

THE USE OF PREDICTIVE MODELLING TO BOOST DEBT COLLECTION EFFICIENCY

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“Many executives fear that the reputation of their companies will suffer if collections become too aggressive, but the careful segmentation of debtors and the flexible pursuit of delinquents – applying pressure, in other words, only where it’s really justified – can largely eliminate these risks.”

Tobias Baer, Rami K. Karkian and Piotr Romanowski
The McKinsey Quarterly: Best Practices for Bad Loans
November 2007

AGENDA

- Overview
- Segmentation
- Predictive modelling
- Model monitoring issues
- Collection communication optimization
- Effective implementation of collection strategies
- New trends in predictive debt collection

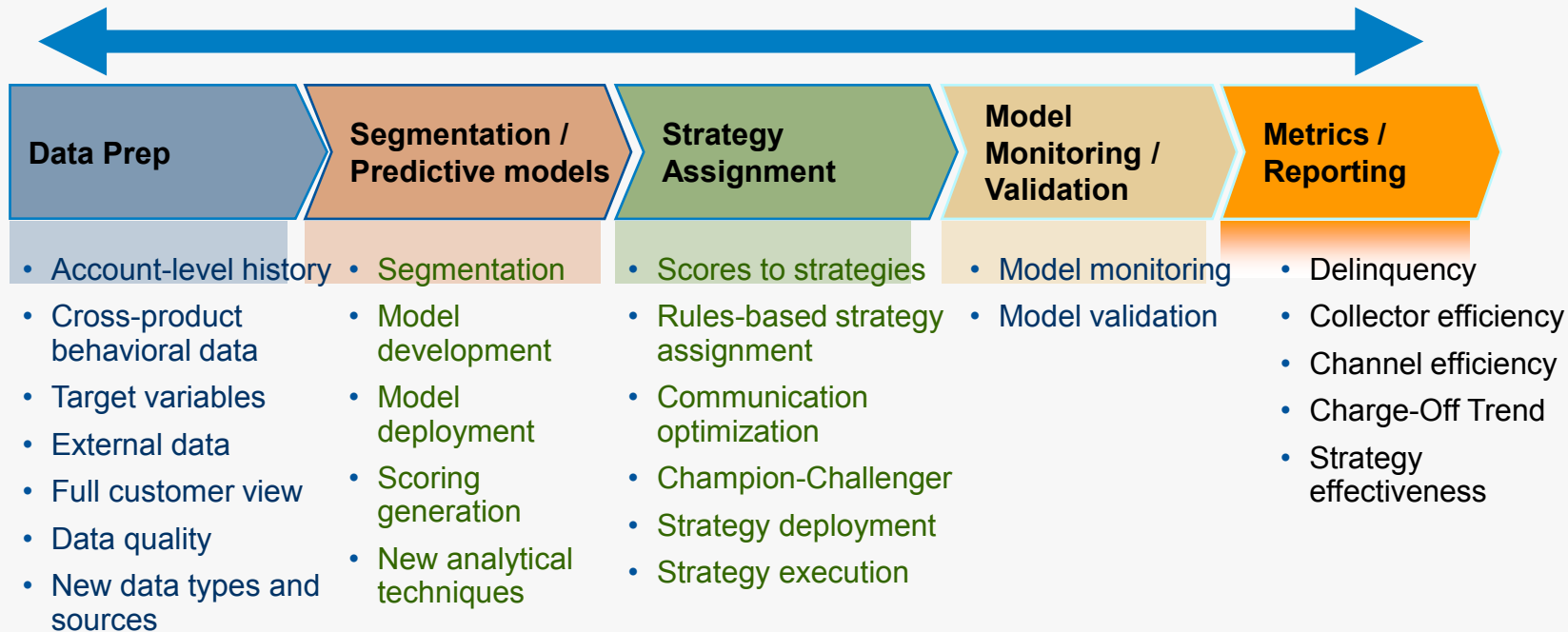
OVERVIEW



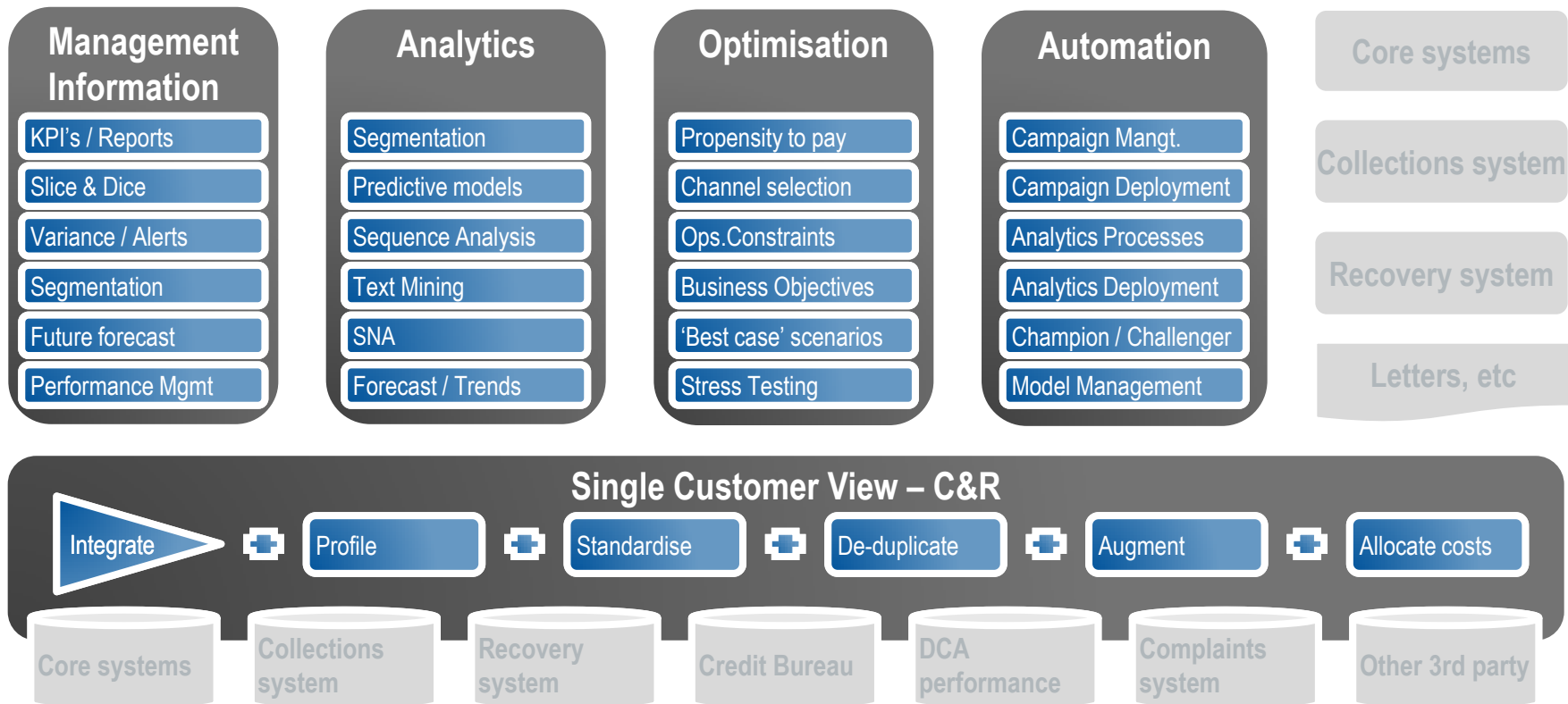
- Know which customers are most likely to respond
- Proactively manage the customer experience
- Responding rapidly to changing profile of customers with delinquency issues
- Determine which channels to use for individual customers
- Optimise your collections strategies
- Minimizing losses within context of capacity constraints

OVERVIEW

STEPS TO PREDICTIVE COLLECTIONS AND RECOVERY



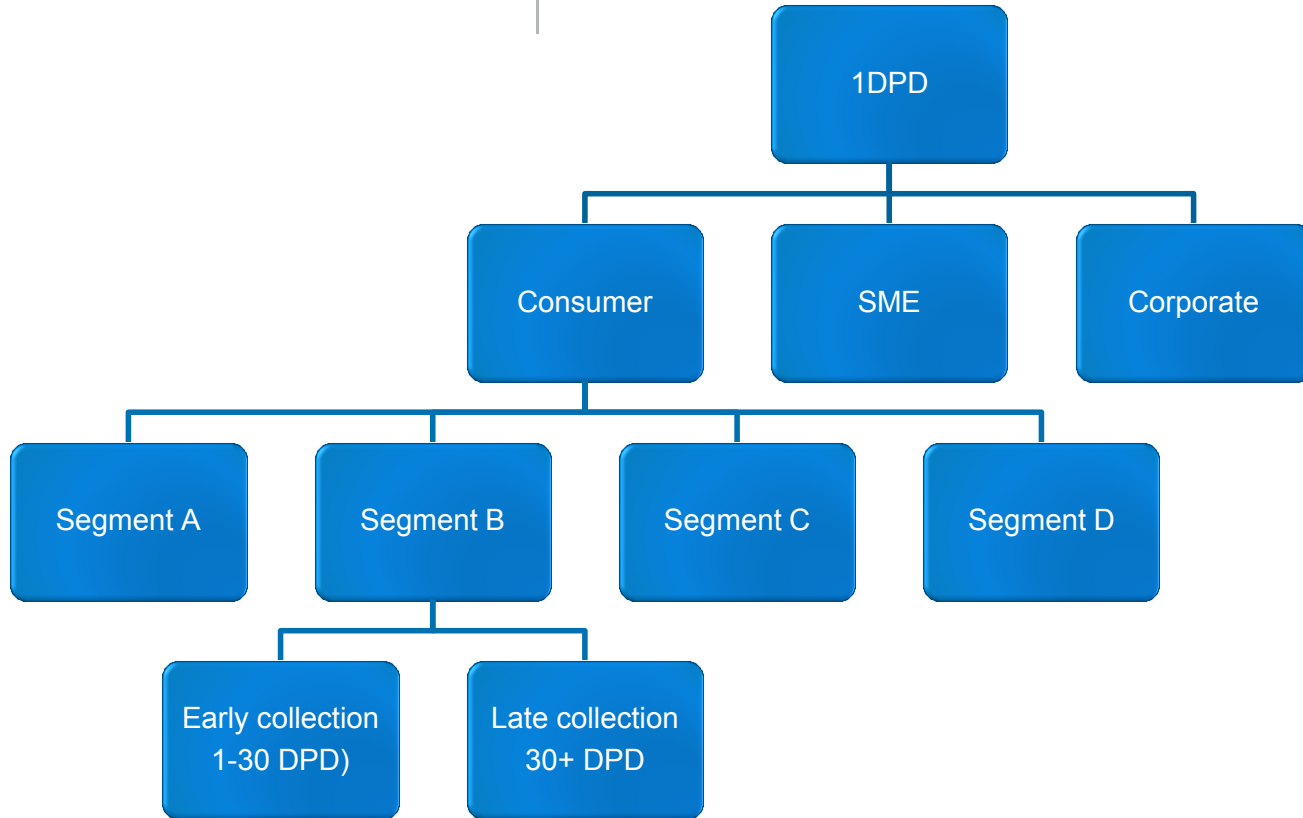
OVERVIEW SAS INTELLIGENT DEBT MANAGEMENT



