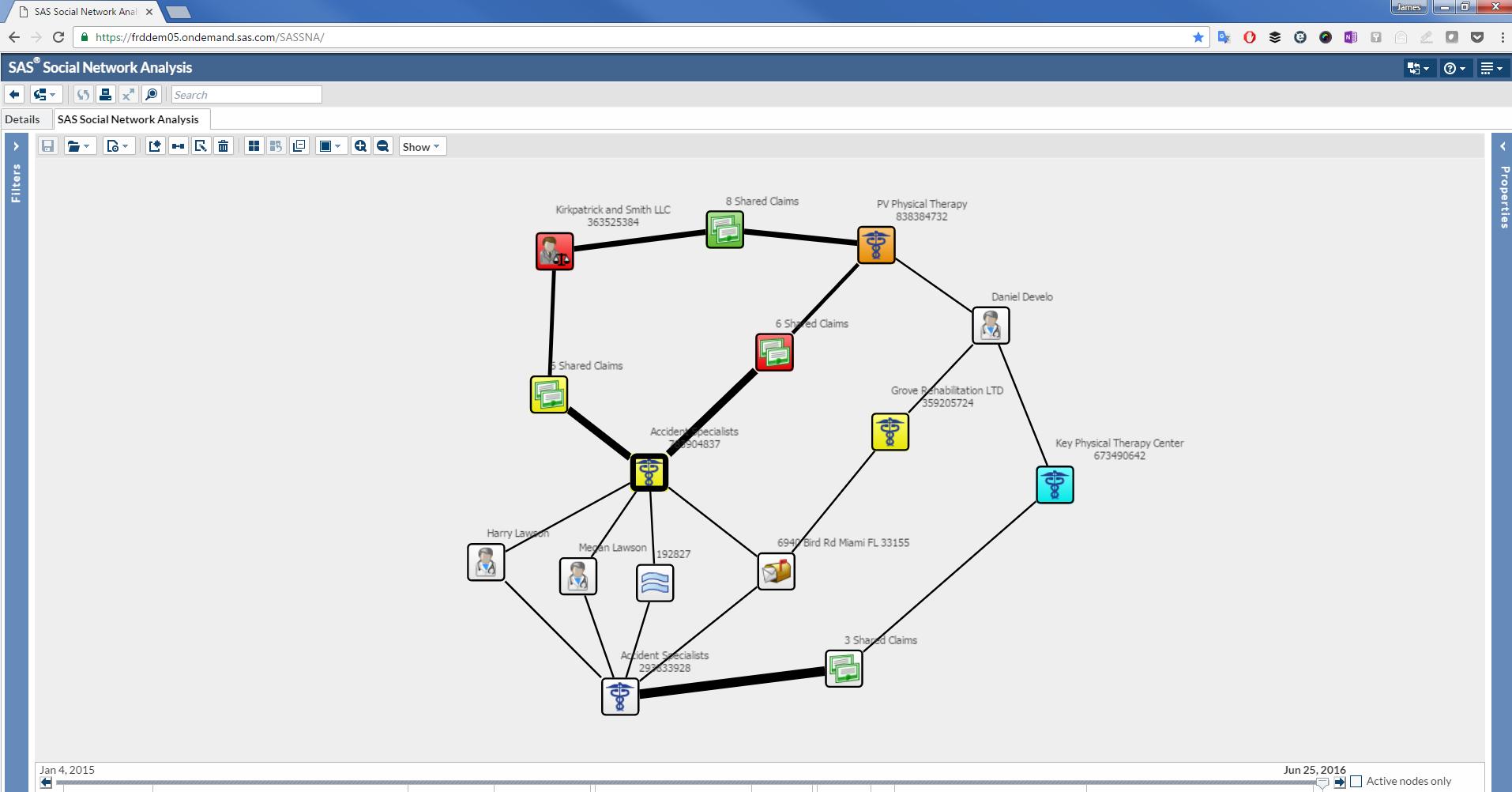
Provider TIN: 783904837  
Alert Status: Assign  
Assigned To: Ross Bright  
Provider Score: 990  
Provider Name: Accident Specialists  
Alert Type(s): N/A  
Peer Group: Physical Therapy  
Open Claims: 3  
Total Claims: 8  
Claimant Count: 18  
Last Service Date: 06/25/2016  
Total Billed: \$101,967  
Total Allowed: \$63,704

