

Data
Analytics



EXPOSING CORRUPTION
PROTECTING PUBLIC TRUST

Goals of Oversight Agencies

1. Global View
2. Speed
3. Institutional Memory

Background

Human Resource Administration

14,000
employees

\$9.7b
benefits

\$500m
contracts

Department of Homeless Services

2,400
employees

\$1.4b
expenditures

\$1.1b
contracts

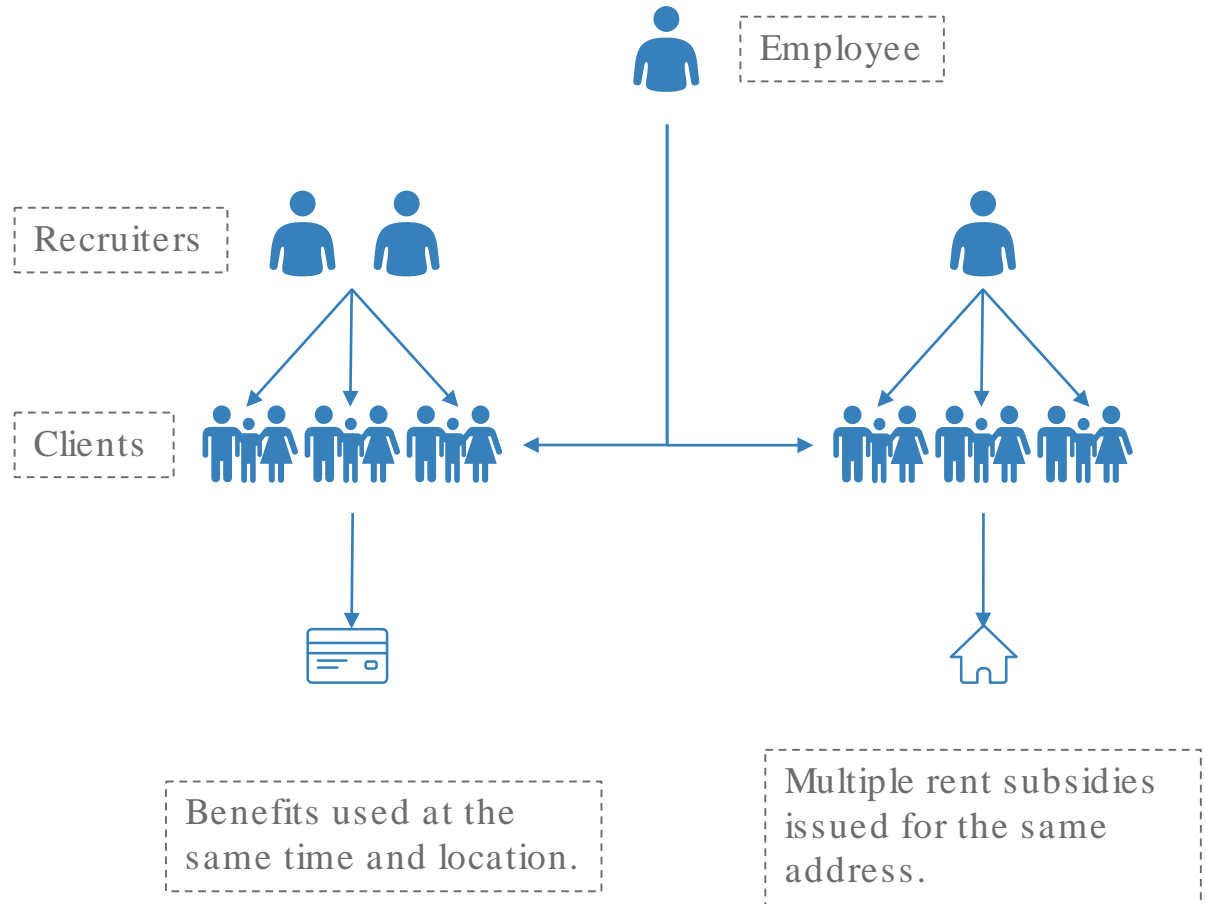
Global View

- Bird's eye view
- Principle players
- Extent of fraud



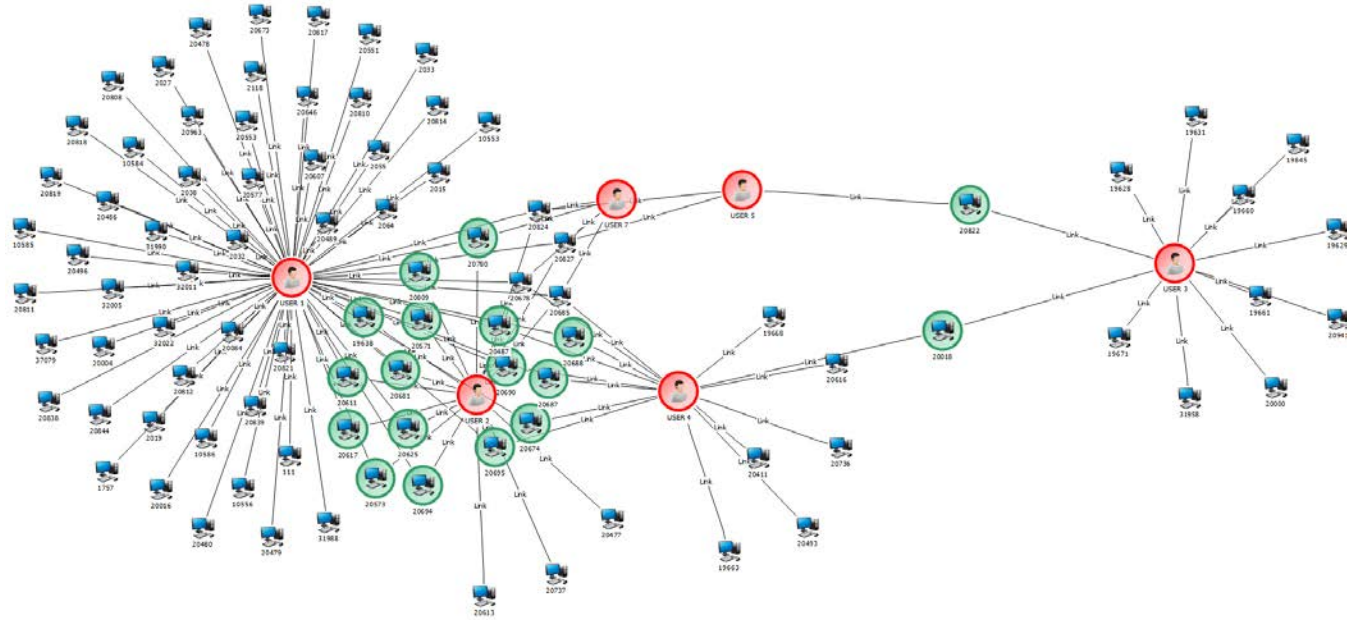
Background

