INEGI: Crime Analytics with SAS

Steven Tuttle – Principal Technical Architect

Enhancing the gut feeling...

Use predictive analytics and forecasting to make well informed and timely decisions
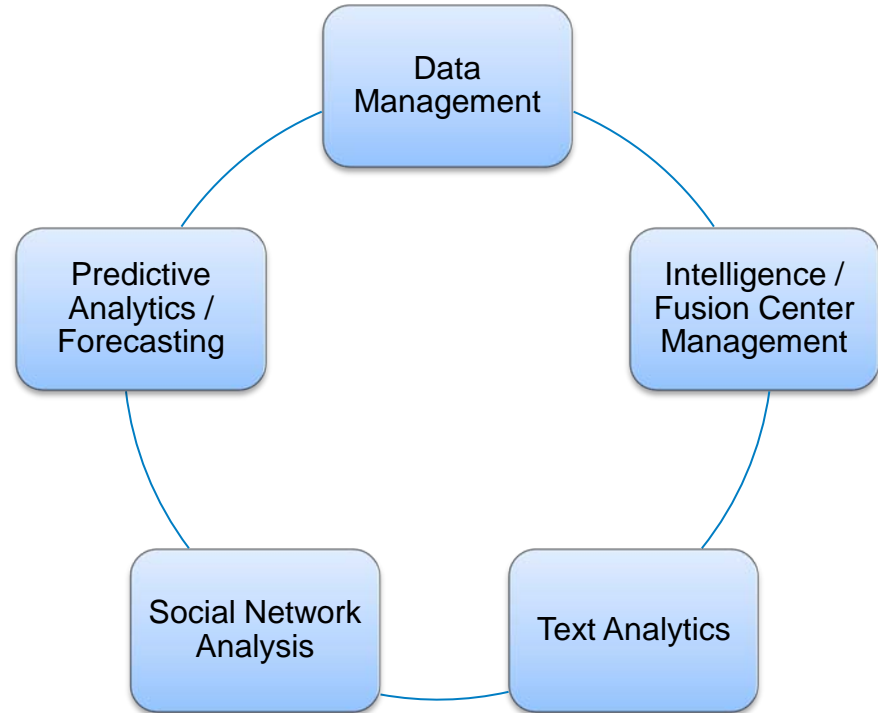
Multitudes of data: Big Data

- Computer aided dispatch
- Records management systems
- Investigatory case files
- Field interview cards
- E-citation
- Gang files
- Social media

- Vehicle information
- Mapping information
- Intelligence
- Probation / parole reports
  - » Conditions of release
- Unstructured and structured data
- Others?

Policing in the Era of Big Data

- Addressing specific problems facing today's law enforcement entities via maximizing available information

  - Accessing near real-time data

  - Integrating and validating disparate, relevant data sources

  - Analyzing unstructured data to add context to structured data

  - Providing illustrative snapshots to decision-makers on unearthed policy/operational issues

  - Forecasting probability of occurrence based on coalesced data and other variable drivers

What can analytics do for me?

- Maximize operational insight from existing data sources

- Enhance today's investigative capabilities while demonstrating tomorrow's prevention value

```
          Data
       Management

Predictive                    Intelligence /
Analytics /                   Fusion Center
Forecasting                    Management

   Social Network            Text Analytics
     Analysis
```

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What can analytics do for me?

- Automating the process of mining information to provide operational insight and identify previously unidentifiable trends or unearth vital information in near-real time

- Explore and analyze data to uncover unknown patterns and insights that support data-driven decision making.

  - Example -- forecast crime and disorder to maximize strategic resource allocations based on variables such as day, time, time of year, weather, road conditions, etc.