Scorecard	Quarterly Profile	Procedure Codes	Claimant State Information	Peer Group Information																																																							
<b>Scorecard</b> <table border="1"> <thead> <tr> <th>Score</th> <th>Value</th> <th colspan="3">Description</th> </tr> </thead> <tbody> <tr><td>990</td><td></td><td colspan="3">Total Score</td></tr> <tr><td>100</td><td></td><td colspan="3">Physical Therapy</td></tr> <tr><td>80</td><td>Y</td><td colspan="3">The primary specialty group of a provider based on volume of billed activity</td></tr> <tr><td>75</td><td>Y</td><td colspan="3">Average Monthly billed dollars, units, and services per claim is an outlier compared to peer group</td></tr> <tr><td>65</td><td></td><td colspan="3">Anomalous use of CPT codes vs peer group related to Nerve Conduction (95900, 95903, 95904, 95911, 95912, 95913)</td></tr> <tr><td>65</td><td></td><td colspan="3">Level 4 of 4 Network Scenario: Ratio of providers on the watchlist that are associated to this provider</td></tr> <tr><td>62</td><td></td><td colspan="3">Level 2 of 3 Network Scenario: Ratio of claims associated to this provider that have been referred to SIU</td></tr> <tr><td>58</td><td>Y</td><td colspan="3">Level 5 of 5 Ratio of associated claims flagged for scenario: An indicator that an attorney is associated to one of the exposure segments</td></tr> <tr><td>55</td><td>Y</td><td colspan="3">Bills tend to be received in bulk as opposed to spaced out with treatment</td></tr> <tr><td>55</td><td></td><td colspan="3">High service line activity within the first 30 days after the loss</td></tr> </tbody> </table>					Score	Value	Description			990		Total Score			100		Physical Therapy			80	Y	The primary specialty group of a provider based on volume of billed activity			75	Y	Average Monthly billed dollars, units, and services per claim is an outlier compared to peer group			65		Anomalous use of CPT codes vs peer group related to Nerve Conduction (95900, 95903, 95904, 95911, 95912, 95913)			65		Level 4 of 4 Network Scenario: Ratio of providers on the watchlist that are associated to this provider			62		Level 2 of 3 Network Scenario: Ratio of claims associated to this provider that have been referred to SIU			58	Y	Level 5 of 5 Ratio of associated claims flagged for scenario: An indicator that an attorney is associated to one of the exposure segments			55	Y	Bills tend to be received in bulk as opposed to spaced out with treatment			55		High service line activity within the first 30 days after the loss		
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100		Physical Therapy																																																									
80	Y	The primary specialty group of a provider based on volume of billed activity																																																									
75	Y	Average Monthly billed dollars, units, and services per claim is an outlier compared to peer group																																																									
65		Anomalous use of CPT codes vs peer group related to Nerve Conduction (95900, 95903, 95904, 95911, 95912, 95913)																																																									
65		Level 4 of 4 Network Scenario: Ratio of providers on the watchlist that are associated to this provider																																																									
62		Level 2 of 3 Network Scenario: Ratio of claims associated to this provider that have been referred to SIU																																																									
58	Y	Level 5 of 5 Ratio of associated claims flagged for scenario: An indicator that an attorney is associated to one of the exposure segments																																																									
55	Y	Bills tend to be received in bulk as opposed to spaced out with treatment																																																									
55		High service line activity within the first 30 days after the loss																																																									
1 - 23 of 23 results																																																											

Network Claims Network Providers Name and Address Info Rendering Practitioners Claimants Medical Summary Alert Log

