Program Integrity in Government

Transforming Data to Useful Information: Using Analytics to Detect and Prevent Improper Payments

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• **Smarter Analytics Executive, Fraud, Waste and Abuse**
  Government, Healthcare, Insurance and Banking
  Over 25 years in technology industry, 15 years banking industry
  Consulted with companies on financial crime problems globally.
  Implemented Anti Money Laundering and Fraud systems globally.
  Thought Leader for AML and Fraud systems considering regulatory
  requirements, ROI modeling, systems and technology, implementation in
  the context of prevention, detection and investigation.

Lisa N Smith

• **Government and Healthcare Fraud Analytics Solutions SME**
  29 years Public Sector and Healthcare Solutions Leader
  Advanced Analytics solutions to identify and connect relationships across
  agencies to identify and prevent improper payments
  Thought Leader for Program Integrity, Improper Payments, Fraud, Waste,
  Abuse and Error
State budget challenges are forcing resource decreases yet service demands are rising

- Fewer resources, expanding caseloads and more citizen services needed
- Need to ensure that those that need the services are getting them
- Inability to respond quickly to changing environment
- Need to reduce the potential fraud and waste in the system
- Data rich, Information poor
- Disconnected Towers of Data by Program
- Economic Realities
The challenges are already with us…

**Traditional Approaches have become obsolete**

- Information is compartmentalized – lack of full integration is obscuring visibility
- Inability to link unstructured content with structured data and manage together
- Untimely – Sense & Respond vs. Predict & Act
- Inaccurate – Broadscale false positives and false negatives
- Out of context – lack of sense making, collaboration, and support/guidance once threat is identified

**Today’s intensifying challenges mandate a fresh approach**

- Multiplication of threat types, and frequency with which they occur
- Threats are increasingly asymmetrical
- Explosion in complexity of threat identification
- Multi cultural nature of threat
- Frequency of transaction/interactions
- Transparency is clouding
- Citizen, Policy Maker and Regulatory expectations and pressures are increasing
An Explosion In Volume, Variety & Velocity

- Information is exploding
  - Volume of Digital Data
    - 44x Digital data growth through 2020

- Sources of insight are multiplying
  - Variety of Information
    - 80% of information – unstructured content

- Performance gap is widening
  - Velocity of Decision Making
    - 12x Increase in performance by Organizations that apply analytics

- Change outpacing ability to keep up
  - 60% of mission leaders have more data than they can use effectively

Sources:
- IBM Institute for Business Value
- Performance gap is widening (12x)
- Change outpacing ability to keep up (60%)
- Volume of Digital Data (44x)
- Variety of Information (80%)

The Data Challenge

Multiple Systems of Record
- Data silos exist internal and external to agency or country
- Relevant data not shared
- Value of one piece of data in unknown without context

Privacy Requirements
- Minimize exposure of Personally Identifiable Information
  ...while still locating persons with nefarious plans

Public Pressures and High Stakes
- Successfully correlating information means lives are saved.
- Failures to correlate information can be catastrophic and highly visible

Data Overload
- Less “signal” to much “noise”
- Individual systems over populated
- Incomplete and inconsistent records

Multiple Types of Data
- Different formats
- Different purpose (e.g., about people or things)

How Can Governments Meet These Challenges?

Cost Control
- Productivity lost on manual data correlation tasks
- Increasing staff costs to integrate flood of data
Today’s Health and Human Services ENTERPRISE
An unsustainable focus on programs, agencies & transactions
Health and Human Services organizations need to be able to turn their data into actionable information that helps them meet stakeholder expectations.

