



# Analytics for Revenue Protection

*Carl Hammersburg, Manager  
Government and Healthcare Risk and Fraud  
SAS Security Intelligence*

*Carl.Hammersburg@SAS.com*

# Background



Unregistered Business Study  
\$1.4 B tax gap every biennium

Joint Legislative Task Force on the Underground Economy

# Approaches to Address Risk

*High Volume, Low Dollar*

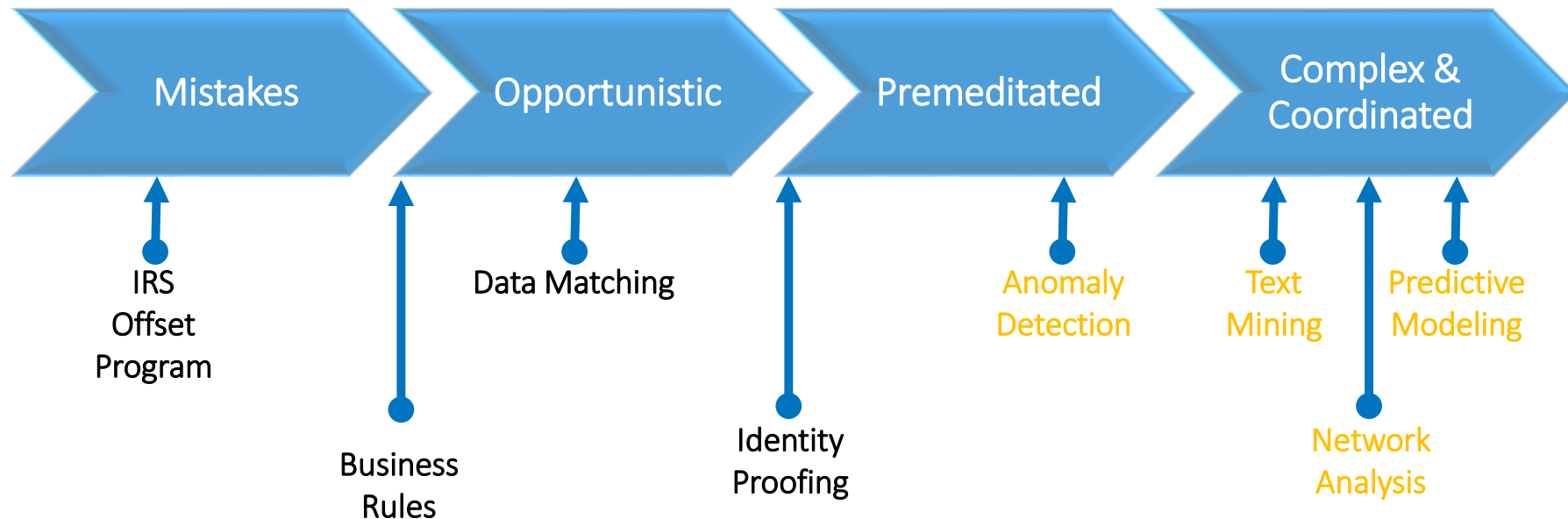
**Audit Type**

*Low Volume, High Dollar*

*Simple*

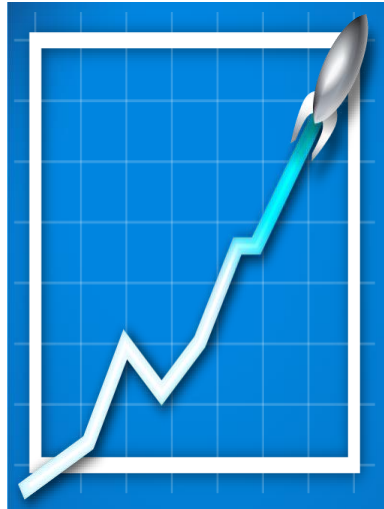
**Scheme Type**

*Complex*



# Emerging Risks to Revenue

## IDENTITY THEFT AND GOVERNMENT IMPACT



**EQUIFAX**



**ebay**

Data Breach  
(1 in 4)

