

# Optimising decision making at the point of contact



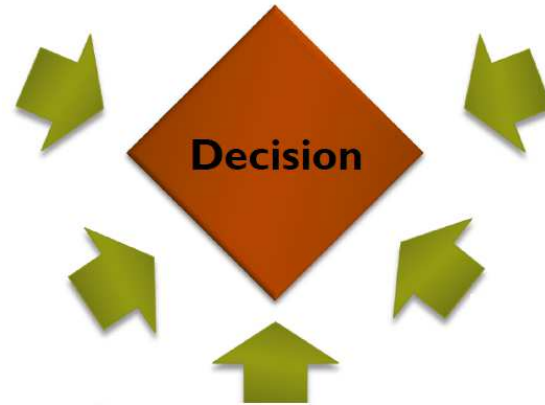
---

## Session objectives

### **In today's session we will cover:**

1. Optimising Decisions at the Point of Contact is Critical to Success
2. Elements of IBM Analytical Decision Management
3. Path to Decision Management
4. Case Studies
5. Summary

## A changing world



**“We have seen more change in the last 10 years than in the previous 90.”**

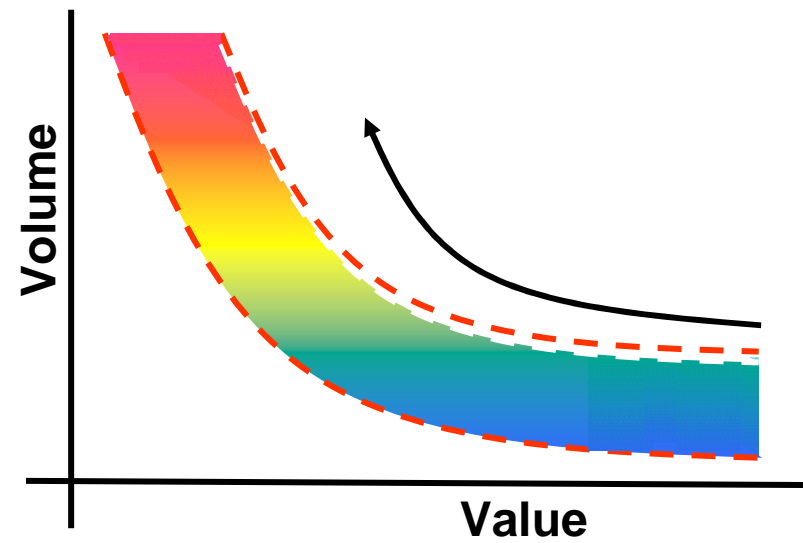
*Ad J. Scheepbouwer,  
CEO, KPN Telecom*



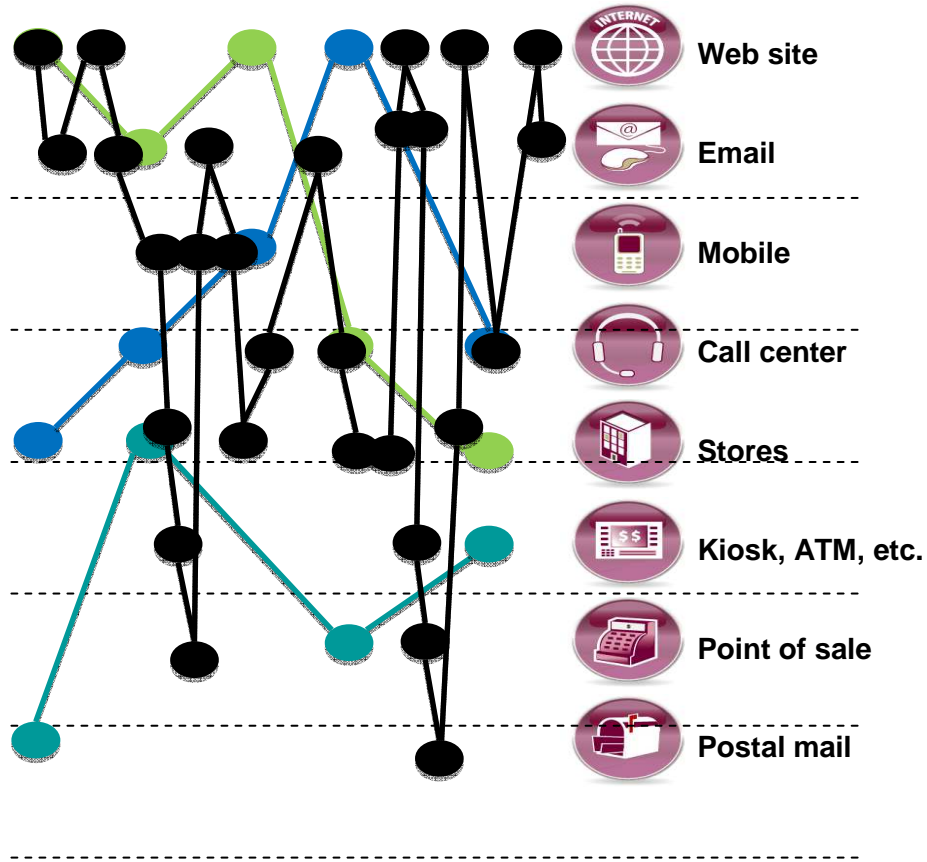
## Instant operational decisions everywhere



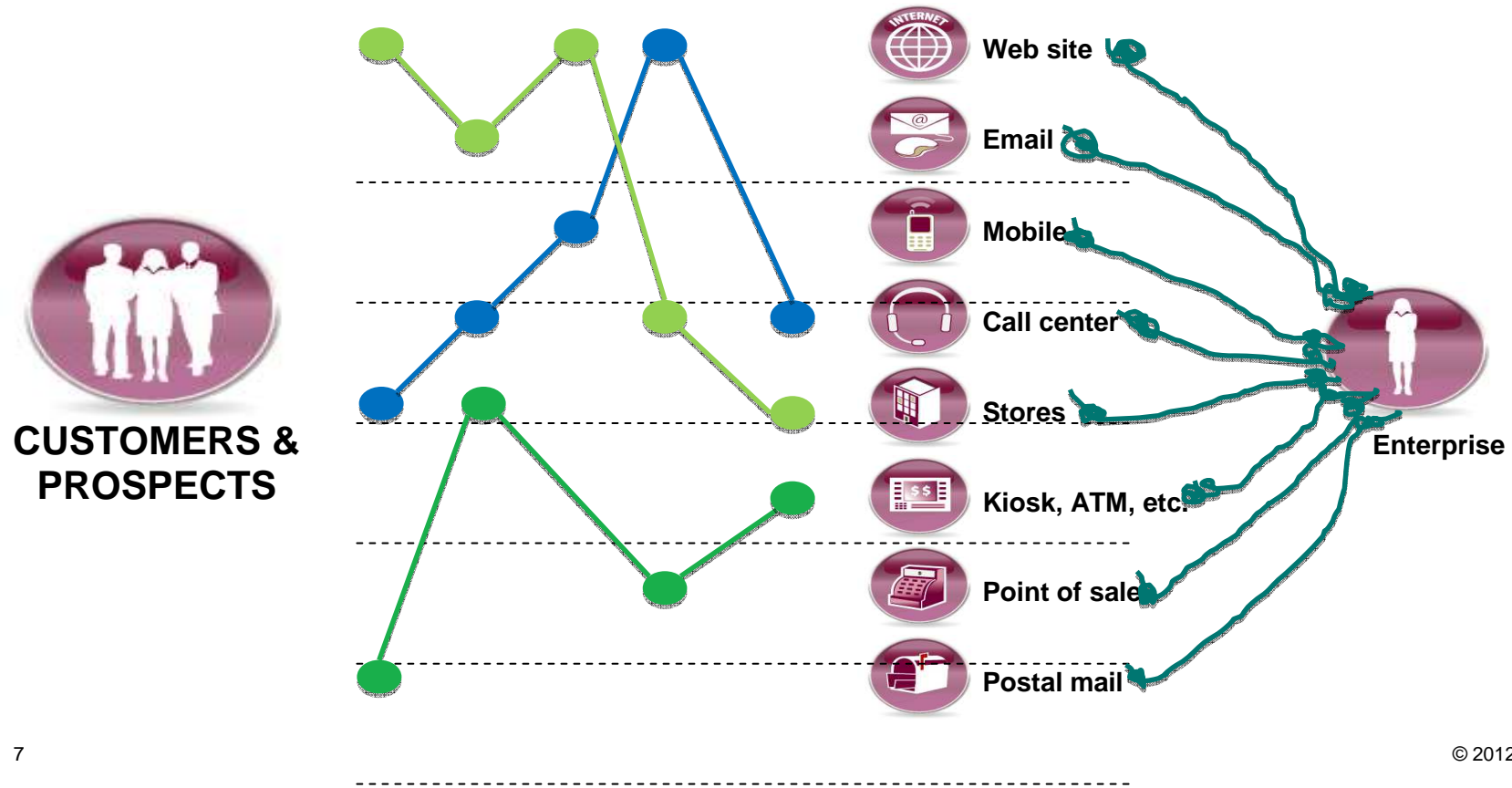
## The value of operational decisions



# Customer interaction



# What Customers Expect





## Market of One

An intelligent conversation

Organisations need to:



**LISTEN AND UNDERSTAND**



**DECIDE WHAT TO SAY NEXT**

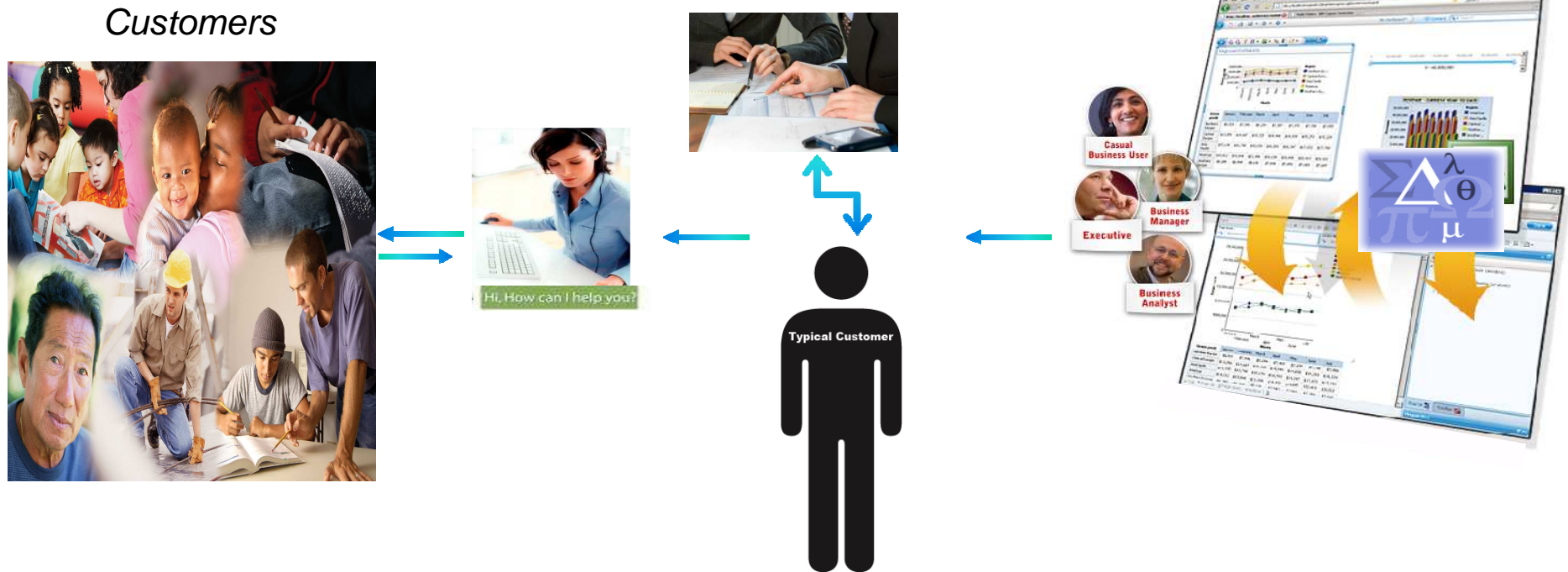
...and repeat this over and over again across thousands or millions of customer relationships.

**(~~Only then~~) SPEAK**

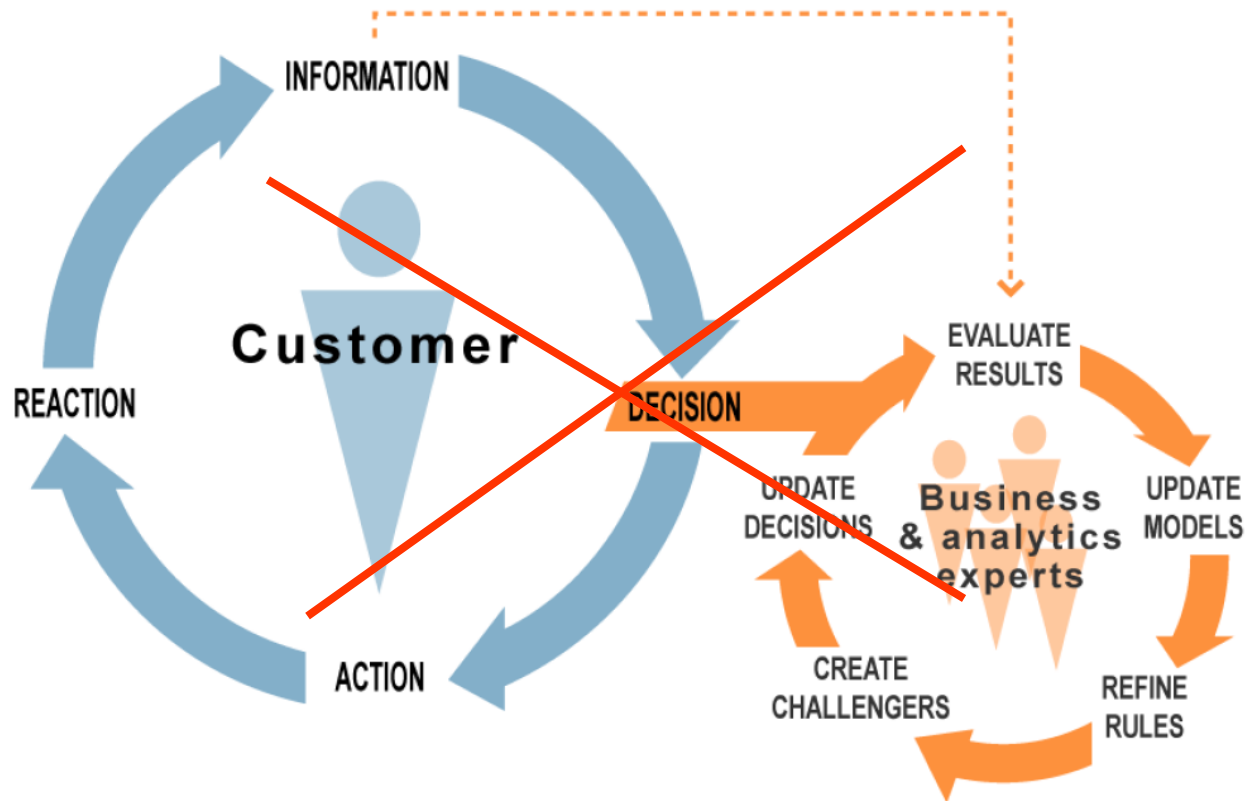


# Challenge: Insights are not part of operational processes

Decisions based on a mix of corporate policy, experience and gut feel



# No full-cycle feedback



## Don't speak the same language

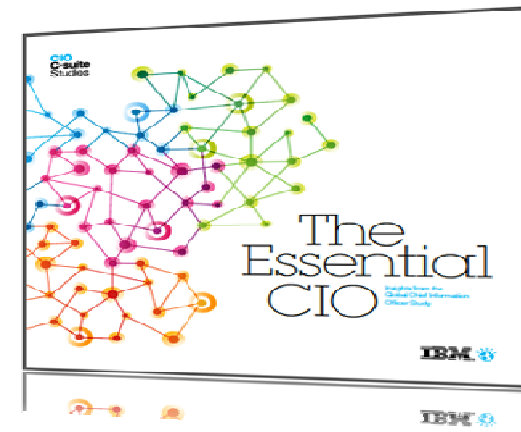


## Transformation and Growth Require Better Decisions

*CIOs recognise that effective decision automation is key to success*

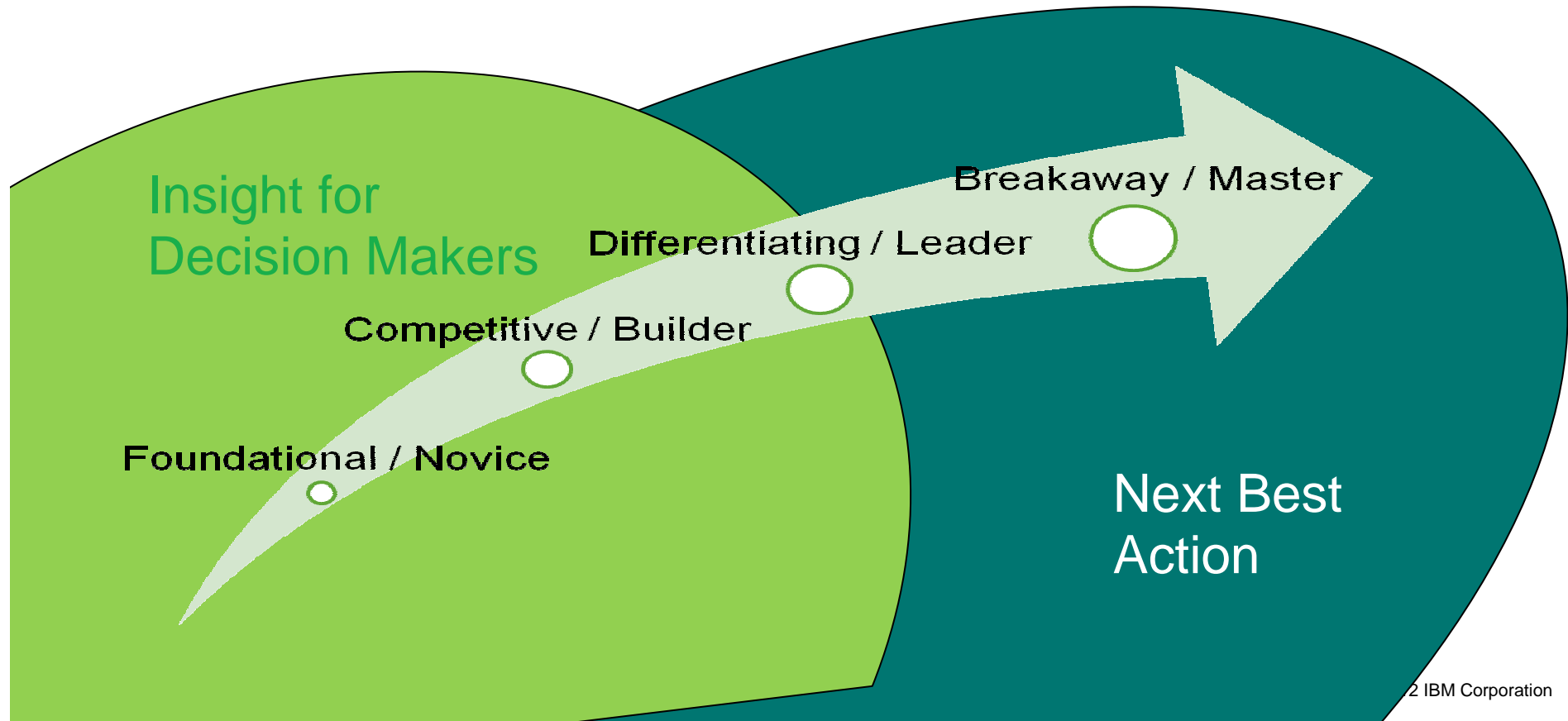
**75%**

of CIOs with mandates to transform the business are looking to “drive *better real time decisions.*”