Procedure Code	Procedure Code Description	First Service Date	Last Service Date	# of Claimants Billed	% of Claimants Billed	Total Amount Billed Per Code	% of Total Billed Amount	Total Amount Allowed Per Code	Billed Volume	Average Use per Claimant	Units Volume	Average Units per Claimant	Distinct Treatment Days
97010	Hot Or Cold Packs Therapy	10/25/2015	06/25/2016	17	94	\$12,909.00	12	\$1,836.00	639	38	639	38	55
97124	Massage Therapy	10/25/2015	06/25/2016	17	94	\$13,685.00	12	\$5,820.00	620	36	620	36	48
97014	Electric Stimulation Therapy	10/25/2015	06/25/2016	17	94	\$13,338.00	12	\$8,359.00	592	35	592	35	25
97110	Therapeutic Exercises	11/25/2015	06/25/2016	15	83	\$15,722.00	14	\$8,859.00	468	31	468	31	15
G0283	Elec Stim Other	11/25/2015	06/25/2016	1	6	\$529.00	0	\$115.00	24	24	24	24	12
95851	Range Of Motion Measurements	11/28/2015	06/25/2016	15	83	\$9,888.00	9	\$378.00	216	14	216	14	67
97750	Physical Performance Test	12/15/2015	06/20/2016	6	33	\$1,597.00	1	\$39.00	36	6	36	6	32
95831	Limb Muscle Testing, Manual	10/25/2015	05/25/2016	6	33	\$1,472.00	1	\$13.00	34	6	34	6	6
97035	Ultrasound Therapy	12/15/2015	06/20/2016	12	67	\$1,507.00	1	\$1,360.00	74	6	74	6	50
99215	Office/Outpatient Visit, Est	11/25/2015	05/25/2016	17	94	\$6,516.00	6	\$4,024.00	44	3	44	3	20
98928	Osteopathic Manipulation	11/28/2015	06/20/2016	6	33	\$1,179.00	1	\$829.00	18	3	18	3	18
97018	Paraffin Bath Therapy	11/28/2015	05/25/2016	1	6	\$77.00	0	\$77.00	3	3	3	3	3
98927	Osteopathic Manipulation	12/15/2015	06/25/2016	5	28	\$513.00	0	\$429.00	9	2	9	2	7
95852	Range Of Motion Measurements	12/15/2015	06/25/2016	5	28	\$359.00	0	\$0.00	8	2	8	2	7
95832	Hand Muscle Testing, Manual	10/25/2015	06/25/2016	4	22	\$311.00	0	\$0.00	6	2	6	2	8
20552	Trigger Point Injection Code	10/25/2015	06/25/2016	13	72	\$2,049.00	2	\$64.00	18	1	18	1	17
99205	Office/Outpatient Visit, New	12/15/2015	06/20/2016	14	78	\$1,349.00	1	\$1,221.00	14	1	14	1	14
95804	Other Non-Operative Treatment	10/25/2015	06/25/2016	14	78	\$1,408.00	/	\$272.00	14	1	14	1	14

1 - 20 of 51 results





# **ANALYTICS IN ACTION**

## **ANTI MONEY LAUNDERING**



# AML TRANSACTION MONITORING

## ENTITY-LEVEL ALERTING

SAS® Anti-Money Laundering

Entity Triage Cases Reports Search Admin | Route Claim Queue: Available entities

245 entities

Alerts	Name	NLS:Type	Aggregate...	Risk	NLS:MLS	NLS:Alert...	Owner
13	Sheila Tusser	Customer	\$9,999.99	0	713	16	
11	Robert N Smith	Customer	\$9,999.99	0	799	16	
8	Jim Cook	Customer	\$9,999.99	0	699	30	
5	Michael Frieze	Customer	\$9,999.99	0	729	22	
4	Robin Hunt	Customer	\$9,999.99	0	766	19	
4	Frances Vanlare	Customer	\$9,999.99	0	722	30	
4	Betty Dominy	Customer	\$9,999.99	0	682	30	
4	Billy Pruitt	Customer	\$9,999.99	0	716	7	
4	Gerald Vovis	Customer	\$9,999.99	0	720	28	
3	Ricky Ortuno	Customer	\$9,999.99	0	542	29	
3	Mae Q Fong	Customer	\$9,999.99	0	518	8	
3	Dan Cedro	Customer	\$9,999.99	0	567	17	
3	Marie Chua	Customer	\$9,999.99	0	611	0	

Summary |

Scorecard

Aggregate: \$9,999.99

Risk: N/A

Since: January 13, 2016

13

10 active alerts, total \$9,999.99

Ale...	Alert Level	Scenario Type	Scenario Description	Run Date	Mo...
27876	Customer	Unusual Aggregate Behavior	Payments Made Using High-Risk Instruments	August 3, 2007	766
27020	Customer	Cash Activity	Large Cash Deposits	August 1, 2007	793
27027	Account	Cash Activity	Structured Withdrawals	August 1, 2007	793
27030	Account	Cash Activity	Structured Deposits Across Locations	August 1, 2007	793
27102	Customer	Unusual Aggregate Behavior	Payments Made Using High-Risk Instruments	August 1, 2007	793

Items per page: 5 | 1 - 5 of 10 items

# AML TRANSACTION MONITORING

## ENTITY ALERT DETAILS

SAS® Anti-Money Laundering

Entity Triage Cases Reports Search Admin | Sheila Tusser x Robert N Smith x

◀ | Suppress | Close | Route | Create Case

Details | Sheila Tusser

▼ Alerts and Transactions

Ale...	Alert Level	Scenario Type	Scenario Description	Run Date	Mo...
27876	Customer	Unusual Aggregate Behavior	Payments Made Using High-Risk Instruments	August 3, 2007	766
27020	Customer	Cash Activity	Large Cash Deposits	August 1, 2007	793
27027	Account	Cash Activity	Structured Withdrawals	August 1, 2007	793
27030	Account	Cash Activity	Structured Deposits Across Locations	August 1, 2007	793
27102	Customer	Unusual Aggregate Behavior	Payments Made Using High-Risk Instruments	August 1, 2007	793
27321	Customer	Cash Activity	Large Cash Deposits	August 2, 2007	767
27325	Customer	Unexpected Transactions	Deposits Exceeding Income	August 2, 2007	767
27338	Account	Cash Activity	Structured Withdrawals	August 2, 2007	767
27474	Customer	Unusual Aggregate Behavior	Payments Made Using High-Risk Instruments	August 2, 2007	767
27806	Account	ATM/Phone Activity	Excessive Balance Inquiries	August 3, 2007	766

