

LEVERAGING ANALYTICS IN FRAUD & AML



ROLAND THEYS
DIRECTOR FRAUD & COMPLIANCE
SOUTH WEST EUROPE



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 ?...

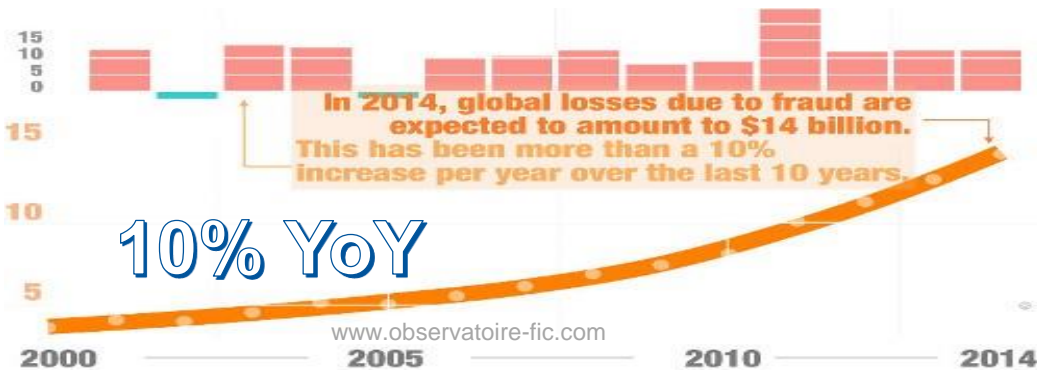
AGENDA

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

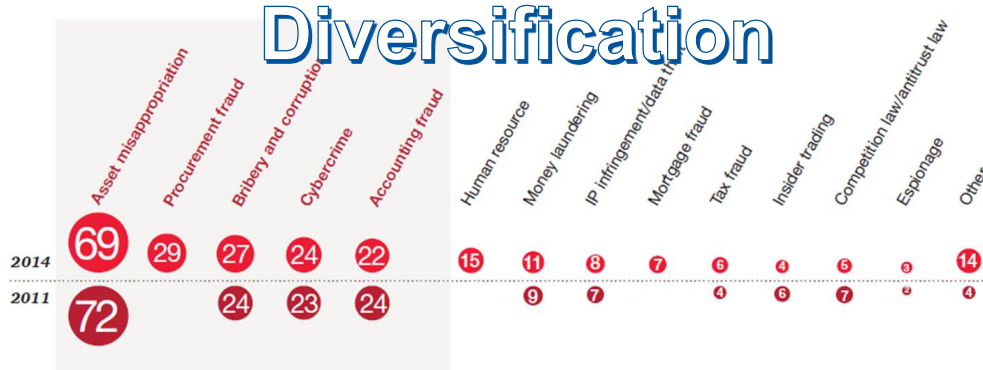


Card fraud worldwide 1993-2014



Figure 3: Types of economic crime reported

© 2014, PWC



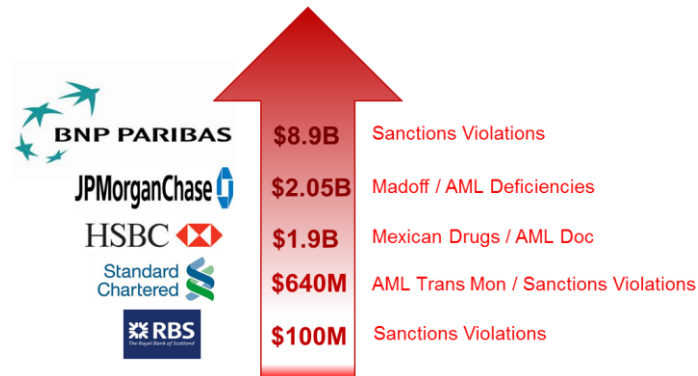
CFES ESTIMATE THE TYPICAL ORGANIZATION LOSES 5% OF ANNUAL REVENUES TO FRAUD

The others not me ?

AML CONTEXT

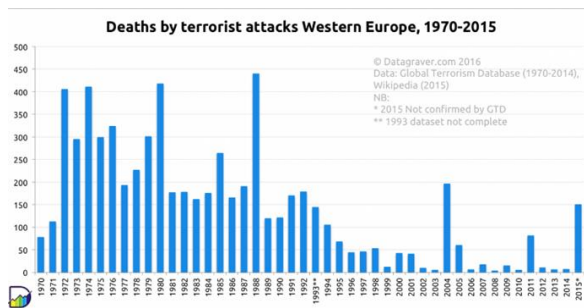
Context

- Booming quantities
- Regulatory pressure



POLICE LINE DO NOT CROSS

Directives
Channels
Devices
Data

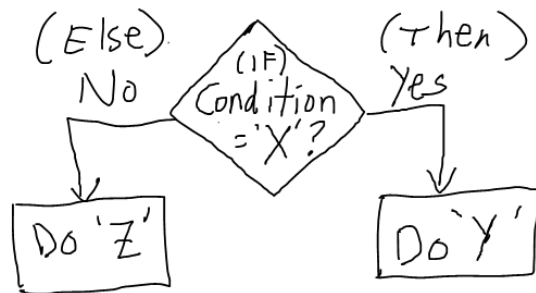


Next boom of terrorist attacks to come in Europe

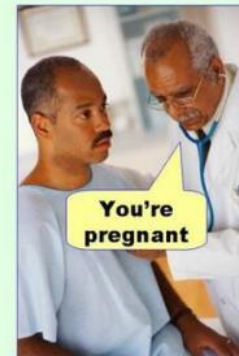
AML ISSUES

Issues

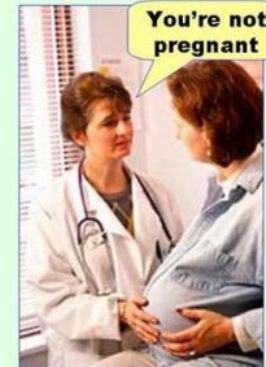
- Outdated and one size fits all rules
- False positives
- Moving target
- Budget-based



Type I error
(false positive)



Type II error
(false negative)



