



IBM Performance 2011

Breakthrough results with
Decision Management

Speaker:

Date:



What impacts your decision making?



Where you want to be!



A decision with a favorable outcome

What's in your way!



Data?
Process?
Policy?
People?
Location?

Politics?
Knowledge?
Legal constraints?
Time?

Agenda



- Decisions— what are they, who makes them and how
- Transformation and breaking away
- Practical advice as you leave today
- Q&A

Average companies are way behind on decision making



The average organization has the **potential to more than double** its ability to make and execute key decisions. **On a decision-effectiveness scale of 0 to 100, the best companies score an average of 71, while most companies score only a 28.**



Marcia W. Blenko, Michael C. Mankins, and Paul Rogers, authors of
Decide & Deliver: 5 Steps to Breakthrough Performance in Your Organization.

Who makes decisions?



- Different kinds of people
 - Consumers
 - Call Center Reps
 - Sales People
 - Line of Business Managers
 - Executives
 - Different kinds of systems
 - IVR / Phone system
 - Website
 - CRM system
 - Custom risk management database

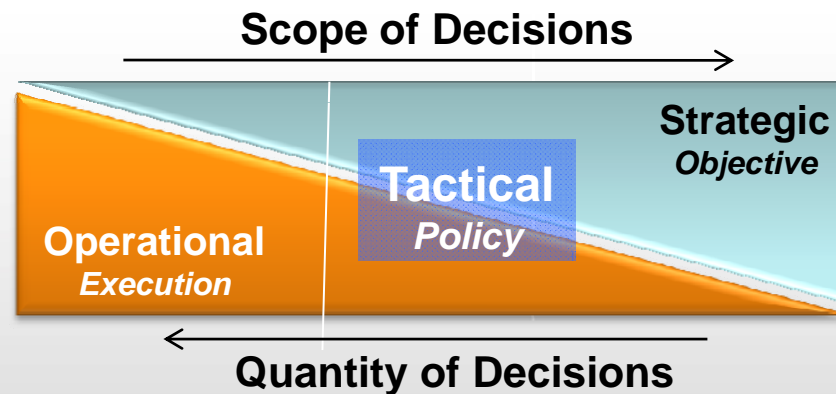
**I MADE 120
DECISIONS TODAY...
ALL OF THEM **WRONG.****



Decisions vary in scope



- Strategic decisions
 - Set the long-term direction for the organization. An initiative which results in guidelines within which operational decisions are made.
- Tactical decisions
 - The formation of policy or process. Focused on a specific project or objective which is executed at a tactical level.
- Operational decisions
 - Applying a policy, process, or rule set to a specific case. Lends itself to automation





Problems inevitably lead to operational decisions

- Public security
 - Problem: I can't search every car that crosses the border.
 - Decision: Which car should I search?
 - Who: Border control guard

- Insurance
 - Problem: I can't investigate every claim for fraud.
 - Decision: Should I investigate this claim?
 - Who: Claims specialist

- Telecommunications
 - Problem: I can't save every customer.
 - Decision: Is it worth trying to save this customer?
 - Who: Call center agent

Practical advice



When you get home

- Identify a business objective where you care about the results
- Identify the limiting factor of the decision – the problem
- Identify WHO makes decisions which impact this business problem – cover strategic, tactical and operational perspectives
- Articulate the value of making a better decision

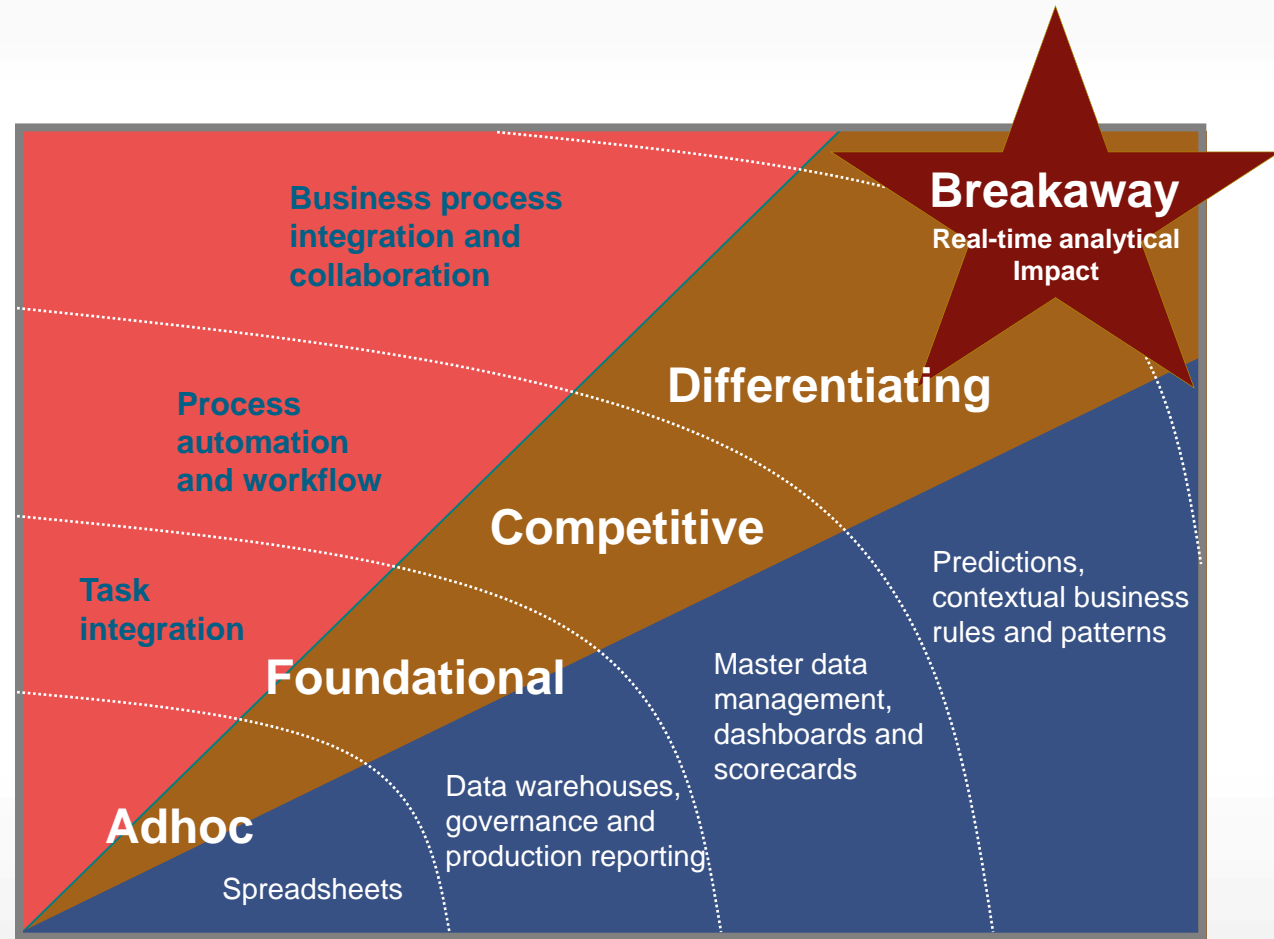
How mature is your decision making?