10 active alerts, total 0

◀ ▶ 10 ▾ items per page 1 - 10 of 10 items ⌂

1 alert selected: 182 transactions, total 0

Trl...	Account Number	Role	Transaction Date	Amount	C/D/I	Primary ...	Secondar...	Mec
⚠ 01-0000211303	Primary Owner	August 3, 2007 14:33:00	\$9,530.49	Credit	Cash	Base Currency	Telli	
⚠ 01-0000211303	Primary Owner	August 2, 2007 14:21:00	\$10,112.30	Credit	Cash	Base Currency	Telli	
⚠ 01-0000211303	Primary Owner	August 1, 2007 14:55:00	\$8,101.56	Credit	Cash	Base Currency	Telli	
⚠ 01-0000211303	Primary Owner	August 1, 2007 14:55:00	\$4,881.98	Credit	Cash	Base Currency	Telli	
01-0000211303	Primary Owner	August 3, 2007 22:52:00	\$0.00	Event	Balance Inquiry	N/a	Onli	
01-0000211303	Primary Owner	August 3, 2007 22:52:00	\$0.00	Event	Safe Dpst Bo...	N/a	N/a	
01-0000211303	Primary Owner	August 3, 2007 22:52:00	\$0.00	Event	Balance Inquiry	N/a	N/a	
01-0000211303	Primary Owner	August 3, 2007 22:52:00	\$0.00	Event	Balance Inquiry	N/a	Onli	
01-0000211303	Primary Owner	August 3, 2007 17:47:00	\$0.00	Event	Balance Inquiry	N/a	Tele	
01-0000211303	Primary Owner	August 3, 2007 17:47:00	\$0.00	Event	Balance Inquiry	N/a	Atm	

1 alert selected: 182 transactions, total 0

◀ ▶ 10 ▾ items per page 1 - 10 of 182 items ⌂

▶ Analysis

# AML TRANSACTION MONITORING

## THE POWER OF SEARCH



### Panama Papers: the 9-month tax evasion probe



Source: *Le Monde* newspaper, ICIJ

© AFP

# AML TRANSACTION MONITORING

## OPERATIONAL REPORTING

Home Investigator Workload Log Off

BSA 314a (28) Financial Fraud (235) FIU (1,276) Watchlist (224)

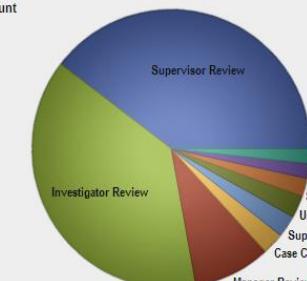
**Top 10 Investigators With Open Cases**

Case Investigator	Open Case Count
Maura Yount	13
Noelle Quimby	13
Adrien Lansford	12
Agripina Scampoli	12
Deonna Iba	12
Jackson Phillipson	12
Kenneth Decosta	12
Deedra Harbolt	11
John Simon	11
John Stamos	11

**Top 5 Open Cases by Category**

Case Category	Open Case Count
Check Fraud	60
Credit Card Fraud	60
Debit Card Fraud	60
Check Kiting	50

**Open Cases by Status**



Status	Count
Supervisor Review	~45%
Investigator Review	~35%
Manager Review	~10%
Manager Approve	~5%
SAR 90 Monitor	~5%
Unassigned	~5%
Supervisor Approve	~5%
Case Closed	~5%

