

IBM Performance 2011

Smarter Decisions. Better Results.



Credit Risk

Marco Gomes

16 November 2011

Key messages

1. IBM believes that the time is now to act and build smarter risk management systems that drive companies towards a risk-based pricing strategy: converge marketing and risk
2. The crisis has turned our attention to the quality of credit risks and will drive companies to strengthen the way customer risk profiles are evaluated
3. IBM has completed a range of acquisitions that complement their position in agile, customer-centric risk management platforms

Centraal Beheer Achmea 'Titanic'



IBM has just completed a series of significant investments in the risk and analytics space

- \$14B+ in Acquisitions Since 2005
- 10,000+ Technical Professionals
- 7,500+ Dedicated Consultants
- Largest Math Department in Private Industry
- 27,000+ Business Partner Certifications
- 8 Analytics Solutions Centers
- Optimized hardware and software offerings
- 100 analytics-based research assets; almost 300 researchers
- Significant investment worldwide through Smarter Planet initiative

Business Intelligence and Performance Management

Rule Management

Decision Management
Predictive Analytics

Web Analytics

Governance risk and compliance

High-performance data warehouse

Marketing Solutions

Risk management, financial modeling
Financial reporting

Analysis and visualization for Intelligence

COGNOS



SPSS



OPENPAGES

NETEZZA

unica



Algorithmics | A²

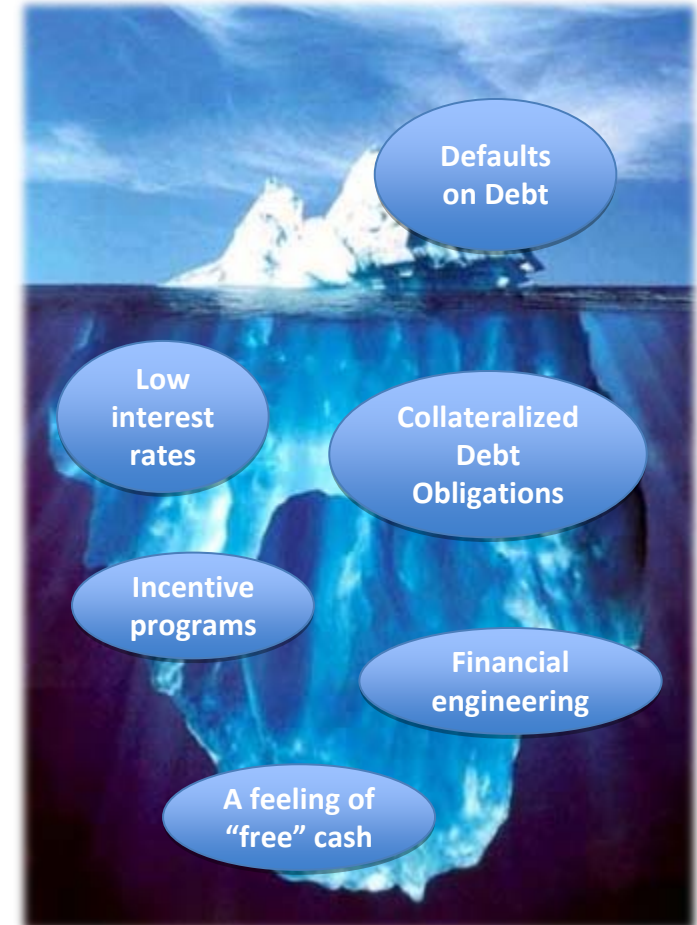


Risk management can only be an effective instrument if deeply embedded in banking processes

In the events leading up to the crisis, banks complied with internal and external risk management while, at the same time, venturing in risky credit structures

- Many factors and circumstances have led to the rise, spread and default of bad debt across the globe. One cannot point to a single factor where companies failed to predict financial risk
- What did become clear however is that the accumulated risk on a portfolio does not necessarily correspond with the financial risk of business: a bank can comply technically with risk policy while closing high risk products
- While a universal way to prevent these risks from re-occurring has not been uncovered, two things seem clear:

1. Financial institutions need to better link daily operations to credit and liquidity risks
2. Financial institutions need to focus back to the golden rule of banking: balance sheet leveraging



Research confirms the need to integrate risk management in business processes

Too many banks are unable to understand risks across their businesses...

...as processes and systems are not integrated and they don't have the data...

