



# HOW TO SMOOTHEN THE LOAN ORIGINATION PROCESS FOR PROFESSIONAL CLIENTS IN A SUSTAINABLE WAY?

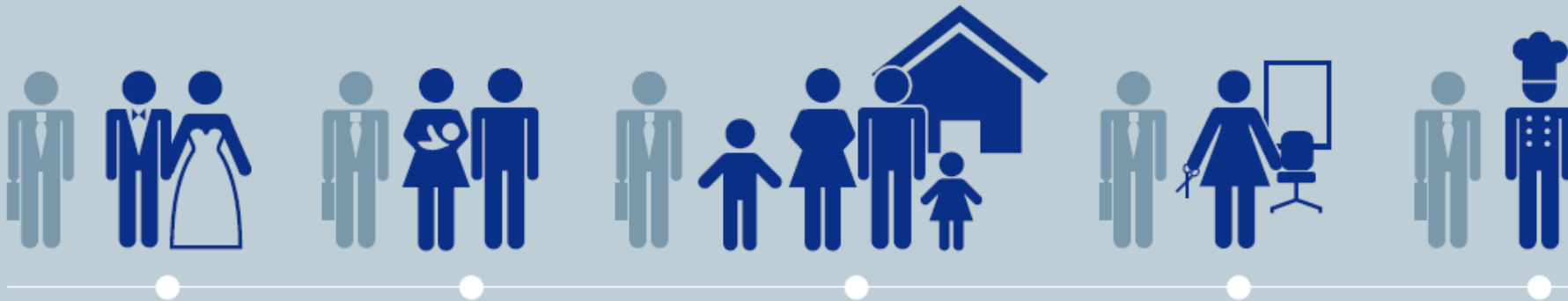
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12-06-2017 / Brussels – SAS Forum