- How do I leverage data across multiple data sets to gain a comprehensive view of a family’s ongoing needs and program results?
- How do I match client needs to the right program or service and maximize a limited budget and resources?
- How can I identify clients at risk and implement successful preventive measures?
- Which factors are most likely to drive successful outcomes for clients?
- Am I managing my resources effectively?
Many Possibilities for Improper Actions against Government Programs

- **Organized**
  - Staged Events
  - Money Laundering
  - Improper Billing
  - Improper payments

- **Provider**
  - Providers taking advantage of public and private institutions for the purpose of improper financial gain

- **Opportunistic**
  - Individuals seeking improper payments by taking advantage of private and public institutions
    - Slip Fall
    - Arson
    - Tax Fraud
    - Medical Fraud

- **Employee**
  - Employees creating fraudulent transactions, records, and claims to receive improper payments from Employers
    - Procurement
    - Financial Statement
    - Expense

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Typical Fraud Detection Challenges

**Time is short to make a decision**
- Prompt pay and mandates: Many private companies or government agencies have only days to decide to complete a payment to someone (for example, medical claims, or tax refunds)
- Failure to stop an improper payment (either an error or a fraud) opens up the “pay and chase” scenario, drastically lowering the chance of recovery

**Limited in what information can be accessed and used**
- There may be competitive or political reasons why organizations do not share information
- There are strict laws governing the handling and disclosure of personal information

**Those who are involved in fraud are CONSTANTLY changing their tactics**
- They monitor what the government or other organization – like a bank – is doing to combat against them
- They experiment to find the limits of where their fraudulent behaviors will NOT be detected

**There are many BILLIONS of dollars at stake**
- In 2010 OMB estimated that across the Federal government “improper payments” exceeded $125B
- Includes both errors and processes as well as fraudulent behaviors and organized schemes
Anti-Fraud Signature Solution

Anti-fraud, Waste and Abuse: *Detect* fraudulent behavior before payment and minimize loss from overpayments

### Solution Benefits
- Dramatically reduce costs from fraud and abuse
- Pay valid transactions faster and with greater certainty
- More efficient use of investigative resources reduces costs and increases rate of return

### Assess Vulnerability
- Identify significant schemes and vulnerabilities
- Build and test predictive models
- Measure financial and reputational risk

### Detect and Stop Fraud
- Generate smart business rules based on statistical scoring and outlier detection
- Generate highly-sophisticated predictive models
- Real-time scoring
- Integrate rules and models with claims processing systems
- Take direct and pre-emptive action
- Identify and intercept suspicious cases, pre-payment

*Advanced analytics used to detect fraud, manage case volume, investigate fraud schemes and support prosecution*

### Manage case load, investigate suspects
- Assign, manage cases
- Monitor case load
- Analyze case intelligence
- Conduct link analysis
- Document and share case intelligence
- Enforce compliance plan
- Measure results
- Feedback results for closed loop learning

### Big Data Platform
- Trusted Data Integration & Delivery
- Business Intelligence Workload Management
- Enterprise Data Security & Compliance
IBM Vision for Fraud analytics is based on applying a series of interlocking tools to address fraud across its lifecycle.

**Prevent**
Prevent the issuance of the services if it appears the main purpose of the application is to provide benefit to a fraudster.

*Today: Little is done to prevent fraud from occurring*

**Detect**
Detect if a claim, payment or other transaction is likely a willful act to achieve financial gain through misrepresentation and/or falsification; and take steps to stop or send to Investigation.

*Today: Relies heavily on people to detect fraud*

**Discover**
Continuous comparison of claim or transaction data to the data of cases known to be fraudulent in order to identify fraud that was not previously detected.

*Today: Not really done*

**Investigate**
Case management and visualization tools to aid investigators in building a case against fraudsters.

*Today: Special investigations unit with manual adjusters*

**Detect**
Detect fraud once it is reported – and react accordingly.

**Prevent**
Stop fraud before it is reported.

**Investigate**
Build a case for prosecution or denial of benefits.

**Discover**
Discover fraud after it occurs.

**Learn**
Model

**Report/ Monitor**
Analysis Lifecycle to Target Improper and Fraudulent Activity

Data → Discovery → Manage → Investigate → Report

- Connect to any data source
- Leverage structured and unstructured data
- Predictive models
- Risk indicators
- Identity resolution
- Case Management
- Initiate and manage workflow, rules and management of fraud cases
- Quickly identify fraud
- Visual analysis
- Identify patterns
- Share & collaborate
- Investigation reporting and documentation
- Show business impact
Critical Components for Fraud Detection, Prevention and Investigation