- Scheme 1 – SNAP benefits
- Scheme 2 – Rental subsidies



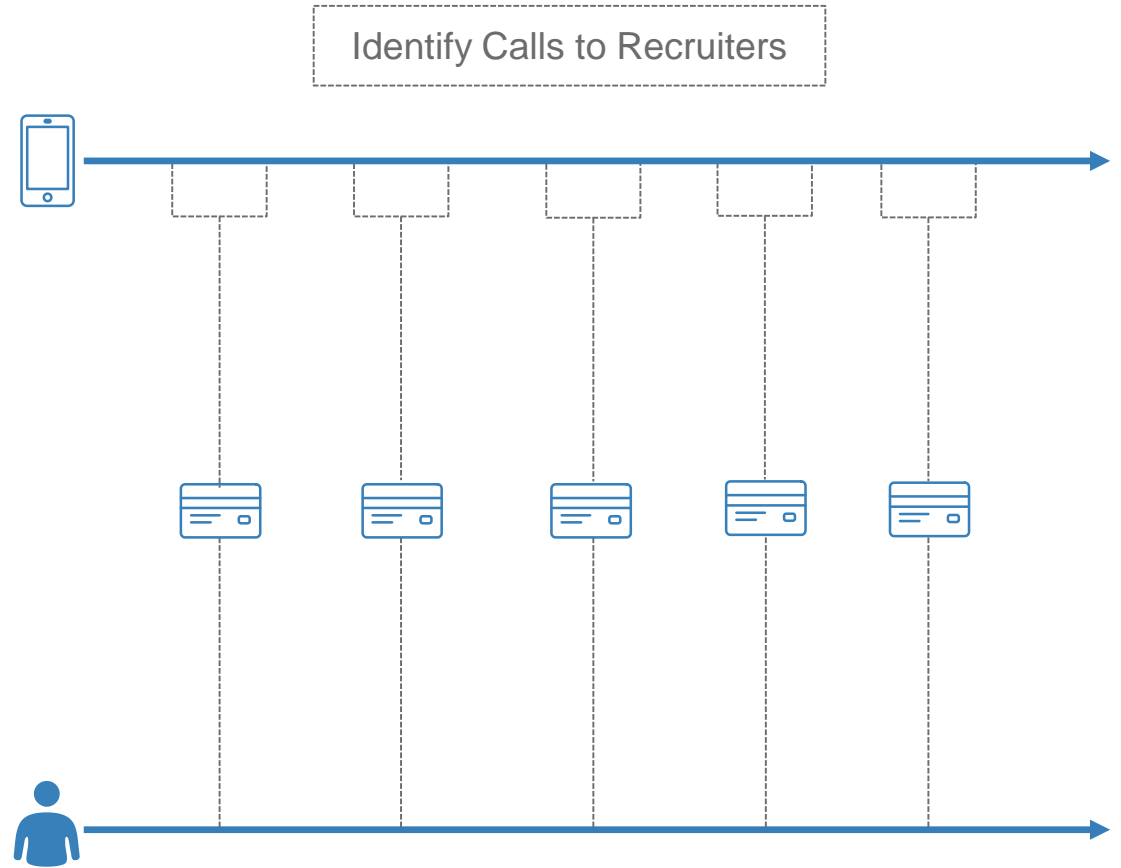
Bird's eye view of the problem

- Computer logs
- Payroll records



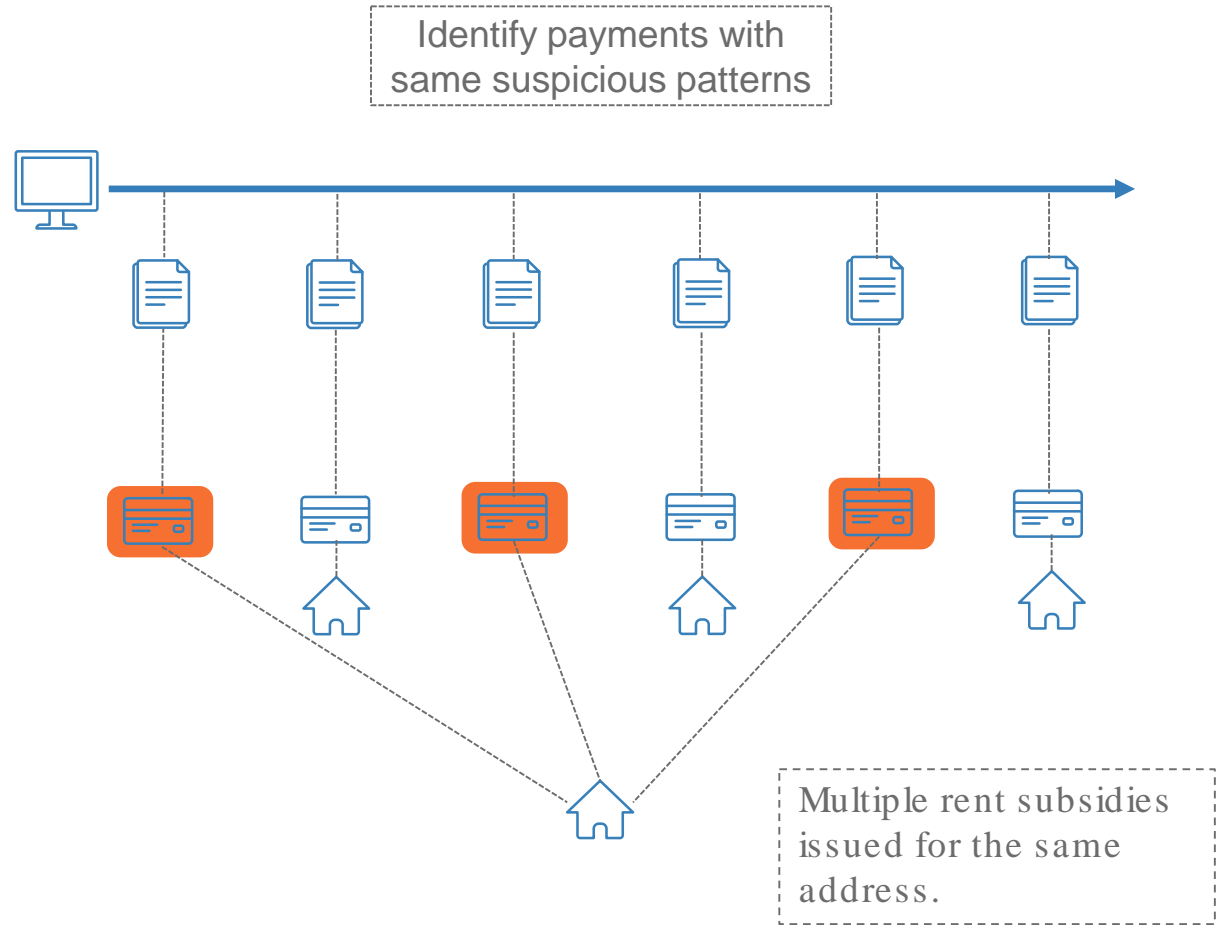
Identify the principal players

- Payment Records
- Phone records



Identify the extent of the fraud

- Computer Logs
- Payment Records



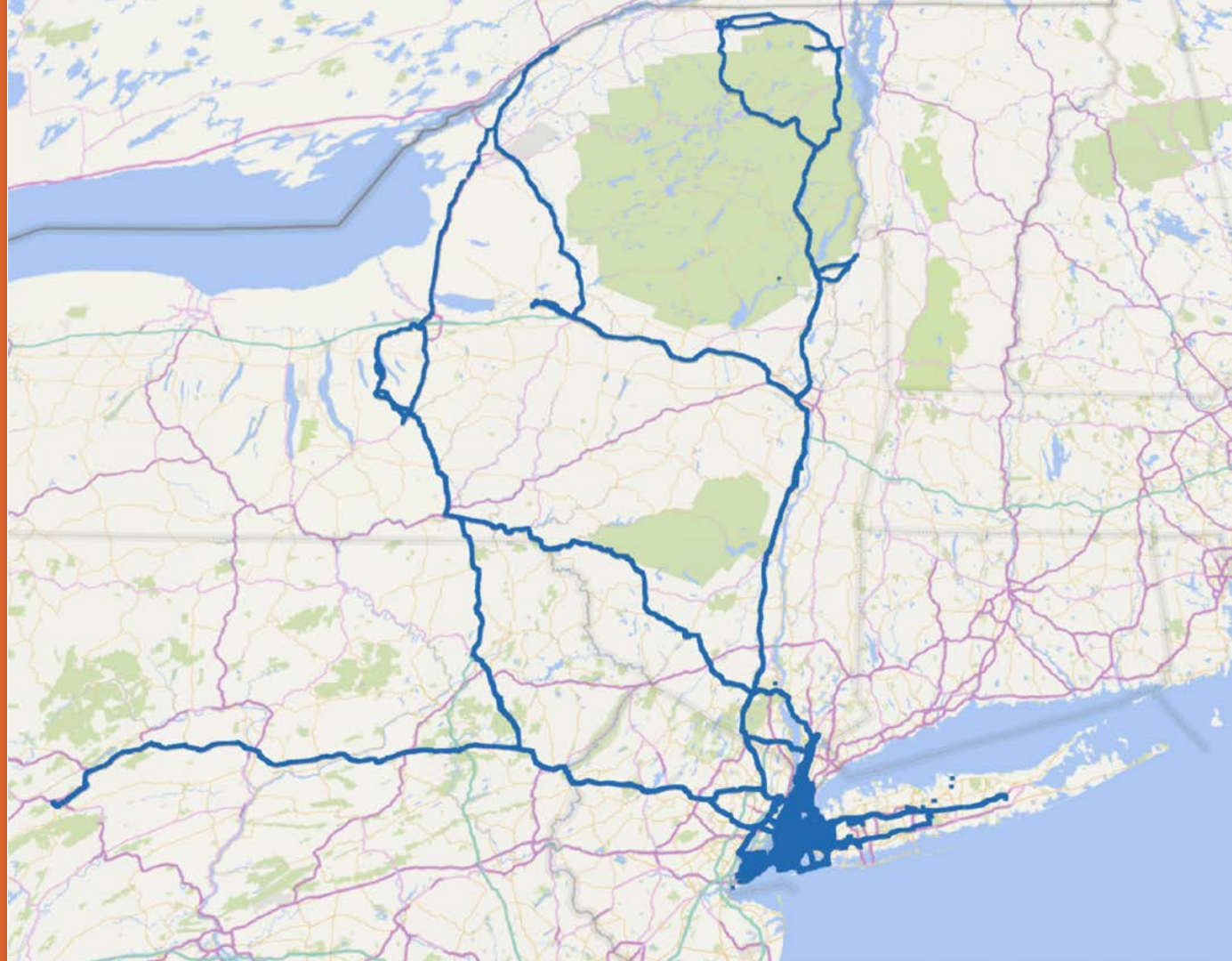
Speed

- Stop ongoing loss of funds quickly
- Large amounts of data



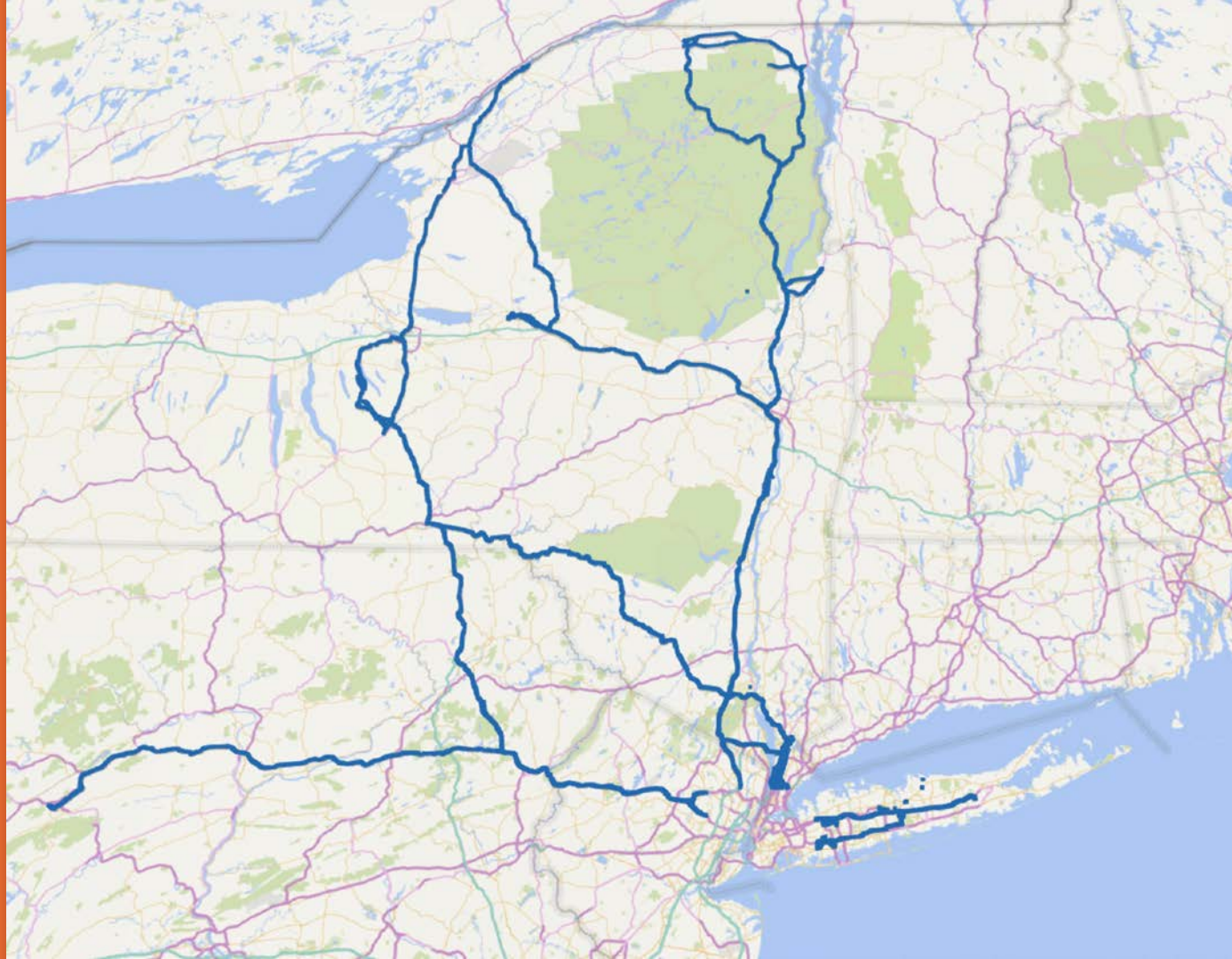