# AXA Bank Belgium's mission



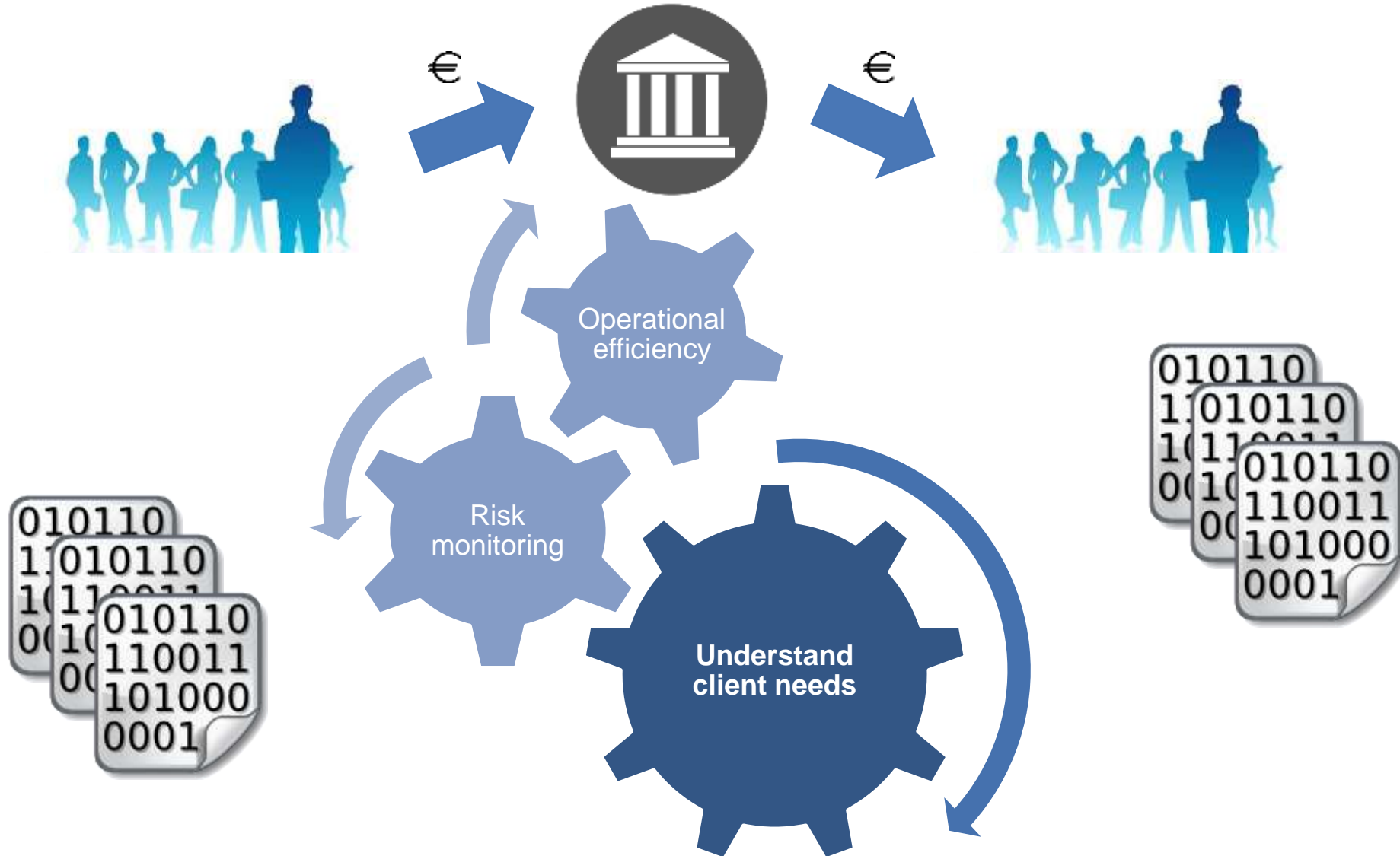
A connected & trusted financial partner



Onze klanten efficiënt begeleiden op weg naar geslaagde (levens)projecten

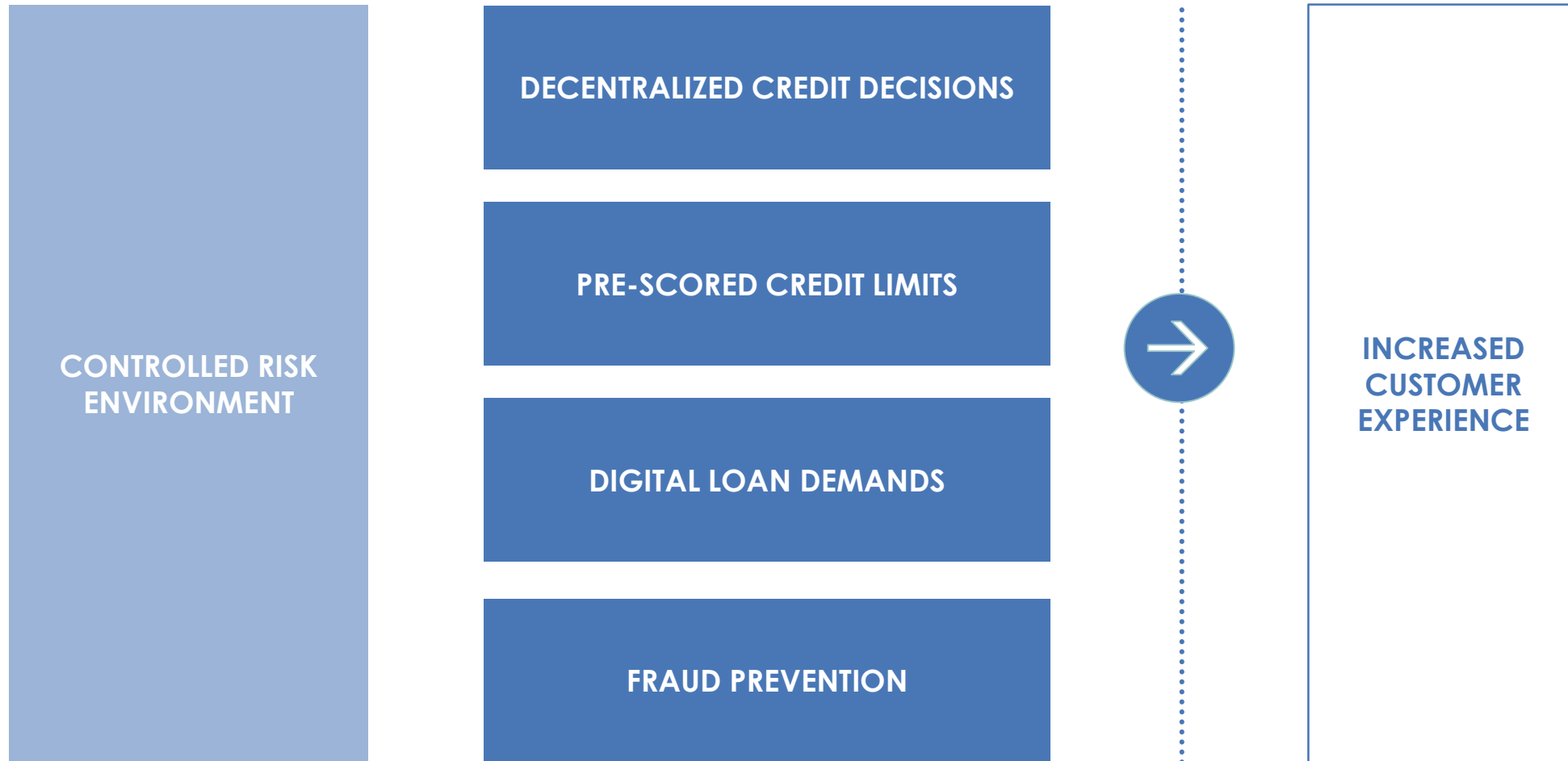
# A bank becomes more than only exchanging money

Creating value out of data analytics becomes more and more important



# Transforming the credit acquisition process

By means of data-driven actions



# How to optimize credit acquisition process for professionals?

## A wide range of information is available for professionals

- ➔ Professional clients should disclose regularly financial information
- ➔ External parties offer this information in combination with some other various behavioral information
- ➔ Professional clients have often a various mix of financial products at AXA generating a massive amount of information

### **DEVELOPMENT OF A FINANCIAL HEALTH SCORE ALLOWING FOR THE DETERMINATION OF A PRE-SCORED CREDIT LIMIT**

- ➔ Constraints
  - ➔ **Pre-scored: the credit limit should exist even before the client is entering bank agency for a credit application (proactive tool)**
  - ➔ **No use of data related to existing AXA credits**



→ Demonstrate the **power of (risk) analytics** to support **commercial activities**