...to coherently manage short and long term performance.

Only 47 percent

are confident that they understand the interaction of risks across business lines—poor communication between departments is seen as a key barrier to effective risk management.¹

80 percent

of financial services firms say their governance, risk and compliance processes are still not integrated across their enterprise.²

67 percent

do align risk appetite to reflect the expectations of stakeholders at different time horizons...³

Only 58 percent

are confident in their ability to aggregate risks at the firm-wide level.¹

Only 39 percent

believe they are effective at collecting, storing and aggregating data.¹

...but only 17 percent

do this formally or systematically.³

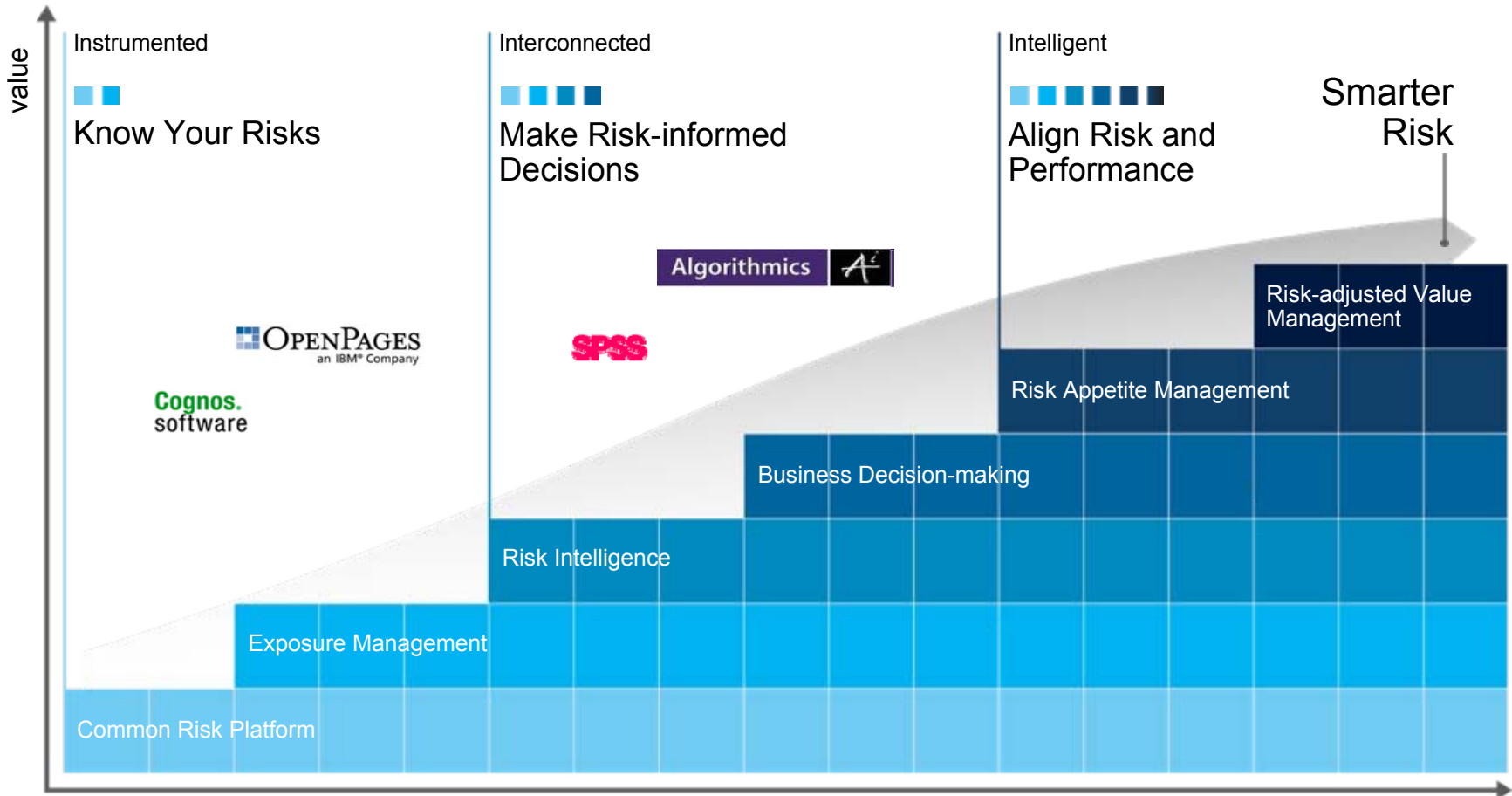
“We have to eliminate data silos, and create a process that will allow us to identify and select risk-related data across all divisions globally.”