Large Amounts of Data

- 3.4 million data points
- 136 vehicles



Signal and Noise

- 38,000 data points
- 7 vehicles



Sample Report

Vehicle_id	DATE	WEEKDAY	START_TIME	END_TIME	Sum of DURATION
VEHICLE_NUMBER - 421	09/08/16	THURSDAY	09/08/2016 05:14 AM	09/08/2016 07:37 PM	14.38
	09/09/16	FRIDAY	09/09/2016 05:54 AM	09/09/2016 06:40 PM	12.78
	09/13/16	TUESDAY	09/13/2016 06:05 AM	09/13/2016 07:05 PM	12.99
	09/15/16	THURSDAY	09/15/2016 05:34 AM	09/15/2016 06:43 PM	13.16
	09/16/16	FRIDAY	09/16/2016 05:32 AM	09/16/2016 08:12 PM	14.67
	09/19/16	MONDAY	09/19/2016 05:35 AM	09/19/2016 08:37 PM	15.04
	09/21/16	WEDNESDAY	09/21/2016 05:29 AM	09/21/2016 04:16 PM	10.78
	09/22/16	THURSDAY	09/22/2016 05:35 AM	09/22/2016 07:41 PM	14.10
	09/23/16	FRIDAY	09/23/2016 05:27 AM	09/23/2016 08:49 AM	3.37
VEHICLE_NUMBER - 423	02/13/16	SATURDAY	02/13/2016 02:10 PM	02/13/2016 09:10 PM	7.00
	04/02/16	SATURDAY	04/02/2016 08:24 AM	04/02/2016 11:59 PM	15.59