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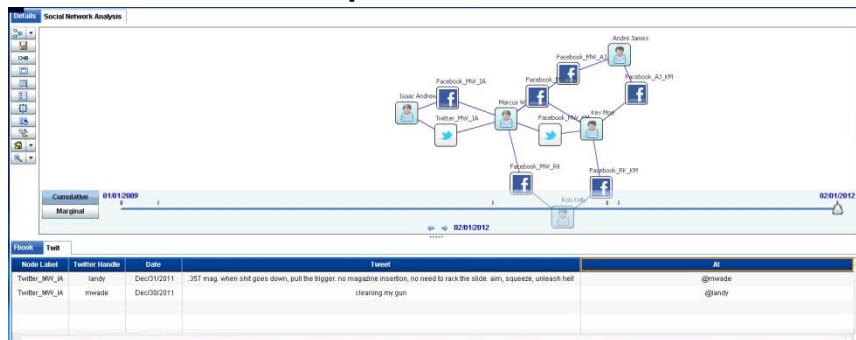# Text Analytics - Maximize Unstructured Data

2ND LEVEL PRKNG GARAGE PULLED 413 ON SEC TL3 Original Location : BILLS GAMBLING HALL B/C   0434 28/BMA/MID LATE 20S 6'3 POSS 408 UNK 446 ARMD W/BLK HANDGUN SUBJ NOW LEAVING PRKING LEVEL TWRDS VALET WHI CHEV SUBURBBAN 6HUW684/ CA 0435HRS 28/IS IN VALET STIL LL   NEG INJS/SEC IS STBY IN 2ND LEVEL/FOL'G VEH THR U VIDEO 0435HRS 28/VEH IS OCCD 4XS UNK IF REST ARE ARMED//ONLY #1 SHOWED 413 0436HRS 6DP81// C/RED   0436 28/PR ADVNG METRO OFCRS HAVE VEH PULLED OVER   ALSO PULLING OVER WHI CADI SEDAN UNK PLTS 0437HRS 6DP82//

Concept and Entity Extraction

» *PUBLIC PLACE = Parking Garage*

» *WEAPONS = 413 "Person with a Gun"*

» *CAR-TYPE*: Suburban, WHI CADI SEDAN

» *LICENSE PLATE*: 6HUW684

Social Network Analysis

- Used to turn complex groups of linkages into networks worthy of an investigative focus, identifying not only the networks themselves but scoring the networks to assess risk.

  - Example -- analyze the relationships and activities across a network dimension such as a criminal enterprise.

Criminal Justice Law Enforcement Automated Data Services (CJLEADS)

- Comprehensive view of an offender.

- Single web-based application easily accessible by law enforcement, magistrates, prosecutors, judges and other criminal justice professionals.

- "Offender watch" capability to alert when an offender/citizen has a change in status in the criminal justice community.

MARCUS DANIEL WADE OFA VIO CC

SSN: XXX-XX-1111 **FBI ID:** 999999999 **SID:** NC12345678 **Age:** 40 **DL:** NC-88888888 **DOC ID:** 0000000

Summary	Timeline	History	Outstanding	Prison	Juvenile	DV	ComCorr	SOFD	ICE	Gangs	Marks

MARCUS DANIEL WADE ... OFA VIO CC

Address:	520 Main street. , Cary , NC 27555 ...	**FBI ID:**	999999999
Birth date:	01/01/1969	**SID:**	NC12345678
Age:	40	**SSN:**	XXX-XX-1111
Race:	WHITE	**DL:**	NC-88888888
Gender:	MALE	**Concealed:**	Data Not Available
Height:	73	**Hair:**	BROWN
Weight:	180	**DOC ID:**	0000000
Eyes:	BLACK		

More...