*Sources: IBM Global CIO Study 2011*

## IBM Analytical Decision Management - From Insight to Next Best Action



# IBM Analytical Decision Management in Action: Smart Call Centre

# What is the next best action for this customer?



Call Centre Agent





Notifications

Alerts Actions

Eligible for Offers

Likely to Churn

Customer Info

Name	Gender	Age	Id
Lyle Leader	Male	53	21
Education	Marital Status	Location	
Assoc Degree	Married	<a href="#">Map</a>	

Customer Details



### Notifications

Alerts Actions

Eligible for Offers

Likely to Churn

### Customer Info

Name	Gender	Age	Id
Lyle Leader	Male	53	21
Education	Marital Status	Location	
Assoc Degree	Married	Map	

### Customer Details

Profile Usage Billing Case Detail

Update Case

#### Case Status by Month

Month	Case Status
Sep	1
Oct	2

Month Opened	Case ID	Case Description	Case Status
Oct	26	GPRS Issue	Close
	15	Network Problem	Close
Sep	25	Handset Problem: microphone issue	Close



**Notifications**

**Alerts** | **Actions**

Eligible for Offers

Likely to Churn

**Customer Info**

Name	Gender	Age	Id
Lyle Leader	Male	53	21
Education	Marital Status	Location	
Assoc Degree	Married	<a href="#">Map</a>	

**Customer Details**

**Profile** | Usage | Billing | Case Detail

**Churn Propensity**

Churn Score

**Customer Satisfaction**

Satisfaction Score

**Customer Lifetime Value (CLTV)**

CLTV Ratio

**Social Network Influence**

Influencer Authority

**Plan Details**

- Segment: PLATINUM
- Contract: Freedom 60
- Current Offer



**Notifications**

**Alerts** | **Actions**

Premium phone:64 MB media edition  
Predicted Profit: \$247.09

[Submit Response](#)

**Customer Info**

Name	Gender	Age	Id
Lyle Leader	Male	53	21
Education	Marital Status	Location	
Assoc Degree	Married	<a href="#">Map</a>	

**Customer Details**

**Profile** | Usage | Billing | Case Detail

**Churn Propensity**

Churn Score

**Customer Satisfaction**

Satisfaction Score

**Customer Lifetime Value (CLTV)**

CLTV Ratio

**Social Network Influence**

Influencer Authority

**Plan Details**

- Segment: PLATINUM
- Contract: Freedom 60
- Current Offer



**Notifications**

**Alerts** | **Actions**

Premium phone:64 MB media edition  
Offer Accepted  
Predicted Profit: \$221.70

[Submit Response](#)

**Customer Info**

Name	Gender	Age	Id
Lyle Leader	Male	53	21
Education	Marital Status	Location	
Assoc Degree	Married	Map	

**Customer Details**

**Profile** | Usage | Billing | Case Detail

**Churn Propensity**

Churn Score

**Customer Satisfaction**

Satisfaction Score

**Customer Lifetime Value (CLTV)**

CLTV Ratio

**Social Network Influence**

Influencer Authority

**Plan Details**

- Segment: PLATINUM
- Contract: Freedom 60
- Current Offer: Premium phone



### Notifications

**Alerts** | **Actions**

Eligible for Offers

Likely to Churn

### Customer Info

Name	Gender	Age	Id
Lyle Leader	Male	53	21
Education	Marital Status	Location	
Assoc Degree	Married	<a href="#">Map</a>	

### Customer Details

**Profile** | Usage | Billing | Case Detail

#### Top 5 in Social Network for Lyle Leader

```
graph TD; Lyle[Lyle Leader, 800-000-0021] --- Arnold[Arnold Clark, 800-000-0026]; Lyle --- Frannie[Frannie Friend, 800-000-0022]; Lyle --- Nellie[Network Nellie, 800-000-0025]; Lyle --- Sam[Social Sam, 800-000-0023]; Lyle --- Dan[Data Dan, 800-000-0024];
```



### Notifications

Alerts | **Actions**

Free minutes  
Predicted Profit: \$40.52

Route to Level 1 support  
Predicted Profit: \$20.06

[Submit Response](#)

### Customer Info

Name	Gender	Age	Id
Social Sam	Male	54	23
Education	Marital Status	Location	
Some College	Married	Map	

### Customer Details

Profile | Usage | Billing | **Case Detail**

[Update Case](#)

#### Case Status by Month

Month	Close	Open
Sep	1	0
Oct	0	1

Month Opened	Case ID	Case Description	Case Status
Oct	89	Phone Issue : difficulty making calls. Customer was offered free minutes and routed to support	Open
Sep	88	GPRS Issue	Close

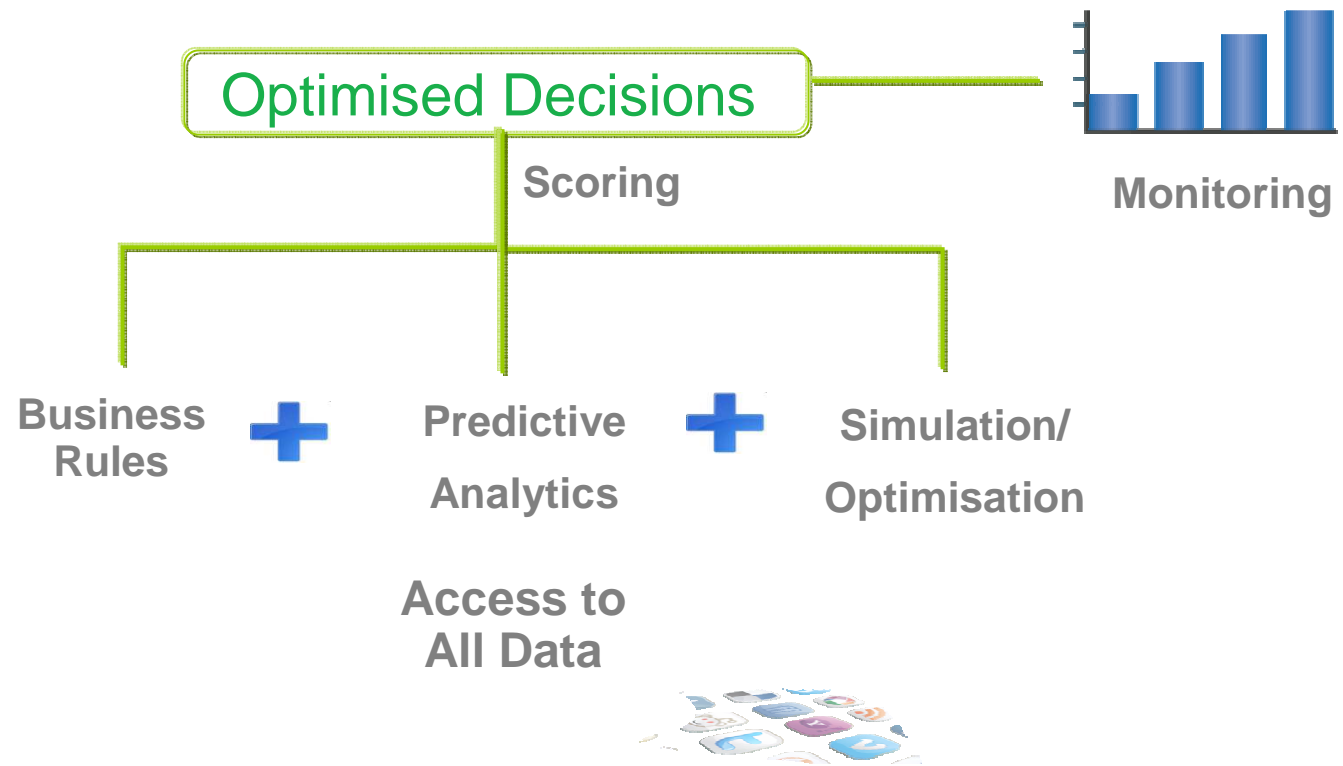


## Session objectives

### In today's session we will cover:

1. Optimising decision at the point of contact as a competitive advantage
- 2. Elements of IBM Analytical Decision Management**
3. Path to Decision Management
4. Case Studies
5. Summary