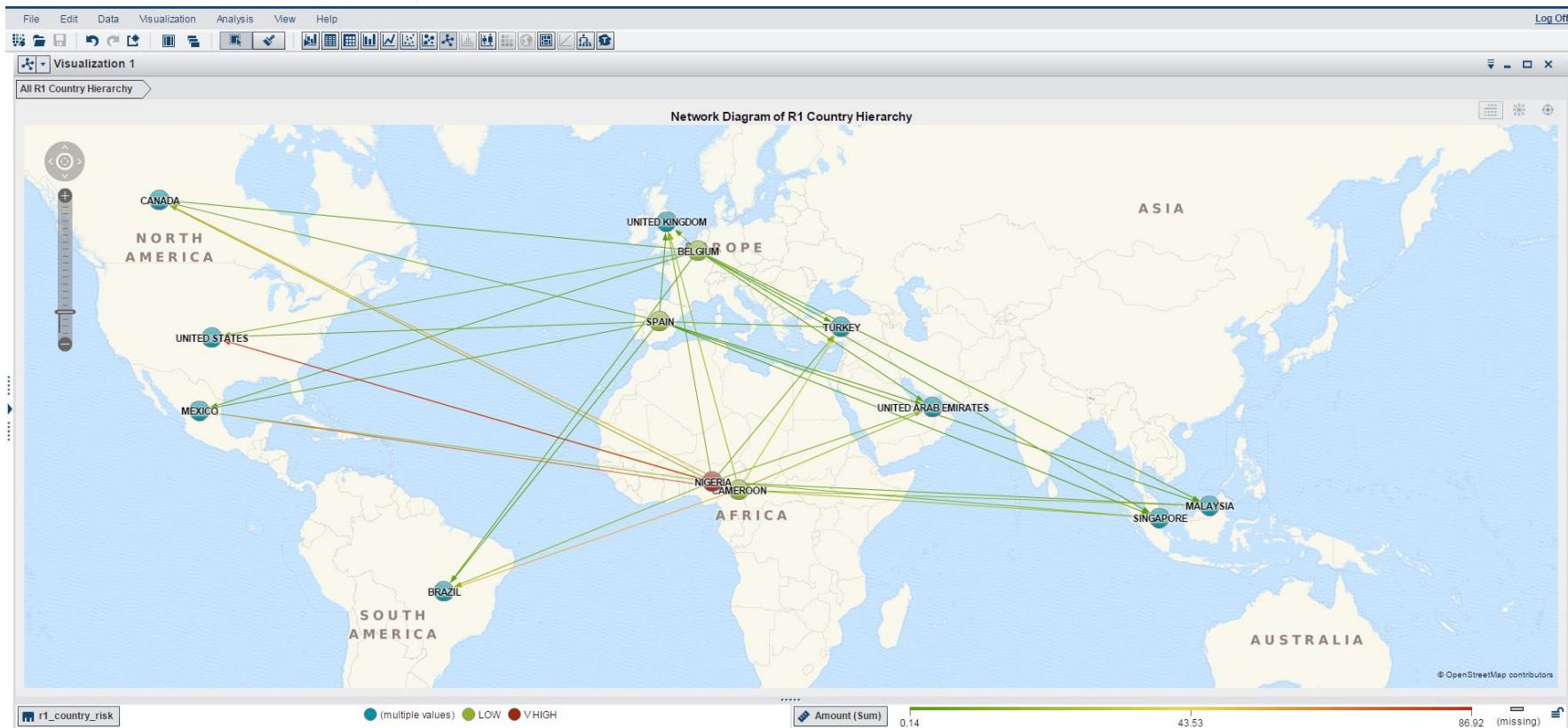
**Open Cases by Status**

Open Case Count	Case Status	Case Create DTTM	Case Creator	Case Source
114.0	Investigator Review	July 24, 2013 07:42:18 PM	Maisha Cousins	SAS Enterprise C...
88.0	Manager Review	August 19, 2013 04:36:44 AM	Mickey Mantle	SAS Enterprise C...
87.0	Investigator Review	August 20, 2013 09:13:11 AM	Kerri Philippi	SAS Enterprise C...
87.0	Investigator Review	August 20, 2013 08:47:07 AM	Ming Bolus	SAS Enterprise C...
83.0	Investigator Review	August 24, 2013 02:08:21 AM	Bill Compton	SAS Enterprise C...
81.0	Supervisor Review	August 26, 2013 12:44:40 AM	Virgen Cudworth	SAS Enterprise C...
78.0	Supervisor Review	August 29, 2013 02:15:23 AM	Ted Deremer	SAS Enterprise C...
76.0	Manager Review	August 31, 2013 12:28:35 PM	Kenneth Decosta	SAS Enterprise C...
75.0	Investigator Review	September 1, 2013 03:49:06...	Svetlana Wickline	SAS Enterprise C...
74.0	Investigator Review	September 5, 2013 00:15:50...	Alyssa Diaz	SAS Enterprise C...

Report displays summary of open cases. Select a Case Type at the top to filter objects. Selecting a case investigator on the left updates objects on the right.