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**

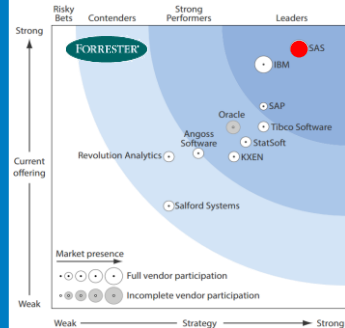


WHAT MARKET ANALYSTS SAY

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



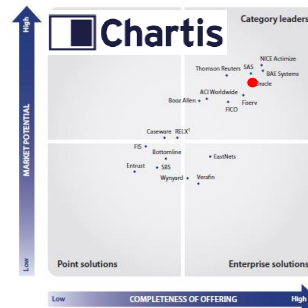
Enterprise Fraud Management



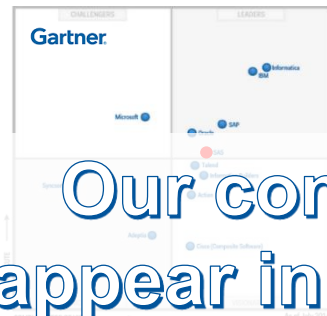
Big Data Predictive Analytics



Advanced Analytics



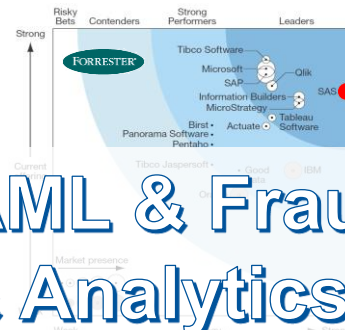
AML – Transaction Monitoring



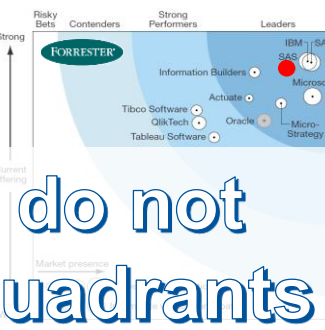
Data Integration



Data Quality



Agile BI



Enterprise BI

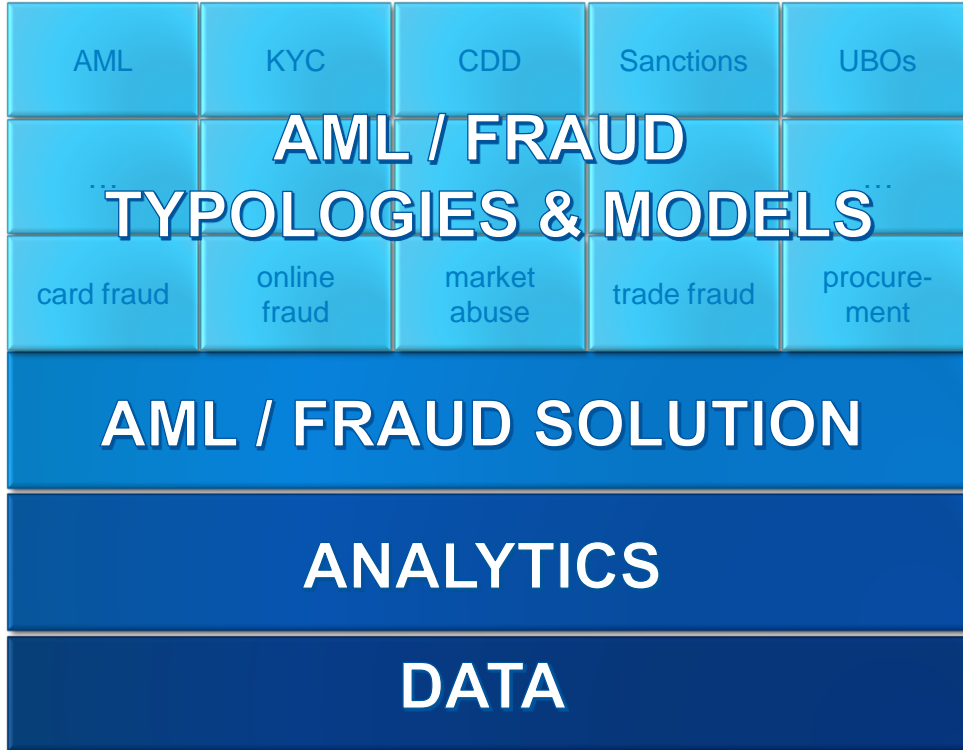
Our competitors in AML & Fraud do not appear in these Data & Analytics quadrants

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.