## Elements of IBM Analytical Decision Management



## Key Feature: Combine Predictive Analytics with Business Rules

### Predictive Models

What we are uncertain of

What we do not know

What is likely to happen

- Risk
- Segmentation
- Propensity
- Associations



### Business Rules

What we are certain of

What we know

What to do

- *Policy*
- *Regulation*
- *Best Practices*
- *Know-how*

## Case Study: Consumer lending

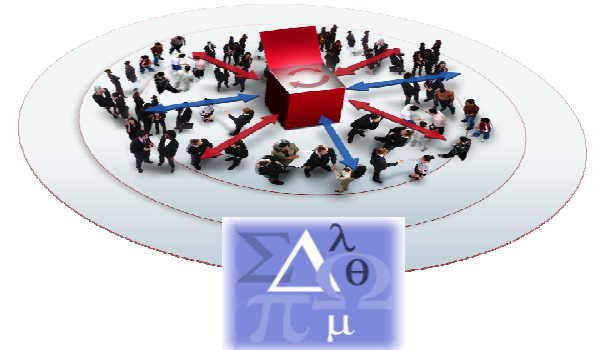
Local Bankers



Centralised  
Credit Scoring




Analytical Decision  
Management









## Key Feature: Optimisation

### Eligibility Assessment for Each Customer

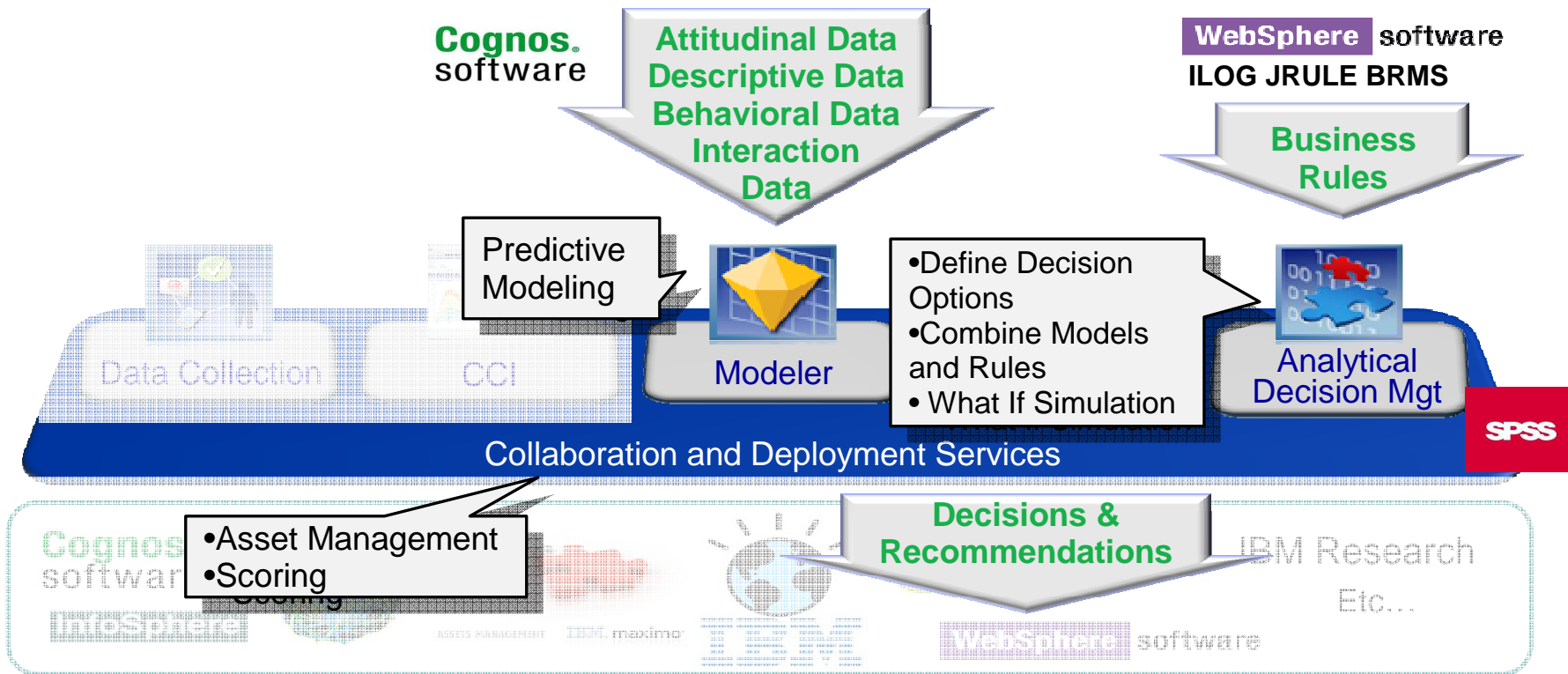
Possible campaigns	Business rules	Response Probability	Revenue	Cost	(Prob * Rev) - Cost
 A	✗				
B	✓	50%	100	20	30
C	✓	25%	200	10	40

### Optimisation for Overall Constraints

Possible campaigns	Customer 1	Customer 2	Customer 3	Customer 4	Customer 5	Customer 6	Customer 7	Customer 8
A	42 ✗							 
B	✗	 						
C								

Constraint:  
Budget Exceeded

# IBM Analytical Decision Management – Technology Components



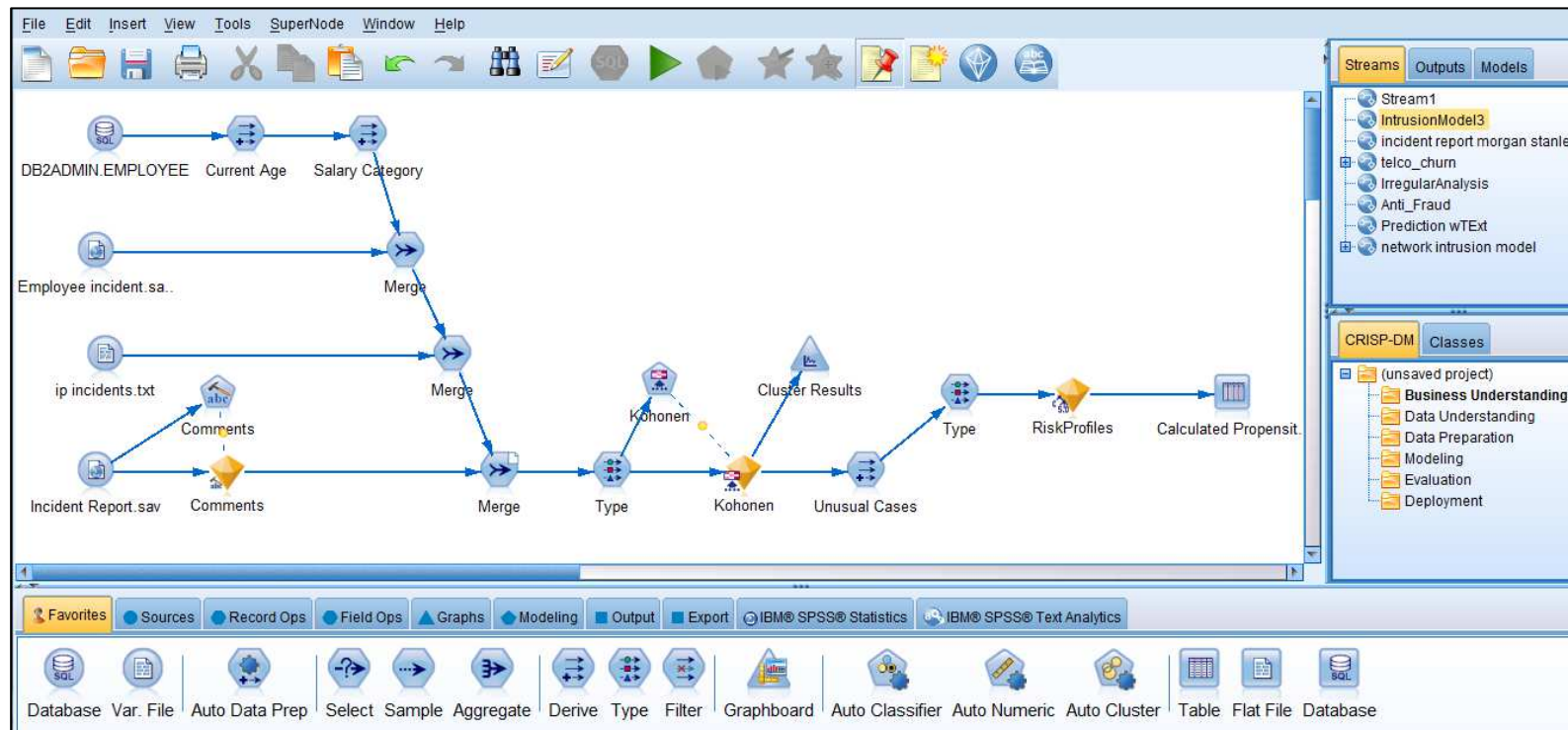
## Time to look forwards? IBM SPSS Predictive Analytics





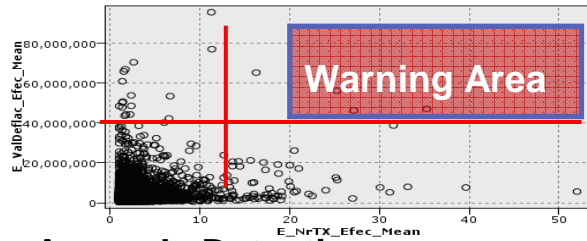
## Predictive Workbench – IBM SPSS Modeler

