

Breakthrough Results with Decision Management

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*.

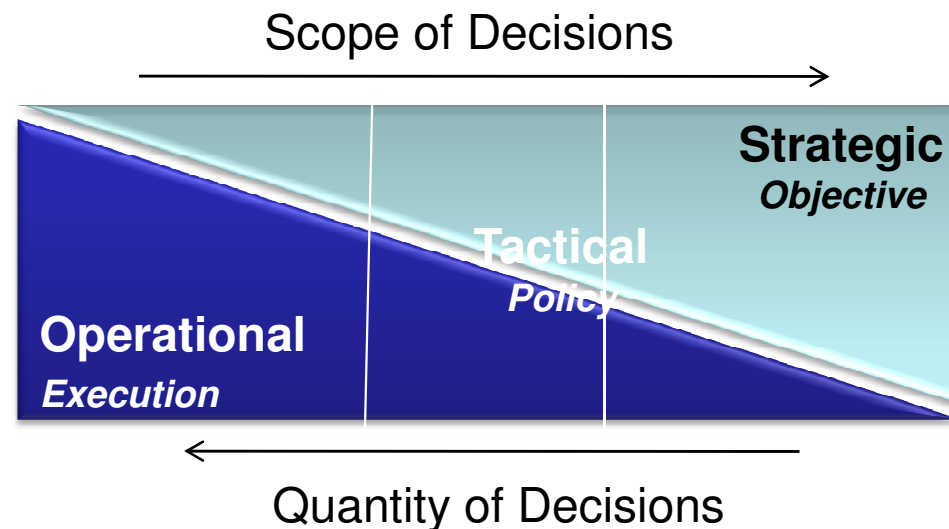
Who makes decisions?

- 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



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

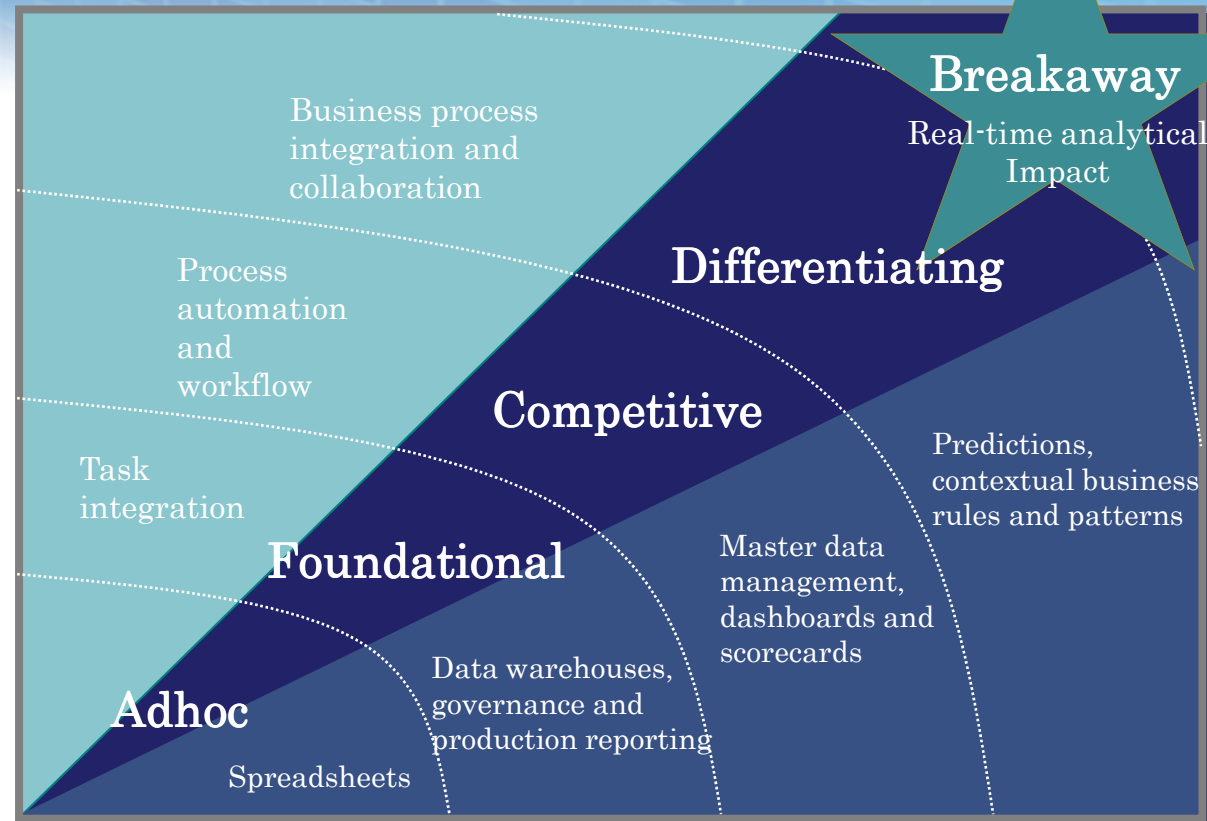
- Identify a business objective where you care about the results
- Identify the limiting factor of the decision – the problem.
- Identify WHO makes decisions which impact this business problem – cover strategic, tactical and operational perspectives
- Articulate the value of making a better decision

