LEVERAGING ANALYTICS IN FRAUD & AML

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WHO’S WHO
in Fraud & Compliance

The Good
helping to arrest fraudsters, money launderers and terrorists

The Bad
The Compliance Officer for the business?
The regulator for Compliance?
The CFO for Fraud?

The Ugly
The One that everyone wants to stop
…but is he alone ?…
AGENDA

1. The context of AML & Fraud
2. The Solution with the Analytics
3. Multiple Use Cases
4. Showing how one can be applied
5. Your Benefits as conclusion
THE CONTEXT OF THE ISSUES IN AML & FRAUD
The context of Fraud

10% YoY

www.observatoire-fic.com

Figure 3: Types of economic crime reported © 2014, PWC

Diversification

CFES estimate the typical organization loses 5% of annual revenues to fraud

 Nilson Report 2015

The others not me?
AML

CONTEXT

- Booming quantities
- Regulatory pressure

Sanctions Violations
$8.9B
$2.05B
Madoff / AML Deficiencies
Mexican Drugs / AML Doc

$1.9B
$640M
AML Trans Mon / Sanctions Violations
$100M
Sanctions Violations

POLICE LINE DO NOT CROSS

Deaths by terrorist attacks Western Europe, 1970-2015

Next boom of terrorist attacks to come in Europe
AML ISSUES

- Issues
  - Outdated and one size fits all rules
  - False positives
  - Moving target
  - Budget-based

- Regulatory pressure
- Booming quantities

- Type I error (false positive)
  - You’re pregnant

- Type II error (false negative)
  - You’re not pregnant

- Catch me if you can
AML

CHALLENGES

➢ Challenges
  • Understand
  • Efficiency
  • Justify
INTRO

CONTEXT, ISSUES, CHALLENGES ... AND THE SOLUTION

- **Context**
  - Booming quantities
  - Regulatory pressure

- **Issues**
  - Outdated and one size fits all rules
  - False positives
  - Moving target
  - Budget-based

- **Challenges**
  - Understand
  - Efficiency
  - Justify

**Solution**

- Explore & fully understand your data
- Use Analytics to optimize efficiency (segments, thresholds, detection, etc.)
- Justify your model
WHAT MARKET ANALYSTS SAY

about competition in the Data - Analytics - AML - Fraud domains

Enterprise Fraud Management
Big Data Predictive Analytics
Advanced Analytics
AML – Transaction Monitoring

Our competitors in AML & Fraud do not appear in these Data & Analytics quadrants

Data Integration
Data Quality
Agile BI
Enterprise BI
WHY ONE SHOULD BE USING ANALYTICS?
FOUNDATIONS ARE KEY TO COPE WITH EVOLUTIONS

Without the **Data & Analytics layers**, one does not have the necessary foundations to extend its solution over time to tackle new patterns and improve detection accuracy.
CHANGING PATTERNS
OVER TIME

Fraud Investigation Team Dashboard
Number of cases per modus operandi
ANALYTICS LIFT CURVE

Advanced analytics push the boundaries

- Advanced analytics with Risk-Scored Networks
- Advanced analytics
- Business rules
- Random samples

Increased efficiency
WHAT ARE ANALYTICS?
When no targets exist

- Examine current behavior to identify outliers and abnormal transactions

Use when a known target is available

- Use historical information to predict suspicious behaviors similar to previous patterns

Rule and analytic based network scoring

- Automatically risk score while building relevant networks
SAS HYBRID APPROACH

LEVELS OF DETECTION

EVENT

ENTITY

NETWORK

SAS HYBRID ANALYTICAL METHODS

Alert Generation Process

- Predictive Modeling
- Anomaly Detection
- Automated Business Rules
- Database Searches
- Text Mining
- Risk Networks

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Reducing the Super Cluster

ENTITY RESOLUTION

Business Rules

Analytics
- Anomaly Detection
- Predictive Modeling

Social Network Analysis
- Network Analytics
- Network Scoring
REDUCING THE SUPER CLUSTER

Community Detection
USE CASES
in various domains

AML Peer Groups modeling
AML Triage optimization
AML False Positives optimization
Payments Fraud
Procurement Fraud
VAT Carrousel Tax Fraud for government
AML OPTIMIZATION

Use Case: Peer Group Modeling

Automated Peer Groups modeling

Result:
- Better detection granularity
AML OPTIMIZATION

Use Case: Post Alert Generation Scoring

- Use historical alert activity to **auto triage** new alerts on customers
- Reduce resources on manual triage
- Reallocate to higher risk activity review

**Results:**
- Better prioritization
- More efficient investigations
- Better manpower management
AML OPTIMIZATION
Use Case: False Positives Reduction