Head of Risk and Business Intelligence, Major Swiss Bank

Sources: 1: Rebuilding Trust: next steps for risk management in financial services, Economist Intelligence Unit 2010; 2: Governance, risk and compliance in financial services, The Economist, 2008, IBM CRO Survey; 3: Risk Appetite: A Multifaceted Approach to Risk Management, Francis Lacan & John Ingold, IBM Survey of Financial Institutions, April 2008

[Link to IBV study](#)

Smarter financial risk means converging business and financial management on a single data platform



Source: IBM Center for Applied Insights

Credit risk is part of a financial institution's enterprise risk management framework

Enterprise Risk Management framework

Dominant factors in financial risk modeling



In order to stay in control and sustain going concern, companies need to address a range of risk areas:

- **Market risk** is the risk that the value of a portfolio, either an investment portfolio or a trading portfolio, will decrease due to the change in value of the market risk factors
- **Credit risk** is an investor's risk of loss arising from a borrower who does not make payments as promised
- **Operational risk** is the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events
- **Legal and regulatory risk** include risk factors that business operations do not comply with internal or external policies and regulations

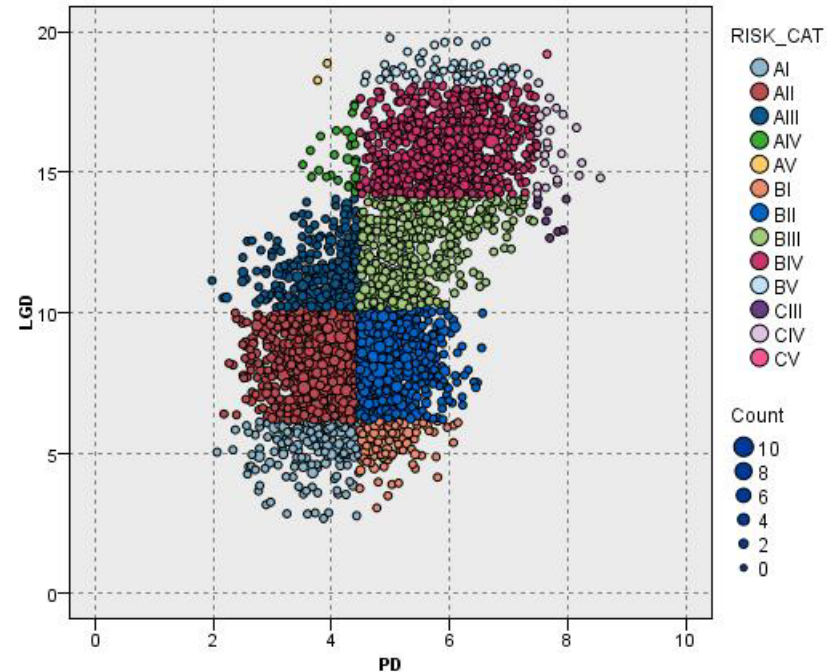
In continental Europe, the Basel framework has lead the way to manage risk within financial institutions

- Since 1988, Europe has established the Basel set of minimum capital requirements for financial institutions
- Many organisations have adopted to Basel risk practice through reports and dashboards.
- Many organisations are able to articulate their expected loss volume; the product of
 - **P**robability of **D**efault, the likelihood that a credit facility is not going to be repaid
 - **L**oss **G**iven **D**efault, the amount of loss incurred when this event happens
 - **E**xposure **A**t **D**efault, the institutions' exposure to the amount of loss given collateral and other product characteristics