Business Operations Maturity

How the business applies information to achieve its goals

- Policies
- Business processes
- Organization

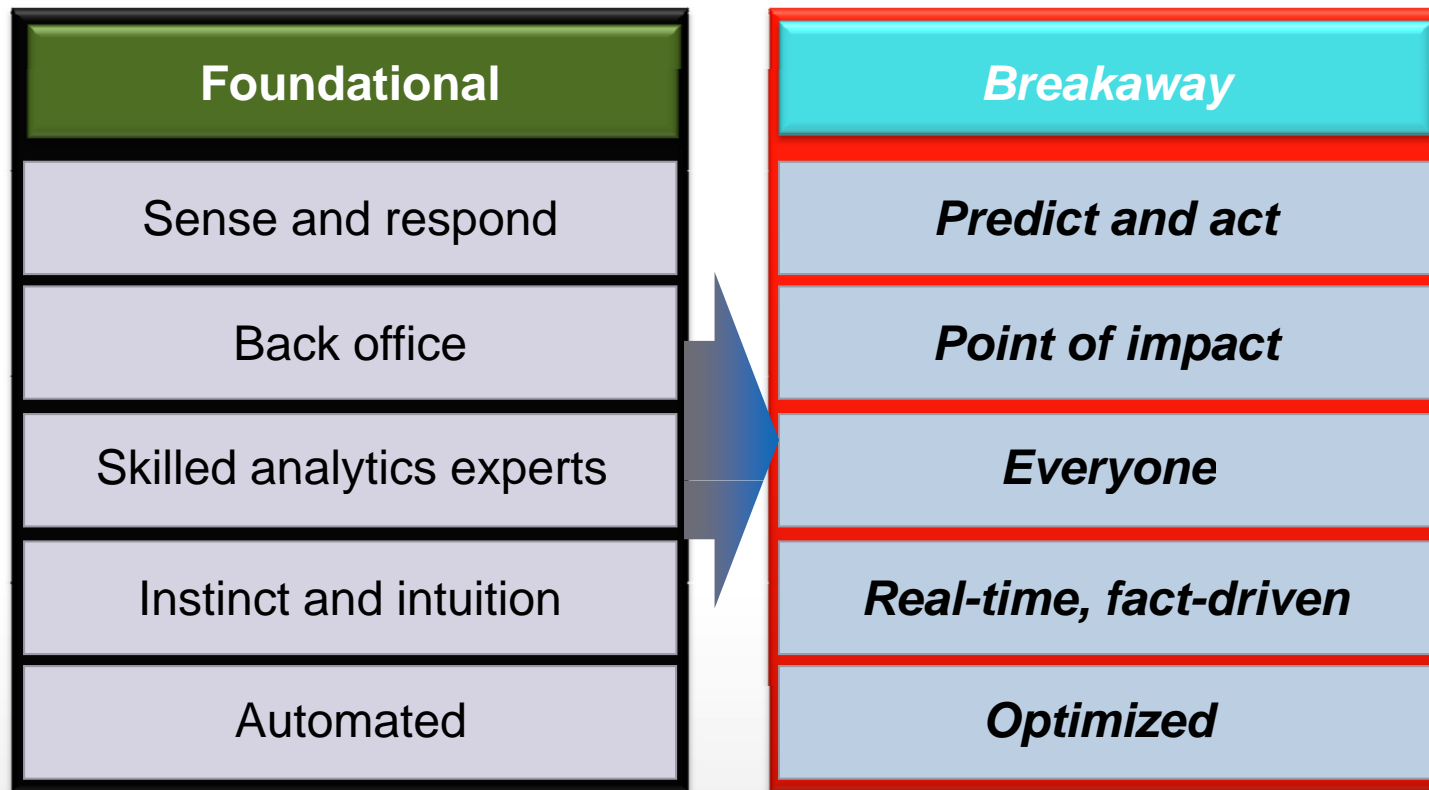


Information and Analytics Maturity

How the business manages information and learns from it

Source: *Breaking Away with Business Analytics and Optimization*; Q4 09
www.ibm.com/gbs/intelligent-enterprise.

Optimizing every decision at the point of impact...





IBM SPSS Decision Management:

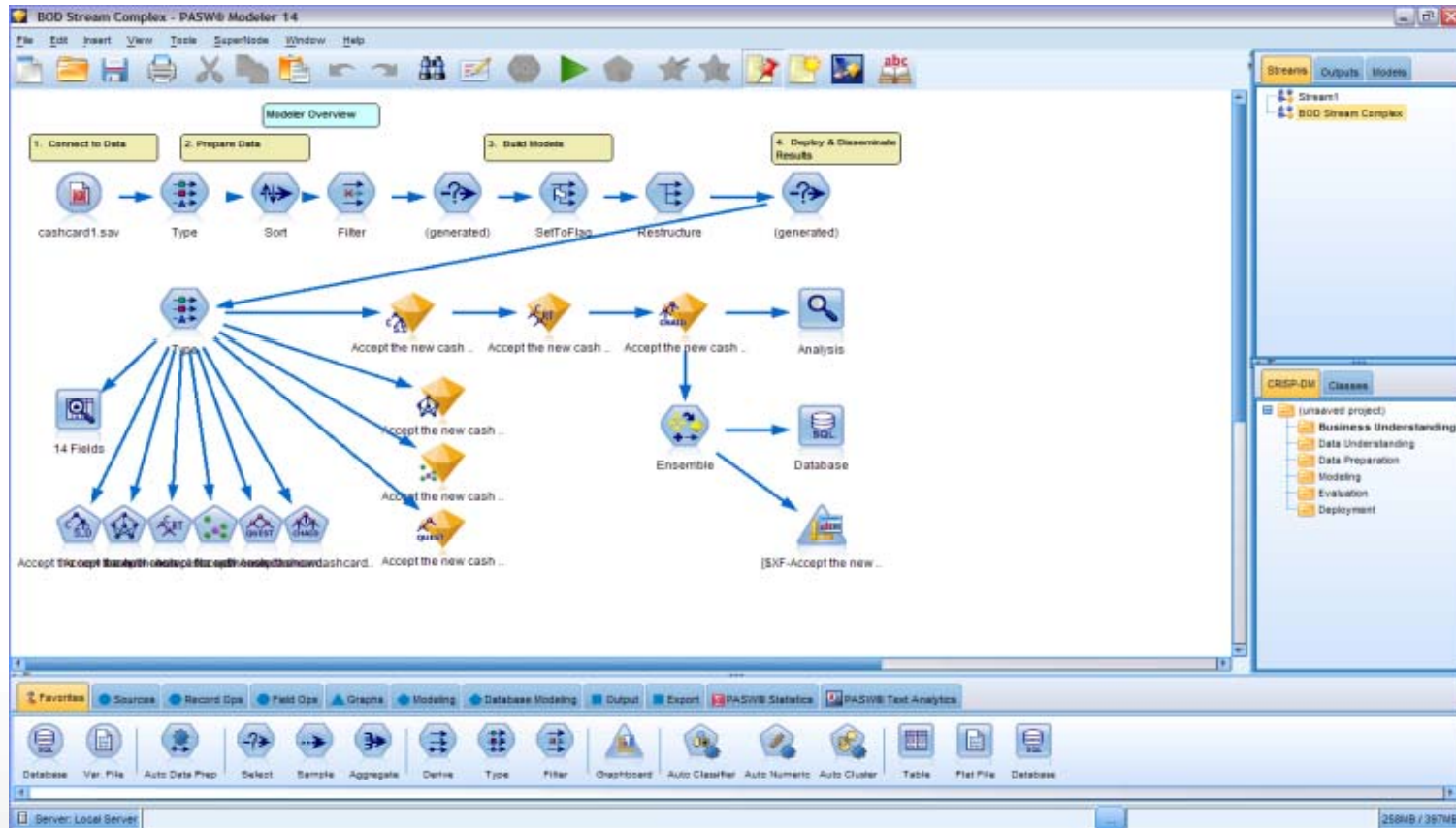
Turning information into action at point of impact