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

Source: *Breaking Away with Business*

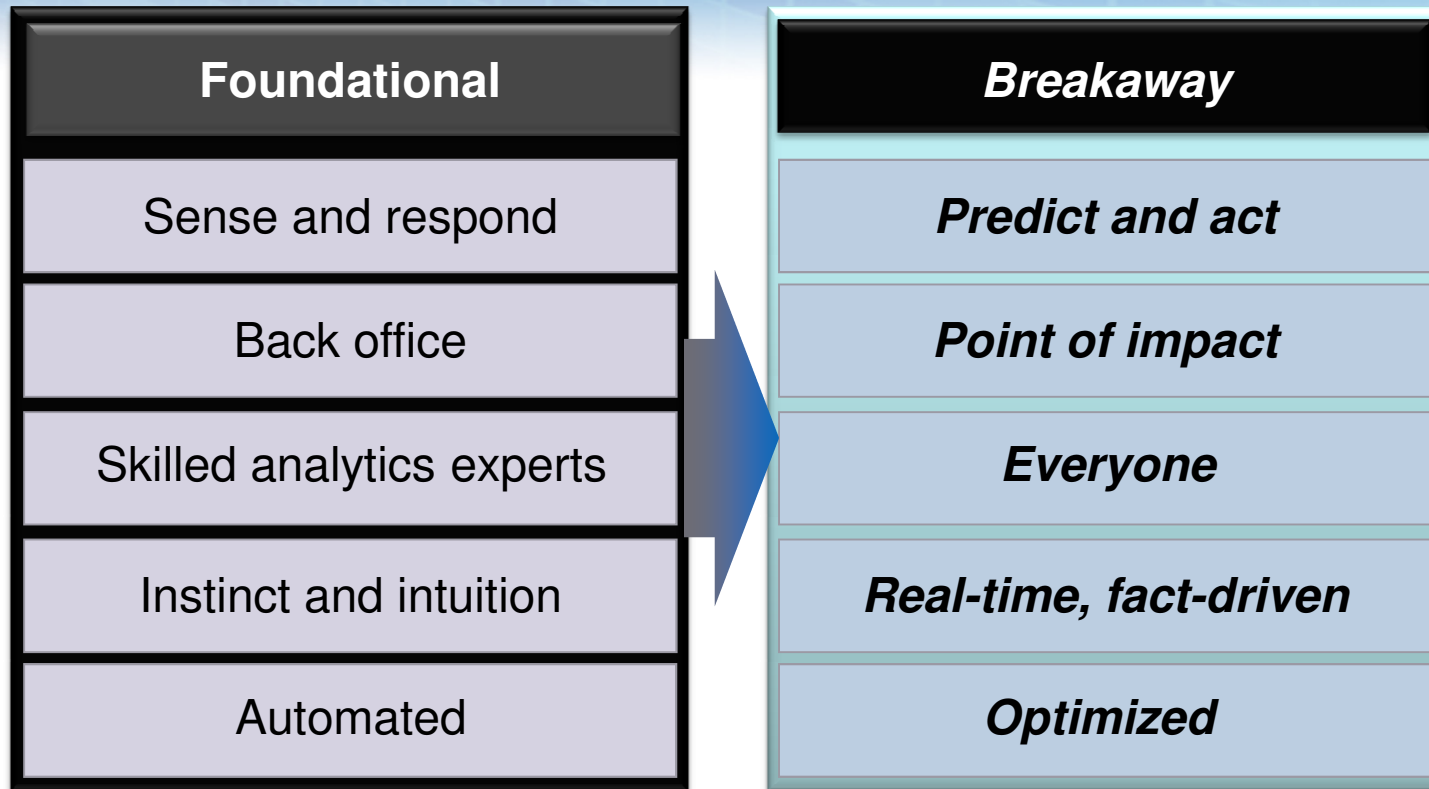
Analytics and Optimization: Q4 09
Predictive Perspectives 2011

How the business manages information and learns from it

IBM.

Optimizing Every Decision at the Point of Impact...

The Business Value of Transformation



IBM SPSS Decision Management: *Turning Information into Action at Point of Impact*

- Turnkey Mission Critical Solutions
 - Built on Time Tested Methodologies
 - Proven & 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 with several key components:

- Claims Management:** Intelligent risk management in real time. Access the overall risk level for incoming claims and recommend the specific action to take.
- Rules Management:** Manage the rules defined and stored in the system. Edit existing rules or create new rules.
- Modeler Advantage:** Predictive modeling for the business user. Build predictive models based on past results. For example, predict which customers are most likely to churn.
- Customer Interaction Management:** Recommendations where and when you need them. Decide what to offer customers when they contact your...