	04/03/16	SUNDAY	04/03/2016 12:00 AM	04/03/2016 09:46 AM	9.77
	04/18/16	MONDAY	04/18/2016 05:53 AM	04/18/2016 11:59 PM	18.10
	04/30/16	SATURDAY	04/30/2016 05:30 AM	04/30/2016 07:48 PM	14.30
	06/25/16	SATURDAY	06/25/2016 08:51 AM	06/25/2016 11:59 PM	15.13
	06/26/16	SUNDAY	06/26/2016 12:00 AM	06/26/2016 08:37 AM	8.62
VEHICLE_NUMBER - 430	09/03/16	SATURDAY	09/03/2016 12:03 AM	09/03/2016 11:56 PM	23.88
	09/13/16	TUESDAY	09/13/2016 07:59 AM	09/13/2016 06:08 PM	10.15
	09/17/16	SATURDAY	09/17/2016 01:29 AM	09/17/2016 09:34 PM	20.08
	09/20/16	TUESDAY	09/20/2016 05:39 AM	09/20/2016 04:45 PM	11.10
	10/08/16	SATURDAY	10/08/2016 12:01 AM	10/08/2016 10:59 PM	22.96
VEHICLE_NUMBER - 427	01/15/16	FRIDAY	01/15/2016 06:29 AM	01/15/2016 11:34 PM	17.08
	05/21/16	SATURDAY	05/21/2016 10:39 AM	05/21/2016 11:59 PM	13.33
	05/22/16	SUNDAY	05/22/2016 12:00 AM	05/22/2016 02:42 AM	2.70
	06/15/16	WEDNESDAY	06/15/2016 10:34 AM	06/15/2016 05:40 PM	7.10
	07/13/16	WEDNESDAY	07/13/2016 08:45 AM	07/13/2016 09:47 PM	13.03