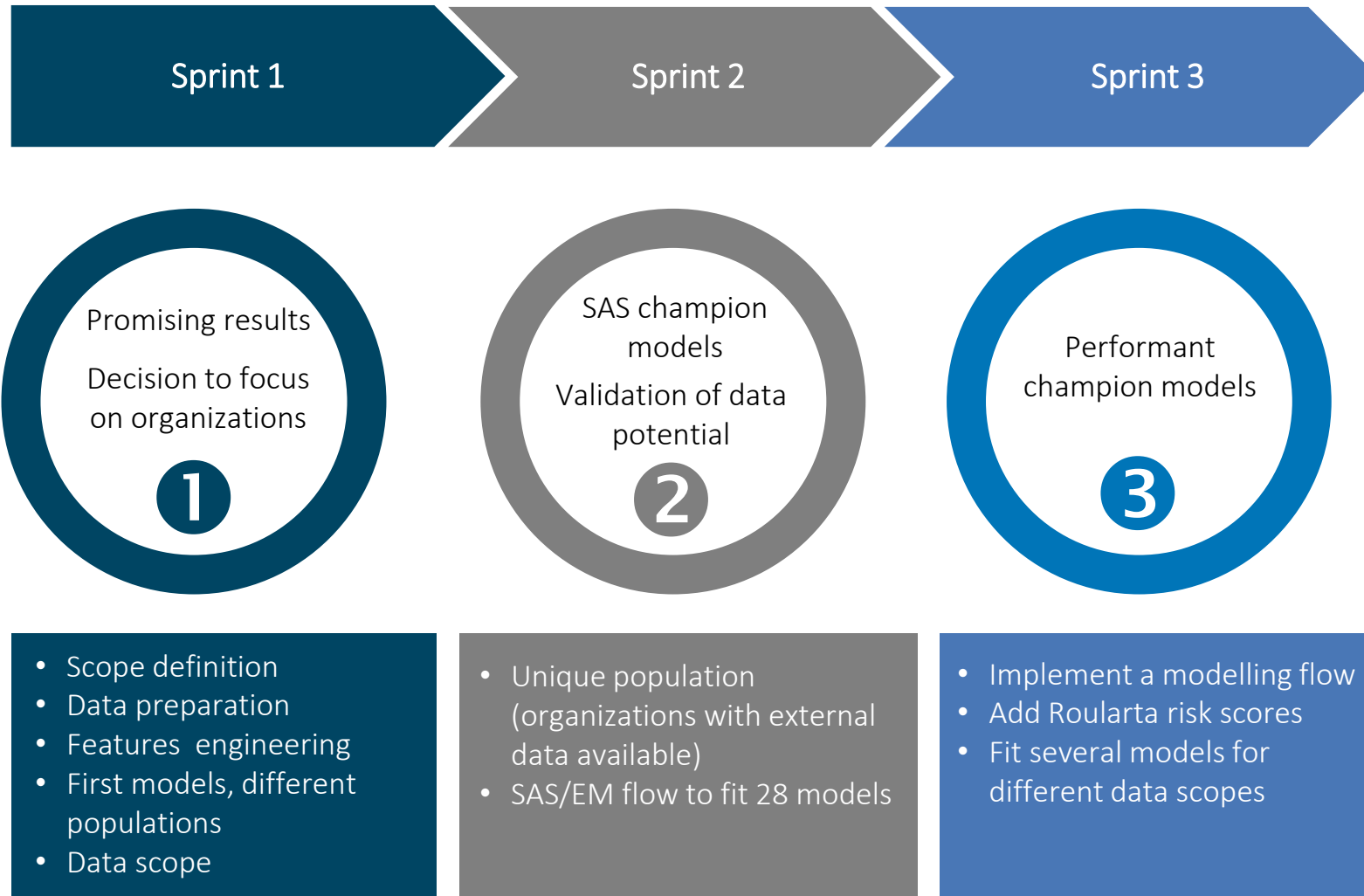


→ In particular, the goal is to demonstrate **unused predictive potential** in available data at AXA, to **support lending departments**.