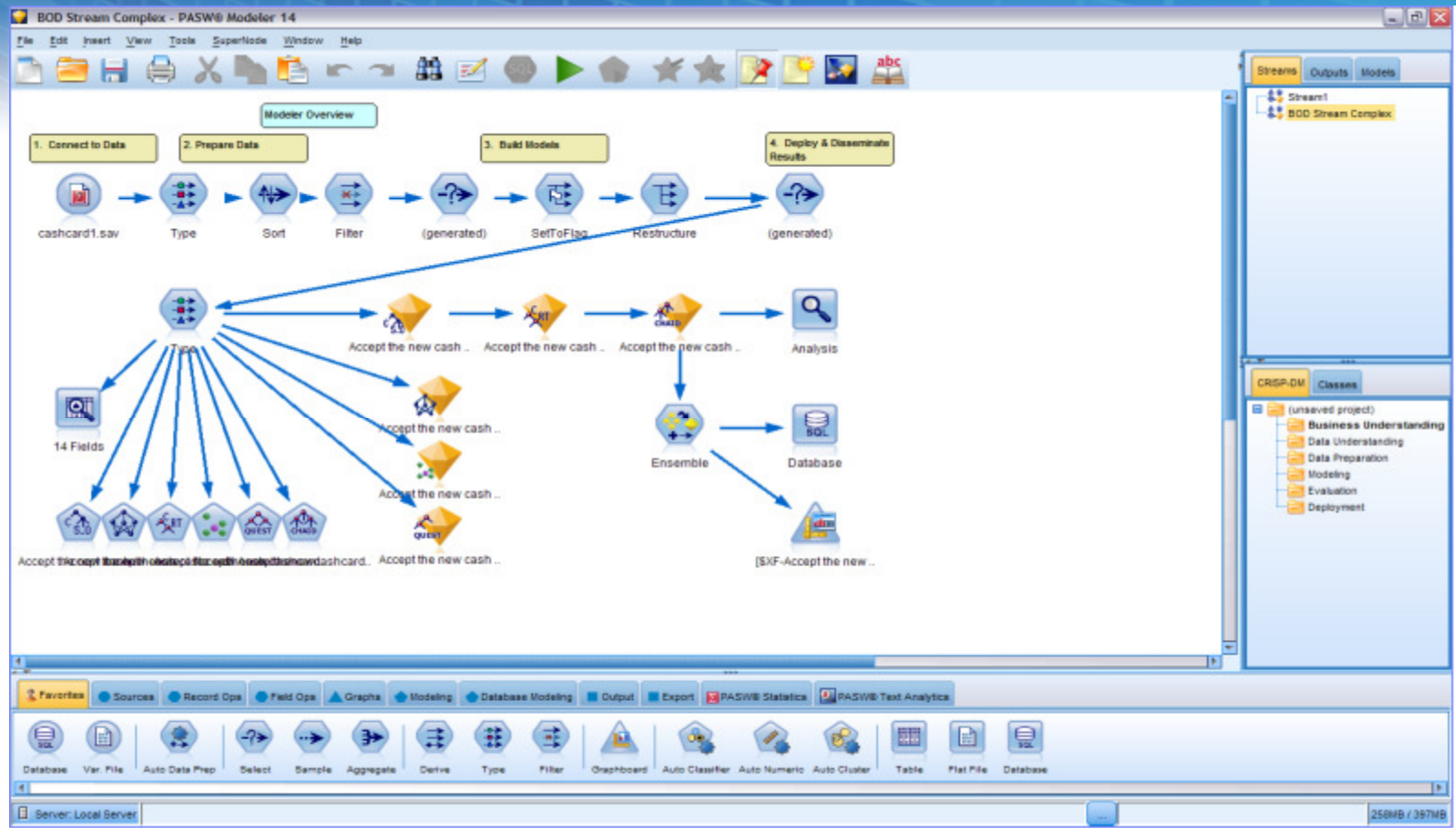
Below the main interface is a **Combine Matrix** configuration table:

		Model Actions		
		Fast Track	Follow S...	Potentia...
Rules Actions	Fast Track	Fast Track	Follow S...	Follow S...
	Follow S...	Follow S...	Follow S...	Potentia...
	Potentia...	Follow S...	Potentia...	Potentia...

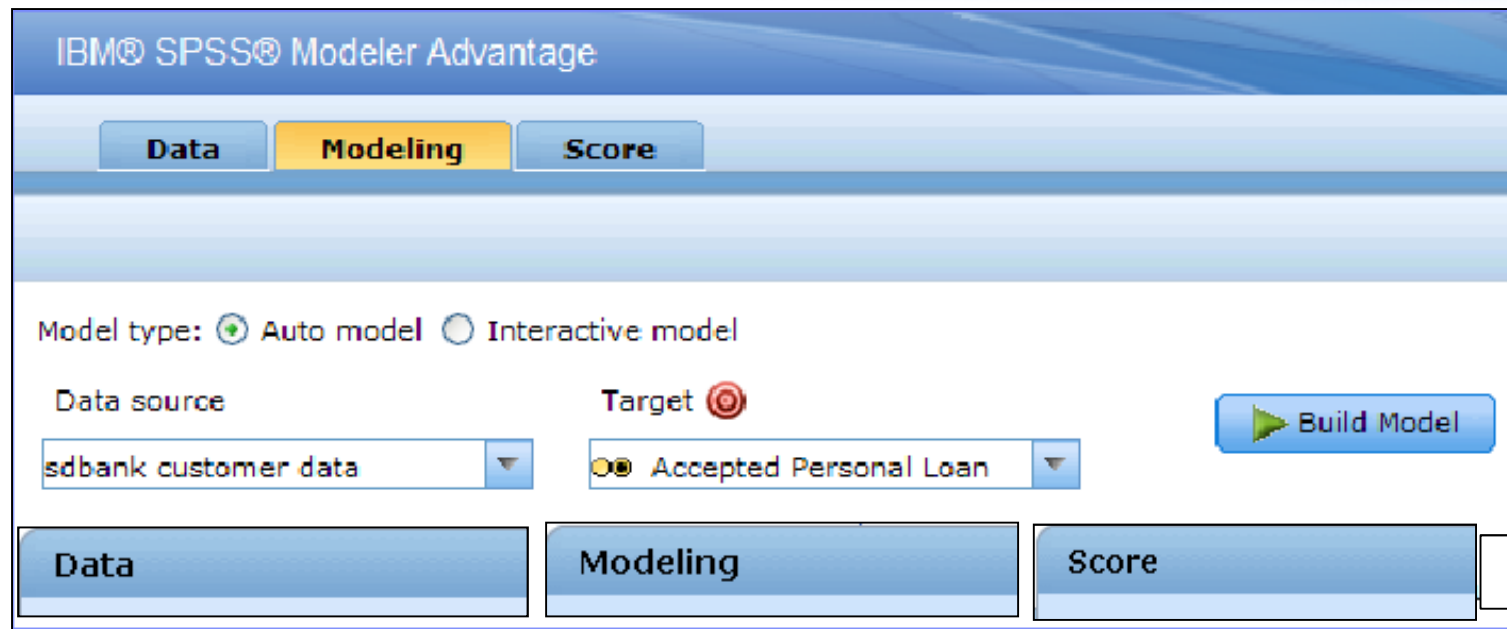
Matrix Colors legend:

- Fast Track (Green)
- Follow Standard Process (Yellow)
- Potentially Fraudulent (Red)

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

Decision Management for Customer Interactions

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: Auto Interaction Point: All interaction points

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

Name: Run 3

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	

PASW® Customer Interaction Management

Data Global Selections **Define** Prioritize Deploy Reports

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

Add a new Campaign Import Export

Retention Properties

Active From: 2009-10-23 19:54:14 To: No expiration

Interaction points: Call Centre Website Branch

Choose Who This Campaign Applies to

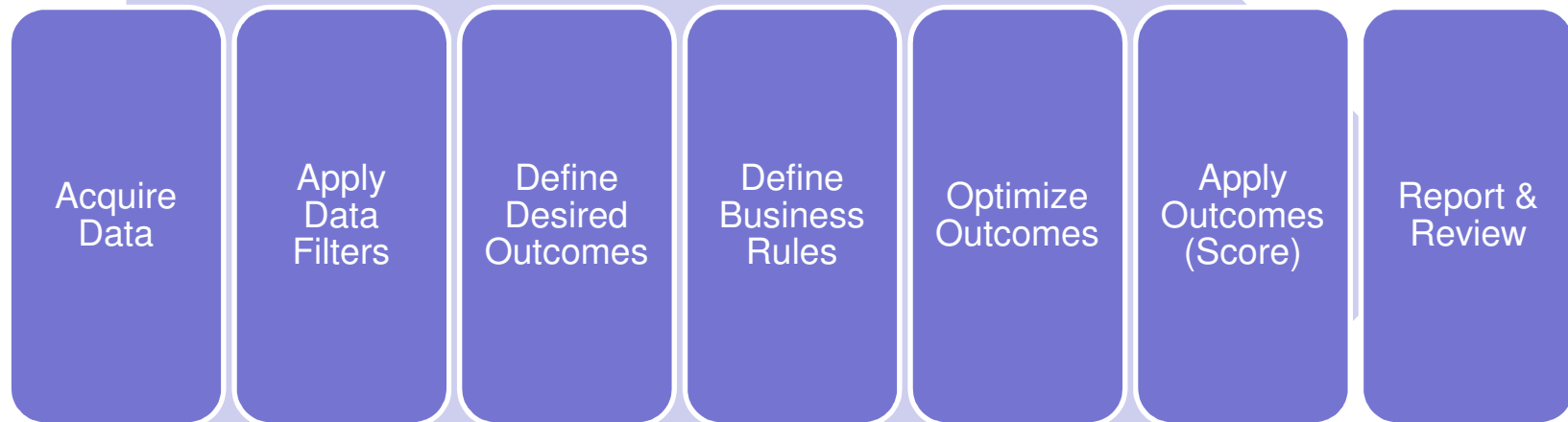
Rule name: High Value Customers

Allocate to: Allocate using rules Allocate randomly

Allocate to:

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

IBM SPSS Decision Management: *Seven Steps to Success*



IBM SPSS Decision Management: *Getting Started:*

Step 1: Select Data Sources (ETL Style Extraction)

The screenshot shows the 'Data Sources' panel. At the top, there is a 'Project Data Sources' section with a '+ Add a data source' button. Below this is a table with columns: Name, Preview, Compatible, Copy, Remove, and Lock. Two data sources are listed: 'sdbank claims data' and 'sdbank fraud data'. The 'sdbank fraud data' source is highlighted in blue and has a 'Map Fields' link under the 'Compatible' column.

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

Step 2: Apply Data Filters

The screenshot shows the 'Manage Global Selections' panel. At the top, there are buttons for 'Find an existing rule', 'Create a new rule', and 'View selection logic', along with an 'Export' button. Below this is a 'Rule name -' section with a dropdown menu. A rule named 'Natural Causes' is selected, and it has an 'Include/Exclude' dropdown menu set to 'Exclude' and a 'Remove' button. The rule's logic is displayed as 'Cause Accident = Nat...'. The 'Natural Causes' rule is highlighted in blue.