- Turnkey mission-critical solutions
 - Built on time-tested methodologies
 - Proven and scalable technology
- Empowering Line of Business owner
 - General management
 - Marketing
 - Finance
 - Operations
- Best practice in decision making
 - User definable
 - Completely configurable

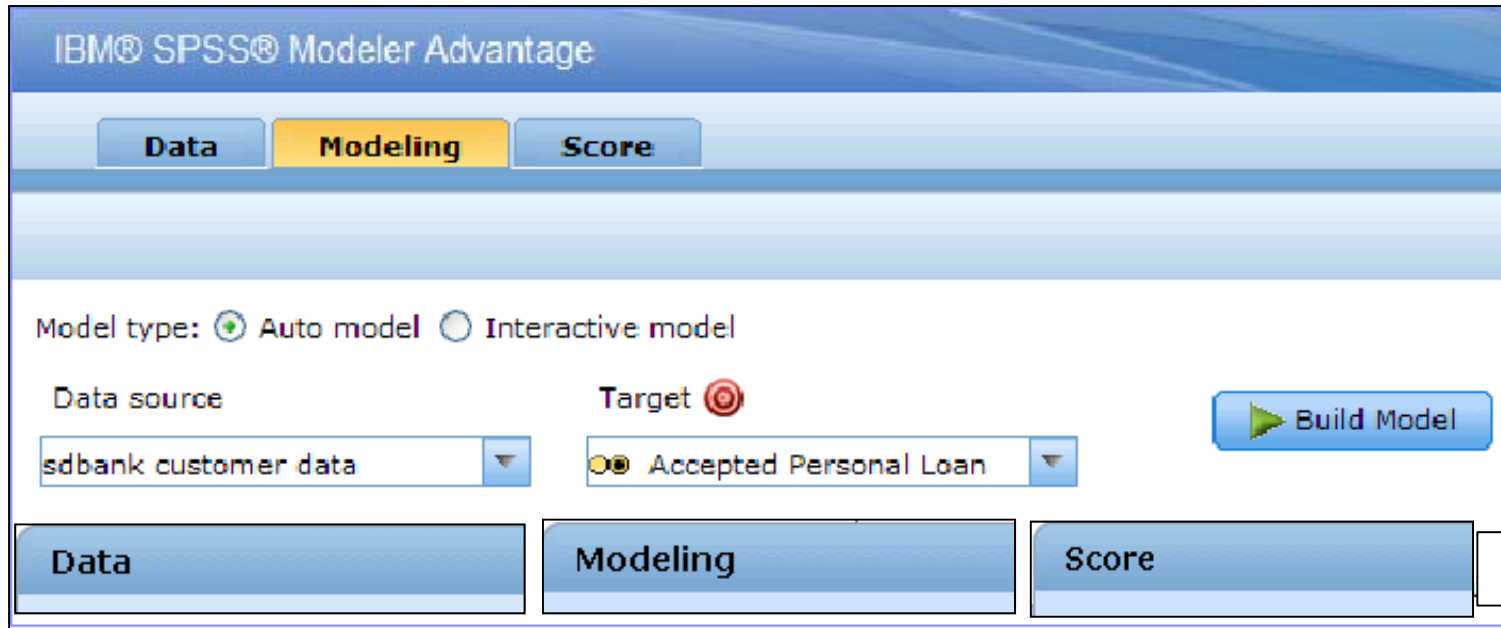
The screenshot displays the PASW Decision Management interface. It features several main panels: 'Claims Management' (Intelligent risk management in real time), 'Rules Management' (Manage the rules defined and stored in the system), 'Modeler Advantage' (Predictive modeling for the business user), and 'Customer Interaction Management' (Recommendations where and when you need them). A 'Combine Matrix' table is overlaid on the bottom right, showing a grid of actions and their corresponding colors.

Combine Matrix	Model Actions			Matrix Colors
	Fast Track	Follow S...	Potentia...	
Fast Track	Fast Track	Follow S...	Follow S...	Fast Track
Follow S...	Follow S...	Follow S...	Potentia...	Follow Standard Process
Potentia...	Follow S...	Potentia...	Potentia...	Potentially Fraudulent

From skilled analytics experts...



To Line of Business owners...



3-Click automated modeling

Practical advice



- Take a skills inventory of the people who impact your decisions.
- Understand which questions can only be answered by your analytic experts – what would happen if those people didn't come to work tomorrow?

From instinct & intuition to fact-driven solutions

Decision management solutions based on business problems



Decision management for claims optimization

PASW® Claims Management

Data Global Selections Define Combine Deploy Reports

Lock project (other users will be unable to edit)

What If...
Simulation Data Source: sdbank claims data
Simulation Date: 2009-11-02 12:41:27
Claim Area: All
Interaction Point: Auto

Combine matrix	Model actions			Results		
	Refer	Standard	Fast Track	Action	Count	Percent
Refer	Refer	Refer	Standard	Refer	77	9.872%
Standard	Refer	Refer	Standard	Standard	187	23.974%
Fast Track	Refer	Standard	Fast Track	Fast Track	516	66.154%
					780	100%

NAME: Run 3 [Run] [Update Settings] [Close]

Total Simulation Records: 975
Display: Count Number of runs retained: 3

Action	Run 1	Run 2	Run 3	Distribution
Refer	22	25	77	
Standard	55	239	187	
Fast Track	703	516	516	
Total	780	780	780	

Decision management for customer interactions

PASW® Customer Interaction Management

Data Global Selections Define Prioritize Deploy Reports

Lock project (other users will be unable to edit) Customer Interactions LATEST

Retention Properties
Active From: 2009-10-23 19:54:14 To: AAA
Interaction points: Call Centre Website Branch