Institutional memory

- Learn from investigations
- Indicators of fraud are codified into algorithms
- Each algorithm has documented case that forms the justification for that indicator

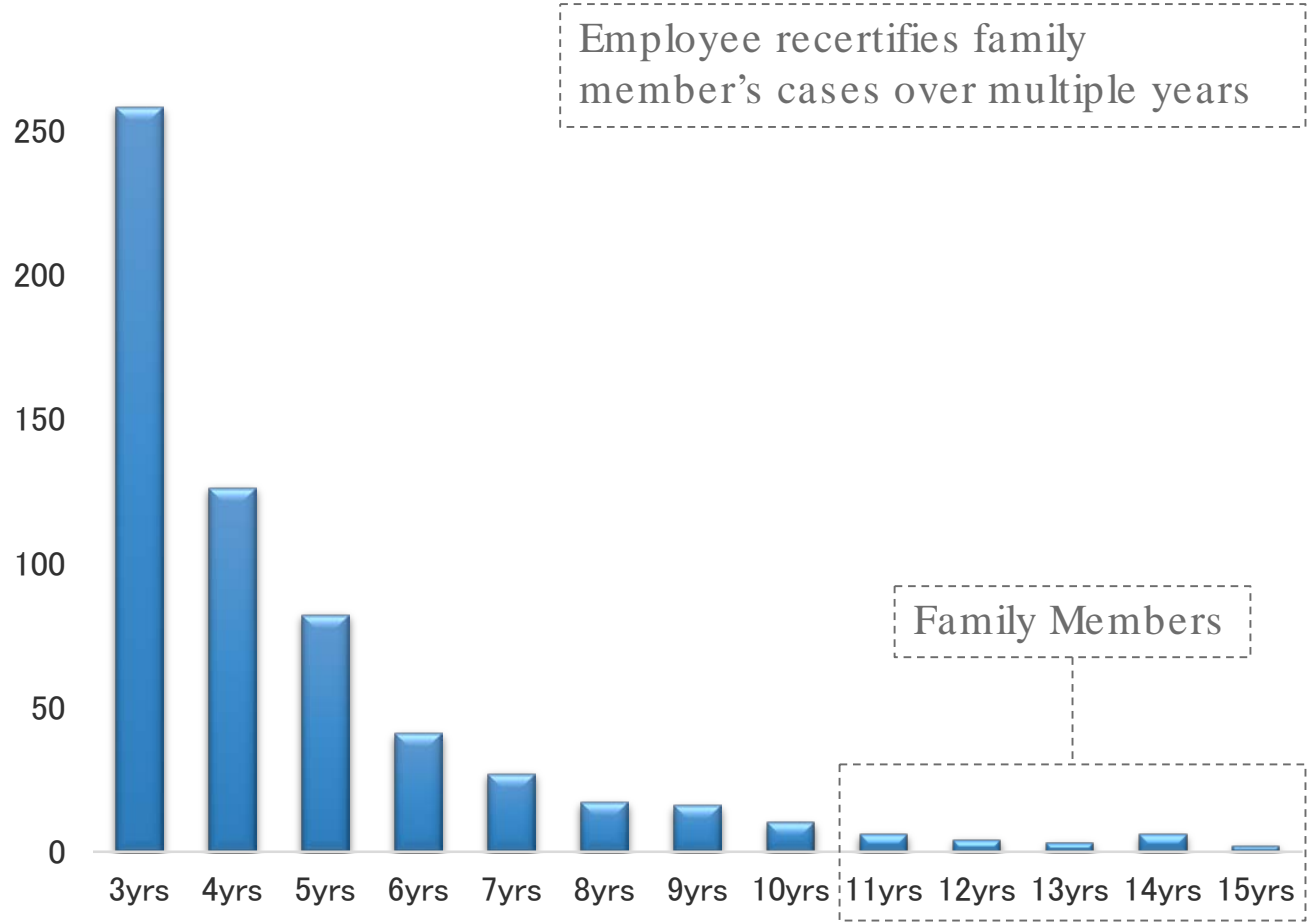


Background