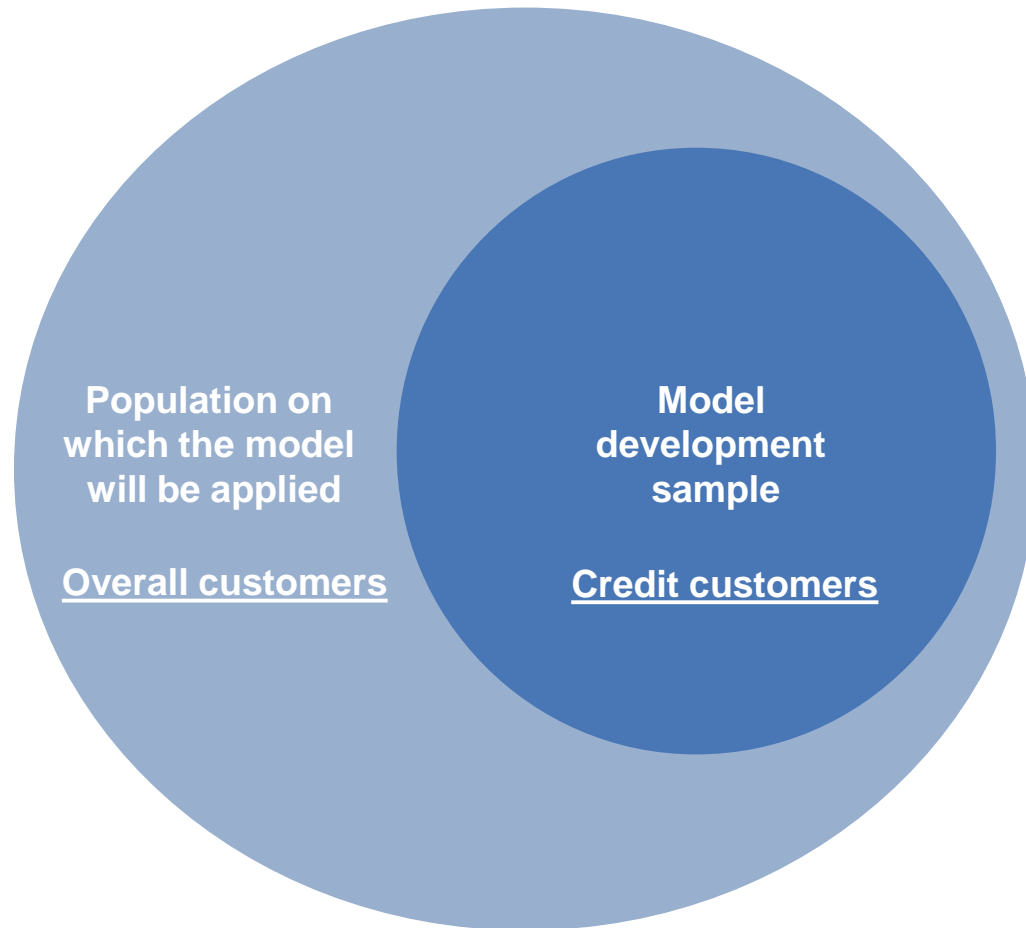




# Agile project approach







- Model is developed on the credit customers database
- Explanatory (input) variables are built using non-credit data only
  - Balance sheet information
  - External data
  - etc
- The outcome (default or not) is calculated using credit data

# Methodology used

## FEATURE ENGINEERING

- Derivation of temporal aggregate (annual differences, acceleration, etc.)
- Target-mean/WOE & decision tree variables
- B&D IP

## PREVENT OVER-FITTING & FINE-TUNING

- Split train/valid (75/25) using SAS
- Validation error, and cross-validation in R
- Out-of-the-box

## MODELLING

- Classical (regression plus scorecard)
- Machine learning (gradient boosting, neural network)
- Ensemble (voting & stacking)

## ASSESSMENT

- ROC (GINI)
- Bucketing distribution of default rate into 20 classes

## Data Lab outcomes



### Valuable outcomes highlighted

- ➔ Predictive power from non-credit data demonstrated to estimate probability of credit default
- ➔ Major difference between risk regulatory modelling & marketing analytics exposed