# AML TRANSACTION MONITORING

## ANALYZE FUND MOVEMENT



# AML TRANSACTION MONITORING

## FOCAL ANALYSIS

Home Transaction Analysis Log Off

File Help

Summary Spatial Analysis Time Series Analysis Transaction Type Breakdown Transaction Detail

10000310

**Party Details**

Party Name	Party Number	Party Type	Party Tax ID	Party Industry
JOHN MOSUNIC	10000310	INDIVIDUAL	2551239876	

**Account Details**

Account Number	Account Name	Account Status	Account Open Date	Account
02-0000000134	JOHN MOSUNIC	ACTIVE	09/13/2005	
02-0002000987	JOHN MOSUNIC	ACTIVE	09/13/2005	
02-0030100987	JOHN MOSUNIC	ACTIVE	09/13/2005	

**High Risk Transactions**

Primary Medium

Medium	Amount
CASH EQUIVALENT	\$16,725.08
CHECK	\$11,298.64
CASH	\$6,570.94
WIRE	\$3,108.39
CASH ADVANCE	\$1,746.31
CASHED CHECK	\$1,165.89
CASH OUT POLICY	\$439.87

**Transactions By Month and Year**

Transaction Amount

Transaction Month

Transaction Year

**Cash Flow Over Time**

Transaction Amount

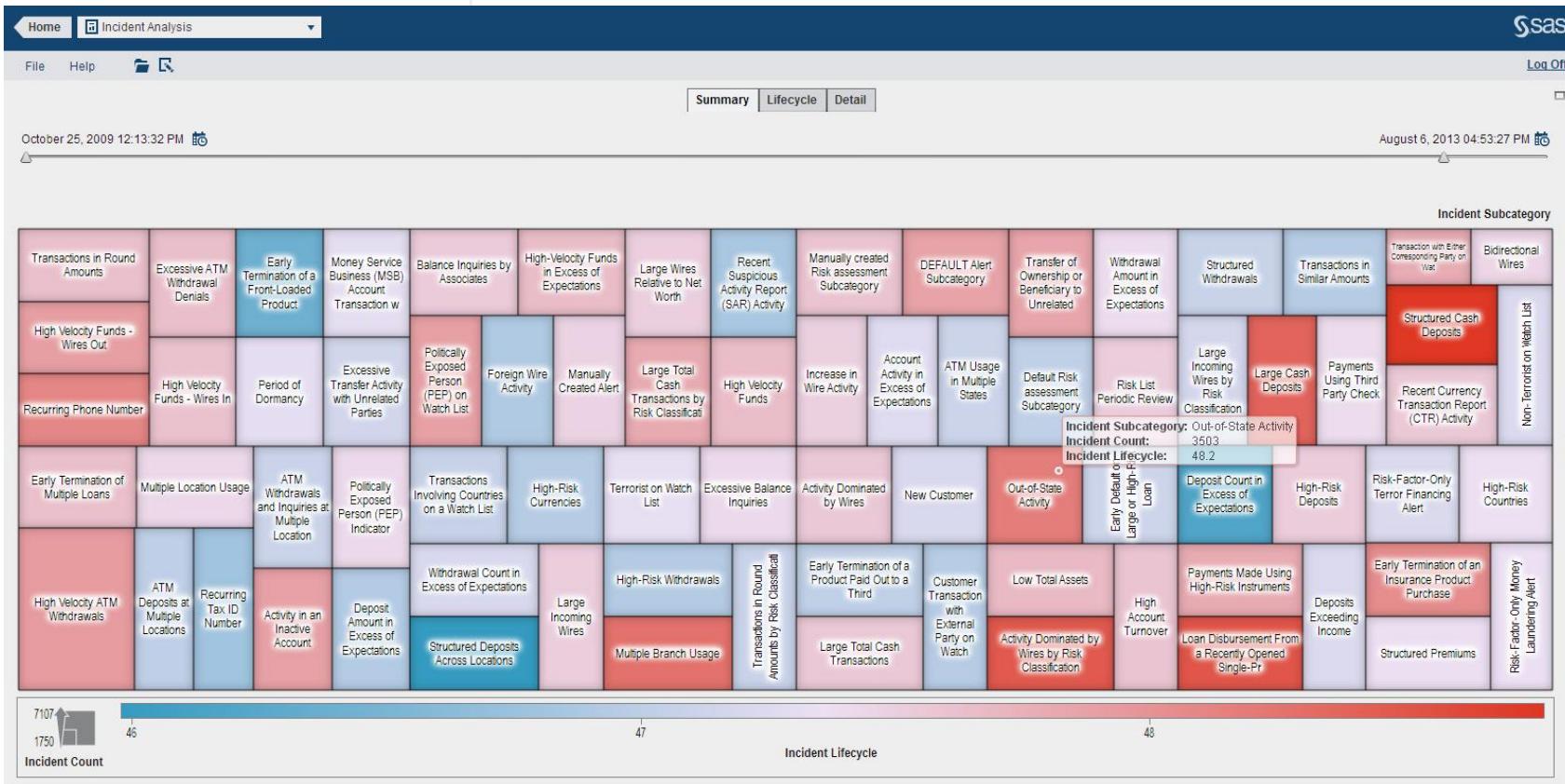
Transaction Date

Transaction CDI

■ EVENT ■ CREDIT ■ DEBIT ■ INTERMEDIARY

# AML TRANSACTION MONITORING

## OPERATIONAL REPORTING (KEY RISKS)



# AML TRANSACTION MONITORING

## ONGOING MONITORING OF EFFECTIVENESS

AML Report - Ongoing Monitoring

Sas Sign Out

File Help □ □ □ □ Alert Overview Alert Effectiveness Alert Status Alert Disposition

ALERT\_DESCRIPTION

ALERT_DESCRIPTION	Count
Bidirectional Wires	5,094
High Velocity Funds - Wires In	3,679
High Velocity Funds - Wires Out	3,962
High-Risk Countries	9,055
Large Cash Deposits - Potential CTR	2,264
Large Incoming Wire	7,639
Large Total Cash Transactions	1,980
Payments Using Third Party Check	3,935