SEGMENTATION



SEGMENTATION SEGMENTATION CRITERIA



- Segmentation criteria
 - business
 - operational
 - product
 - behavioural
 - statistical

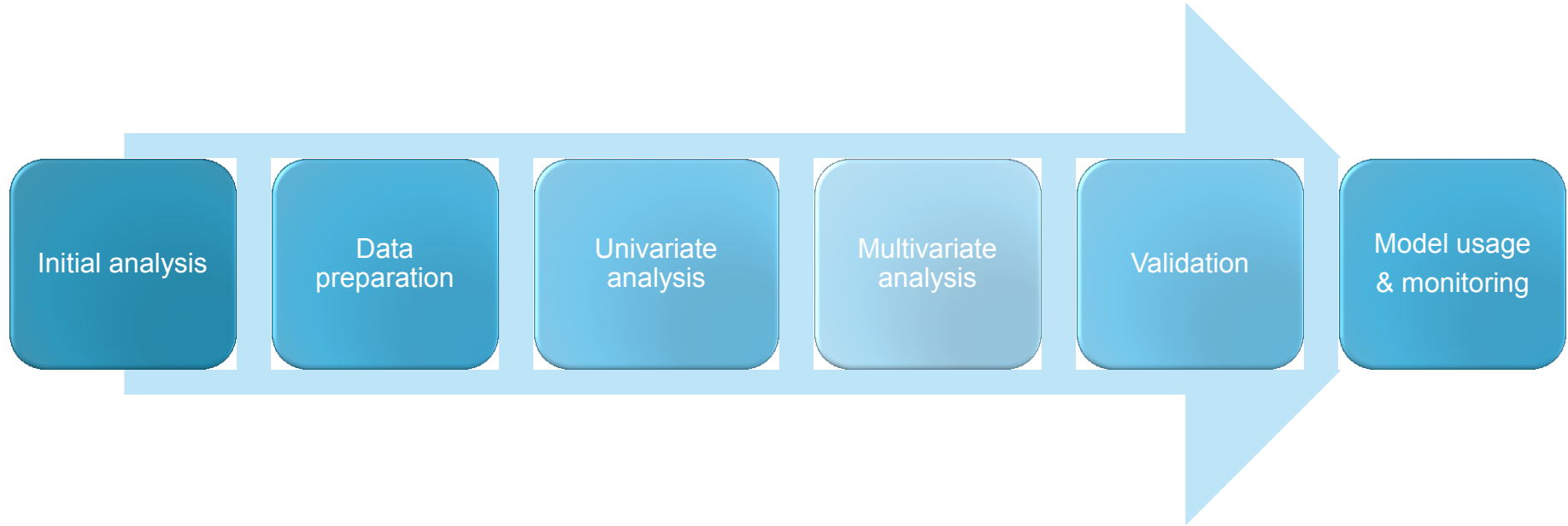
PREDICTIVE MODELLING



PREDICTIVE MODELLING

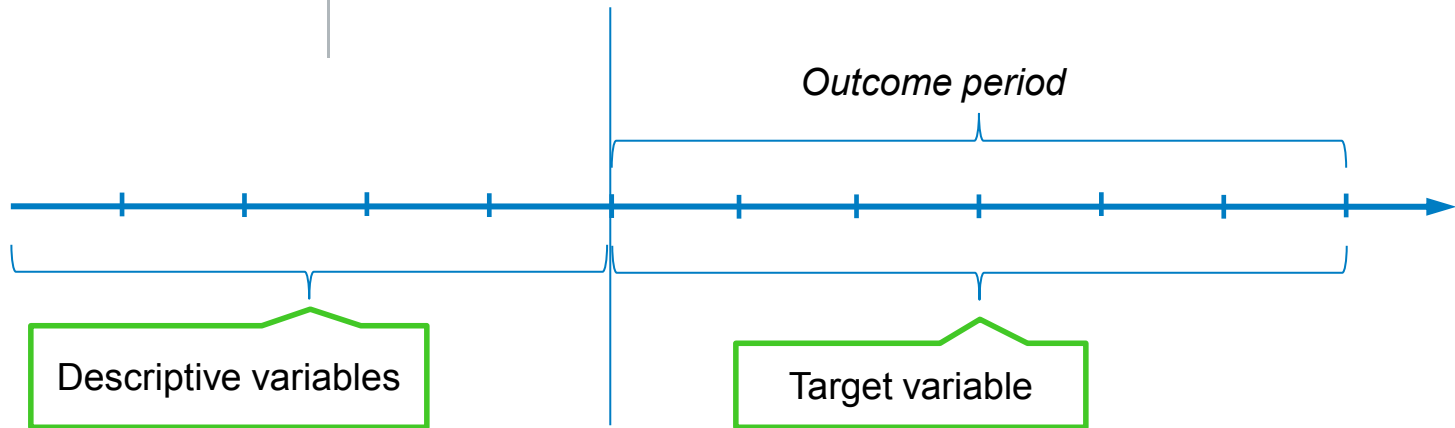
- Predictive Modelling Flow
- Defining Target Variables
- Analytical Data Mart
- Model Form
- Key Predictors