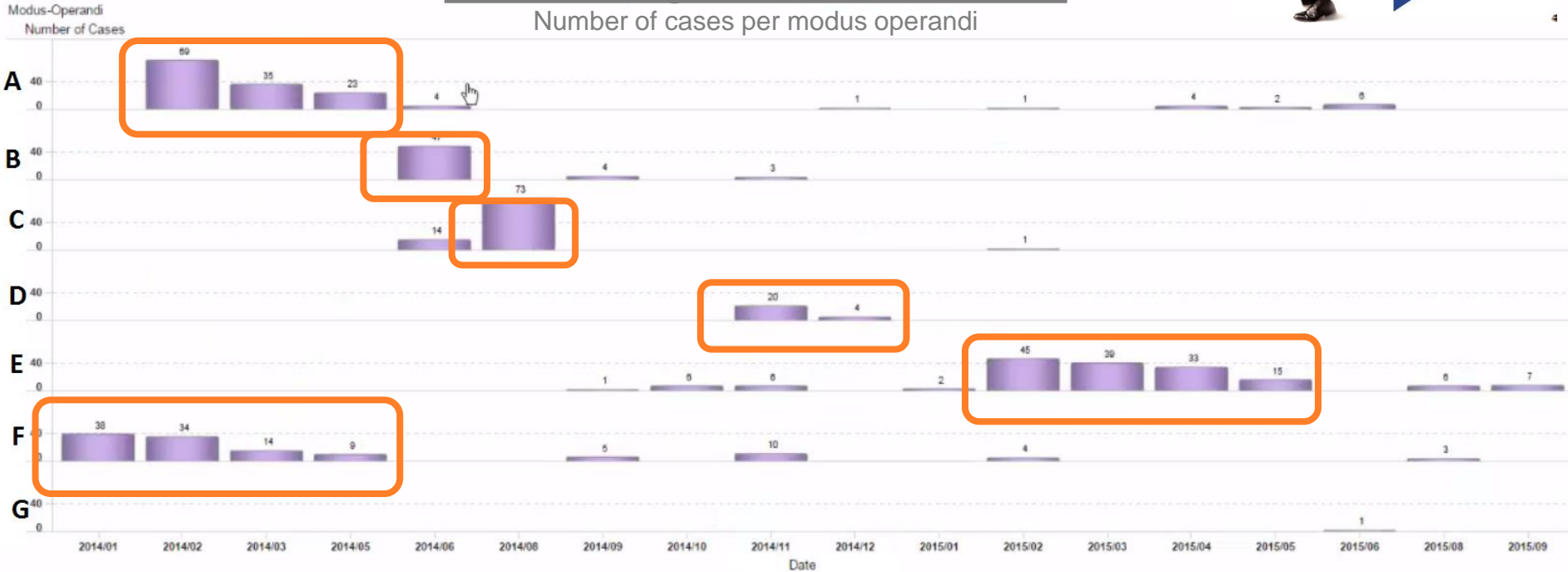


CHANGING PATTERNS OVER TIME



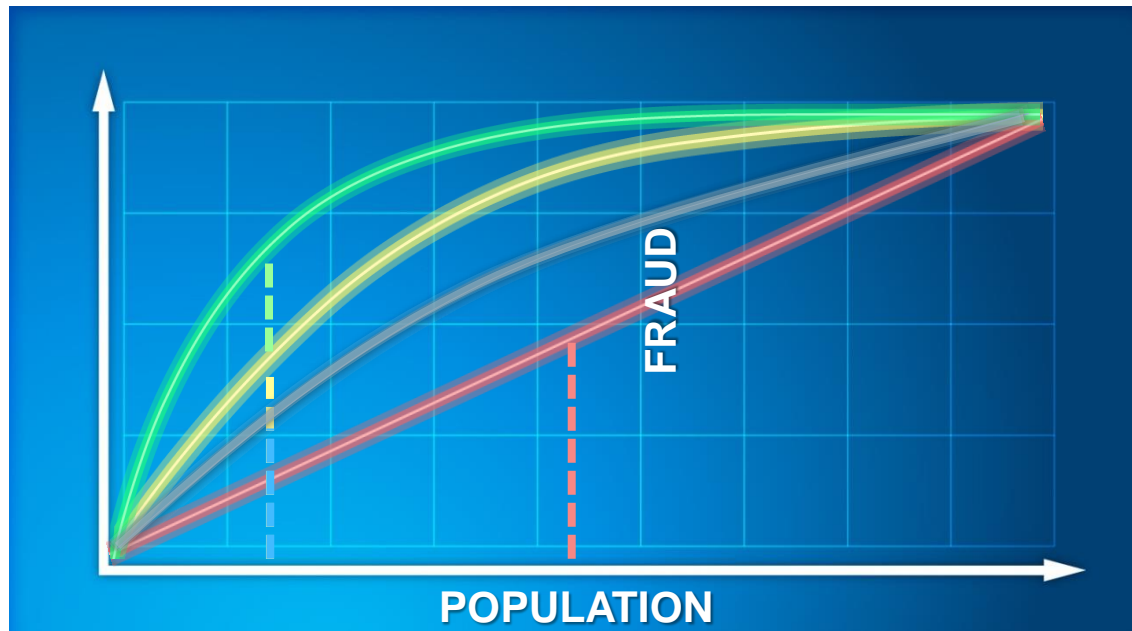
Fraud Investigation Team Dashboard

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



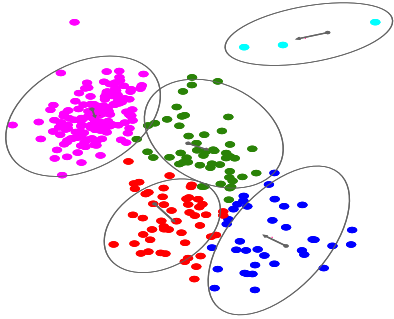
Increased efficiency

WHAT ARE ANALYTICS ?



ANALYTICAL METHODS

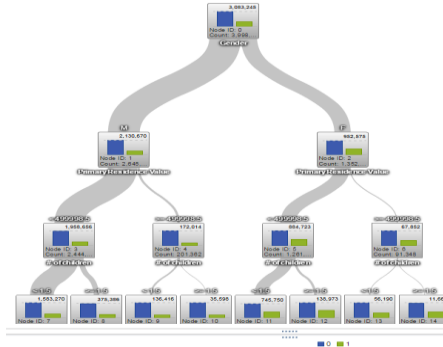
Unsupervised



When no targets exist

Examine current behaviour to identify outliers and abnormal transactions

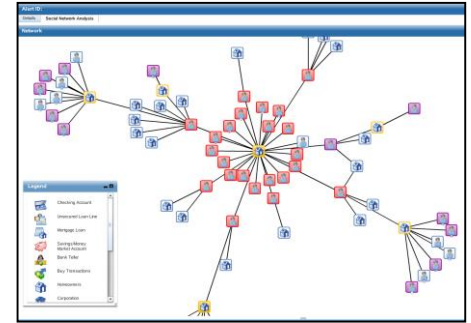
Supervised



Use when a known target is available

Use historical information to predict suspicious behaviors similar to previous patterns