Structured Cash Deposits	9,054
Structured Withdrawals	3,395

ALERT\_DISPOSITION

■ Non-Productive ■ Productive (No SAR) ■ SAR

ACCOUNT\_NUMBER PRIMARY\_ENTITY\_NAME ALERT\_DIS... Frequency

ACCOUNT_NUMBER	PRIMARY_ENTITY_NAME	ALERT_DIS...	Frequency
02-0000139438	ALAN PIZZITOLA	SAR	2
01-0000017605	ALLEN B MONS	SAR	1
01-0000023657	ALLAN RAK	SAR	1
01-0000024995	ANTHONY ENDERS	SAR	1
01-0000032374	ANDREW ROSS	SAR	1
01-0000049880	ALVIN HOLBEN	SAR	1
01-0000061359	ANNETTE SHAW	SAR	1
01-0000074235	ANN WHEELOCK	SAR	1
01-0000075600	ANGLE WEISS	SAR	1
01-0000089905	ALFRED MADDALENA	SAR	1
01-0000097498	ALLAN SKOLE	SAR	1
01-0000102545	AL KNOPF	SAR	1
01-0000130473	ALEC OEHLER	SAR	1

ALERT\_ID ACCOUNT\_NUMBER CREATE\_DATE

ALERT_ID	ACCOUNT_NUMBER	CREATE_DATE
14303	01-0000081359	Thursday, January 9, 2014 12:00:00 AM
14512	01-0000075600	Friday, January 10, 2014 12:00:00 AM
14923	01-0000097498	Tuesday, January 14, 2014 12:00:00 AM
15943	01-0000017605	Tuesday, January 21, 2014 12:00:00 AM
16743	01-0000032374	Monday, January 27, 2014 12:00:00 AM
17752	01-0000049880	Monday, February 3, 2014 12:00:00 AM
19083	01-0000277477	Friday, February 14, 2014 12:00:00 AM
20392	01-0000308478	Thursday, February 20, 2014 12:00:00 AM
22232	01-00000334467	Wednesday, March 5, 2014 12:00:00 AM
22643	02-0000075671	Friday, March 7, 2014 12:00:00 AM
24063	02-00000139438	Tuesday, March 18, 2014 12:00:00 AM
24272	02-00000153121	Wednesday, March 19, 2014 12:00:00 AM
25083	02-00000193804	Tuesday, March 25, 2014 12:00:00 AM
27383	02-00000261755	Thursday, April 10, 2014 12:00:00 AM
29932	01-00000233546	Monday, April 28, 2014 12:00:00 AM
31443	03-0000006299	Thursday, May 8, 2014 12:00:00 AM

