



IBM PERFORMANCE EVENTS

Smarter Decisions. Better Results.

The background of the slide is a complex, abstract geometric pattern. It features numerous overlapping, semi-transparent blue and teal squares and hexagons of various sizes and orientations. Two prominent red hexagons are positioned on the left side of the slide, one near the top and one near the bottom. The overall effect is a sense of depth and digital connectivity.

Extend the value of BI with Predictive Analytics

Wim Van Driessche
18 November 2010

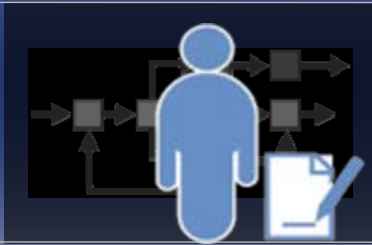
Imagine if you could...

***... track disease outbreaks
across country borders in
real time?***



Imagine if you could...

*...catch money laundering
before it happens?*



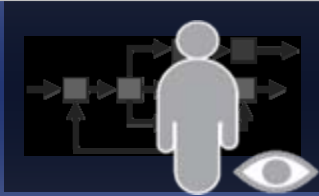
Imagine if you could...

... apply social relationships of customers to prevent churn?



Imagine if you could...

...identify at-risk students before they drop out of school?



The Predictive Advantage

Predict &
Act

Deploying Predictive Models

- Leverage current and historical data
- Make robust predictions on current and future cases
- Embed in business processes to transform decision making and drive better outcomes

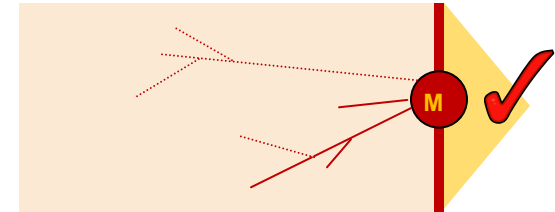
Predictive Analytics:

- Algorithms automatically discover significant patterns
- Deliver deep insights to improve strategic and operational decision making
- “Learn” from historical data – create *predictive models*

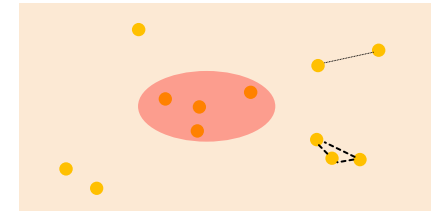
Traditional BI and Conventional Analysis:

- Insight, metrics, etc. up to this point in time
- User initiative to explore aggregate data

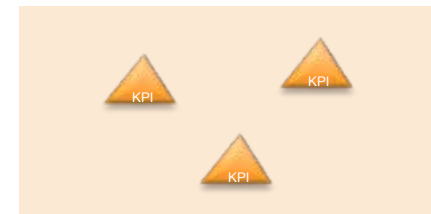
Sense &
Respond



↑
“NOW”



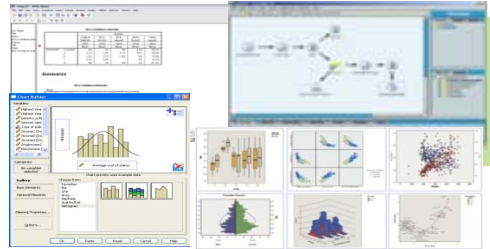
↑
“NOW”



↑
“NOW”

The Predictive Analytics Process

Predict



Predictive Analytics

Capture

- Interaction data**
- Offers
 - Results
 - Campaign results
 - Click streams
 - Notes

- Descriptive data**
- Attributes
 - Characteristics
 - Self-declared info
 - (Geo)demographics



Attitudinal data

- Opinions
- Preferences
- Needs
- Suggestions
- Desires

Behavioral data

- Orders
- Transactions
- Payment history
- Usage history

Logos for data sources: flickr, amazon.com, YouTube, twitter, facebook, Feed RSS, NETLOG, myspace.com, Google, LinkedIn.

People Data & Enterprise Data Sources

Attract the best customers

Detect and prevent Non-Compliance

Retain profitable customers

Manage Risk



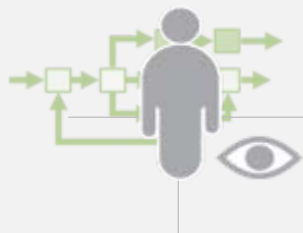
Grow customer value

Act

Decision Optimization & Automation

Imagine If Your Decision Makers Could...

...reduce crime without a proportional increase in staff while expanding its territory.



...optimize loan applications based on risk fluctuations?



80% - 90%

... Identifies groups most likely to respond to direct mail campaign



**- 30 %
+ 20 %**

... Reduce the number of profitable customers who defect to competitors



19% -> 2%

...optimize every transaction, process and decision at the point of impact, based on the current situation, without requiring that everyone be an analytical expert



Industry Leader in Predictive Analytics

- 40+ year heritage, with a single aim:
 - to drive the widespread use of data in decision making
- Drove the creation of the Predictive Analytics market
- Acquired by IBM October 2009

- Enables organizations to predict future events and proactively act upon that insight to drive better business outcomes



IBM BI and Performance Management Capabilities Help Decision Makers Find the Answers

How are we doing?