Networks



Rule and analytic based network scoring

Automatically risk score while building relevant networks

SAS HYBRID APPROACH

LEVELS OF DETECTION

EVENT



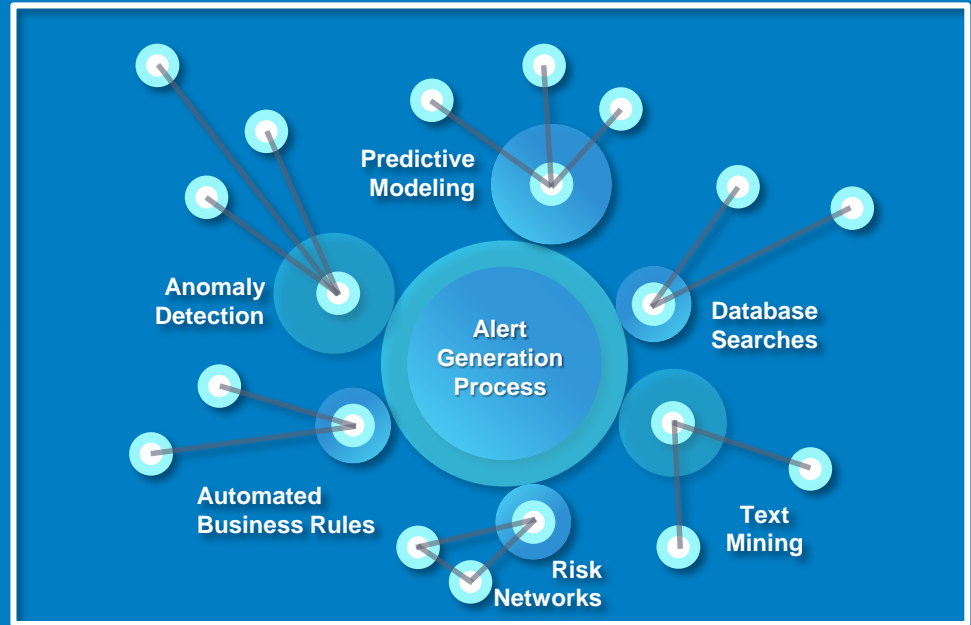
ENTITY



NETWORK

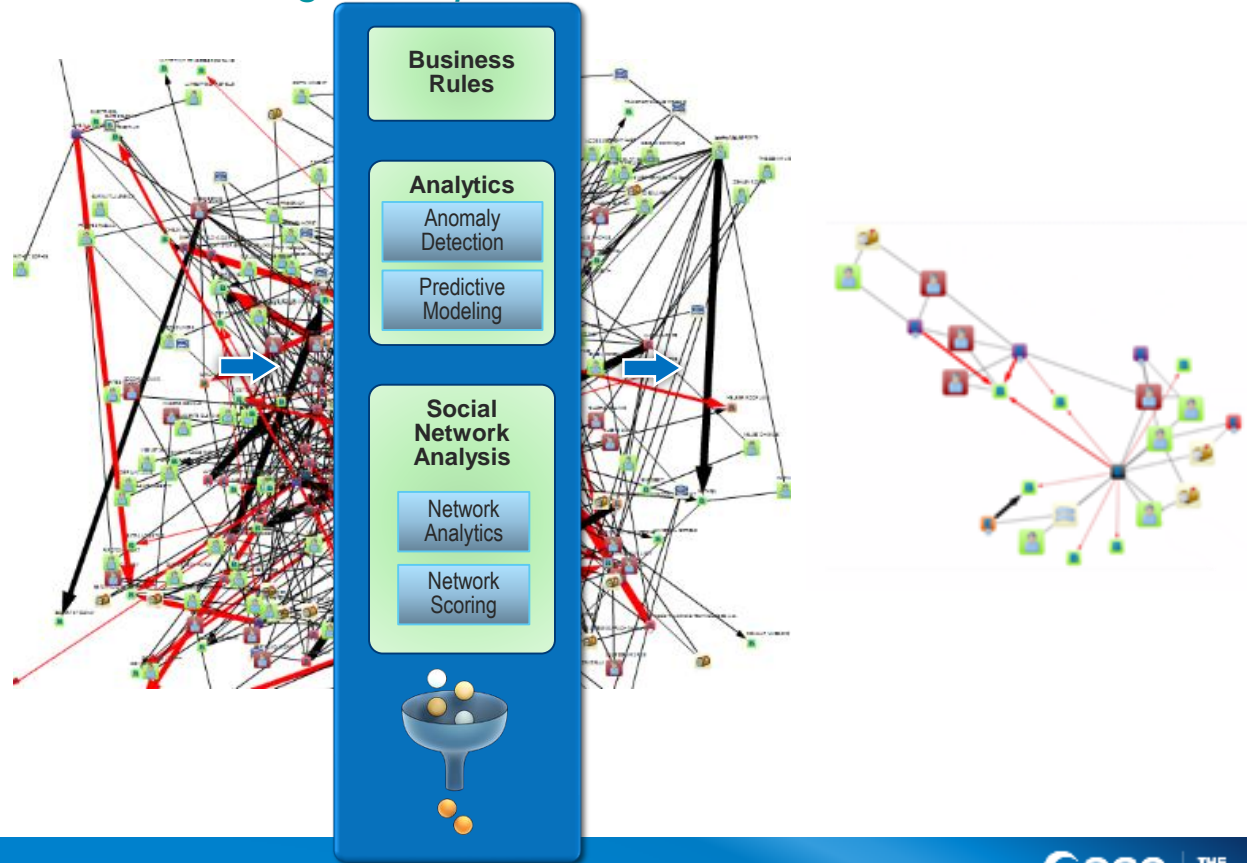


SAS HYBRID ANALYTICAL METHODS



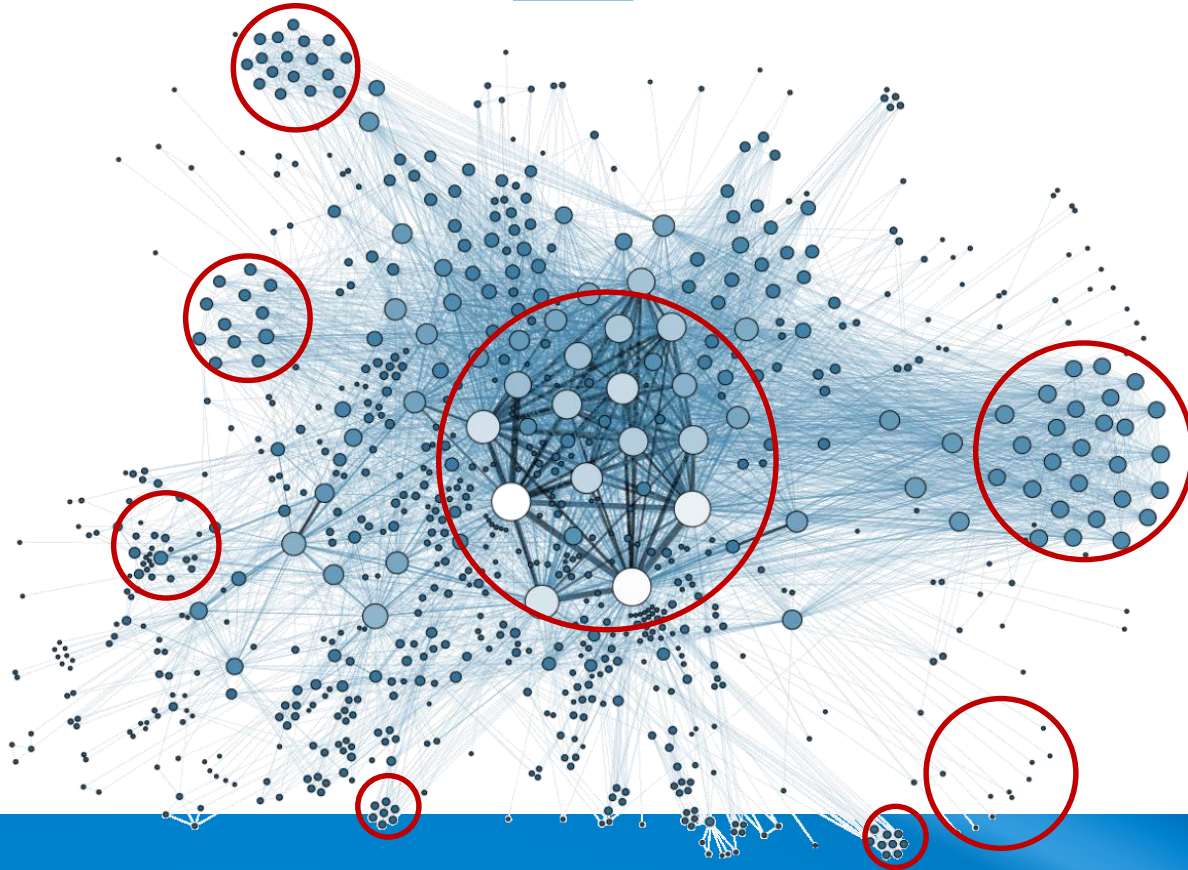
ENTITY RESOLUTION

Reducing the Super Cluster



REDUCING THE SUPER CLUSTER

Community Detection



USE CASES



USE CASES

in various domains

A
M
L

*AML Peer Groups
modeling*