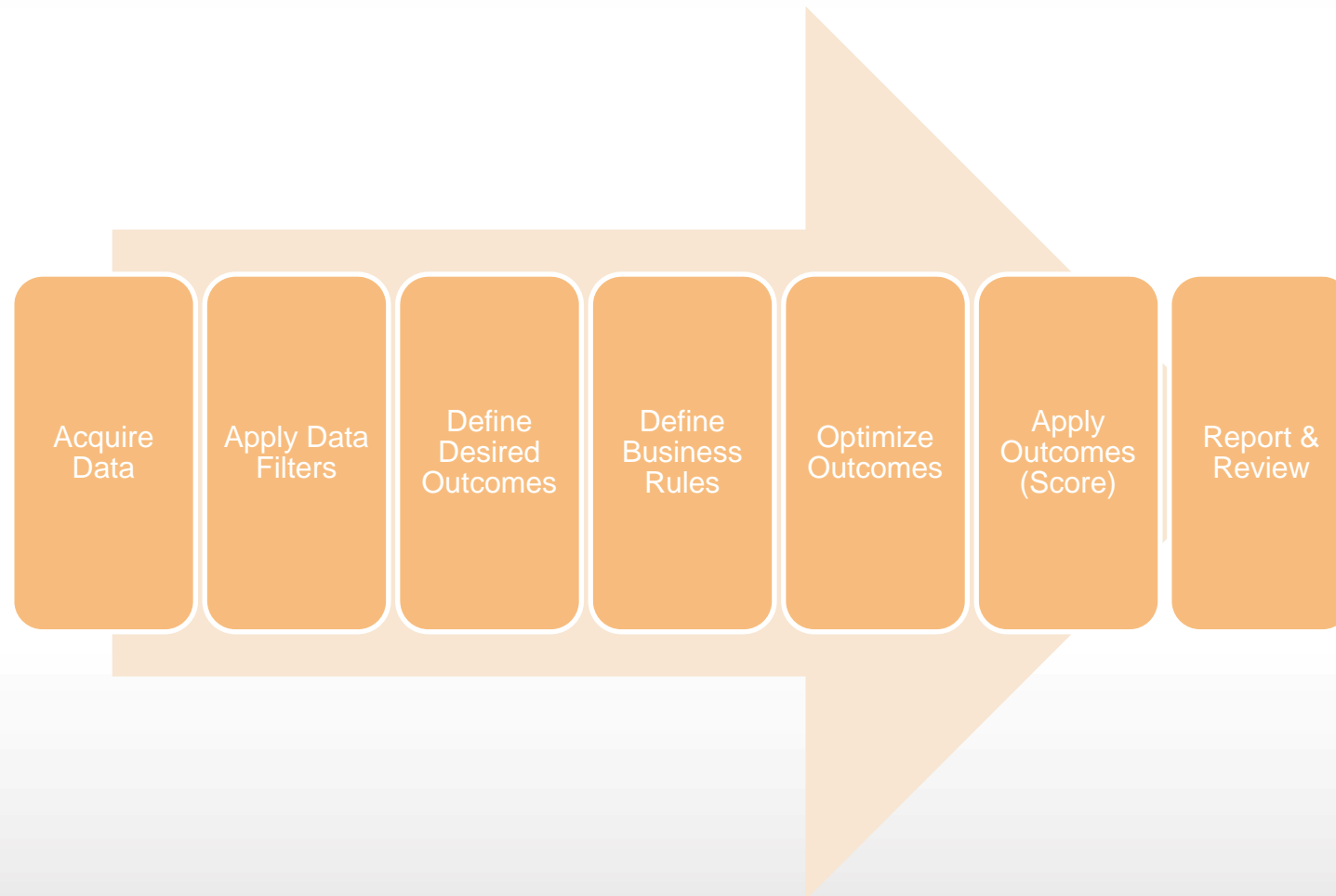
Choose Who This Campaign Applies to
Rule name: High Value Customers
Include/Exclude: Include

Allocate to
Allocate using rules Allocate randomly

Rule name	Allocate to	Sort
1 Females	Theatre Tickets	
2 Males	Racing Day	
3 Remainder		

IBM SPSS Decision Management:

Seven steps to success



Acquire
Data

Apply Data
Filters

Define
Desired
Outcomes

Define
Business
Rules

Optimize
Outcomes

Apply
Outcomes
(Score)

Report &
Review

IBM SPSS Decision Management:

Getting started



Step 1: Select data sources (ETL Style Extraction)

Data Sources

Project Data Sources + Add a data source

Name	Preview	Compatible	Copy	Remove	<input type="checkbox"/> Lock
sdbank claims data		Project Data Model			<input type="checkbox"/>
sdbank fraud data		Map Fields			<input type="checkbox"/>

Step 2: Apply data filters

Manage Global Selections

[Find an existing rule](#) [Create a new rule](#) [View selection logic](#) [Export](#)

Rule name - [Include/Exclude](#) [Remove](#)

1 [Natural Causes](#) [Exclude](#)

Cause Accident = Nat...

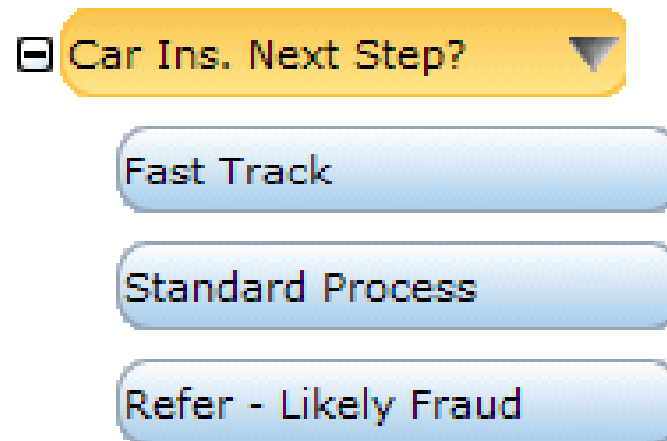
IBM SPSS Decision Management:

Getting started



Step 3: Define desired outcomes

Typically with all decisions there is a finite set of desired outcomes that can be achieved.



In this example the insurance company has identified three possible outcomes to a consumer's claim.



IBM SPSS Decision Management:

Getting started

Step 4a:

Define business rules

Rule name -	Risk points	Sort	Remove
1 Young Male Driver	2	▲▼	✖
2 Initial Provision over 3k	1	▲▼	✖
3 Initial Provision above 5k	2	▲▼	✖
4 Police not called to the...	2	▲▼	✖
5 Remainder	0		

Add Action Add annotations

Sum of Points >= ↓	Allocate to	Remove
1 5	Refer - Likely Fraud	✖
2 2	Standard Process	✖
3 0	Fast Track	

Step 4b:

Leverage existing predictive models or create new ones

Find a model Build a model

Model	Target	Measure	Remove
fraud_model.strFraud		Propensity	✖

Add Action Add annotations

Propensity >= ↓	Allocate to	Remove
1 0.5	Refer - Likely Fraud	✖
2 0.3	Standard Process	✖
3 0	Fast Track	

