

Association of Inspectors General

Needles in a Haystack:

*Using Data Mining & Predictive Analytics
to Prioritize Leads and Highlight Risks*

May 19, 2011

Using Data Mining & Predictive Analytics

- ❑ Why use data mining
- ❑ How to use data mining, and
- ❑ Examples of what data mining can find

Why Use Data Mining

- ❑ Encouraged by auditing standards and OMB Circular A-123
- ❑ Provides examples of how weak internal controls result in fraud, waste and abuse
- ❑ Improves the likelihood that management will act on recommendations

How to Use Data Mining

- ❑ Gain a thorough understanding of the data that you will be analyzing
- ❑ Gain a thorough understanding of the program's potential vulnerabilities
- ❑ Data mining is most effective when it augments systemic weaknesses identified through statistical sampling or data matches
- ❑ Tips on ways to analyze data
 - ❑ In a single agency database
 - ❑ In multiple agency databases
 - ❑ With external databases

How to Use Data Mining

Analyzing data in a single agency database by using software to:

- Identify
 - Dollar amounts that are too high, low or frequent
 - Dates of birth that are too high, low or frequent
 - Dates/times of activities/transactions falling on weekends or holidays, or late at night
 - Dates/times of activities/transactions that are too close
 - Codes indicating that the transaction is either prohibited or requires special handling
 - Create new fields to assist analysis
 - Bedford's Law
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How to Use Data Mining

Analyzing data in multiple agency databases

- Join the databases,
- Conduct similar types of tests performed on a single database,
- Determine if one of the databases contains records that should also be in the other database,
 - Expenditure and obligation databases
 - Travel voucher and travel order databases
 - Payroll disbursements and personnel databases
- Determine the consistency/relevancy of the information in the two databases
 - Expenditures vs. the last time an expenditure was made on the contract/obligation
 - Expenditures and the last time changes were made to the database

How to Use Data Mining

Analyzing data with external databases

- ❑ Computer Matching Act governs data mining/matching across federal departments when the database contains Personal Identifiable Information (PII).
- ❑ However data mining is allowed when the
 - ❑ Database is in a different agency within the same department
 - ❑ Data sharing agreements exist
 - ❑ You are investigating a specific subject
 - ❑ The database is maintained by private sector organization
 - ❑ The database contains company—not individual—information
- ❑ Use techniques similar to those described when data mining a single or multiple databases

Data Mining Examples

- Disaster Assistance Benefit Fraud
- Tax Debt
- Purchase Cards
- Premium Class Travel
- Non-Disaster Assistance Benefit Fraud

Disaster Assistance/Benefit Fraud

- ❑ Statistical sample of payments estimated that:
 - \$1 billion in hurricane Katrina and Rita payments to individuals were based on fraudulent applications:
- ❑ Examples included
 - Invalid addresses
 - Ineligible applicants
 - Duplicate applications

Disaster Assistance/Benefit Fraud

- ❑ Data mining determined an individual provided the address of a cemetery as a damaged residence



Disaster Assistance/Benefit Fraud

- ❑ Prisoners receiving temporary lodging payments while incarcerated



Tax Debt

- ✓ Comparison of Federal Payment records and IRS Debt information showed that:
 - ❑ 33,000 Civilian agency contractors owed ~\$3.3 billion
 - ❑ 27,000 DOD contractors owed ~\$3.0 billion
 - ❑ 3,800 GSA contractors owed ~\$1.4 billion
 - ❑ 30,000 Medicaid providers in 7 states owed ~\$1.0 billion
 - ❑ 21,000 Medicare providers owed ~\$1.0 billion
(physicians, health professionals, and suppliers)
 - ❑ 55,000 tax exempt organizations owed ~\$1.0 billion
 - ❑ 39,000 federal grantees owed ~\$0.8 billion
 - Federal grantees numbers and amount are understated
 - 80% of federal grants go to state and local governments

Tax Debt

- ✓ What did the tax scofflaws do with the money owed IRS?
- Some purchased
 - Luxury cars
 - Expensive homes
 - Boats
 - Other assets

Tax Debt

- Luxury cars



Tax Debt

- ❑ Expensive homes



Purchase Card Examples

- ✓ Items improperly obtained with a purchase card
 - Food, liquor
 - Clothing, jewelry
 - Televisions, computers, and stereos
 - Official travel, expenses
 - Vacations and cruises
 - Car repairs, batteries, and tires
 - Cash advances
 - Escort services

Premium Class Travel Examples

- ✓ Federal payments wasted on first and business class airline tickets

Itinerary	Government paid	Cost of coach trip
London to Honolulu (one way—family of 4 transfer)	\$21,000	\$2,500
Washington, DC to Amsterdam	4,500	600
Washington, DC to San Jose	4,100	500
San Diego to Washington, DC	3,400	700
Los Angeles to Washington, DC	3,300	250

Non-disaster Assistance Benefit Fraud/Abuse

- ✓ Individuals seeking benefits (financial or non-financial assistance, employment, or entry) provide or have recorded false or inaccurate:
 - ❑ Names of applicants, petitioners, adjudicators
 - ❑ Number of decisions per day
 - ❑ Dates—birth, application, adjudication
 - ❑ Place of birth, country of origin
 - ❑ Destination
 - ❑ Employer
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