Easy to learn: no programming approach to data mining



# Predictive Workbench – IBM SPSS Modeler

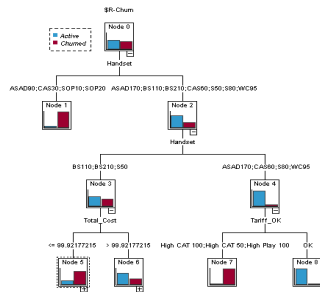
Perform data mining with a rich array of techniques on structured data, text, web, survey data to meet every modelling application



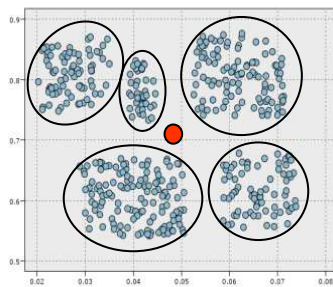
**Anomaly Detection**



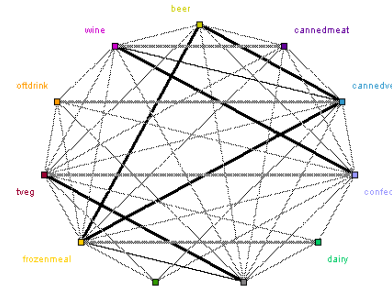
**Time Series**



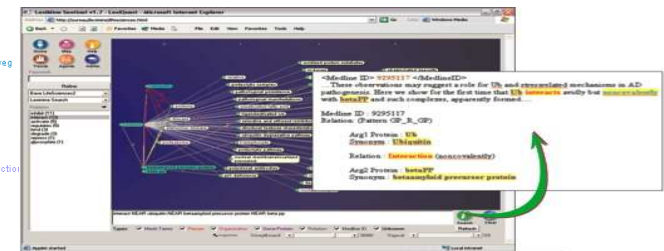
**Classification**



**Segmentation**

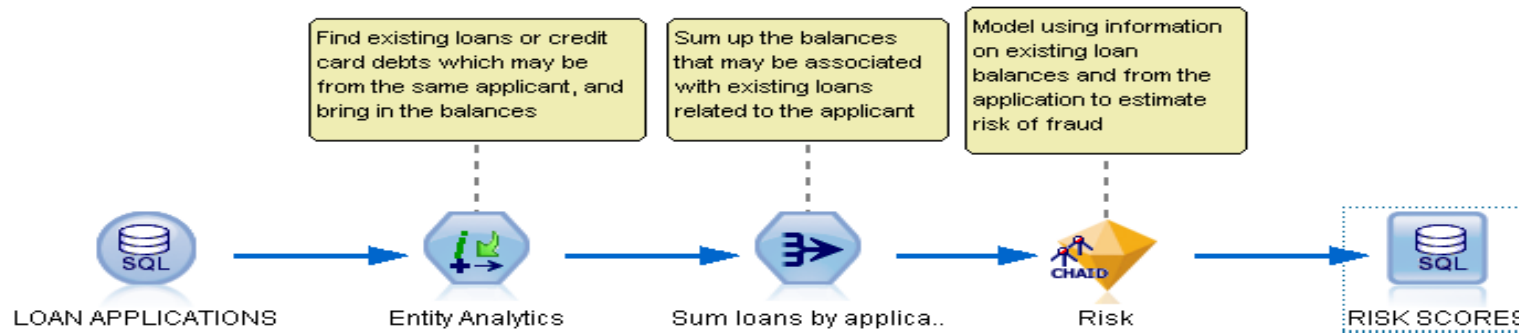


**Association**



**Text Mining**

# Entity Analytics Spots Fraud, Reduces Customer Duplicates, and Improves ROI by finding Non-obvious Relationships New



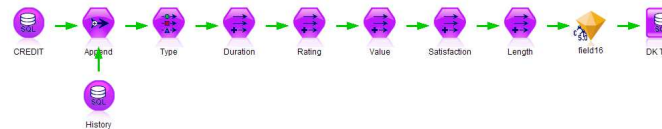
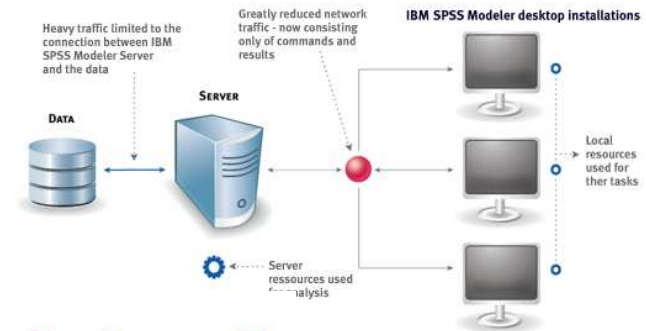
# Social Network Analysis Reduces Customer Churn by Understanding Social Relationships



## High Performing

### Open & Efficient Architecture:

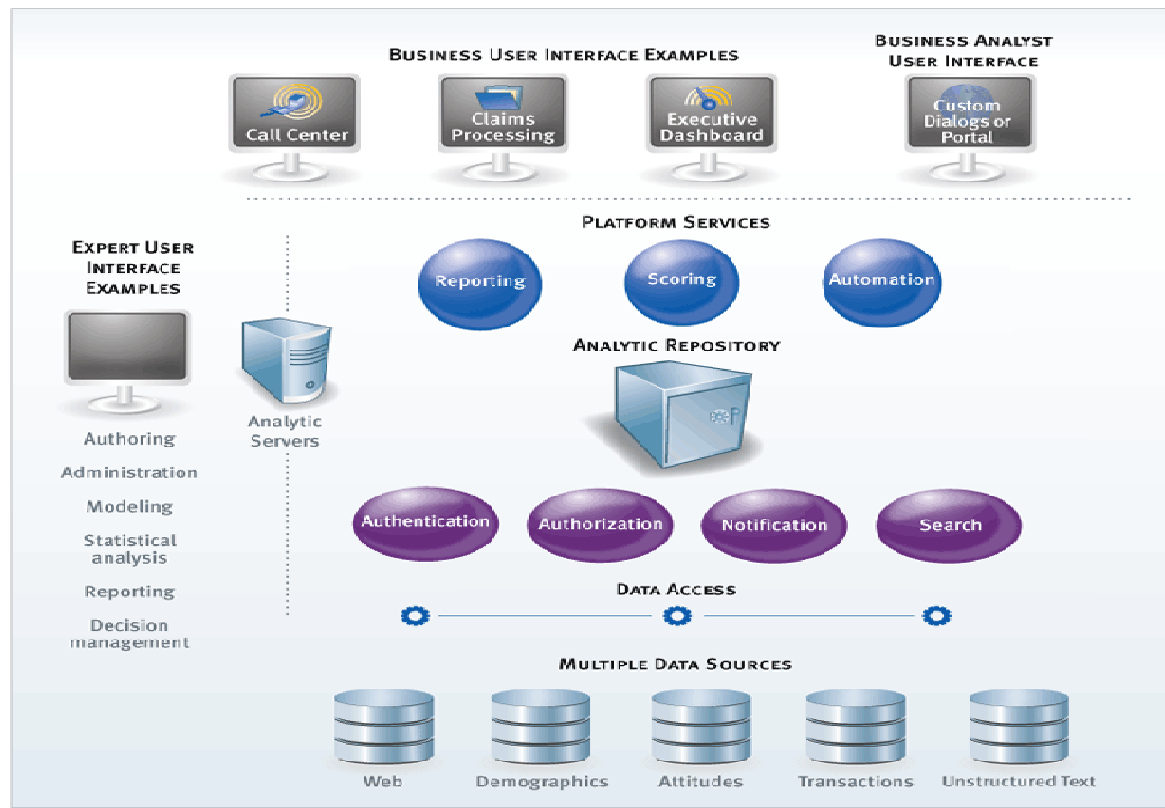
- Multithreading, clustering and use of embedded algorithms
- Perform **in-database analytics** with leading databases.



**Big Data In Motion:** provides in-memory analytics with high volume, low latency data with response times in the microseconds