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

Rule name - | Include/Exclude | Remove

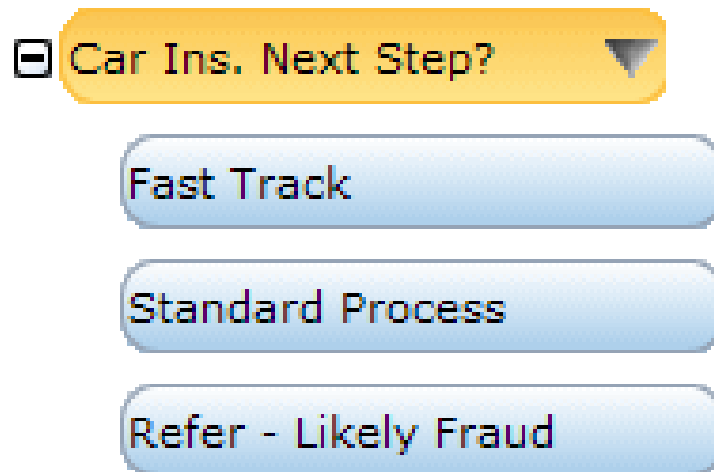
1 | Natural Causes | Exclude | Remove

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.



Car Ins. Next Step? ▼

- Fast Track
- Standard Process
- Refer - Likely Fraud

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	

 Find a model  Build a model

Model	Target	Measure	Remove
◆ fraud_model.strFraud		Propensity	✖

+ Add Action  Add annotations

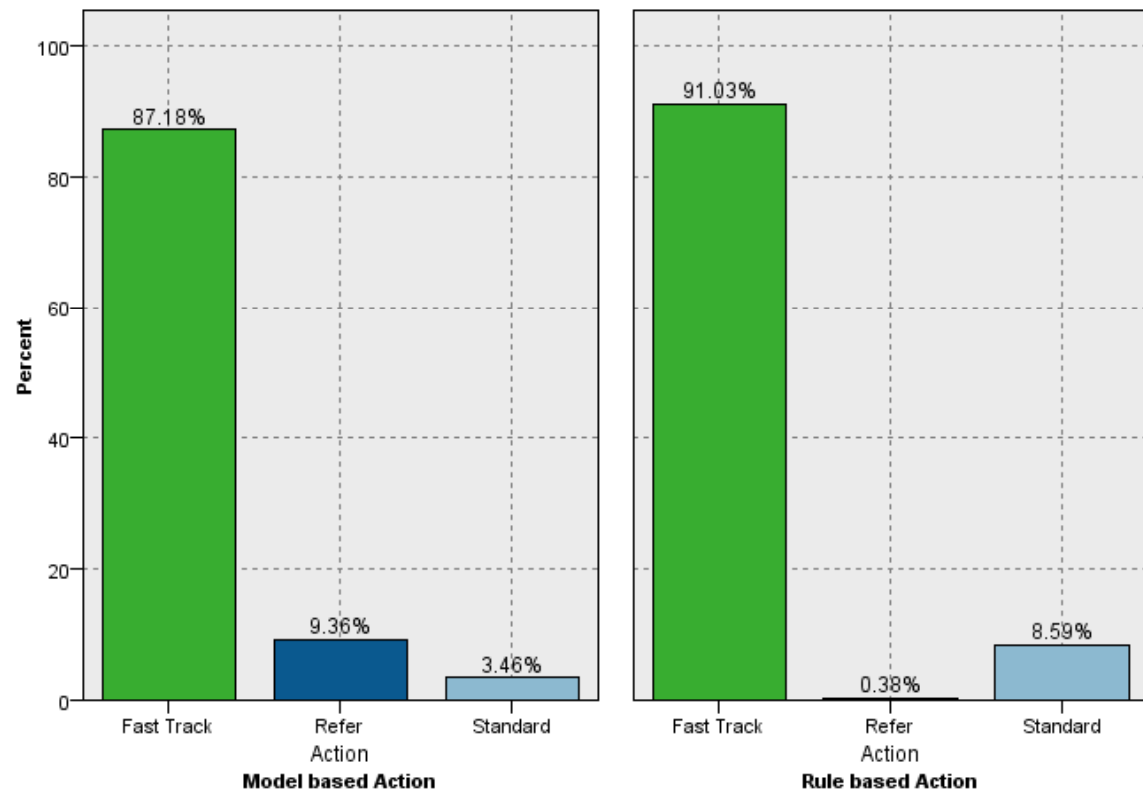
Propensity >= ↓	Allocate to	Remove
1 0.5	Refer - Likely Fraud	✖
2 0.3	Standard Process	✖
3 0	Fast Track	

Step 4b: Leverage existing predictive models or create new ones

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

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

Action	Run 1	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 6: Apply 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

The screenshot displays the SDBankInsure web application interface. At the top, there is a navigation bar with the text "SDBankInsure" and a user greeting "Welcome: Piet Pietersen | log out | help". Below this, a date indicator shows "Thursday: 2010-04-15".

The main content area is divided into several sections:

- Navigation:** A vertical menu on the left includes "START", "NOTIFICATION", "CLAIM", "ALERT", and "Incident".
- Form Fields:**
 - Identification:** Fields for Gender of Driver (Male), Age of Driver (20), Cause Accident (Collision in the back), Claim Type Notification, Claim Area (Auto), Postal Code, Phone Number, and Occupation.
 - Damage:** Claim type (Only injury), Incident description (zone (incident site not recalled. Policyholder seemed vague on some of the specific details)), and a vehicle damage diagram with checkboxes.
 - Payment:** Fields for Total reserve amount (initial provision) (6500), Total property damage (2000), and Total medical bills (4500).
 - 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), and Number of witnesses (0).
 - Coverage:** Fields for Comp & collision, Property damage, Liability property damage, Liability bodily injury, Uninsured motorists property damage, Uninsured motorists bodily injury, Person injury protection, and Medical payment.
 - Liability:** Responsibility field.
- Buttons:** "Validate" and "Deploy" buttons are located at the top right. "OK" buttons are present at the bottom of several form sections.
- Footer:** A red banner at the bottom of the form area displays the text: "Suggested Action: Refer" and "Claim Area evaluated: Auto".