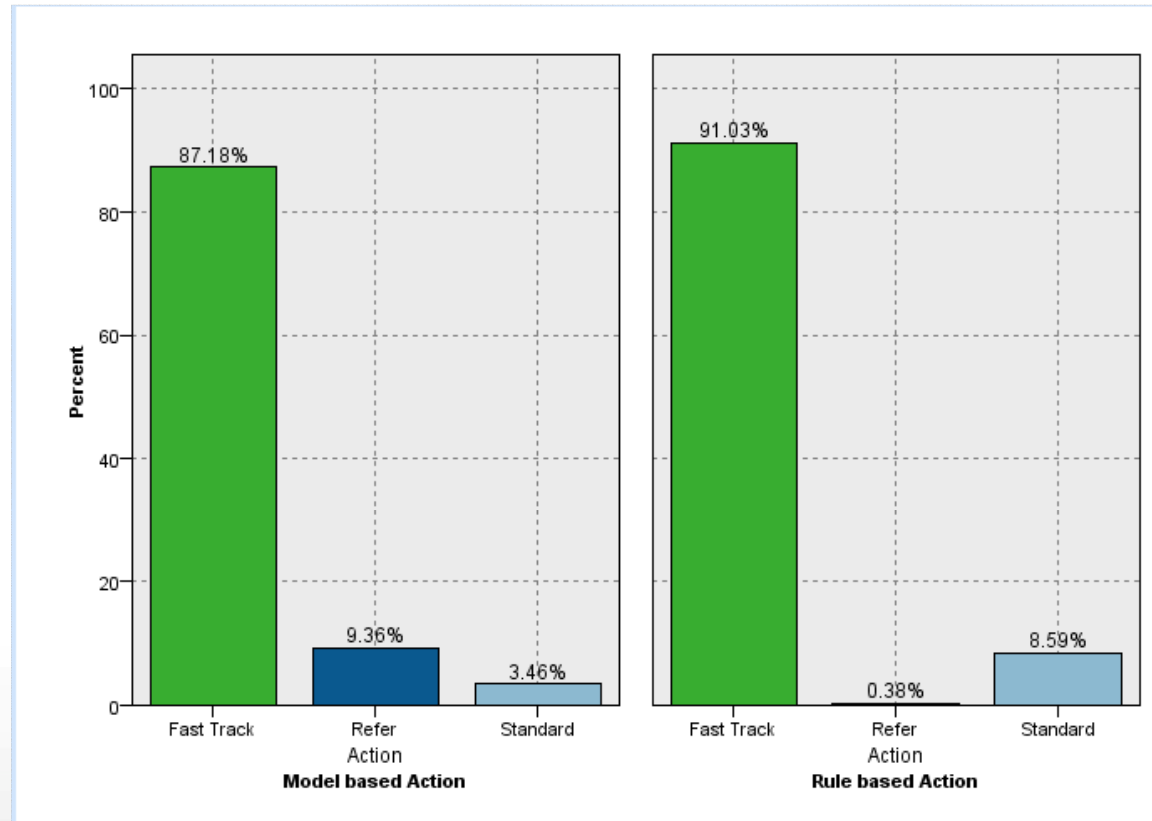
IBM SPSS Decision Management:

Getting started



Step 4 (cont.):

Models and Rules each contribute to support an outcome...valuable standalone...but much more useful together!





IBM SPSS Decision Management: *Getting started*

Step 5: Optimize outcomes

The decision outcome is optimized and balanced between the predictive models that provide real time insight and the rules that govern the policy and practices of the company

What If...

Simulation Data Source: sdbank claims data Simulation Date: 2010-04-26 10:42:37 Claim Area: Auto

Combine matrix	Rules actions	Model actions			Results		
		Refer	Standard	Fast Track	Action	Count	Percent
Refer	Refer	Refer	Refer	Standard	Fast Track	710	91.03%
Standard	Standard	Standard	Standard	Standard	Refer	3	0.38%
Fast Track	Fast Track	Fast Track	Fast Track	Fast Track	Standard	67	8.59%
						780	100%

Name: Run 3 Run Update Settings Close

Total Simulation Records: 975

Display: Count Number of runs retained: 2

Action	Run1	Run 2	Distribution
Fast Track	680	710	
Refer	62	3	
Standard	38	67	
Total	780	780	

Utilize what-if analysis for optimization and prioritization



IBM SPSS Decision Management:

Getting started

Step 5: Optimize outcomes

- The project is ready to move into production (for real time inbound decisions) or score in batch to deliver outbound communications
- Model Management capabilities allow ongoing monitoring / improvement of the models in production

Deploy As

Deploy
Testing
Preproduction

SDBankInsure Welcome: Piet Pietersen | log out | help

Thursday, 2010-04-15

START

NOTIFICATION

Identification

Incident

Damage

Liability

CLAIM

Coverage

Payment

ALERT

Customer ID 1 Claim ID 2554363

Identification

Gender of Driver * Male

Age of Driver * 20

Cause Accident * Collision in the back

Claim Type Notification *

Claim Area * Auto

Postal Code

Phone Number

Occupation

OK

Incident

Date of loss 01/03/10

Time of loss 1:00

Number of vehicles 2

Number of damaged vehicles 1

Number of towed vehicles 0

Towing service used No

Number of people 2

Number of injured people 1

Number of witnesses 0

Ambulance Yes No Unknown

Police report * Yes No Unknown

OK

Coverage

Comp & collision

Property damage

Liability property damage

Liability bodily injury

Uninsured motorists property damage

Uninsured motorists bodily injury

Person injury protection

Medical payment

OK

Liability

Responsibility

OK

Suggested Action: Refer
Claim Area evaluated: Auto



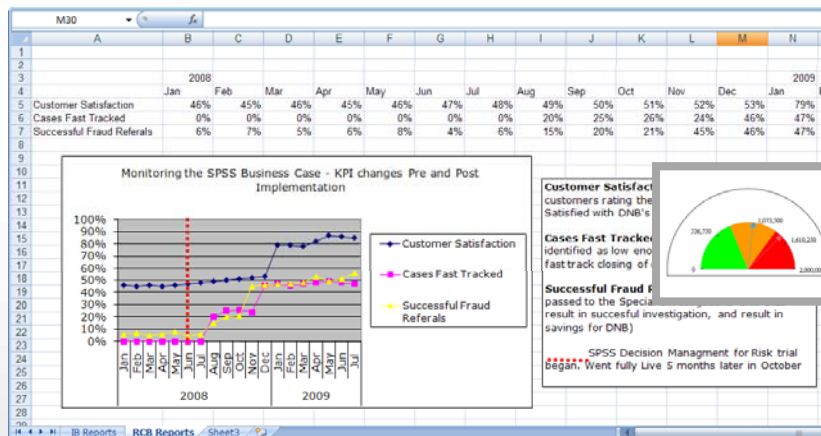
IBM SPSS Decision Management: Getting started