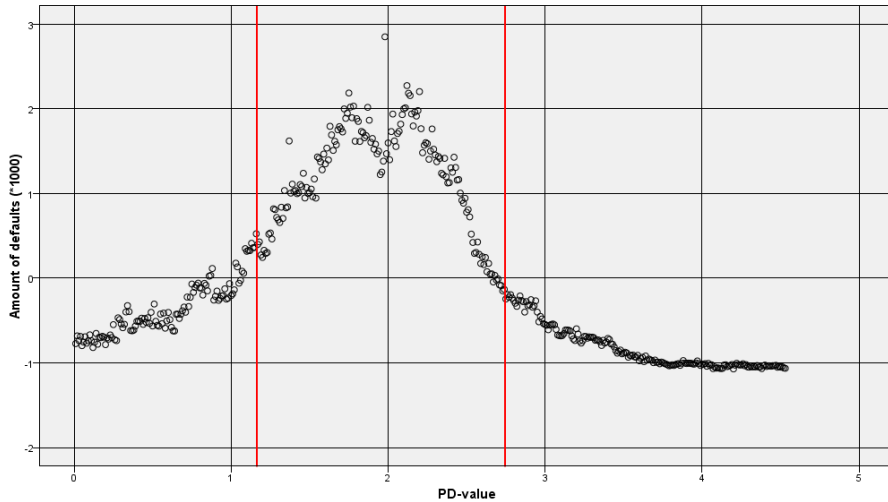
The level of credit risk associated with a product market combination is expressed in a statistical distribution

Simplified distribution of risk across assets

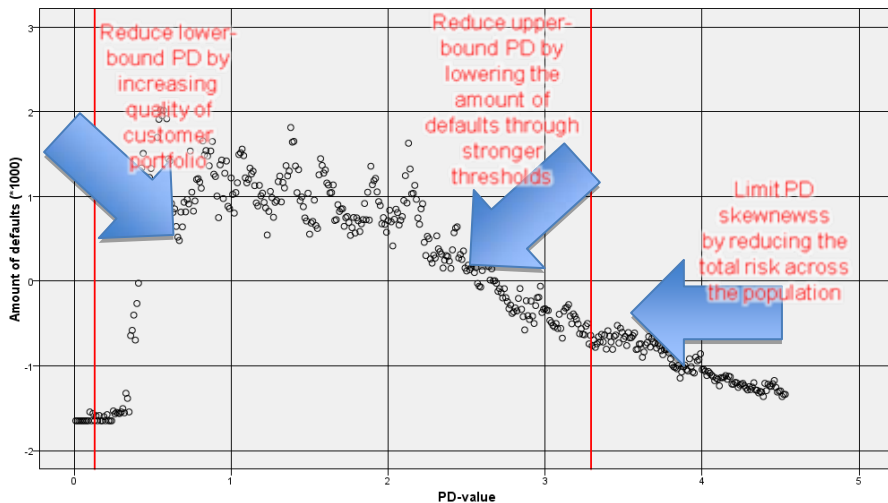


Any PD, LGD and EAD model uses probabilistic statistical distributions to calculate the threshold level of acceptable risk. IBM's SPSS technology models these distributions against historical data from back-office systems

Credit risk management involves continuous recalibration of models to normalise spread of risk across the client base