# THE FUTURE OF FRAUD ANALYTICS



# THE FUTURE

# NEW & CHANGING ROLES IN FRAUD INVESTIGATION

## Investigator

Case Investigation  
Trend Analysis  
Board Reporting

## Intelligence Analyst

Forensic Risk Analysis  
Visual Data Exploration  
Network Analysis

## Data Analyst

Data Lineage  
Entity Resolution  
Text Mining

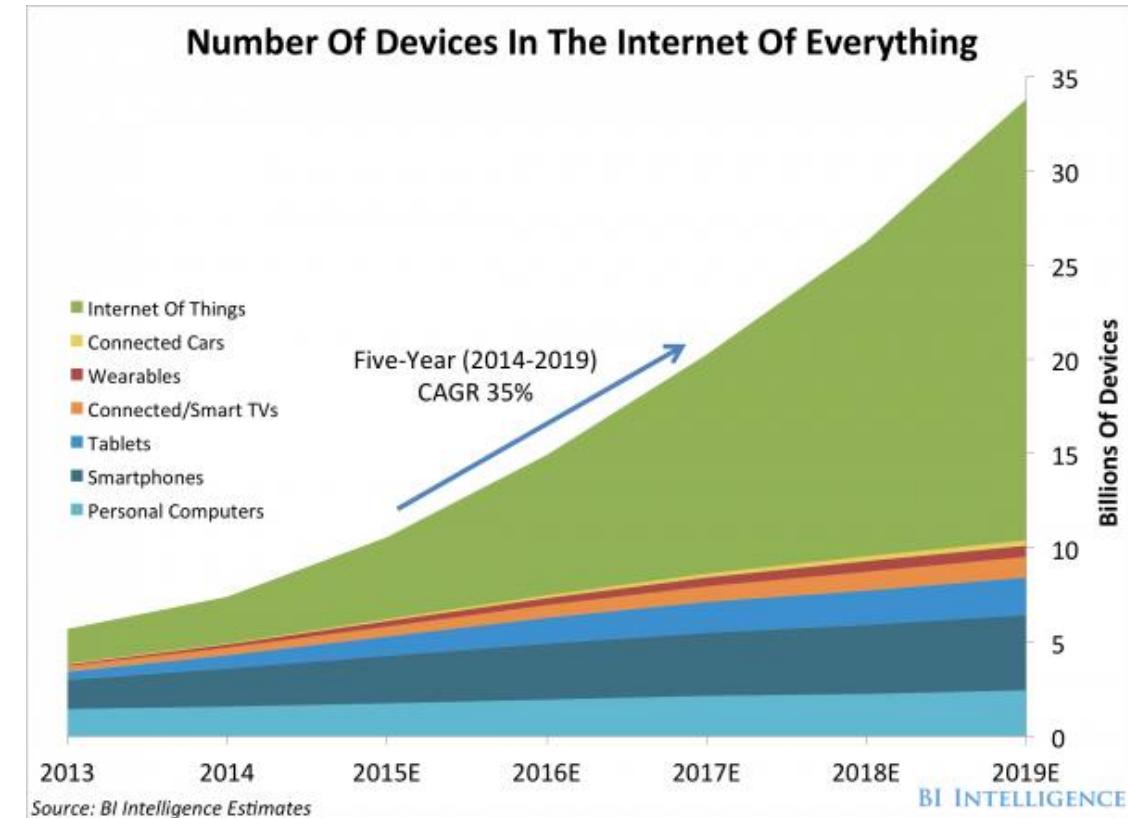
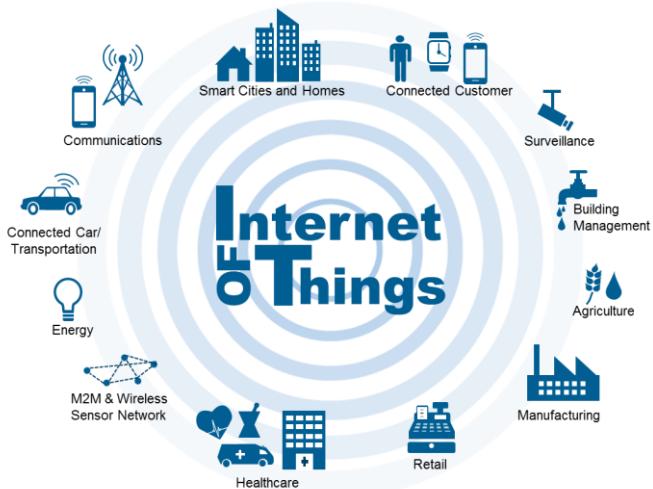
## Data Scientist

Model Building  
Model Validation  
Tuning & Simulation



# THE FUTURE INTERNET OF THINGS (IOT)

In 2016, according to Gartner, 5.5 million new things will get connected **every day**.



# THE FUTURE BLOCKCHAIN

“Blockchain technology continues to redefine not only how the exchange sector operates, but the global financial economy as a whole.”

– Bob Greifeld, CEO, Nasdaq

“Check it on the Blockchain” will be the phrase of the 21st century. It will be as commonplace as people saying ‘Google that.’”

– Nic Cary, Blockchain.info



**THANK YOU!**  
 **@jdruotolo**