Step 7: Report and review outcomes

My Reports

Find a report

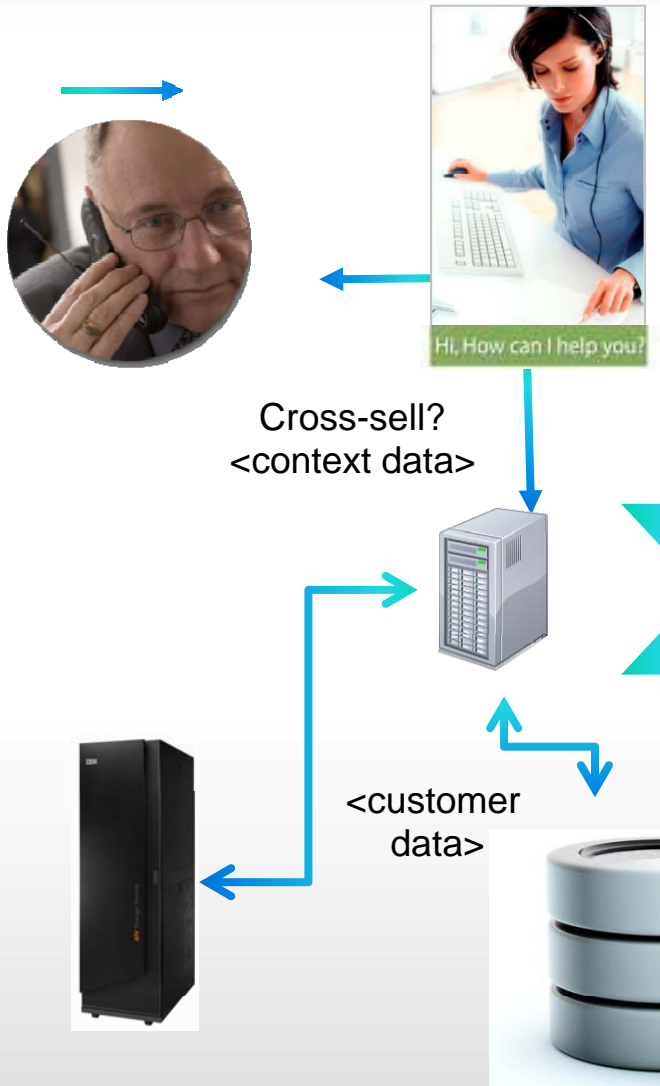
Name	Author	Version	Action	Remove
SimpleListReport.rptdesign	admin	1270752572484		
Fraud KPIs.xls	admin	1270750743562		



Customer Listing (Claims with Initial Provision set at greater than 10000)

Claim ID	Customer ID	Claim Type	Initial Provision
Change of direction			Total Provision: \$207,800.00
2310101	18772187	Material and injury	\$15,700.00
2323824	18027468	Material and injury	\$15,700.00
2329162	18029826	Material and injury	\$17,400.00
2329532	18052076	Material and injury	\$15,700.00
2421311	18662028	Material and injury	\$15,700.00
2424228	18662450	Material and injury	\$15,700.00
2438028	18674644	Material and injury	\$15,700.00
2467421	8055555	Material and injury	\$17,650.00
2487918	10505049	Material and injury	\$16,600.00
2516560	8029132	Material and injury	\$15,700.00
2526432	18895406	Material and injury	\$15,700.00
2536447	8991423	Material and injury	\$70,300.00
Collision in the back			Total Provision: \$15,700.00
2594838	18821830	Material and injury	\$15,700.00
Exceeded speed limit			Total Provision: \$123,000.00
2214161	8007959	Only injury	\$29,000.00
2338992	18028322	Material and injury	\$15,700.00
2348784	18884344	Material and injury	\$17,150.00
2395607	18833105	Material and injury	\$31,400.00
2421036	10561316	Material and injury	\$18,650.00
2521398	10999238	Only injury	\$15,000.00
2523224	10999207	Only injury	\$20,000.00
Loss of attention			Total Provision: \$186,400.00
2294113	8740062	Material and injury	\$19,700.00
2345922	16035553	Material and injury	\$15,700.00
2348053	18587182	Material and injury	\$15,700.00
2429339	18884823	Material and injury	\$15,700.00
2434459	18888289	Material and injury	\$16,900.00
2450328	18732899	Material and injury	\$15,700.00
2461304	18875773	Material and injury	\$15,700.00
2464269	18022229	Material and injury	\$15,700.00
2514899	18992121	Material and injury	\$30,200.00
2325061	8642003	Material and injury	\$15,700.00
2518467	18896298	Material and injury	\$15,700.00

From the back office to the point of interaction

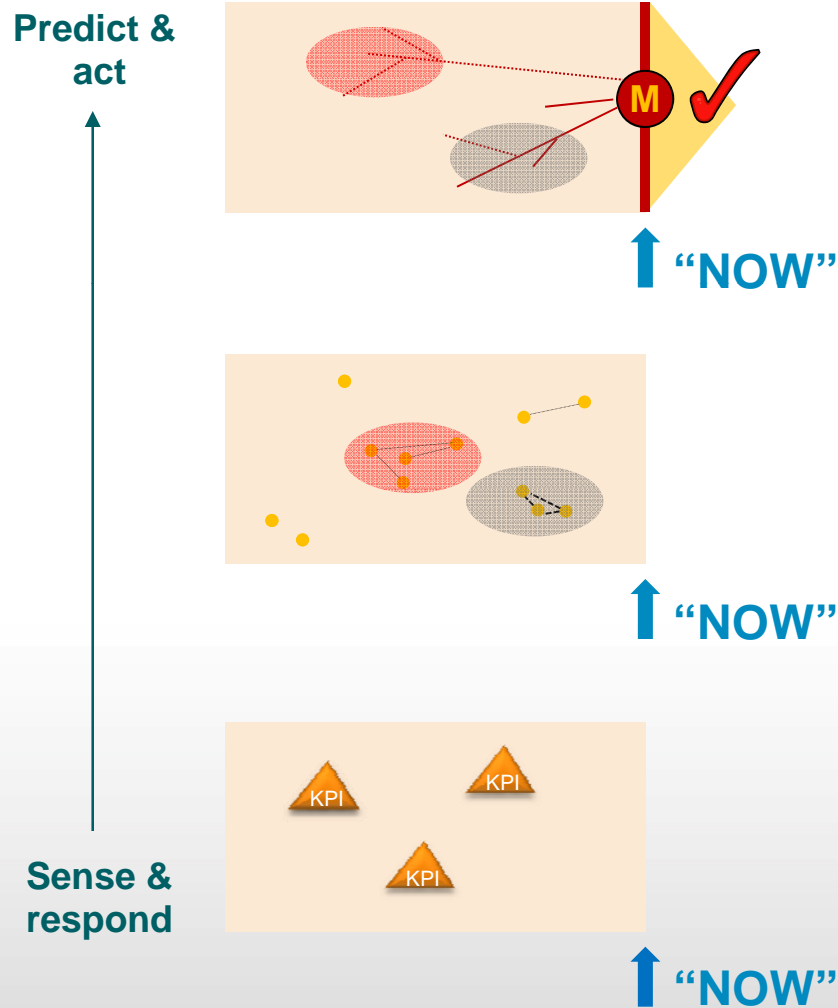


Leveraging service calls as sales opportunities

Potential campaign	Valid in this case?	Margin	Response probability	Expected value
A	No			
B	Yes	90	54%	49
C	Yes	85	62%	64



The Predictive Advantage: *Today, tomorrow and beyond*



Transformational deployment of predictive models:

- Leverage current data to drive better decisions
- Make robust predictions on current and future cases
- Embed predictive models into points of interaction

Insight-driven predictive analytics:

- Algorithms automatically discover significant patterns
- “Learn” from historical data – create *predictive models*
- Valuable insight into behavior improves strategic and operational decision making