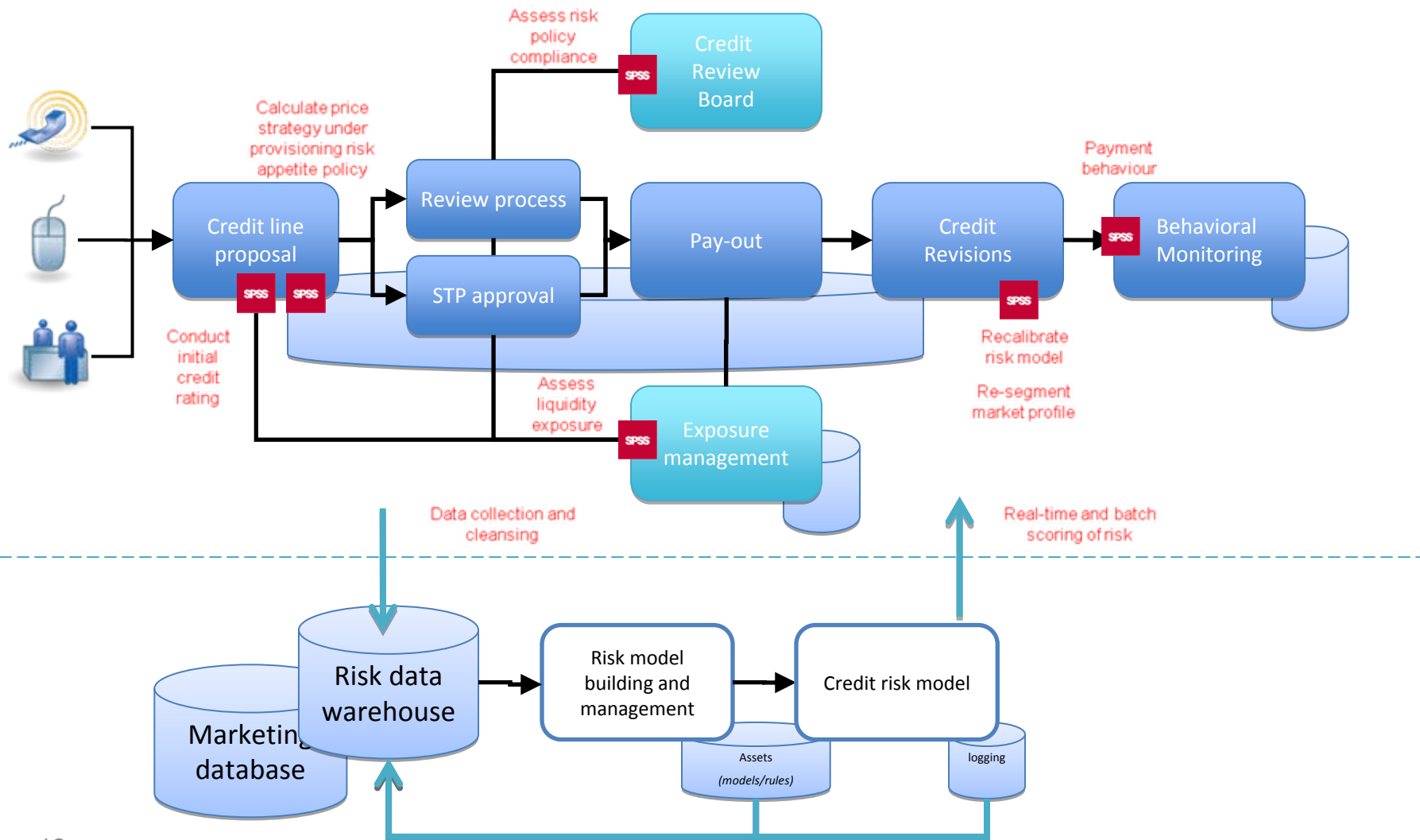


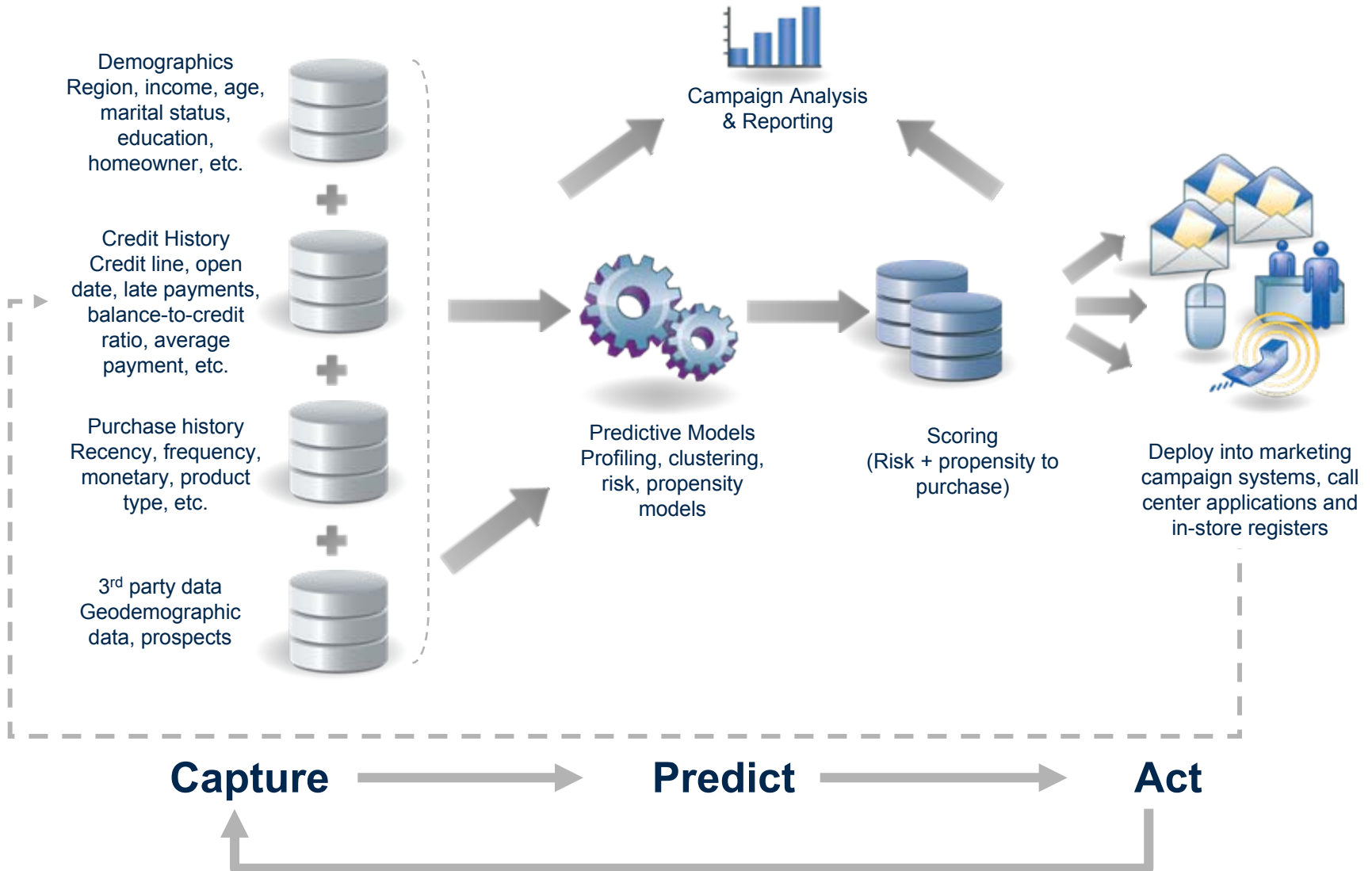
- Ideally, all clients are equal and are normally distributed alongside the probability to default
- The risk that a customer defaults is ~2% on the total population