Predict future events based on the past



PREDICTIVE MODELLING

DEFINING TARGET VARIABLES PROBABILITY OF CURE



- Model In/Out criteria (segmentation)
- Cure criteria
 - Process and business dependent
 - Amount and time tolerance thresholds
 - Various prediction horizons
- Aggregation on the client level

PREDICTIVE MODELLING

LARGE SME & CORPORATES ANALYTICAL DATA MART

Financial ratios

Behavioural variables

ID															
00000001															
00000002															
00000003															

Qualitative factors

Target variables

PREDICTIVE MODELLING

LARGE SME & CORPORATES ANALYTICAL DATA MART

Financial ratios



ID															
00000001															
00000002															
00000003															

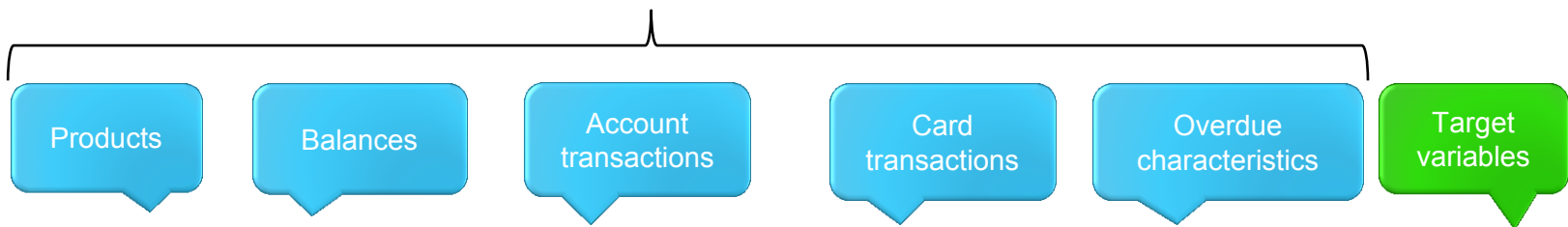


Qualitative factors

PREDICTIVE MODELLING

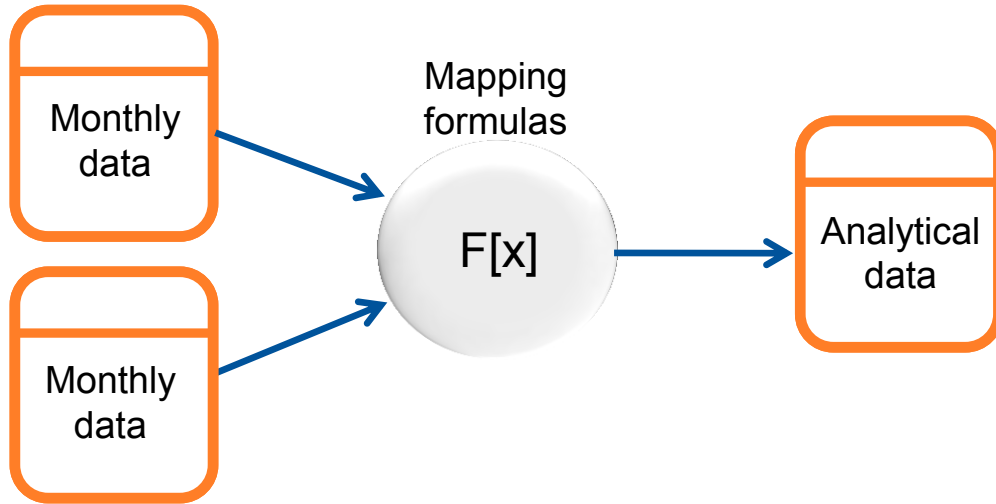
LARGE SME & CORPORATES ANALYTICAL DATA MART

Behavioral variables



ID															
00000001															
00000002															
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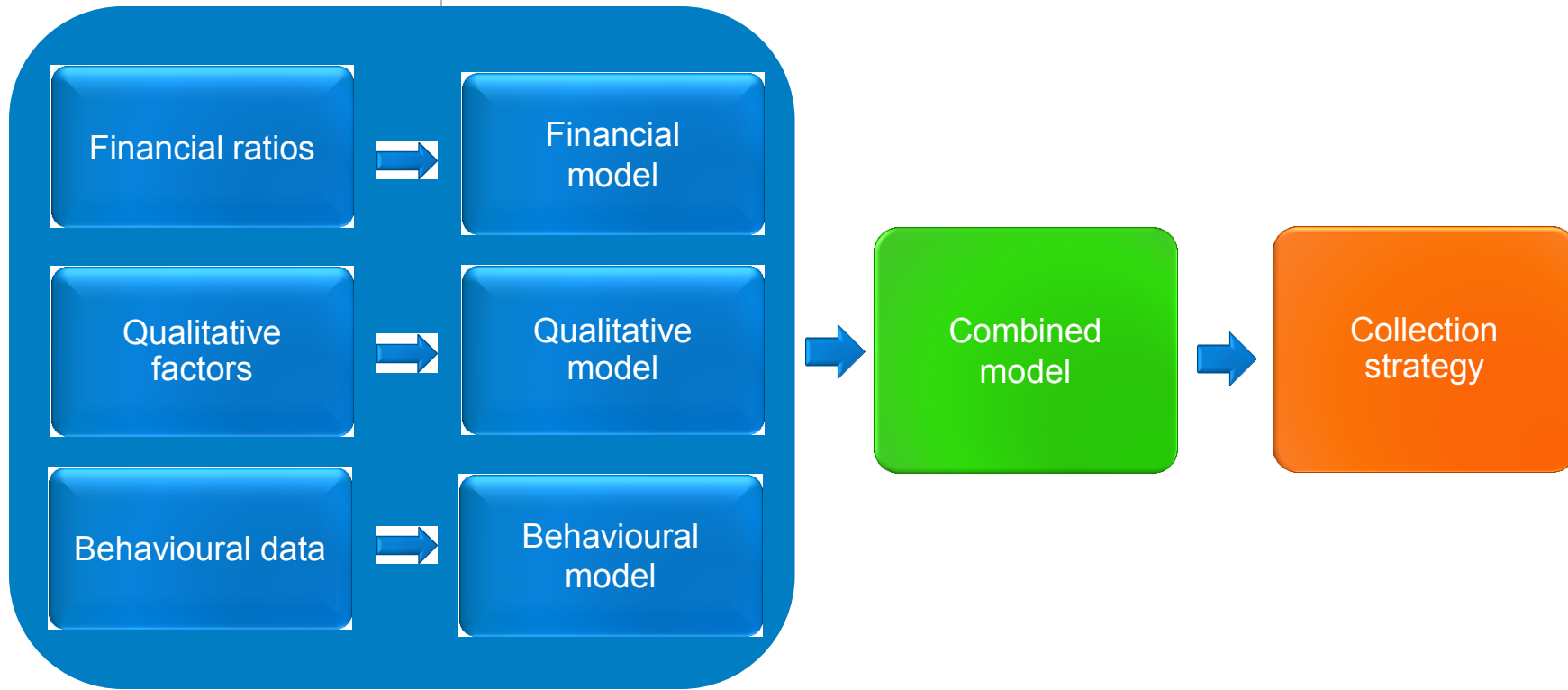