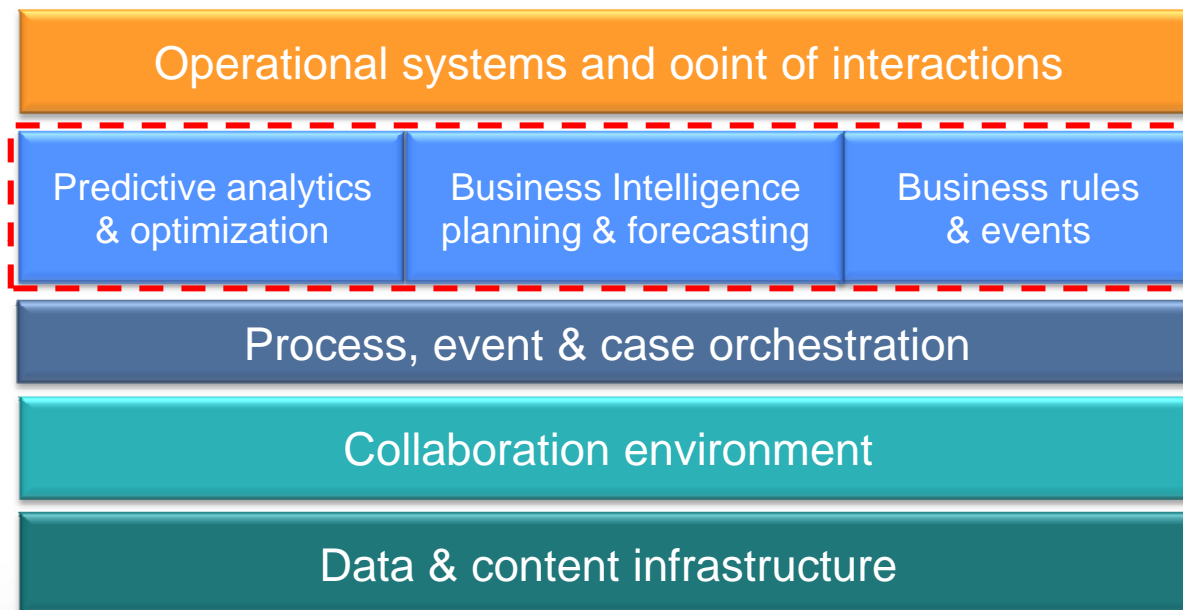
Traditional BI and conventional analysis:

- KPIs and metrics provide insight
- Aggregate data up to and including current point in time
- Self-guided exploration of data

IBM leads in transformation



Key technologies for optimizing the point of interaction



Summary



- Decisions are everywhere
- Breakaway strategies mean a shift in thinking
- Transformation builds on your existing investments

Thank You! Questions?



- When you get home – identify a business objective where you care about the results
- Identify the limiting factor of the decisions – the problem inherent to the objective
- Identify WHO makes decisions which impact this business problem – cover strategic, tactical and operational perspectives
- Take a skills inventory of the people who impact your decisions
- Understand which questions can only be answered by your analytic experts – what would happen if those people didn't come to work tomorrow?



Join our community!



@IBMCognos and @IBMSPPSS on Twitter

- On the web:
ibm.com/software/analytics/community



Backup content on the 7 steps

Steps 1 & 2



- Select Data Sources... Step 1

Data Sources

Project Data Sources + Add a data source

Name	Preview	Compatible	Copy	Remove	<input type="checkbox"/> Lock
sdbank claims data		Project Data Model			<input type="checkbox"/>
sdbank fraud data		Map Fields			<input type="checkbox"/>

Manage Global Selections

Find an existing rule Create a new rule View selection logic Export

Rule name -	Include/Exclude	Remove
1 Natural Causes		
Cause Accident = Nat...		

Defining desired outcomes... Step 3



Typically with all decisions there is a finite set of desired outcomes that can be achieved.

☐ Car Ins. Next Step? ▼

Fast Track

Standard Process

Refer - Likely Fraud

The insurance company identifies three possible outcomes to the decision.

“There’s three things we could do:
Fast track, standard process, investigate”

Define rules and models... Step 4



Business user defines rules that embody their priorities and experiences

Rule name -	Risk points	Sort	Remove
1 <u>Young Male Driver</u>	2	▲▼	✖
2 <u>Initial Provision over 3k</u>	1	▲▼	✖
3 <u>Initial Provision above 5k</u>	2	▲▼	✖
4 <u>Police not called to the...</u>	2	▲▼	✖
5 Remainder	0		

Add Action Add annotations

Sum of Points >= ↓	Allocate to	Remove
1 5	Refer - Likely Fraud	✖
2 2	Standard Process	✖
3 0	Fast Track	

Existing models are leveraged – or new ones are created by the business user

Find a model Build a model

Model	Target	Measure	Remove
<u>fraud_model.strFraud</u>		Propensity	✖

Add Action Add annotations

Propensity >= ↓	Allocate to	Remove
1 0.5	Refer - Likely Fraud	✖
2 0.3	Standard Process	✖
3 0	Fast Track	

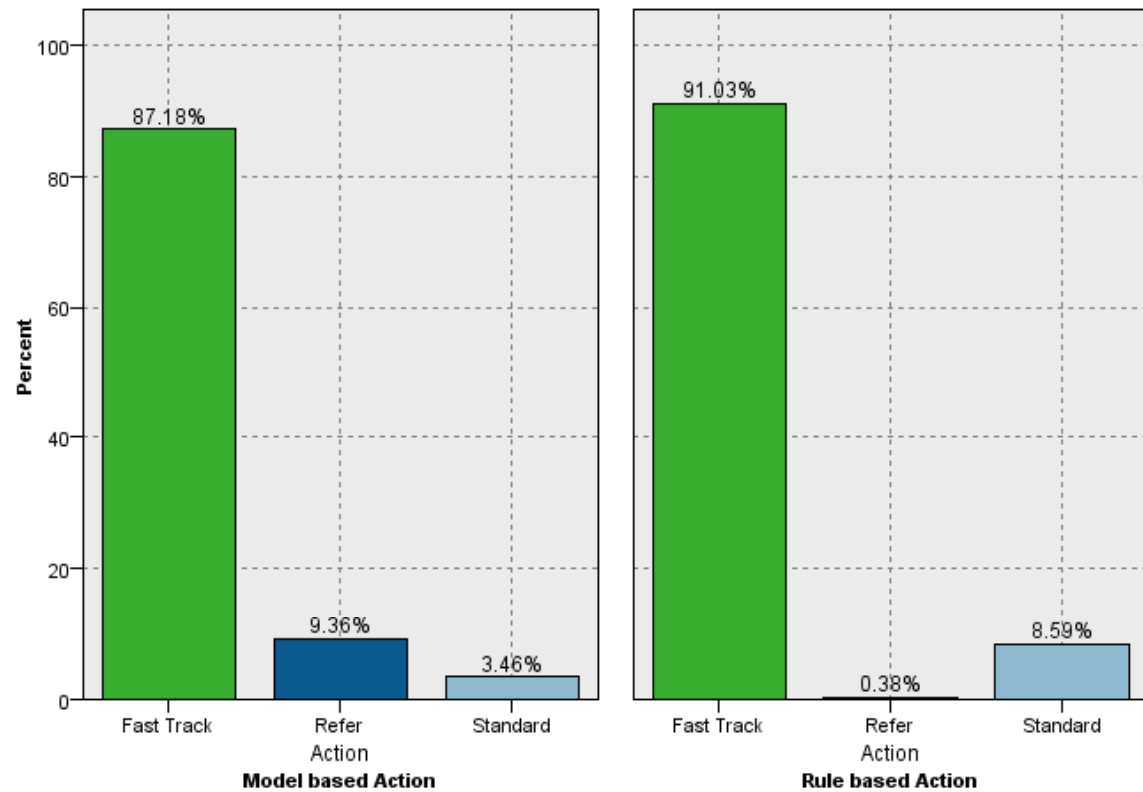
Define rules and models... Step 4



Models and rules each contribute...