Analytics Platform
- Any data source
- Risk scorecard
- Cross channel analysis
- Multi-stakeholder investigation
- Role based briefing

Case Management
- Comprehensive case management
- Integrated collaboration and rules
- Case analytics
- Content-centric business process mgmt

Analysts & Investigators

Enterprise Performance Dashboards
- Create and deploy easy-to-understand reports, dashboards, and scorecards
- View information with real-time monitoring to make decisions in real-time

Threat Detection Analytics
- Automated Pattern Discovery
- Analyze trends, forecast
- Predict future outcomes
- Conduct ad-hoc analysis
- Prescribe interventions using business rules

Content Analytics
- Actionable insight from unstructured data
- Natural language processing and content analytics
- Extract entities, facts and concepts
- Explore trends, patterns, correlations, anomalies, more

Master Data Management
- Identities and relationships are pre-calculated and perpetually updated
- Suspicious pattern alerting
- Massive data volumes and real-time performance
- Context accumulation technology
- Properly addresses multi-cultural name variations

Identity Resolution

Data Information Server
- Owned / Open
- Text / Rich
- Structured / Unstructured
Connect Related Information From Massive Data Volumes

Establishing Situation Context

What do I already know?

- Is this a person already in the information universe?
- Is he related to other people?
- In what location is this activity happening?
- Is there anything unusual about when and how the data is arriving?

How do I find out?

- Examine all available pieces of incoming data to consider what to look for.
- Apply advanced algorithms to determine where this new observation connects within the information universe.
- Retain enhanced information state so it is available to strengthen the next observation.
Examine identity data to understand who is who

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Close match
Exact match
Transitive Match
Multi-cultural match
Identity and Relationship Analytics
Perpetual, Streaming, Real-Time Analytics

Who is who?
- Establish Unique Identity
- Integrate Data Silos
- Physical/Digital Attributes
- People & Organizations
- Biometric Validation
- Multicultural Names

Who knows who?
- Obvious & Non-Obvious
- Links people & groups
- Degrees of Separation
- Role Alerts

Who does what?
- Events & Transactions
- Complex Event Processing
- Criteria Based Alerting
- Quantify Identity Activities

Each new input record compared to other entities and key historical holdings instantly.

Enterprise & External Sources

Web Service enabled for business process integration

Alert

Marc #9453
John #2099
Bob #0111
Predictive Analytics Uncovers Anomalous Behavior

Automatically clusters entities into naturally forming groups – accounts, origination, beneficiary, intermediaries

Identifies anomalous behavior within peer groups
IBM Decision Management

Optimize Operational Decisions for Better Results

Combines Rules with Predictive Analytics

Real-time or scheduled processing

Business User interface for managing Fraud configuration

- Easily modify rules and decision outcomes
- Simulation and What/If Analysis
IBM Analysis Platform – supports your investigation

Stakeholder investigation and collaboration leads to faster, better informed decision making.

Analysts rapidly turns vast, disparate data sets into actionable intelligence using advanced visual analysis tools on complex data sets.

Web dashboards put the relevant information into the right hands for pursuit of fraud perpetrators.

Executive view for Risk, Compliance and Security

Internal Investigation Unit

External partners

Any data source

Internal Data Sources

Industry Data Feeds

External Data Sources

XML

CSV
Fraud is Reduced At Each Stage of the Fraud Prevention Lifecycle

Fraud and abuse no longer has to be discovered when the fraudster makes a mistake; we can examine massive amounts of data in real time to predict, prevent, and prove fraudulent claims.