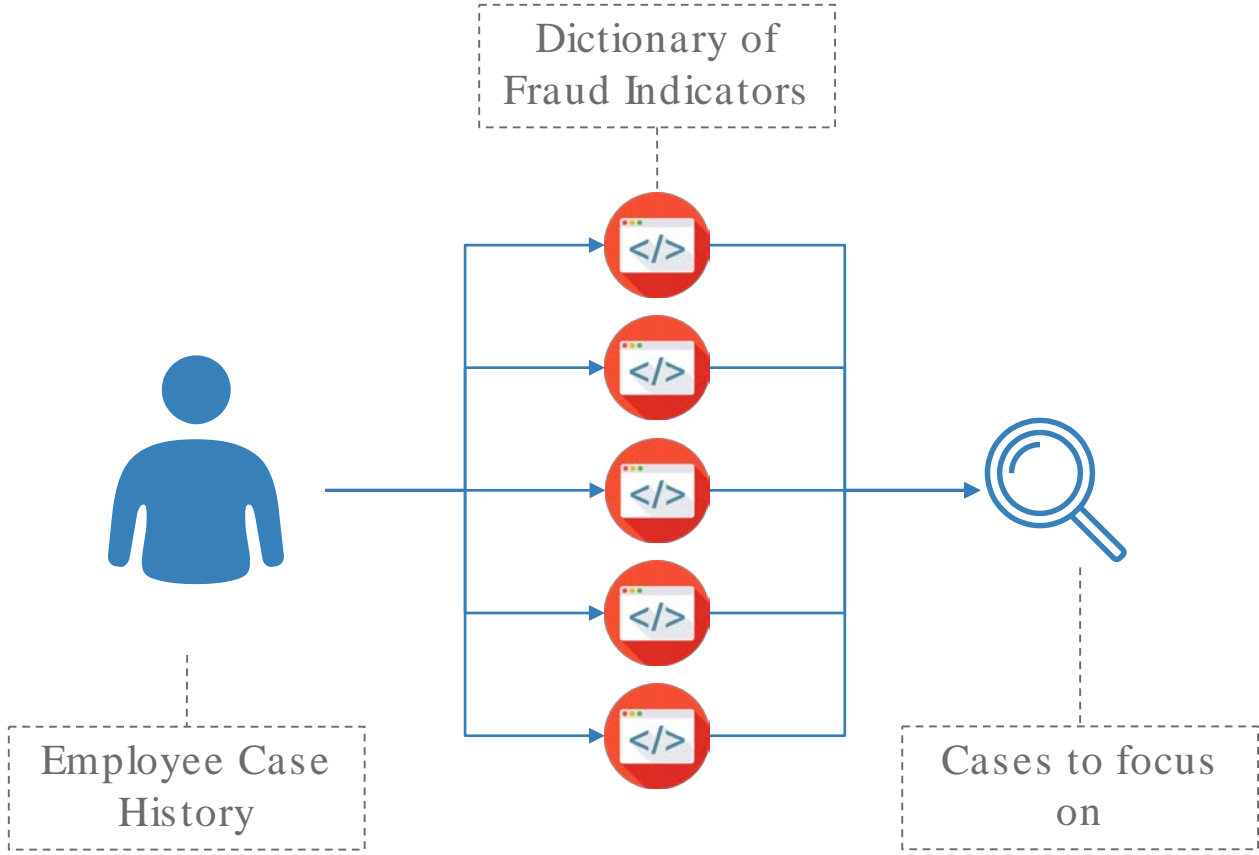
- Millions of data points for each employee



Learn from investigations



Codifying indicators of fraud





How do we get here?

Challenges



Thank you very much for
your time

www.nyc.gov/doi