Valuable standalone...

But much more useful together!



Optimize outcomes... Step 5



The decision outcome is optimized and balanced between the predictive models that provide real time insight and the rules that govern the policy and practices of the company

What If...

Simulation Data Source: sdbank claims data | Simulation Date: 2010-04-26 10:42:37 | Claim Area: Auto

Combine matrix	Rules actions	Model actions			Results		
		Refer	Standard	Fast Track	Action	Count	Percent
Refer	Refer	Refer	Refer	Standard	Fast Track	710	91.03%
Standard	Standard	Standard	Standard	Standard	Refer	3	0.38%
Fast Track	Fast Track	Fast Track	Fast Track	Fast Track	Standard	67	8.59%
						780	100%

Name: Run 3 [Run] [Update Settings] [Close]

Total Simulation Records: 975

Display: Count | Number of runs retained: 2

Action	Run 1	Run 2	Distribution
Fast Track	680	710	
Refer	62	3	
Standard	38	67	
Total	780	780	

Flexible what-if tools for optimization and prioritization

Deploy... Step 6



Deploy As

- Deploy
- Testing
- Preproduction

- The project is ready to move into production (for real time inbound decisions) or score in batch to deliver outbound communications
- Model Management capabilities allow ongoing monitoring / improvement of the models in production

SDBankInsure Welcome: Piet Pietersen | log out | help

Thursday: 2010-04-15

Customer ID: 1 Claim ID: 2554363

NOTIFICATION

- Identification
- Incident
- Damage
- Liability

CLAIM

- Coverage
- Payment

ALERT

Identification

Gender of Driver *

Age of Driver *

Cause Accident *

Claim Type Notification *

Claim Area *

Postal Code

Phone Number

Occupation

Incident

Date of loss

Time of loss

Number of vehicles

Number of damaged vehicles

Number of towed vehicles

Towing service used

Number of people

Number of injured people

Number of witnesses


Ambulance Yes No Unknown

Police report * Yes No Unknown

Damage

Claim type *

Incident description

Damage 

Payment

Total reserve amount (initial provision) *

Total property damage

Total medical bills

Coverage

Comp & collision

Property damage

Liability property damage

Liability bodily injury

Uninsured motorists property damage

Uninsured motorists bodily injury

Person injury protection

Medical payment

Liability

Responsibility

Suggested Action: Refer
Claim Area evaluated: Auto

Report on outcomes... Step 7

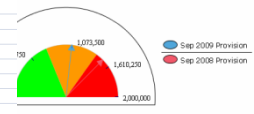
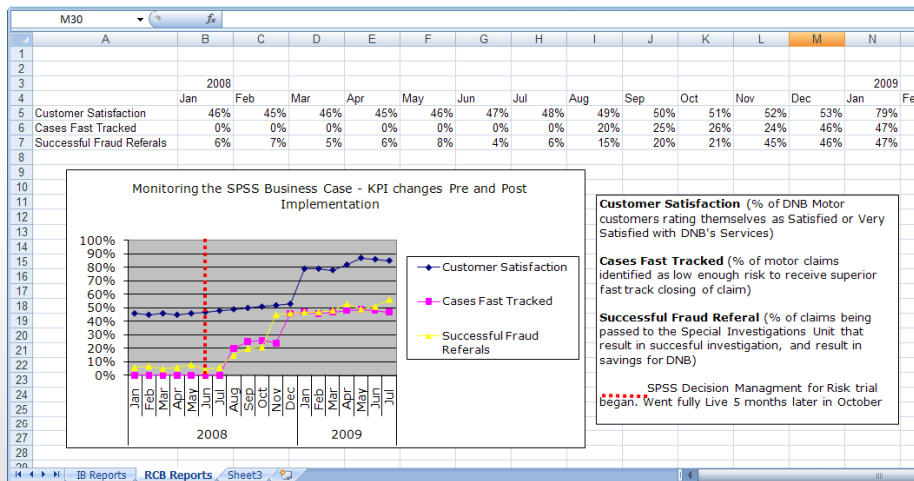


My Reports

Find a report

Name	Author	Version	Action	Remove
SimpleListReport.rptdesign	admin	1270752572484		
Fraud KPIs.xls	admin	1270750743562		

The Report tab allows you to monitor the status of deployed applications



IBM Bank Inc. Special Investigations Unit Report

For Internal use only
Report Generated on 4/8/10

Customer Listing (Claims with Initial Provision set at greater than 10000)

Claim ID	Customer ID	Claim Type	Initial Provision
Change of direction Total Provision: \$207,800.00			
2310101	18772187	Material and injury	\$15,700.00
2323924	18027968	Material and injury	\$15,700.00
2329162	18829828	Material and injury	\$17,450.00
2385932	18853076	Material and injury	\$15,700.00
2421251	18862029	Material and injury	\$15,700.00
2424226	18862950	Material and injury	\$15,700.00
2458208	18874694	Material and injury	\$15,700.00
2487421	8655225	Material and injury	\$17,450.00
2487918	18300049	Material and injury	\$16,900.00
2506260	8638132	Material and injury	\$15,700.00
2526452	18886406	Material and injury	\$15,700.00
2836647	8891423	Material and injury	\$20,250.00
Collision in the back Total Provision: \$12,700.00			
2306838	18821850	Material and injury	\$15,700.00
Exceeded speed limit Total Provision: \$155,900.00			
2314161	8887999	Only injury	\$29,000.00
2328982	18823223	Material and injury	\$15,700.00
2348756	18565646	Material and injury	\$17,150.00
2390807	18823103	Material and injury	\$31,400.00
2421086	18861916	Material and injury	\$18,450.00
2531299	18899228	Only injury	\$15,000.00
2532226	18888507	Only injury	\$29,000.00
Loss of attention Total Provision: \$166,400.00			
2344113	8740085	Material and injury	\$15,700.00
2349222	18823223	Material and injury	\$15,700.00
2346053	18587161	Material and injury	\$15,700.00
2429559	18864823	Material and injury	\$15,700.00
2434886	18868288	Material and injury	\$16,900.00
2450928	18752999	Material and injury	\$15,700.00
2481394	18873773	Material and injury	\$15,700.00
2484269	18883529	Material and injury	\$15,700.00
2514869	18893121	Material and injury	\$20,200.00
2525061	8642008	Material and injury	\$13,700.00
2528887	18899299	Material and injury	\$15,700.00

Contact information



<Presenter Name>

<Presenter Role>

<Presenter Phone>

Presenter Email>