# Predictive Platform – IBM SPSS Collaboration & Deployment Services



## Session objectives

### In today's session we will cover:

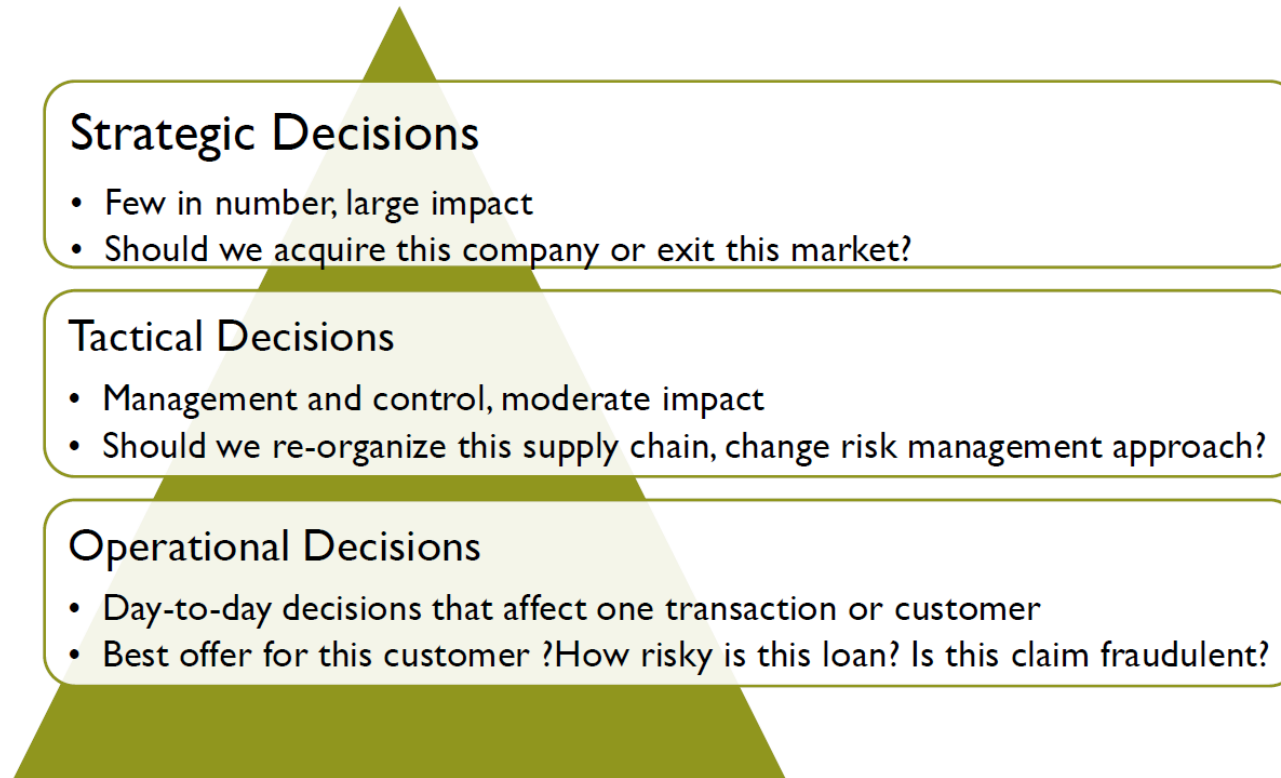
1. Optimising decision at the point of contact as a competitive advantage
2. Elements of IBM Analytical Decision Management
- 3. Path to Decision Management**
4. Case Studies
5. Summary



## Path to Decision Management with IBM Analytical Decision Management



## Discovery: Begin with the Decision in mind



### Strategic Decisions

- Few in number, large impact
- Should we acquire this company or exit this market?

### Tactical Decisions

- Management and control, moderate impact
- Should we re-organize this supply chain, change risk management approach?

### Operational Decisions

- Day-to-day decisions that affect one transaction or customer
- Best offer for this customer ?How risky is this loan? Is this claim fraudulent?

Find the decisions that matter to your business and model them

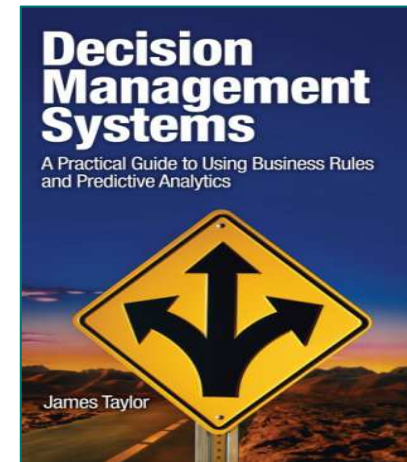
## Suitable Decisions

Repeatable

Non trivial

Measurable  
business  
impact

Candidate for  
automation




Source: James Taylor: Decision Management Solutions

## Build: Start with a configurable solution accelerator – Template or Blueprint

**IBM® SPSS® Decision Management for Claims**

**Intelligent risk management in real time**

Assess the overall risk level for incoming claims and recommend the specific action to take.



New

**IBM® SPSS® Decision Management for Fraud Detection**

**Informed transactional decisions: Fraud Mitigation**

Assess potential for fraud using rules and predictive models and apply predictive intelligence to real-time transactions to recommend actions that minimize impact of fraud to your organization.

New

**IBM® SPSS® Decision Management for Risk Assessment**

**Informed transactional decisions: Risk Assessment**


Assess potential risk level for credit risk using rules and predictive models to recommend actions and inform risk-based decisions.

New

**IBM® SPSS® Decision Management for Customer Interactions**

**Recommendations where and when you need them**

Decide what to offer customers when they contact your organization, and deliver recommendations to the call center or other interaction points.

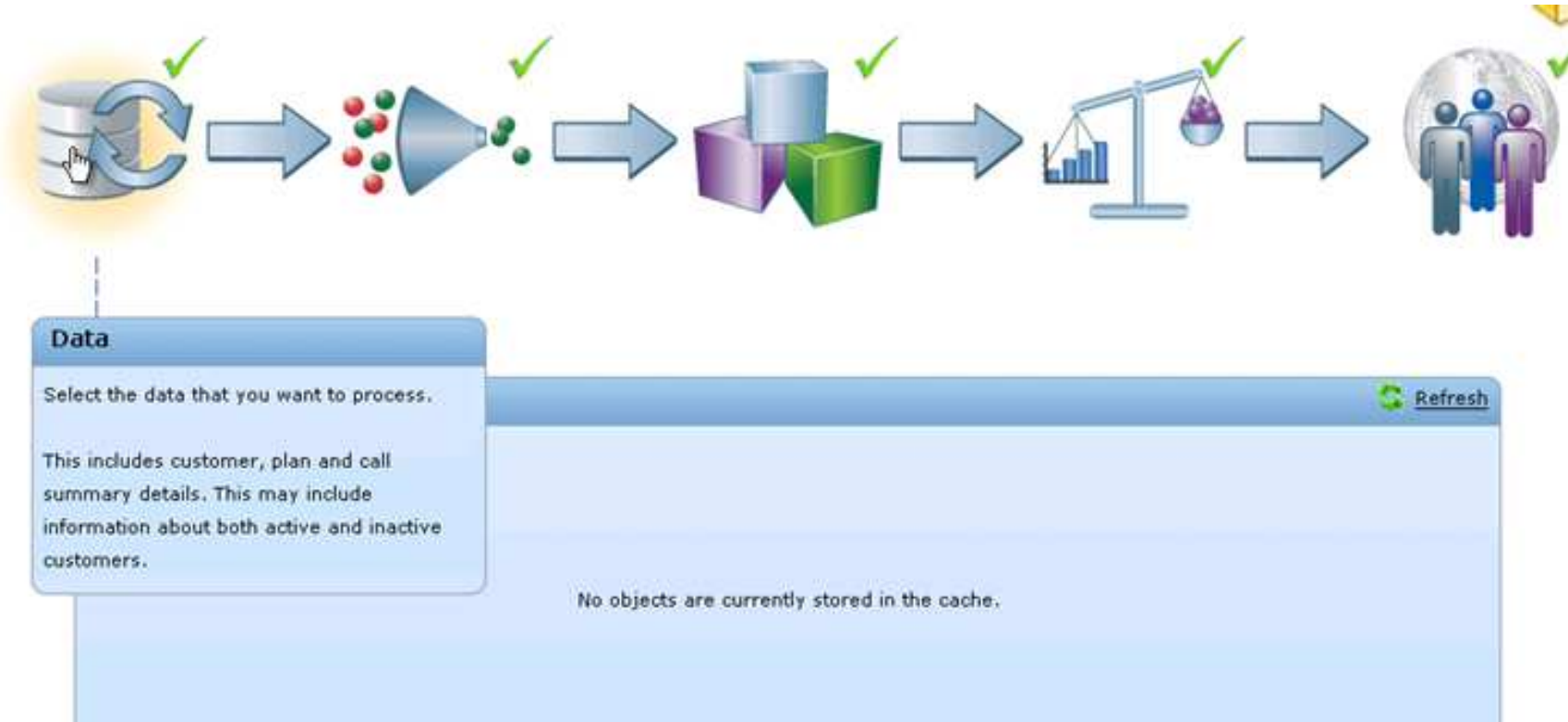


New

## A Sample of IBM Analytical Decision Management Blueprints

- ✓ **Customer Interaction** Management Application
- ✓ **Claims Management** Application
- ✓ **Retail Bank Fraud and Risk Management** Blueprint
- ✓ **Retail Promotions** Blueprint
- ✓ **Profitability and Customer Retention** for Telco
- ✓ **Retail Promotions** with Coremetrics
- ✓ **Chronic Disease Management** (Stroke Recurrence)
- ✓ **Campaign Management**
- ✓ **Insurance Retention**
- ✓ **Predictive Debt Collection**
- ✓ **Predictive Maintenance**
- ✓ **Next Best Action** for Telco (for Signature Solution)
- ✓ **Health Care Fraud** (for Signature Solution)

## Build: Step by step analytical decision making



## Define Global Selections to select the correct customer segments

The screenshot displays the 'Next Best Action' web application interface. At the top, there are navigation tabs: 'Data', 'Global Selections' (highlighted), 'Define', 'Prioritize', and 'Deploy'. The user is logged in as 'Weboma admin'. The main area is titled 'Telco\_Postpaid\_Next\_Best\_...' and contains several options: 'Lock project (other users will be unable to edit)', 'Hide Global Selections tab from non-administrators', and 'Lock all Global Selections options'. Below these is the 'Manage Global Selections' section, which includes links for 'Find an existing rule', 'Create a new rule', 'View selection logic', and 'Export'. A table lists the selected rules:

Rule name	Include/Exclude	Remove
1. Postpaid_CallCenter_Cust	Include	[Remove]
IS POSTPAID CUSTOMER = 1		
CALL CENTER RESPONSE = 1		

On the right side of the interface, there is a funnel icon with a green checkmark, a 'Mark as done' checkbox, and navigation arrows.