- **Enrollment**: Identify fraud risks upon enrollment
  - Identity
    - High Risk Providers
    - Members
  - Flag Known Rule Violations
- **Claim Editing**: First pass control of “Improper payment”
  - NCCI
  - MUE
  - Duplicates
  - Global
- **Advanced Analytics**: Understand data and uncover outliers
  - SNA
  - Profiling
  - Geo Spatial
  - Known Anomalies Patterns Relationships
- **Predictive Modeling**: Flag high risk claims using and adaptive model
  - Supervised models LEARNING from actual investigative results
  - Unsupervised learning (statistical anomalies)
- **Behavior Modification**: Change Behavior for TRUE Fraud PREVENTION
  - Provider stops billing suspect claims without increasing other billings
- **Case Management**: Report claim fraud outcomes and statistics
  - Case Load
  - Results
  - Compliance
  - Workflow

**Case Management**
- Unstructured data Entity Link Analysis

**Fraud is Reduced At Each Stage of the Fraud Prevention Lifecycle**

- Identify fraud risks upon enrollment
- First pass control of “Improper payment”
- Understand data and uncover outliers
- Flag high risk claims using and adaptive model
- This is NOT “soft savings”
- Change Behavior for TRUE Fraud PREVENTION
- Report claim fraud outcomes and statistics

**Fraud is Reduced At Each Stage of the Fraud Prevention Lifecycle**

- **Enrollment**
- **Claim Editing**
- **Advanced Analytics**
- **Predictive Modeling**
- **Behavior Modification**
- **Case Management**
IBM’s Anti-Fraud Approach

New Claim

Resolution, Relationships And Watch List Identification

Who Is Who

Who Does What

Who Knows Who

Who’s Name

Who Anonymous

Entity Analytics

Real Time Alert

New Investigation

Case Management

Business Rules

Predictive Fraud Model

Optimize Fraud Decisions

Entity Analytics

Anomaly Detection

Intelligent Fraud Dashboards

Fraud Intelligent Briefing & Reporting

• Visual Intelligence
• Exposes Unknown Organized Crime Rings
• Intelligence Sharing & Collaboration
• Alert created for High Risk Claims
IBM Social Services customers are realizing benefits...

- **Identified $191 million in Potentially False Medicaid Claims**
- **631% ROI, 2 Month Payback, Annual Benefit: $24,725,000**
- **$900,000 saved annually with Improved Litigation**
- **Over 100,000 Payment Overlaps**
- **Thousands of Homeless on Non-Homeless Cases**
- **Thousands of Back to Back Cases Opened**
- **Thousands of Four or More Cases Opened within 180 day period**
- **50% Reduction of Citizen Identification Management**
- **50% Reduction for Investigate to Closure Time**
- **Recovering 30 million annually**
Government Innovation
North Carolina Department of Health and Human Services

- Oversees the Division of Medical Assistance (DMA) which is responsible for overseeing the Medicaid budget

- NC Medicaid budget is second only to the education budget

- The DMA handles approximately $12 billion in annual paid claims (2009)

- Program Integrity Challenge

  - From 2009 to 2011, Outpatient Behavioral Health has seen a significant increase in number of providers paid high dollars for assessment and therapy
  - Total Behavioral Health Expenditures are $2.4 billion
  - Outpatient Behavioral Health is $640 million (27%) of that total

  - Suspected schemes are:
    - Billing for services not rendered
    - Billing for excessive recipients per workday
    - Excessive billing beyond a 24 hour period
    - Billing for care and services that are provided by an unauthorized, unqualified, or unlicensed person
    - Failure to provide supervision of staff when required Program
Getting started with IBM Smarter Analytics Signature Solutions

There are three paths to value based on your needs

**Start finding actionable insights in 6+ weeks**

**OPTION 1: SOLUTION PROOF-OF-CONCEPT**
- Define and Implement Pilot 6-8 Weeks
- Evaluate Pilot 1-4 Weeks

**OPTION 2: SOLUTION IMPLEMENTATION**
- Define Use Cases
- Establish Solution Components
- Conduct Solution Impact Assessment
- Design, Build, and Deploy

**OPTION 3: BUSINESS VALUE ACCELERATOR**
- Assess Requirements 2-3 Weeks
- Develop Business Case 2-3 Weeks
- Define Solution Roadmap 1-2 Weeks

**Note**: Strategy Workshop duration varies based on client scope and target solution areas
THANK YOU