A hybrid implementation of multi-channel, multi-modal, high volume financial risk monitoring

Martijn Tromm
Marten Schokking

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  - Process
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Rabobank

- Cooperative bank Dutch bank
- Around 8.7 million customers
- Around 2 million members
- Before 2017 more than 100 local Rabobanks had their own bank license
- In 2017 the Rabobank became one bank
Wwft: the Act on the prevention of money laundering and the financing of terrorism

- Related:
  - Customer Due Diligence (CDD)
  - Know Your Customer (KYC)
- Every bank must adhere to the Wwft
  - The bank needs to know each client through a survey
  - When a client poses a potential risk, there must be procedures and measures to mitigate them
- Investigating millions of customers personally is too time-intensive, too expensive and undesirable for the customer
Risk Detection check

When, in which process

- Onboarding / accepting new customers
  - At the counter at the bank, Siebel
  - Online, App & Internet secure login
- Regular periodic review
- Event driven review
Risk Detection check

Consists of

• Basic investigation
  ▫ Should provide insight into the relevant background and intentions of the customer
  ▫ Determining specific integrity risks based on risk indicators

• Follow-up investigation
  ▫ Focused on the risk indicators where risks were identified
  ▫ To determine whether the risk indicator actually applies (materiality)
Risk indicators

- Geographical risk
- Structural risk
- Legal entity type risk
- Industry risk
- Products- and services risk
- PEP-risk
- Transaction risk
- Channel risk
- Third party risk
Model Implementation

- Decisions in the model have 3 different sources:
  - People: expert employees with risk related knowledge of the customer
  - Policies: external and internal written policies with predefined rules
  - Data: patterns in static and behavioral data contain risk indications. For relevant patterns to be found expert knowledge needs to be elicited
Context rulebase execution

• With employee at a bank
  ▫ On boarding /accepting new customers
  ▫ Periodic review
  ▫ Event driven review

• Online (App & Internet secure login)
  ▫ New unknown customer
  ▫ New account for your child
  ▫ Account for one man companies
  ▫ On boarding a legal representative of an Organisation
  ▫ On boarding Ultimate Beneficial Owner of an Organisation
Modi rulebase execution

- Lokale bank
  - Interview
  - Hercalculatie
- Online
  - Interview
- Batch
  - Regression test/What-if
  - Change of Circumstances
  - Pre-existing Scan
Web-interview in Siebel’s proceswizard

Riskmodel implementation
Monitoring - Change in Circumstances

• On the basis of Riskmodel result:
  ▫ a new event driven review needs to be done for a customer when
    • the calculated risk category is higher then the current customer’s risk category and
    • the calculated risk category is higher then the previously calculated risk category and
    • the customer doesn’t currently have an ongoing event driven review
Monitoring - Change in Circumstances

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<th>Latest customer data</th>
<th>Old outcome</th>
<th>New outcome</th>
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Technology

- Infrastructure
- Rule architecture
- Development process
- Traceability
- Modes of operation
**Oracle Policy Automation (OPA)**

- OPA is a Business Rules Engine
- Rules are written in natural language
  - Microsoft Word and Excel
  - Accessible voor de Business
- Rules are executable
- Each decision has an explanation
  - With orderly outcomes for each underlying rule
- Rules are reusable across channels
  - Using embedded interviews, web services or batch
  - On-premise or in the cloud
Rule architecture

- Risk classifications
- Scoring rules
- Model answers
- Answer rules
- Business facts
- Data rules

Screen

Database
Rule architecture - Reuse

- Every rulebase can have a data mapping to one external system
  - Every channel requires a separate rule base
    (Oracle Integration cloud solves this constraint)
  - Rules can be reused by using Inclusions
- CDD Rule repository has 3 layers
  1. Generic rulebases that translate domain specific objects to business language
  2. Application rulebases that apply business rules using the business language from the generic rulebases
  3. Integration rulebases that map the application rulebases' input and output onto external systems.
Rule architecture - Reuse
Development environment - rule authoring

- In OPA Hub a rulebase repository with version control is maintained
- The repository is divided in one or more collections
- Users are authorized on collection level
- Good practices for collaboration and rule authoring have been defined in the form of guidelines
- These guidelines have been improved over time based on experience.
A primary aspect of compliance is transparency.

- Internal audits are used to ensure the process leads to externally auditable results.

Natural language rules demonstrably reflect policy.

- The rules also have tags that refer to specific articles in the policy.
- Audit questions could be answered by showing the actual rules.

Explanations, timestamps and rulebase versions are stored with each risk classification.
Evolution - Development process

• Teamwork conforming to general scrum principles
• SME's, productowner and rule authors have biweekly review sessions
  ▫ Production incidents
  ▫ Delivery review (demo) for PO approval
  ▫ Rules and requirements review for PO approval
  ▫ Impediments, open questions
  ▫ Backlog refinement and new backlog items
• Productowner, business analyst and solution architect have design sessions as part of backlog refinement
Process driven to data driven

- New data, internal and external
- Machine learning
- Feedback
Evolution - Client investigation consistent in all channels

- **Assess**
  All new clients and relations, via online or local bank

- **Monitor**
  Changes in or lacking client data trigger new investigations

- **What-if and beyond**
  Impact analysis of policy changes, feedback of outcomes
Evolution - Innovations

- Context driven rules enable specific channel related behavior
- Policy changes in industrially or geographically related risks can be deployed within two business days
- Situationally aware instructions in the web-interviews help employees in complex assessments, improve quality and speed up operations
- New datastreams can be added incrementally without disruptive architectural changes
- The generic risk model and decision structure allows for improvement and enrichment of risk classifications by incremental expansion of rules
- Impact predictions of policy changes
Rabobank is an international financial services provider operating on the basis of cooperative principles. As a cooperative bank, Rabobank is a socially-responsible bank. It serves approximately 8.7 million clients around the world and is one of the largest cooperatives in the Netherlands with nearly two million members. Rabobank is committed to making a substantial contribution towards achieving wealth and prosperity in the Netherlands and to resolving the food issue worldwide.

**Situation**
- All customers must be compliant with risk legislation
- Changes in policy lead to significant changes in operational costs
- Complex processes with risk assessments in multiple channels and process steps, both STP and manual

**Implementation & Innovation**
- New customers are onboarded using an adaptive wizard or a webservice.
- All existing, millions of customers are (re)evaluated in batch regularly.
- One risk model is applied across all channels and processes.
- Impact of policy changes can be measured by reevaluating stored assessments

**Benefits**
- Only relevant data is collected for each customer. Local banks can do it themselves.
- Policy changes can be deployed within 48 hours consistently across all channels and apps
- Management is able to make informed decisions based on forecasts

**Technology**
- Oracle Policy Automation embedded in Siebel both as wizard and webservice and also running in batch integrated with Oracle DB

2018 Winner Business Rules Excellence Awards