## Define targeted actions

The screenshot shows the 'Customer Next Best Action' interface. At the top, there are navigation tabs: 'Data', 'Global Selections', 'Define' (selected), 'Optimize', and 'Deploy'. The 'Define' tab is active, showing a 'Properties of Retain' window. The window has a 'Choose Who This Campaign Applies to' section with a table of rules. The table has columns for 'Rule name', 'Include/Exclude', and 'Remove'. There are three rules listed: 'Check campaign eligibility', 'High churn and high network influence', and 'HasUnicaOffers'. All three are set to 'Include'. Below the table is an 'Allocate Using Segment Rules' section. On the left, there is a 'Search Dimensions:' field and a list of dimensions including 'Retain', 'Data Plan', 'Value family plan', 'Premium phone', 'Value Coupon', 'Grow', 'Accessories', 'Extras', 'Services', and 'Support'. On the right, there are 'Simulate' and 'Test' buttons. The top right of the interface shows 'Welcome admin | Help | About | Logout IBM.' and a toolbar with various icons.

Rule name	Include/Exclude	Remove
1 Check campaign eligibility	Include	X
2 High churn and high network influence	Include	X
3 HasUnicaOffers	Include	X



# Define rules/predictive models to determine which actions are valid for any single customer

The screenshot displays the 'Properties of Retain' configuration window. It is divided into three main sections:

- Search Dimensions:** A search bar at the top left.
- Choose Who This Campaign Applies to:** A table defining eligibility rules.
 

Rule name	Include/Exclude	Remove
1. Check campaign eligibility	Include	X
2. High churn and high network influence	Include	X
3. HasUnicaOffers	Include	X
- Allocate Using Segment Rules:** A section for defining allocation rules.
 

Allocation method:  Allocate using rules  Multiple allocation  Allocate randomly

Allocate to: First valid

Rule name	Allocate to	Sort	Remove
1. High Lifetime value	Premium phone	▲▼	X
2. Medium Lifetime value	Data Plan	▲▼	X
3. Low Lifetime value	Value family plan	▲▼	X
4. Remainder	Value Coupon		

On the left side, a tree view shows the campaign structure under 'Retain':

- Data Plan
- Value family plan
- Premium phone
- Value Coupon
- Grow
  - Premium data plan
  - Tablet
  - Premium family plan
  - \$ 5 credit coupon
- Accessories
- Extras
  - Cash credit
  - Free minutes
  - Free data pack
  - Music store coupon
- Services
  - Update 5 friends
  - Warranty service
  - Courtesy alert
- Support
  - Route to Level 1 support
  - Route to Level 2 support
  - Route to Level 3 support

# Simulation to see how campaigns and offers are allocated based on the sample data



## Pick the optimised action from all the valid actions

Customer Next Best Action

Welcome admin | Help | About

Data Global Selections Define **Optimize** Deploy

Lock project (other users will be unable to edit) NBA

Hide Prioritization tab from non-administrators

**Prioritization Parameters**

MaxOffersNum:


Campaign/Of...	RESPONSE PROPENSITY	REVENUE	LOYALTY	CHURN	FUTURE REVENUE	ORDER
<b>Retain</b>						
Data plan	<input type="text" value="Response"/> ↓	<input type="text" value="111"/>	<input type="text" value="0.5"/> ↓	<input type="text" value="CHURN_SCC"/> ↓	<input type="text" value="CUSTOMER_"/> ↓	▲▲
Value family	<input type="text" value="Response"/> ↓	<input type="text" value="189"/>	<input type="text" value="0.6"/> ↓	<input type="text" value="CHURN_SCC"/> ↓	<input type="text" value="CUSTOMER_"/> ↓	▲▲
Premium ph	<input type="text" value="Response"/> ↓	<input type="text" value="230"/>	<input type="text" value="0.6"/> ↓	<input type="text" value="CHURN_SCC"/> ↓	<input type="text" value="CUSTOMER_"/> ↓	▲▲
Value Coupo	<input type="text" value="0.9"/> ↓	<input type="text" value="20"/>	<input type="text" value="0.1"/> ↓	<input type="text" value="CHURN_SCC"/> ↓	<input type="text" value="CUSTOMER_"/> ↓	▲▲
<b>Grow</b>						▲▲
<b>Accessories</b>						▲▲

**Prioritization Model (Value to be maximized)**

**Prioritization Equation**

RESPONSE PROPENSITY (X) ( REVENUE (+) LOYALTY INCREASE (X) CHURN RISK (X) FUTURE REVENUE ( )

Constraints ▶



tion

## Run What-If simulations to analyse the impact to the bottom line

Customer Next Best Action Welcome admin | Help | About | Logout IBM

**Data** Global Selections Define **Optimize** Deploy

### WhatIf?

Simulation Data Source:  Simulation Date: From: 2012-06-07 20:56:27 To:   No expiration

▶ Prioritization Parameters  
▶ Report Settings

Name:

▼ WhatIf Results

View  All results  All runs

Display  Number of runs retained: 1

Offer	Count	Offers Accep...	Total OFFER ...	Total PROM...	Expected pro...
<input checked="" type="checkbox"/> Accessories	284	272	901	10.9	20818.67
<input checked="" type="checkbox"/> Extras	250	226	199	10.2	20714.28
<input checked="" type="checkbox"/> Grow	4	79.76	2700	40	7158.24
<input checked="" type="checkbox"/> Retain	4	72.76	2645	40	7607
<input checked="" type="checkbox"/> Services	210	201.3	703	0	13354.38
<input checked="" type="checkbox"/> Support	99	84.8	155	0	4930.15
<b>Total</b>	<b>851</b>	<b>936.62</b>	<b>7303</b>	<b>101.1</b>	<b>76582.72</b>

Total Records: 863

## Deploy for real-time scoring

Next Best Action Welcome admin | Help

**Data** Global Selections Define Prioritize **Deploy**

Lock project (other users will be unable to edit) Telco\_Postpaid\_Next\_Best\_...

Hide Deploy tab from non-administrators Lock all Deploy options

▶ Production Process Labels

▼ Interactive Questions  Hide interactive questions

**Interaction points**

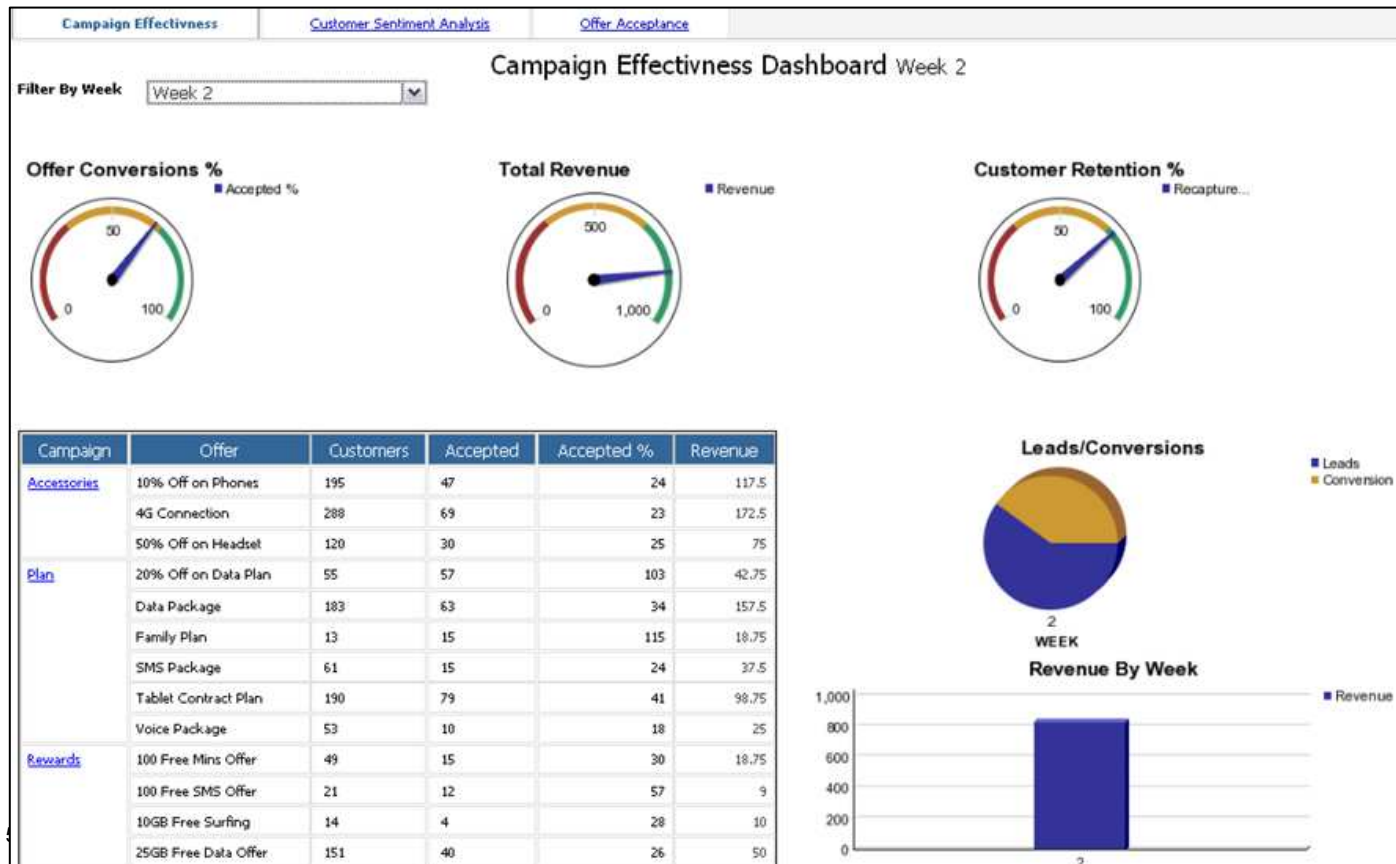
Use same questions for all interaction points Select interaction point: Call Center