Average
Weighted Average
Trend
Trend upward and downward
Minimum
Maximum
Sum
Count
Unique Count
Ranks
Logic Sum
...

PREDICTIVE MODELLING

LARGE SME & CORPORATES MODEL FORM



PREDICTIVE MODELLING

LARGE SME & CORPORATES KEY PREDICTORS



Financial

- Assets
- Debt ratios
- Profitability ratios
- Efficiency ratios
- Liquidity ratios



Qualitative

- Management quality
- Enterprise history
- History of cooperation with banks



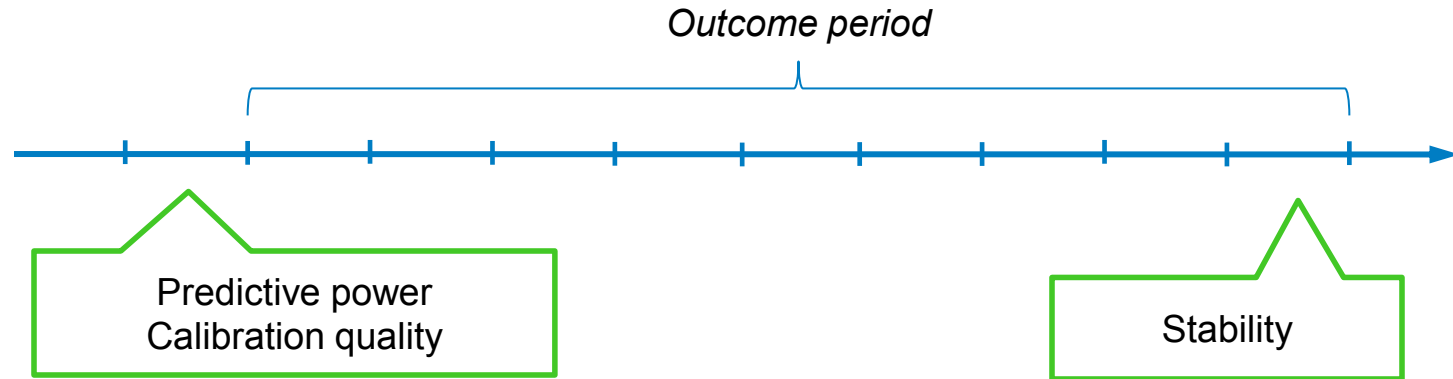
Behavioural

- Months overdue
- Number of credits overdue
- Principal / Interest overdue amount