*AML Triage
optimization*

*AML False Positives
optimization*

F
R
A
U
D

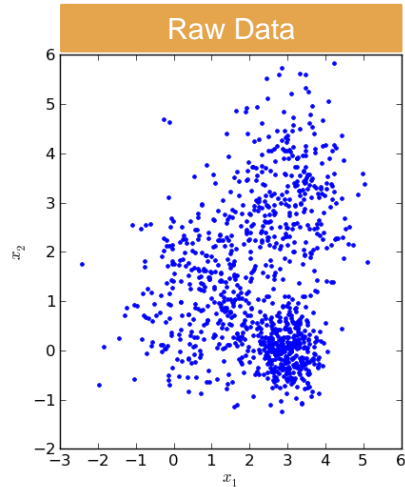
Payments Fraud

Procurement Fraud

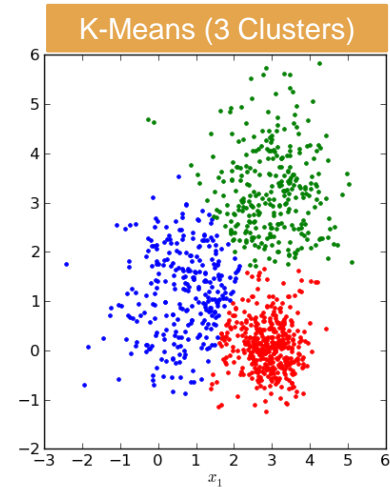
*VAT Carrousel Tax Fraud
for government*

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

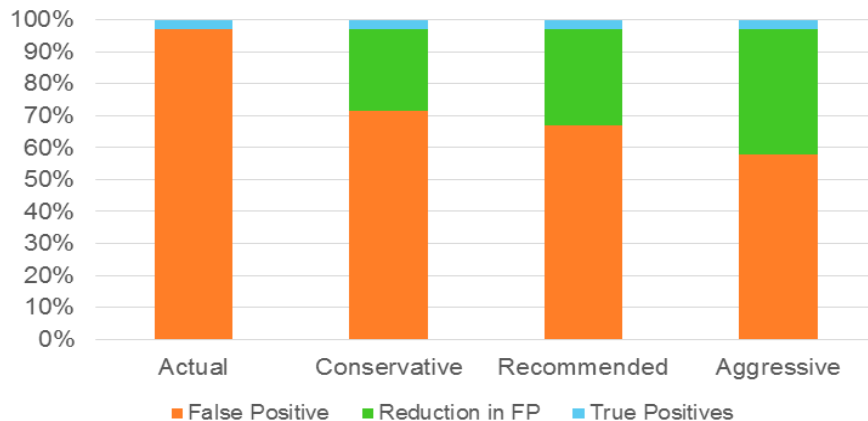
Results:

- Better prioritization
- More efficient investigations
- Better manpower management

AML OPTIMIZATION

Use Case: False Positives Reduction

Scenario Tuning Options



% Reduction:


25%


30%


39%

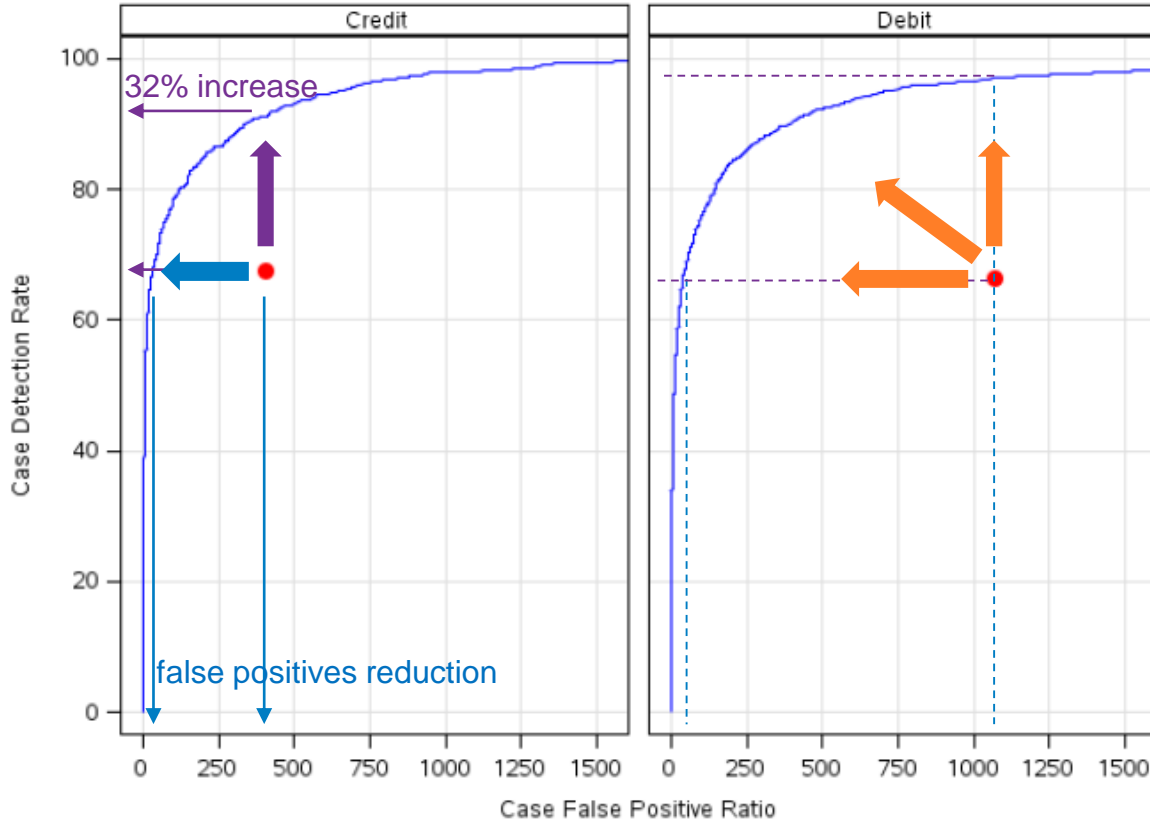
- Incumbent AML Solution producing **13,000** alerts for 1 scenario over 12 months
- **After SAS Optimisation 30% False Positives Reduction with 100% SAR capture**

Results:

- Better detection accuracy
- Better thresholds management
- Less false positives & negatives

PAYMENTS FRAUD

Benefits of an Analytical Model



● = Legacy detection rate

- 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

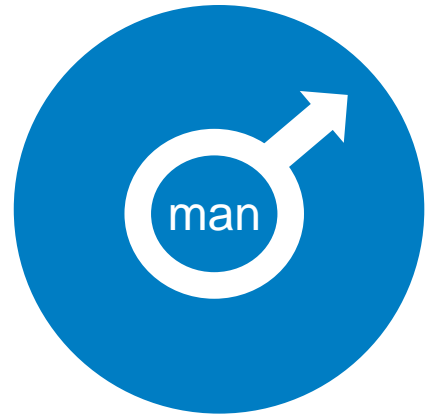
Results:

- Detection accuracy, etc.
- ⇒ Millions of € Savings

FRAUD USE CASES

SOME GYM TO WAKE YOU UP

PLEASE STAND UP !



NOW WHO IS THIS ? AN UGLY INVISIBLE INSIDE WOMAN ?



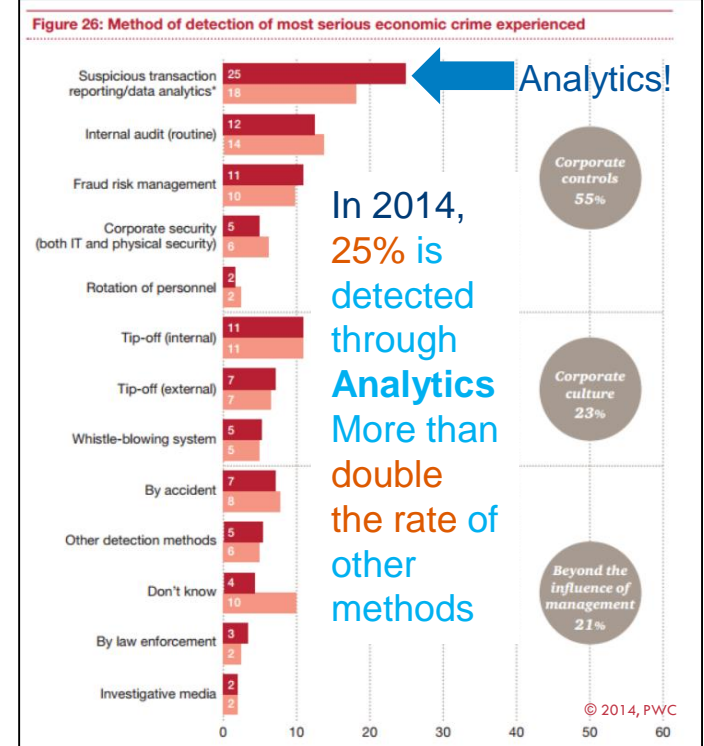
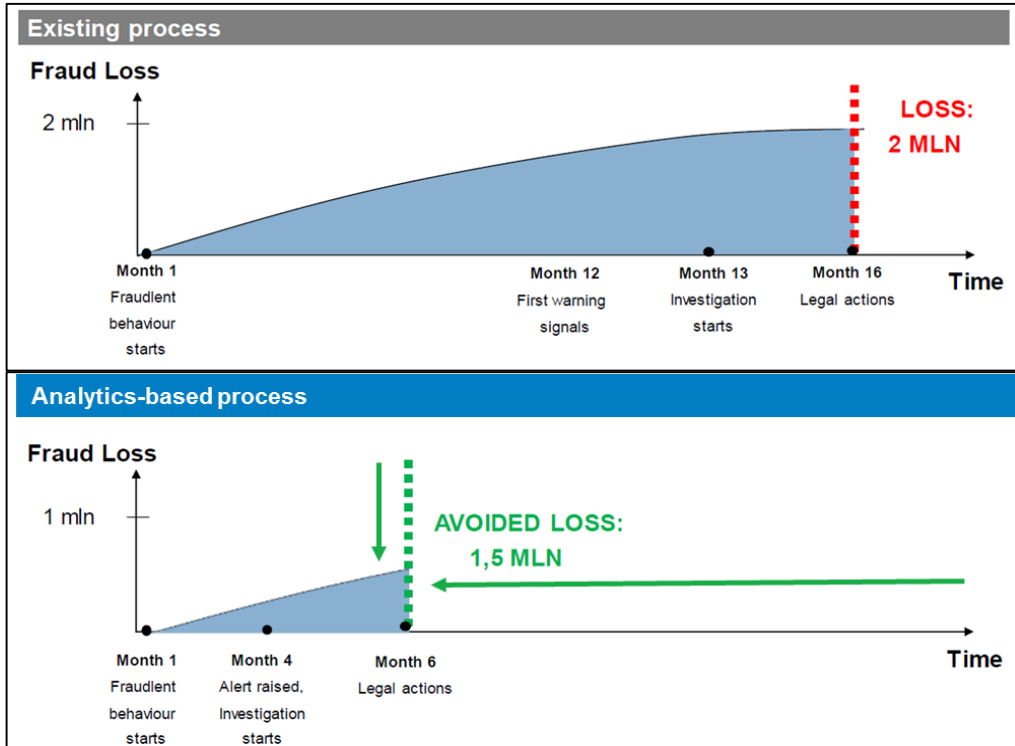
Losses due to Procurement Fraud