Field name	Prompt text	Enable
CUSTOMER ID		<input type="checkbox"/>
CUSTOMER NAME		<input type="checkbox"/>
AGE		<input type="checkbox"/>
CITY		<input type="checkbox"/>
EDUCATION		<input type="checkbox"/>

Deploy as Deploy Validate Deploy

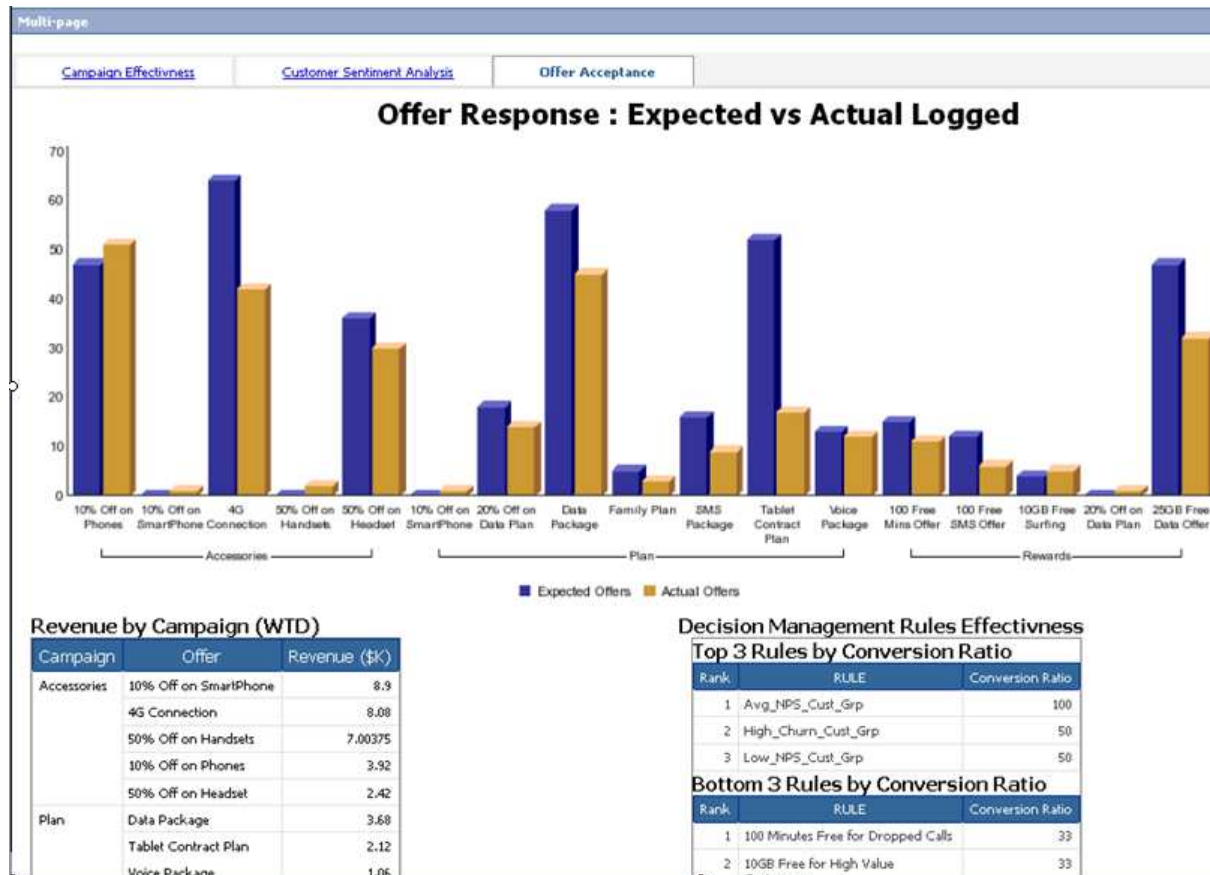
▶ Score Now

# Report





# Monitor performance



## Session objectives

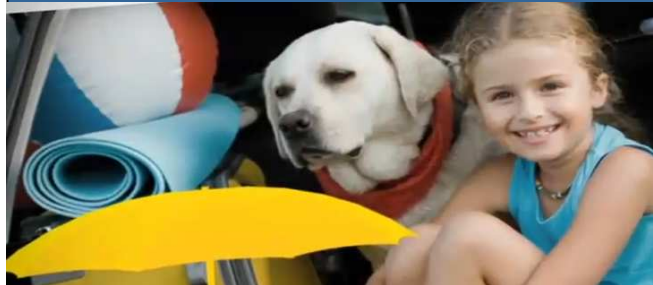
### In today's session we will cover:

1. Optimising decision at the point of contact as a competitive advantage
2. Elements of IBM Analytical Decision Management
3. Path to Decision Management
- 4. Case Studies**
5. Summary



## Santam Insurance catches fraud early

Business challenges	Solution	Benefits
<ul style="list-style-type: none"> <li>▪ Santam was losing millions of dollars paying out fraudulent claims every year.</li> <li>▪ Low customer satisfaction due to higher premiums and longer waits to settle legitimate claims</li> </ul>	<ul style="list-style-type: none"> <li>▪ Helped to catch fraud early in the claim process with real-time decision making</li> <li>▪ Used effective risk segmentation with a wide range of key factors to detect fraud with high accuracy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Identified a major fraud ring in less than 30 days after implementation</li> <li>▪ Saved more than USD 2.5 million in payouts to fraudulent customers, nearly USD 5 million in total repudiations in less than six months</li> <li>▪ Improved customer service by enabling legitimate claims to be settled within an hour, more than 70 times faster than before</li> </ul>



## BMW improves web channel conversion

### Business challenges

- BMW concerned that its website was not successful at converting visitors to request dealer appointments due to lack of the customer personalisation



### Solution

- Generated real-time scoring applied to anonymous or returning site visitors.
- The decision models driving the automated selection of teasers (banners) was built directly into the website
- Continuously learned, to steer display teasers becoming more accurate as additional live behavioural data was accumulated

### Benefits

- Significantly increased the value of the website to the company's overall sales process
- Turn anonymous users into customers by driving product selection through predictive modelling
- Created a level of intimacy between the user and the company that promoted a high degree of loyalty and, by extension, vehicle purchases

## A leading US apparel & home furnishing creates customer intimacy

Business challenges	Solution	Benefits
<ul style="list-style-type: none"> <li>The company concerned about the lack of differentiation in a very competitive retail market through its e-commerce site and 1100 stores across US and Puerto Rico</li> </ul>	<ul style="list-style-type: none"> <li>Generate real-time individualised cross-sell and up-sell offers and targeted promotions for store associates</li> <li>Deliver the optimal response to each customer interaction across channels</li> </ul>	<ul style="list-style-type: none"> <li>Increased website revenue through improved channel conversion and larger basket sizes</li> <li>Made actionable data for day-to-day decision support accessible to key people throughout the enterprise, from the store associate to executives in Marketing, Merchandising and Supply Chain</li> </ul>



## An European tax collector agency minimises tax evasions

Business challenges	Solution	Benefits
<ul style="list-style-type: none"><li>▪ This agency was significantly handicapped by manual and disconnected anti-fraud systems and risk detection techniques</li></ul>	<ul style="list-style-type: none"><li>▪ Real-time decision management to determine the fraud risk of each taxpayer</li><li>▪ Automatically apply risk profiles across the entire population based on a large volume of data</li><li>▪ Predict which individuals within that population represent a heightened risk for committing tax fraud</li></ul>	<ul style="list-style-type: none"><li>▪ Enabled profiling of all taxpayers across the nation based on demographic and behaviour factors through automated modelling capabilities</li><li>▪ Increased resource optimisation by predicting fraud risk associated with each profile and targeting audits to individuals at the highest risk of tax evasion</li><li>▪ Increased tax revenue collected</li></ul>



## Session objectives

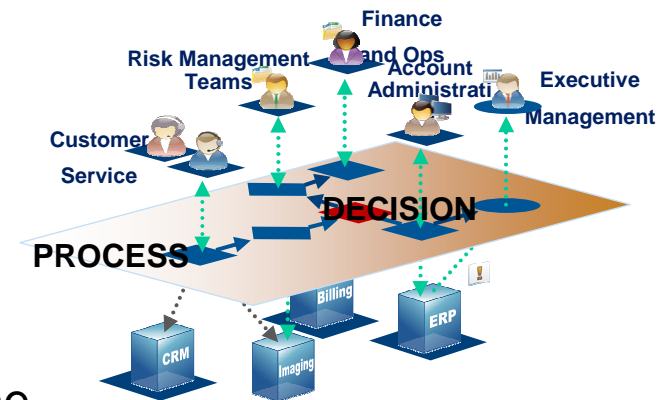
### In today's session we will cover:

1. Optimising decision at the point of contact as a competitive advantage
2. Elements of IBM Analytical Decision Management
3. Path to Decision Management
4. Case Studies
5. Summary

## Summary

IBM Analytical Decision Management revolutionises how organisations make decisions, empowering frontline workers and systems to make the right decision each time.

- Empowers real-time, adaptive decisions to accommodate changing conditions
- Provides recommended actions based on breadth and depth of predictive analytics, local rules, scoring and optimisation techniques at the point of impact
- Optimises transactional decisions with resource constraints





**Thank You**