MODEL MONITORING ISSUES

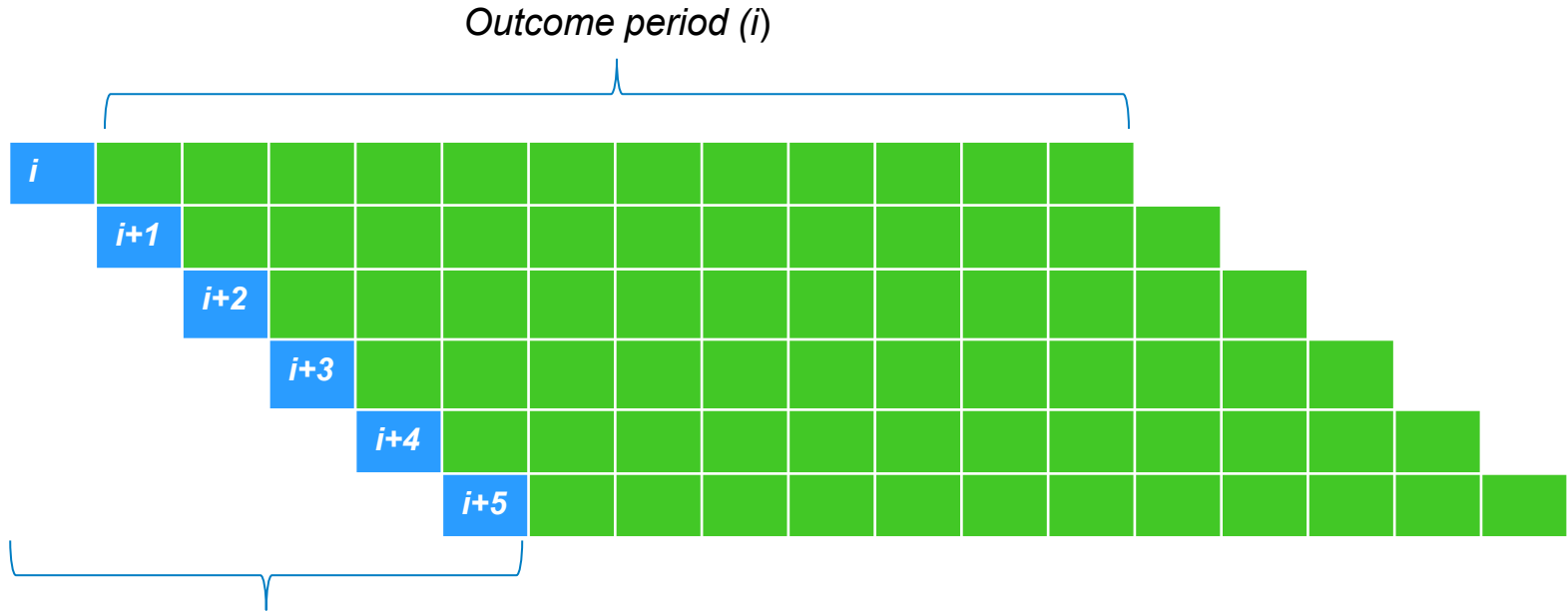


- **What?**
 - Predictive power
 - Stability
 - Calibration quality (at strategy level)



MODEL MONITORING ISSUES

- **Issue** - Low number of cases results in calculation difficulties
- **Solution** – cumulate cases from several months



Cumulate cases entering the collection process

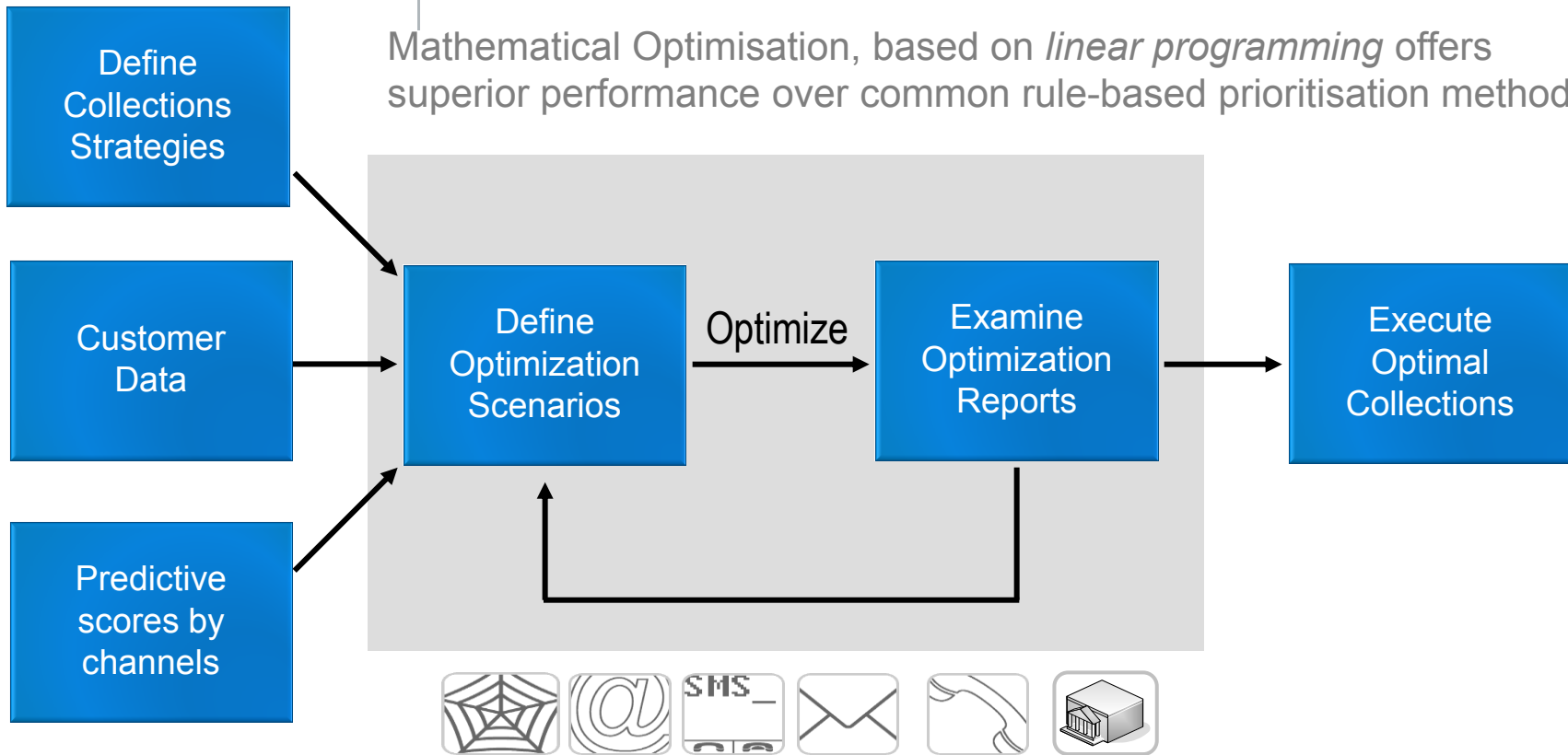
COLLECTION COMMUNICATION OPTIMIZATION



PREDICTIVE DEBT COLLECTION

COLLECTION OPTIMIZATION PROCESS

Mathematical Optimisation, based on *linear programming* offers superior performance over common rule-based prioritisation methods