AOC 11/01/2005

Outstanding Processes
Felony - 0

Misdemeanor - 0

Infraction - 0

Traffic - 0

Criminal history
Pending - 1

Disposed - 15

DV: Domestic violence
Offenses - 1

Prison
Current - No

Previous - No

Escaped - No

Community Corrections
Current - Probation

Previous - No

Absconded - No

Marks/Scars
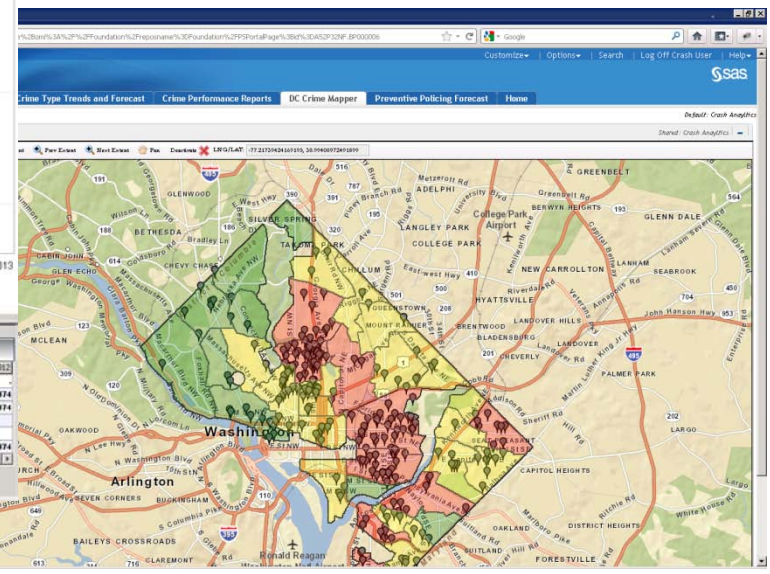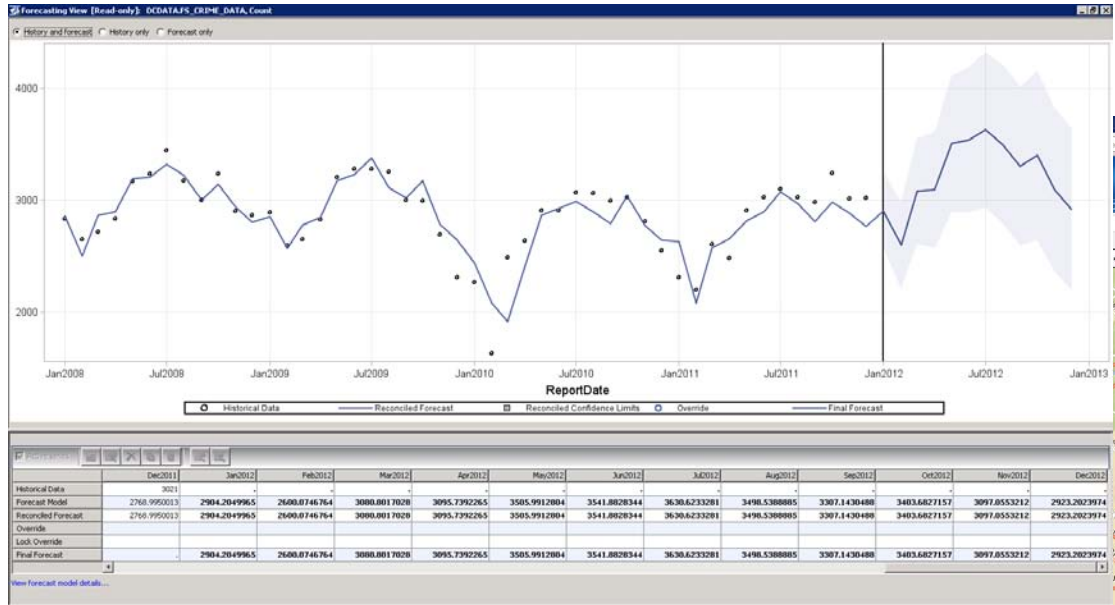No

Gang affiliations
No

NC Sex Offender Registry
Link to NC sex offender data

Offender Timeline
Click to view

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Forecast Crime Models

Crime Mapping Demonstration

Questions and Answers

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