- 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 ?

PROCUREMENT INTEGRITY

The size of the problem, the way to solve it, the benefit of it

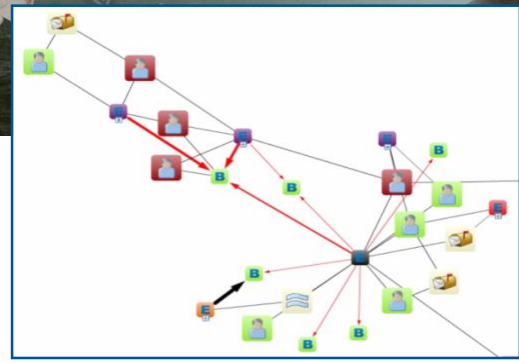


IDENTIFICATION OF ULTIMATE BENEFICIARY OWNERS

Thanks to Risk Scored Networks



- Non-declared taxes
- Money laundering
- Corruptions
- Bribery
- Economically not a level playing field
- Higher costs to society
- Illegal trade



Panama Papers The Power Players

Country leaders Politicians/public officials

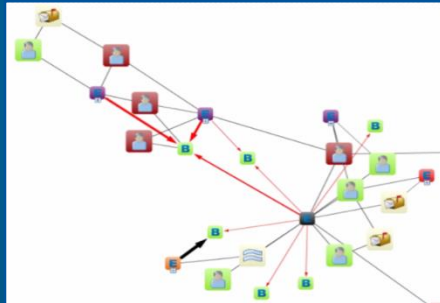
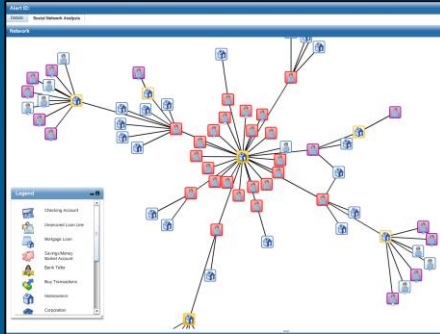
Filters Region Country

 Confidant to Palestinian Authority president	 Former Governor of Ecuador's Central Bank	 Advised former Greek prime minister	 Member, DBC parliamentarian	 Former deputy mayor of Kazakhstan capital	 Headed Panama state owned bank	 Former head of Peruvian intelligence	 Algeria's Minister of Industry and Mines
 Angolas minister of petroleum	 Former Buenos Aires finance minister	 Cambodia's minister of justice	 Former government minister in France	 Iceland's minister of finance	 Iceland's Interior Minister	 Malta's minister of energy and health	 Once Brazil's richest member of Parliament

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

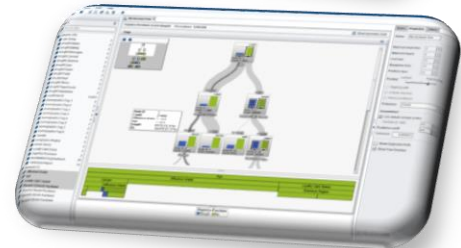
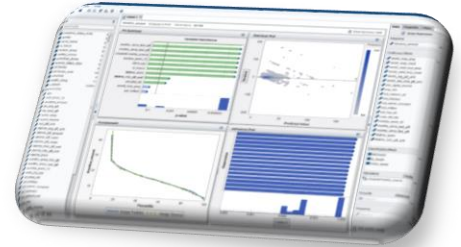
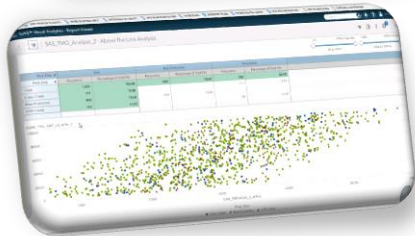


THE POWER TO KNOW.