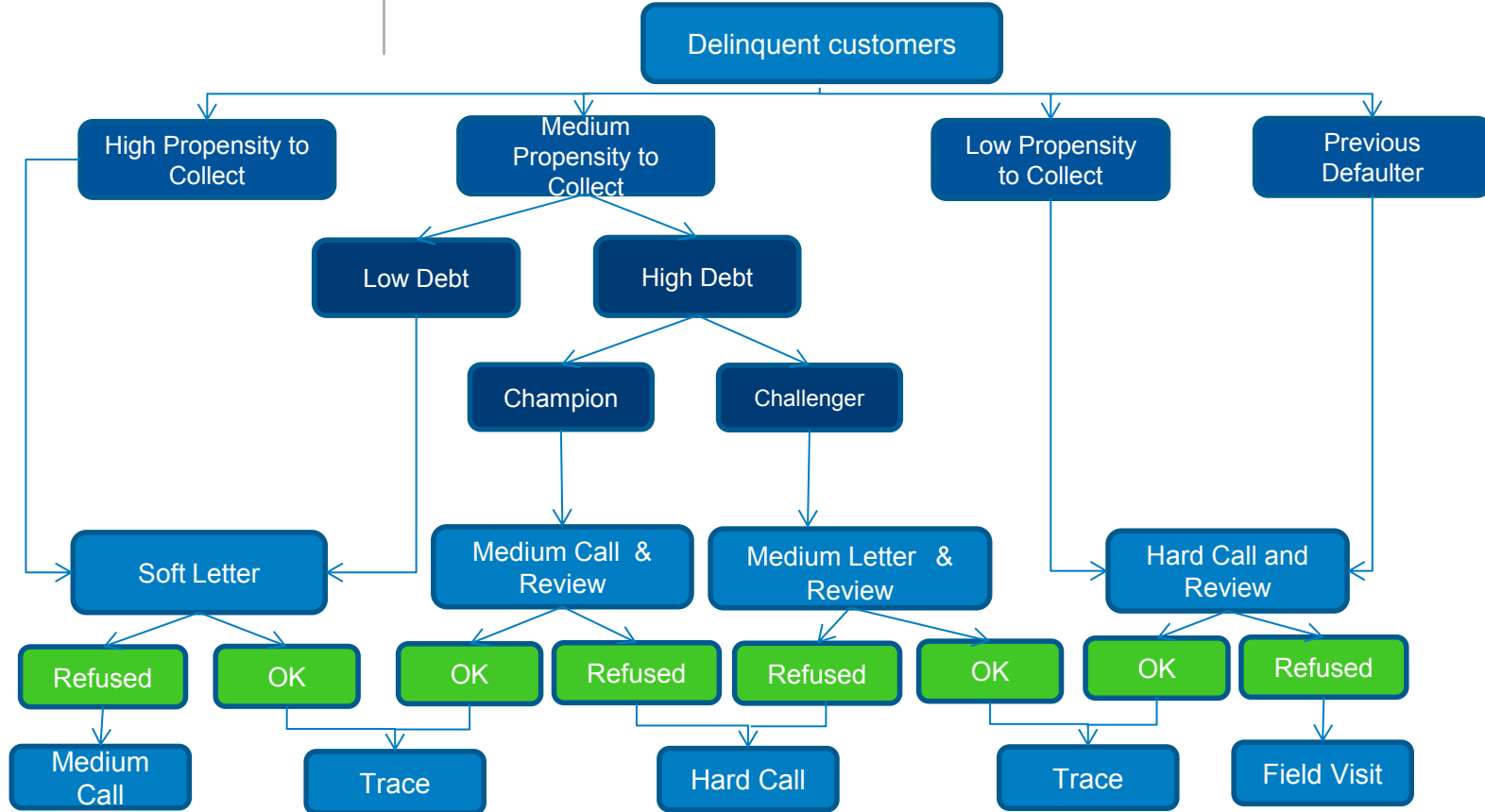


EFFECTIVE IMPLEMENTATION OF COLLECTION STRATEGIES



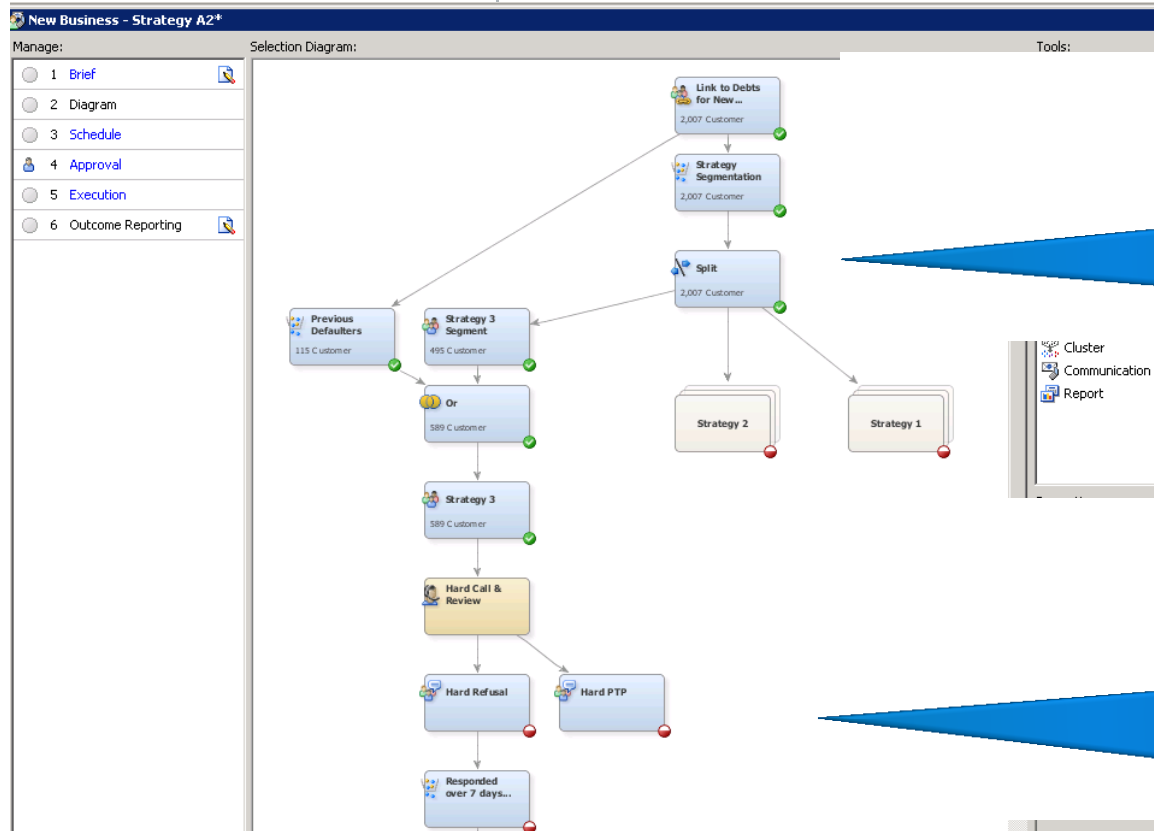
IMPLEMENTATION OF STRATEGIES

COLLECTION STRATEGIES



IMPLEMENTATION OF STRATEGIES

STRATEGY DEFINITION AND EXECUTION



Strategy definition

- Strategy rules
- Predictive model deployment
- Champion/Challenger
- Multi channel
- Multi step paths

Strategy simulation/execution

- Data for treatment paths
- Strategy simulation, 'what-if' analysis
- Channel execution
- Contact history creation
- Next stage definition
- Rapid deployment of strategies



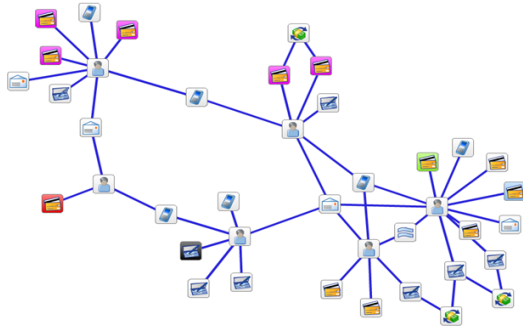
NEW TRENDS IN PREDICTIVE DEBT COLLECTION



PREDICTIVE DEBT COLLECTION

NEW TRENDS

SOCIAL NETWORK PREDICTORS



TEXT MINING CALL CENTER NOTES

The screenshot displays the SAS Text Miner interface. The top section shows a list of text documents with columns for ID, TEXT, OPS, NAME, LANGUAGE, SYNTAX, DATED, EXTEND, and CREATED. Below this, there are two main panels: 'Terms' and 'Clusters'. The 'Terms' panel shows a list of words with their frequency and a bar chart. The 'Clusters' panel shows a word cloud visualization of the terms.

ID	TEXT	OPS	NAME	LANGUAGE	SYNTAX	DATED	EXTEND	CREATED
1000000001	Thank it needs to need to use one of them 77 things and connect them I get it all the way	100	SC_100_0	english	1.0	0.0	1.0	2007-02-21