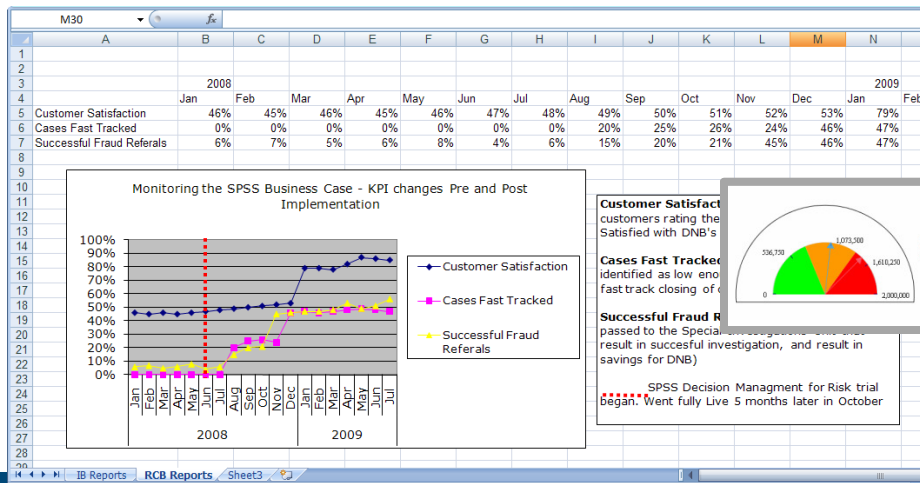
IBM SPSS Decision Management: *Getting Started:*

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 Satisfact
customers rating the Satisfied with DNB's

Cases Fast Tracked
identified as low eno fast track closing of

Successful Fraud R
passed to the Special result in succesful investigation, and result in savings for DNB)

SPSS Decision Management for Risk trial began. Went fully Live 5 months later in October

SD Bank Inc.
Special Investigations Unit Report

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

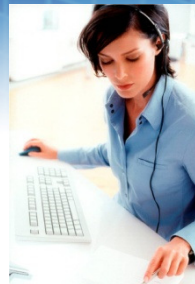
Customer Listing (Claims with Initial Provision set at greater than 10000)

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	18827968	Material and injury	\$15,700.00
2329162	18829826	Material and injury	\$17,450.00
2395532	18853076	Material and injury	\$15,700.00
2421511	18862039	Material and injury	\$15,700.00
2424226	18862950	Material and injury	\$15,700.00
2458208	18874694	Material and injury	\$15,700.00
2467421	8655555	Material and injury	\$17,450.00
2487918	18505049	Material and injury	\$16,900.00
2506060	8638132	Material and injury	\$15,700.00
2528462	18894806	Material and injury	\$15,700.00
2536647	8891423	Material and injury	\$30,200.00
Collision in the back Total Provision: \$13,700.00			
2306838	18821850	Material and injury	\$15,700.00
Exceeded speed limit Total Provision: \$155,900.00			
2314161	8887959	Only injury	\$29,000.00
2329583	18833223	Material and injury	\$15,700.00
2348786	18836546	Material and injury	\$17,150.00
2395607	18853105	Material and injury	\$31,400.00
2421088	18861916	Material and injury	\$15,650.00
2531398	18898238	Only injury	\$15,000.00
2532226	18898507	Only injury	\$29,000.00
Loss of attention Total Provision: \$186,400.00			
2344113	8740065	Material and injury	\$15,700.00
2345922	18833553	Material and injury	\$15,700.00
2346033	18587161	Material and injury	\$15,700.00
2429559	18864825	Material and injury	\$15,700.00
2434459	18893289	Material and injury	\$16,900.00
2450828	18752899	Material and injury	\$15,700.00
2461334	18875773	Material and injury	\$15,700.00
2484289	18883529	Material and injury	\$15,700.00
2514869	18893121	Material and injury	\$30,200.00
2525061	8642005	Material and injury	\$15,700.00
2534667	18899299	Material and injury	\$15,700.00



From the Back Office to the Point of Interaction

Leveraging Service Calls as Sales Opportunities



Hi, How can I help you?

Cross-sell?
<context data>



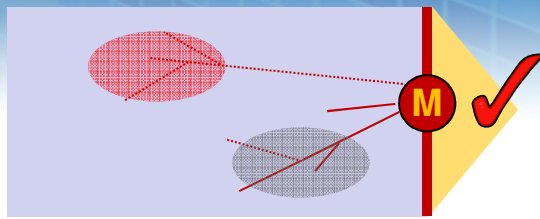
<customer data>



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 & Beyond

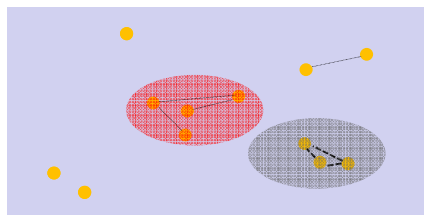
Predict & Act



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

↑
“NOW”

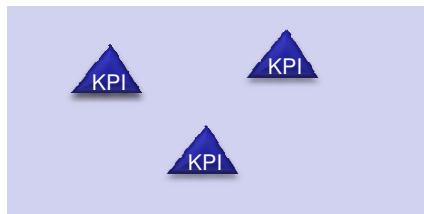


Insight Driven Predictive Analytics:

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

↑
“NOW”

Sense & Respond



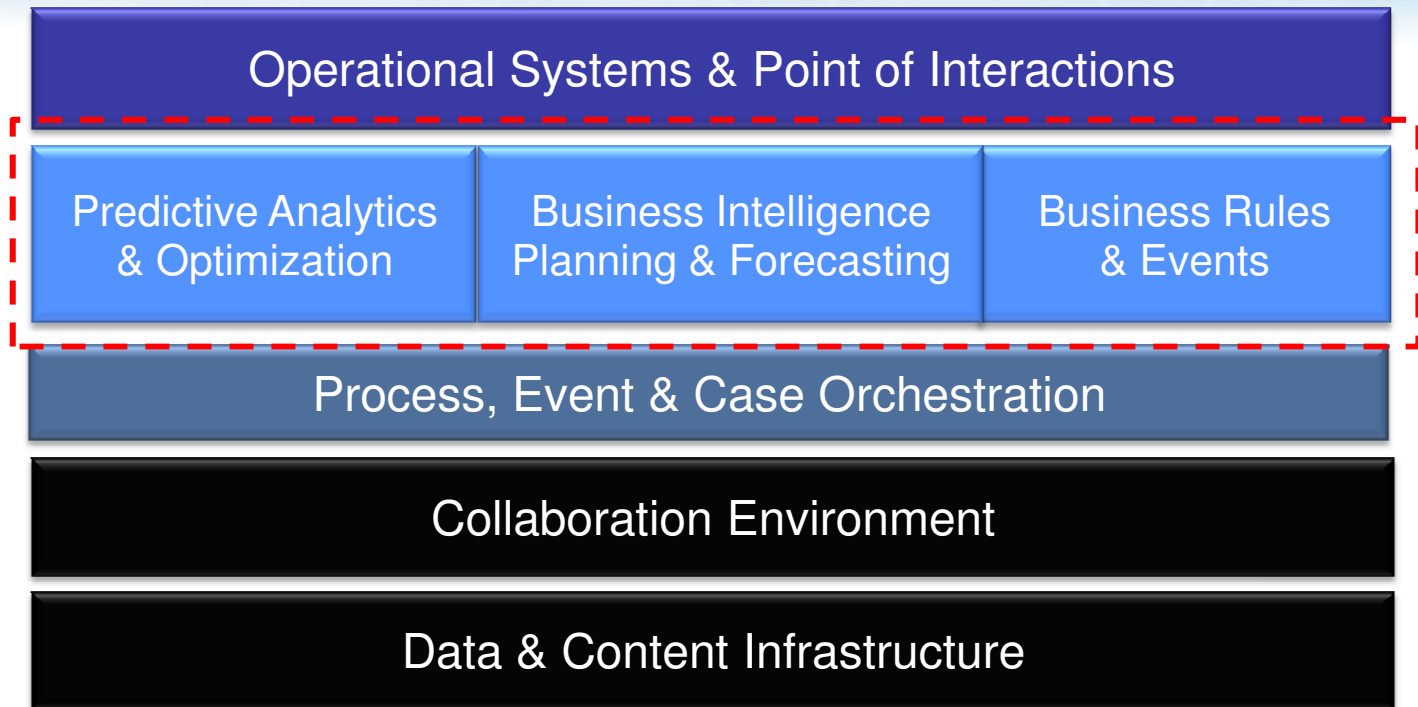
Traditional BI and Conventional Analysis:

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

↑
“NOW”

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?












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](#)  Exclude 

 Cause Accident = Nat...

- Define Scope with Global Selections... Step 2

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	

[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	

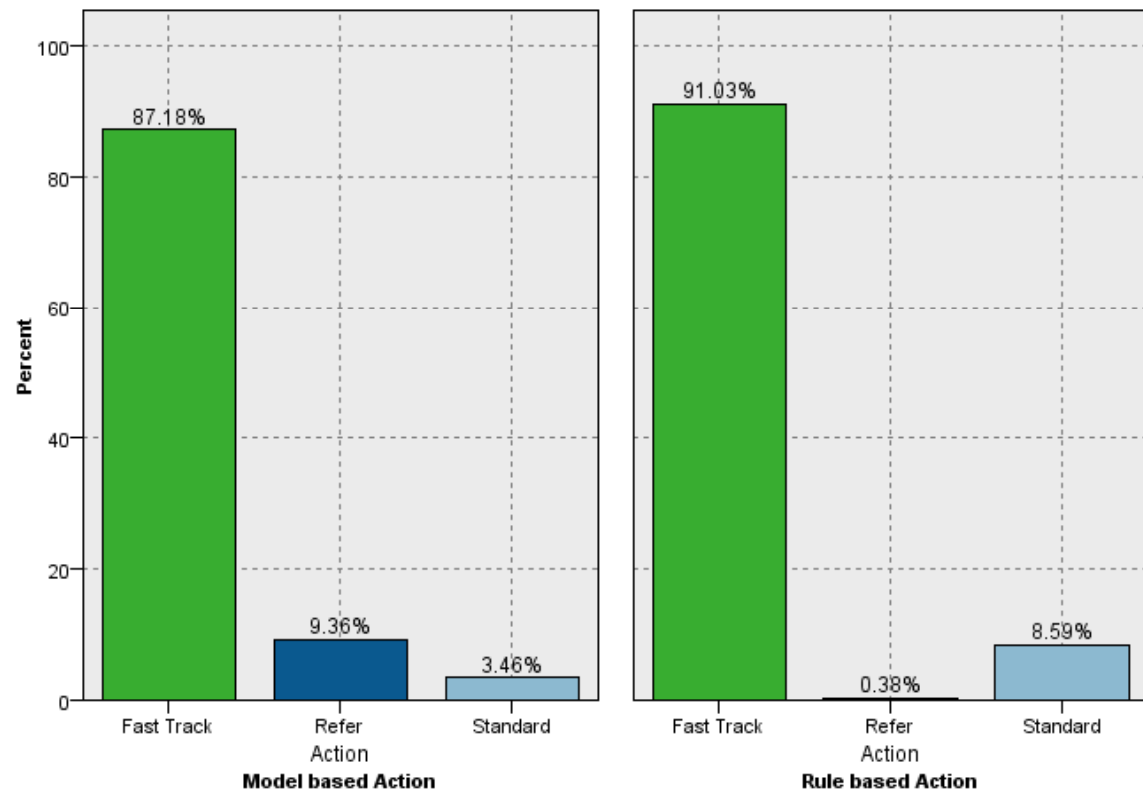
Existing Models are leveraged – or new ones are created by the business user