## Data Lab differentiators

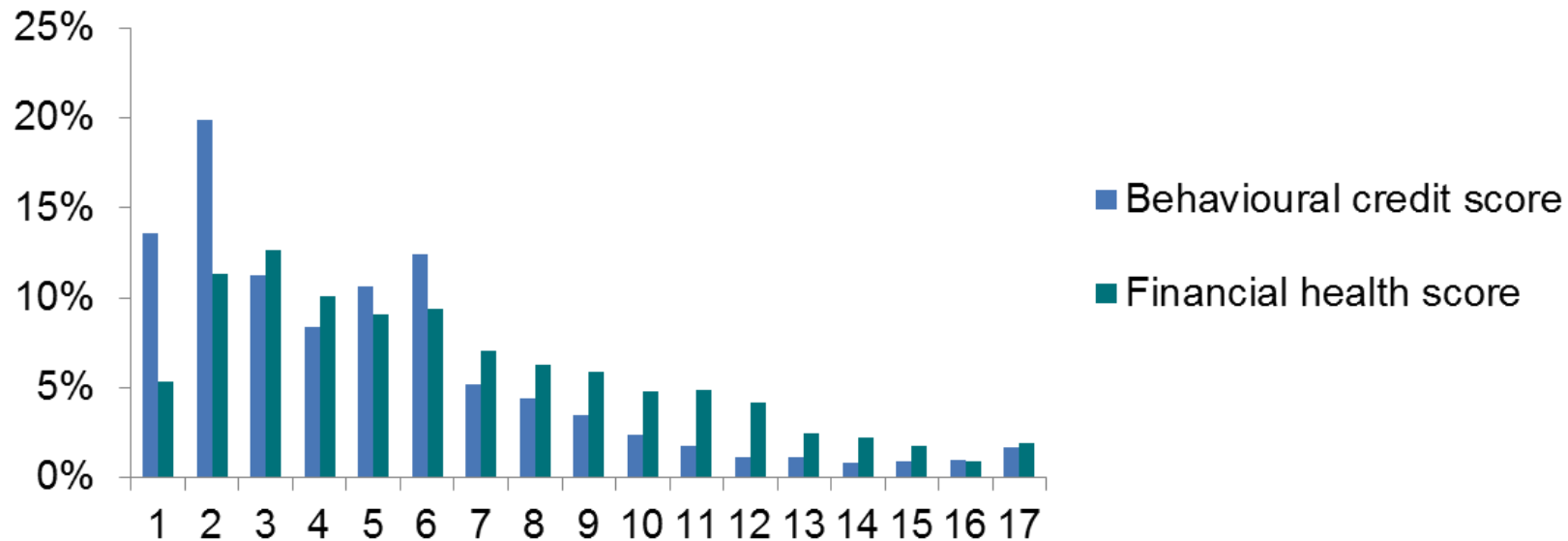


### Promises delivered by the Data Lab Solution

- ➔ Results released in a few weeks (small investment), in an iterative fashion
- ➔ Justification for additional insights or/and industrialization

# Data crunching results in a financial health score for pro's

- ➔ Financial information forms the most important contribution to the health score
- ➔ Other elements in the health score are AXA-related data elements
- ➔ Available information allows for the construction of a financial health score with a **good level of discriminatory power** (comparable with the performance of the already existing behavioral score used for assessing the quality of the existing credit portfolio)



# Pre-scored credit limit for professionals

## Health score is complemented with additional application rules

- Health score is complemented with additional application rules
  - **The financial health score gives an indication of the current financial situation of the company**
  - **Granting a new loan should result in a new situation where the financial situation of the company remains sufficiently robust**
- These application rules were defined with the help of acquisition teams which are responsible for the individual assessment of loan requests
- Pre-scored credit limit gives a concrete answer to the client needs and helping the operational efficiency of the bank

75% of professional loan demands  
in scope of pre-scored limit

40% of AXA's professional  
population meets all criteria to be in  
scope of pre-scored limit

# Risk tool? Commercial tool?

**Pre-scored credit limit supports commercial/risk objectives**

Create new commercial dynamics in a risk-controlled way

Support bank agent in commercial actions

Increase risk awareness

## ➔ Lessons learned @AXA Bank

- **Data crunching/analytics shows added value at commercial/risk level**
- **The force is in the collaboration of various departments to make it a success**