1000000002	00007106 from her who has around 16-18 years cancel service only have 1 year 10 days one	100	SC_100_0	english	1.0	0.0	1.0	2007-02-21
1000000003	Phone number is 3141 and 913 0883 Audio Playback File and so and will have to have a call	100	SC_100_0	english	1.0	0.0	1.0	2007-02-21
1000000004	The 1000000001 and the reason get that that it is about my grandpa and will not be there	100	SC_100_0	english	1.0	0.0	1.0	2007-02-21
1000000005	On my way to in the only goes back to move day and a new word in the new no day	100	SC_100_0	english	1.0	0.0	1.0	2007-02-21
1000000006	You ought to 21 can find looking at the time and then the 71 just position you're looking at it	100	SC_100_0	english	1.0	0.0	1.0	2007-02-21
1000000007	Have been open in a new based by grandpa question if it's new and needs to move it if that	100	SC_100_0	english	1.0	0.0	1.0	2007-02-21
1000000008	Like what's in your name as a song for that you sure it's how to pass the primary meaning or what	100	SC_100_0	english	1.0	0.0	1.0	2007-02-21

BIG DATA



REAL-TIME



BENEFITS

SELECTED BENEFITS FROM PREDICTIVE DEBT COLLECTION

Lower cost of debt collection

Higher recoveries

Less court litigation

Higher contactability

Shorter time to recovery

Significantly larger volume in collections

Improved collectors productivity

Higher customer satisfaction

THANKS

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