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

The screenshot displays a 'What If...' simulation tool interface. At the top, it shows configuration options: 'Simulation Data Source' (sdbank claims data), 'Simulation Date' (2010-04-26 10:42:37), and 'Claim Area' (Auto). Below this is a 'Combine matrix' table with 'Rules actions' (Refer, Standard, Fast Track) and 'Model actions' (Refer, Standard, Fast Track). The 'Results' table shows the distribution of outcomes: Fast Track (710, 91.03%), Refer (3, 0.38%), and Standard (67, 8.59%), totaling 780 records. A 'Name: Run 3' field and a 'Run' button are visible. At the bottom, a summary table shows 'Total Simulation Records: 975' and 'Number of runs retained: 2', with a comparison between Run 1 and Run 2 across the three action categories.

Rules actions	Combine matrix	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%

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

START
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

Damage

Claim type *

Incident description

Damage 

Payment

Total reserve amount (initial provision) *

Total property damage

Total medical bills

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

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

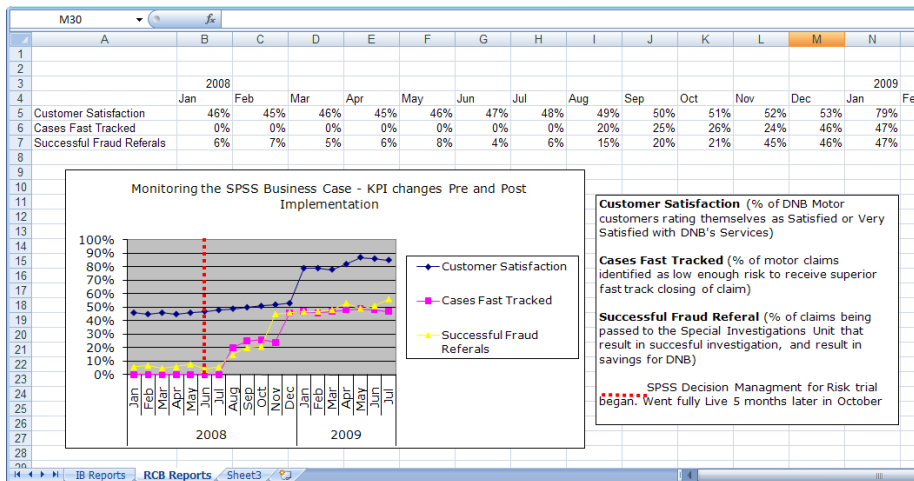
Report on outcomes... Step 7

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



SD Bank Inc. Special Investigations Unit Report

For Internal use only Report Generated on 4/5/10

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
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2421511	18862039	Material and injury	\$15,700.00
2424226	18862950	Material and injury	\$15,700.00
2458208	18874694	Material and injury	\$15,700.00
2467421	8655555	Material and injury	\$17,450.00
2487918	18505049	Material and injury	\$16,900.00
2506060	8638132	Material and injury	\$15,700.00
2526452	18896406	Material and injury	\$15,700.00
2535647	8891423	Material and injury	\$30,200.00
Collision in the back			Total Provision: \$15,700.00
2306838	18821850	Material and injury	\$15,700.00
Exceeded speed limit			Total Provision: \$155,000.00
2314161	8887959	Only injury	\$29,000.00
2338983	18833323	Material and injury	\$15,700.00
2348786	18836546	Material and injury	\$17,150.00
2395607	18853105	Material and injury	\$31,400.00
2421086	18861916	Material and injury	\$18,650.00
2531388	18898208	Only injury	\$15,000.00
2532226	18898507	Only injury	\$29,000.00
Loss of attention			Total Provision: \$186,400.00
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2345922	18833553	Material and injury	\$15,700.00
2346053	18587161	Material and injury	\$15,700.00
2429559	18864825	Material and injury	\$15,700.00
2434489	18588288	Material and injury	\$16,900.00
2450828	18752899	Material and injury	\$15,700.00
2461354	18873773	Material and injury	\$15,700.00
2484369	18883529	Material and injury	\$15,700.00
2514869	18893121	Material and injury	\$30,200.00
2525061	8642005	Material and injury	\$15,700.00
2534667	18899299	Material and injury	\$15,700.00