- Incumbent AML Solution producing 13,000 alerts for 1 scenario over 12 months

- After SAS Optimisation 30% False Positives Reduction with 100% SAR capture

Results:
- Better detection accuracy
- Better thresholds management
- Less false positives & negatives
Benefits of an Analytical Model

PAYMENTS FRAUD

• Example of an improvement brought to a bank with SAS
• SAS brings a clear improvement thanks to its analytics
  - Either on detection accuracy
  - Or on false positives reduction
  - Or a combination of both
  ⇒ Choose your trade off between detection rate and false-positives ratio

Results:
- Detection accuracy, etc.
⇒ Millions of € Savings
FRAUD USE CASES

SOME GYM TO WAKE YOU UP

PLEASE STAND UP!

- >31 <45
- University diploma
- >6 years experience in company
- Man
NOW WHO IS THIS?  AN UGLY INVISIBLE INSIDE WOMAN?

Losses due to Procurement Fraud

- ACFE: on average 5% of a company’s revenues
- FACTS: up to 10% of total procurement spend
- Euromonitor: responsible for 10% of total retail shrinkage in Belgium
- Deloitte: it endangers sustainability of organisations

...Would you bet?
In 2014, 25% is detected through Analytics. More than double the rate of other methods.
IDENTIFICATION OF ULTIMATE BENEFICIARY OWNERS

Thanks to Risk Scored Networks

- Non-declared taxes
- Money laundering
- Corruptions
- Bribery
- Economically not a level playing field
- Higher costs to society
- Illegal trade
MINISTÈRE DES FINANCES BELGES
Eradication de la Fraude carrousel TVA

Belgian Tax Ministry
VAT Carrousel Fraud Eradication

Issues
• high velocity fraud
• 600,000 tax-payers
• 5,000,000 VAT return
• 24,000,000 Intra-community transactions

Results
• VAT carrousel fraud reduced by 98% (from 1.1 Billion € to 29M€)
• Ultra-early detection
• SAS hybrid approach provides a high accuracy model
• (80% true positive rate)
PRACTICALLY, HOW DOES IT WORK

EXAMPLE: OPTIMIZATION METHODOLOGY APPLIED ON AML
ADVANCED ANALYTICS
MADE EASY TO USE

- Drag & Drop
- Vizualisation
- Simulation
- Predictive and descriptive modeling techniques
  - Linear & Logistic Regressions
  - Generalized Linear Model
  - Decision Trees
  - Clustering
- Compare Models
LEVERAGING ANALYTICS

Assess

Simulate

Optimize

Monitor
1. Auto-close
2. Improving legacy platform
3. New scenarios
SAS GLOBAL APPROACH FOR OPTIMISATION

1. Auto-close
2. Improving legacy platform
3. New scenarios
4. Full analytics

Datalab

Production

Data Laboratory
Simulation & Optimisation
Dashboards
(On demand)

ETL / Data flow
Transactions
Client Data
Contracts
Third parties
Misc

SAS AML

SAS Case Management

Transactions
Client Data
Contracts
Third parties
Misc
SAS provides the comprehensive analysis and information needed for companies to make informed decisions.

**Goal of the Tuning and Model Validation Program**

- Risk Assessment
- Segmentation Model Validation
- Scenario Effectiveness Analysis
- Scenario Threshold Distributional Analysis
- Above-the-Line Productive Alert Analysis
- Below-the-Line Testing Analysis
- Model Validation and Back Testing
- Review of Material Findings
- Analysis and Validation Report

**Regulatory Guidance**

**Periodic Tuning and Model Validation Timing**
2. Advanced Analytics
- Data lab approach
- White box
- Non-Levenshtein screening
- Optimization
- Risk scored networks

SAS® ADDED VALUE IN FRAUD

ROI
- Better detection accuracy
- Reduced fraud losses
- Manpower management

Fraud package
- Transactions
- Events processing
- Business rules

Data Quality & Performance

ROI
Better detection accuracy
Reduced fraud losses
Manpower management

Detection efficiency & data coverage

Covered by competition
Unique SAS value

Savings
2.3. Standard AML package
- Transaction
- Screening Watchlists
- CDD

Analyzed data (ETL/realtime)

Data Quality & Performance

Compliance level

- Advanced Analytics
- Data lab approach
- White box
- Non-Levenshtein screening
- Optimization
- Risk scored networks

SAS® ADDED VALUE IN AML

ROI
- Better detection accuracy
- Increased regulatory compliance
- Reduced risk of fines
- Manpower management

SAS®

Detection efficiency & data coverage

Covered by competition
Unique SAS value
Thank you

You need me? Contact me!