- In real life however, clients are not equal. It is important to assess how the client segments behave in terms of credit risk
- The credit risk model needs to be recalibrated to provide a more normally distributed profile

High-level overview of credit approval and monitoring processes





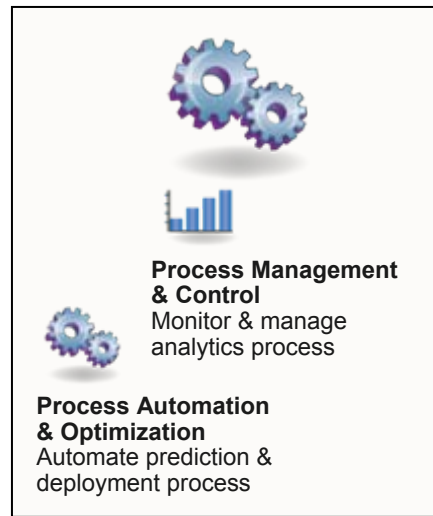
Model Development



Interactive environment where risk analysts:

- Connect with data sources
- Build various models
- Test mining streams
- Evaluate model algorithms
- Produce output

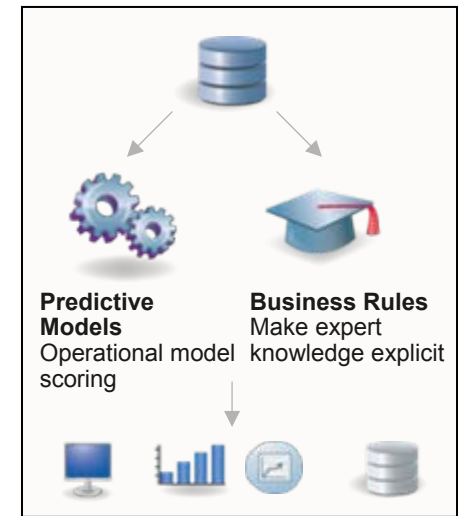
Model Management



Preproduction collaboration platform:

- Store and share models
- Champion challenger selection
- Object repository
- Version management
- Batch operations

Deployment and Scoring



Model deployment and real-time scoring environment

- Model- and business rules driven real-time operational scoring
- Decisions support and risk control reports
- KPI's, dashboards

Questions



Marco Gomes
Solution Architect
Business Analytics
IBM Software Group

+31 (0) 205133544
+31 (0) 615005091

marco.gomes@nl.ibm.com