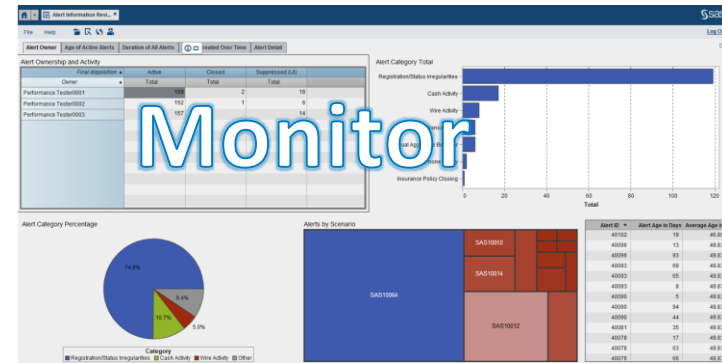
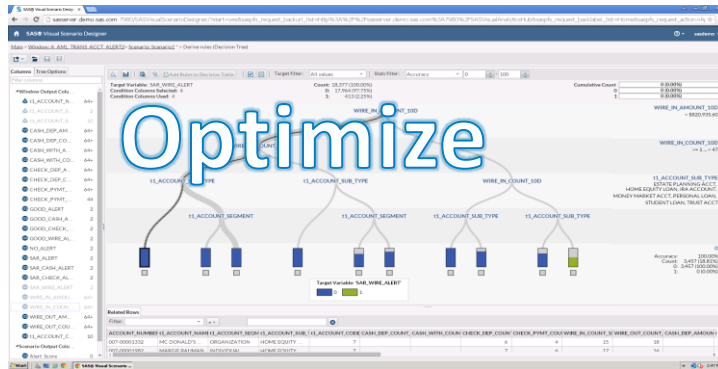
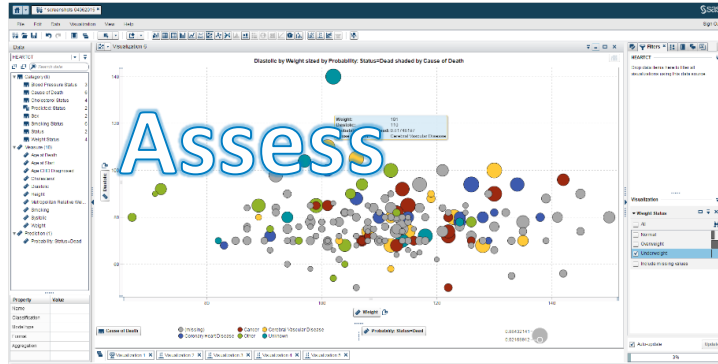
ADVANCED ANALYTICS

MADE EASY TO USE

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



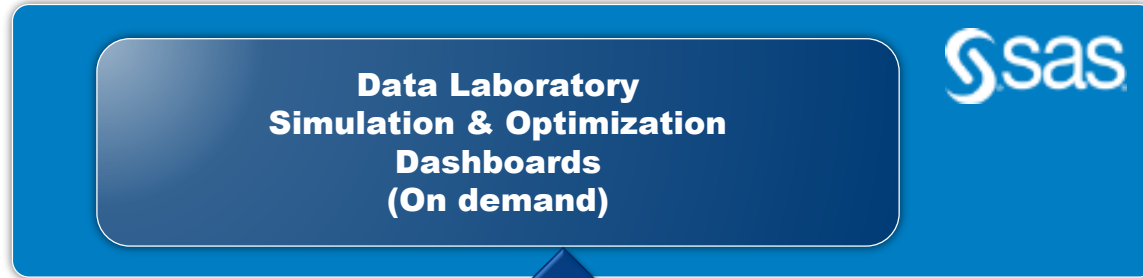
LEVERAGING ANALYTICS



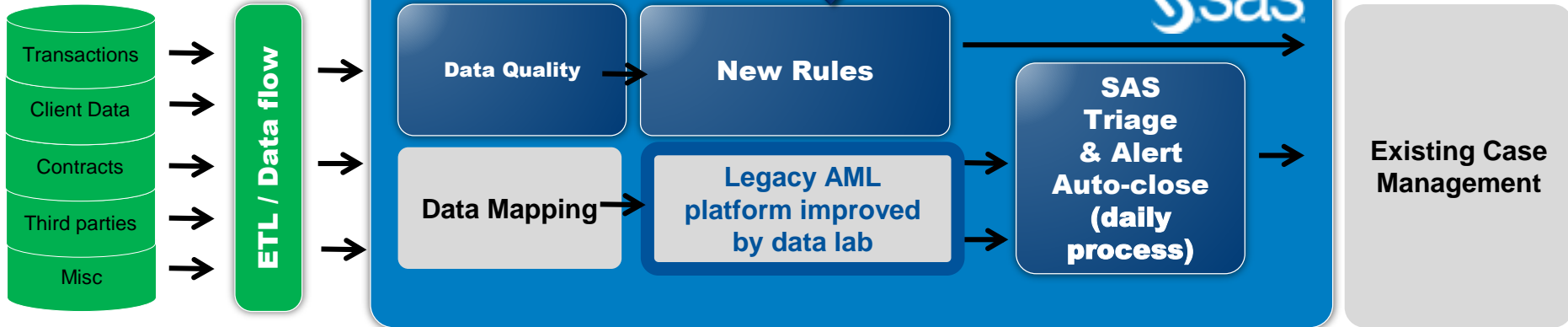
SAS GLOBAL APPROACH FOR OPTIMIZATION

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

Data lab



Production



SAS GLOBAL APPROACH FOR OPTIMISATION

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

Datalab



Production



METHODOLOGY FOR OPTIMIZATION

SAS provides the comprehensive analysis and information needed for companies to make informed decisions.

*Goal of the Tuning
and
Model Validation Program*

Regulatory Guidance

*Periodic Tuning and Model
Validation Timing*

- ✓ 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

CONCLUSIONS



SAS® ADDED VALUE IN FRAUD

Savings

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



Fraud package

- Transactions
- Events processing
- Business rules

Analyzed data (ETL/realtime)

Data Quality & Performance



ROI

- Better detection accuracy
- Reduced fraud losses
- Manpower management

Detection efficiency & data coverage

Covered by competition

Unique SAS value



Compliance level

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



Standard AML package

- Transaction
- Screening Watchlists
- CDD

Phased approach



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

Analyzed data (ETL/realtime)

Data Quality & Performance

Detection efficiency & data coverage

Covered by competition
Unique SAS value

Thank you



**ROLAND THEYS
DIRECTOR FRAUD & COMPLIANCE
SOUTH WEST EUROPE**

You need me ? Contact me ! 

**ROLAND.THEYS@SAS.COM
+32 4 74 94 00 19**