Identity Theft  
(12.6 M)

Government  
Fraud (43%)

3 Seconds

**Anthem.**   
BlueCross BlueShield



# Best Practice - Hybrid Analytics to Address Risk

## LEVELS OF DETECTION

EVENT



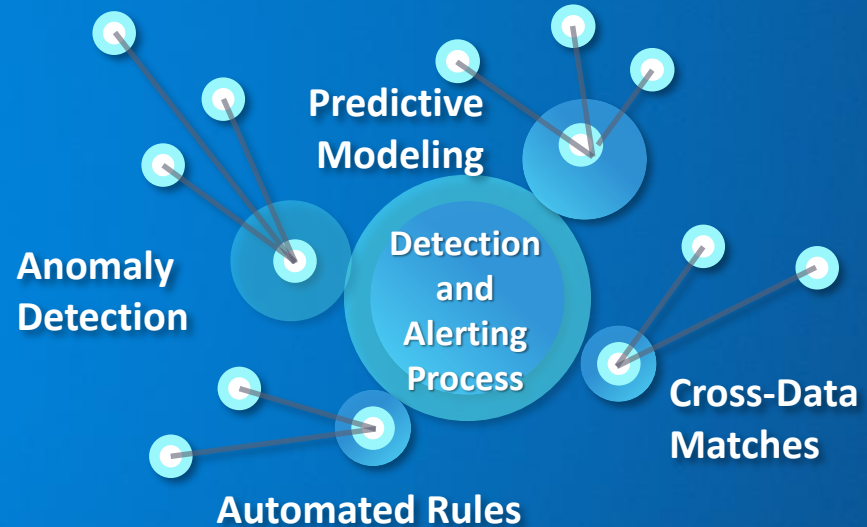
ENTITY



NETWORK



## HYBRID ANALYTICAL METHODS



# Analytic Case Study 1 – She Took My Baby



## Tax Year 2015

Taxpayer SSN = 540-00-1234

Taxpayer Name = Bill Henderson

ZIP Code = 87571

EITC = \$0

Preparer = Yes

Tax Due = \$927

Filing Date = 4/6/16

## Tax Year 2016

Taxpayer SSN = 540-40-4040

Taxpayer Name = Selena Henderson

ZIP Code = 97229

EITC = \$143

Preparer = None

Refund = \$338

Filing Date = 3/18/17

## Tax Year 2017

Taxpayer SSN = 122-33-4455

Taxpayer Name = Edna Dingo

ZIP Code = 97914

EITC = \$681

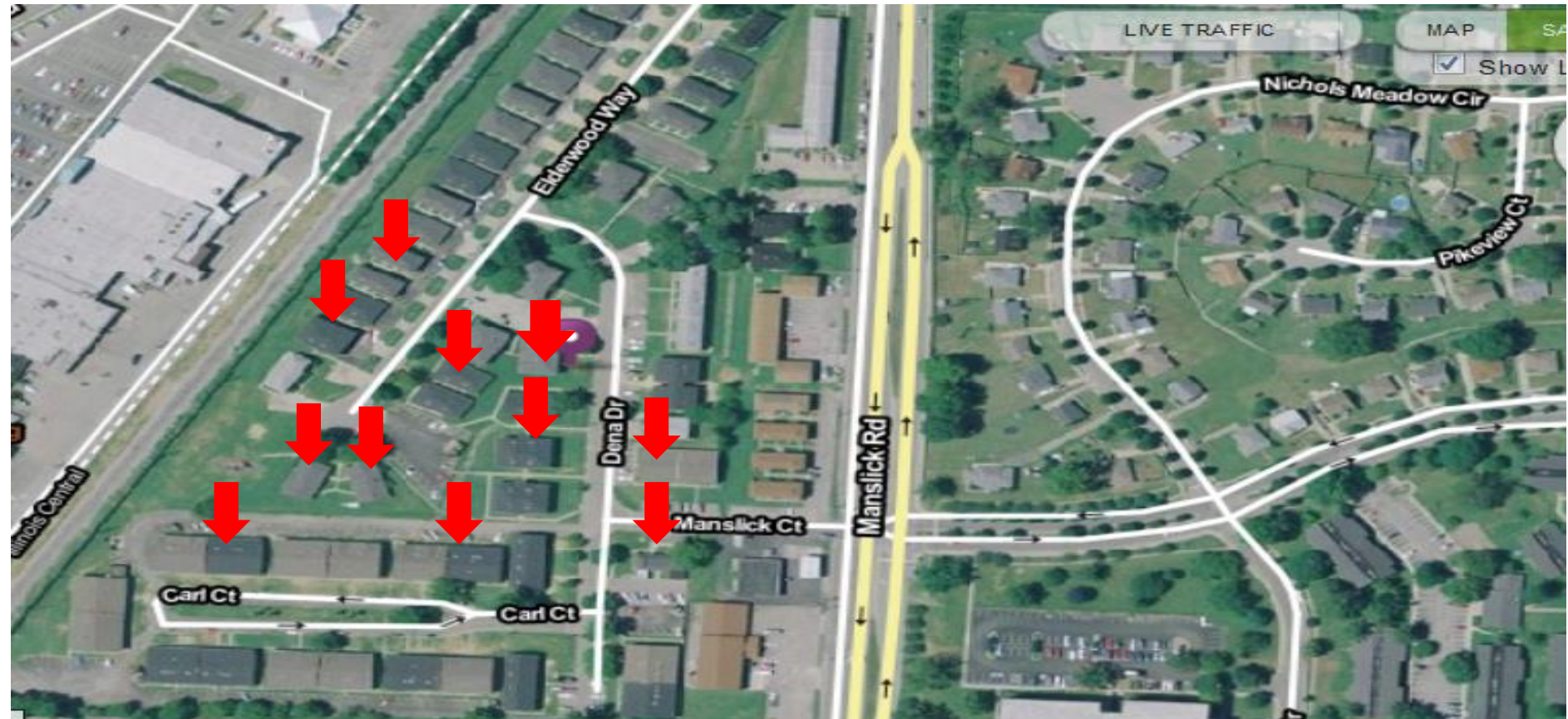
Preparer = None

Refund = \$1,904

Filing Date = 2/4/18



## Analytic Case Study 2 – Not In My Backyard





## OBJECTIVES

- Leverage data from across NC agencies
- Improve detection of identity theft
- Identify audit candidates

## SOLUTION

- NCFACTS fraud analytics system
- Phased approach to use and integration
- Analysis of individual and business returns

## RESULTS

- Significant improvement over core system and rules/flags alone
- Networks in phase 2 – analytic interface
- Positive ROI in each phase – multi million \$



## Midwestern State

	Cases Reviewed	Bad Returns	False Positives	% Reduction in False Positives
Baseline	23,357	4,618	18,739	
Analytical approach	8,839	3,832	5,107	73%

- Following reduction of false positives, staff were redirected to new detection runs
- Multi-year analysis and interface more than doubled total reviews staff were able to complete annually
- Significant improvement in \$ detected and prevented



## OBJECTIVES

- Combat \$ lost to identity theft
- Address "ghost preparers"
- Offset staffing cuts

## SOLUTION

- Integrated analytics platform
- Parallel analysis for improving analytics
- Return Review Program – pre-refund analytics

## RESULTS

- Intra-day analytics on 13+ M returns
- 6 M Identity theft returns prevented
- Multi-billion \$ improvement

## Washington State – By the numbers

Analytics implemented for detection and ranking of risk, utilizing data sets from 5 agencies, 15 programs and the IRS

- 80% decrease in time to review a return
- 50% increase in \$ identified per business audit
- 80% decrease in no change audits (false positives)
- Significant ROI



# Questions?