Why are we on/off track?

What should we do next?

DASHBOARDING

SCORECARDING

REPORTING

QUERY

ANALYSIS

PLANNING

Cognos
software



Executive



Manager



Business User



Line of Business Manager



Business Analyst



Financial Analyst

SPSS Enables New Solution Value for IBM Cognos Customers

How are we doing?

Why are we on/off track?

What should we do next?

DASHBOARDING

SCORECARDING

REPORTING

QUERY

ANALYSIS

PLANNING

**Addition of KPPs
(Key Performance Predictors)**

**Broad distribution
of statistical
results**

**Time series
forecasting**

**New customer
insight through
Data Collection**

**Predictive analytics for
deeper understanding
of the data**



Executive



Manager



Business User



Line of Business Manager



Business Analyst



Financial Analyst

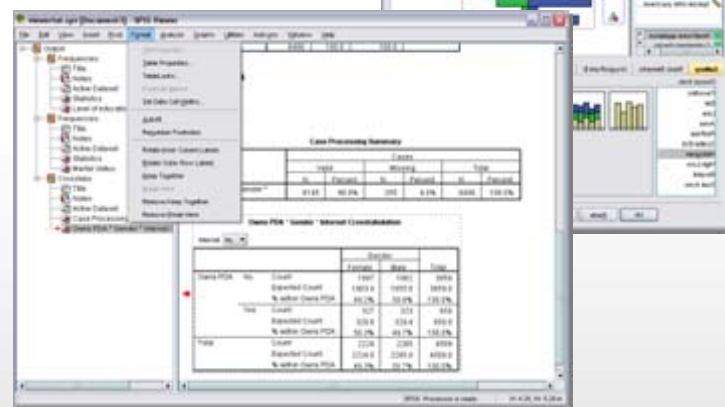
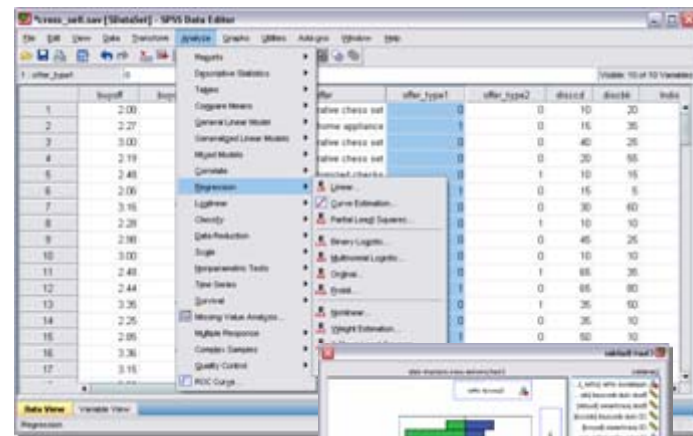
Make informed decisions with statistics

Validate your assumptions and test hypotheses

IBM SPSS Statistical Family

Solution Highlights

- Comprehensive workbench
- Increase functionality with add on modules, scripting and programmability
- Flexible deployment options maximize resource utilization



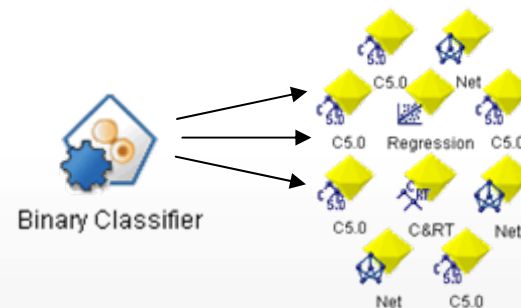
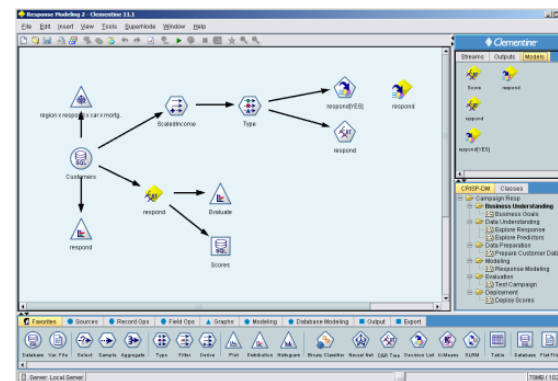
Make informed decisions with data mining

“The process of discovering meaningful new relationships, patterns and trends by shifting through data using pattern recognition technologies as well as statistical and mathematical techniques.”

IBM SPSS Modeler Family

Solution Highlights

- Easy to learn, no programming approach to data mining
- Automatically create accurate, deployable predictive models
- Choose the best solution with multi- model evaluation
- Text Mining capabilities
- Multithreading, clustering and use of embedded algorithms





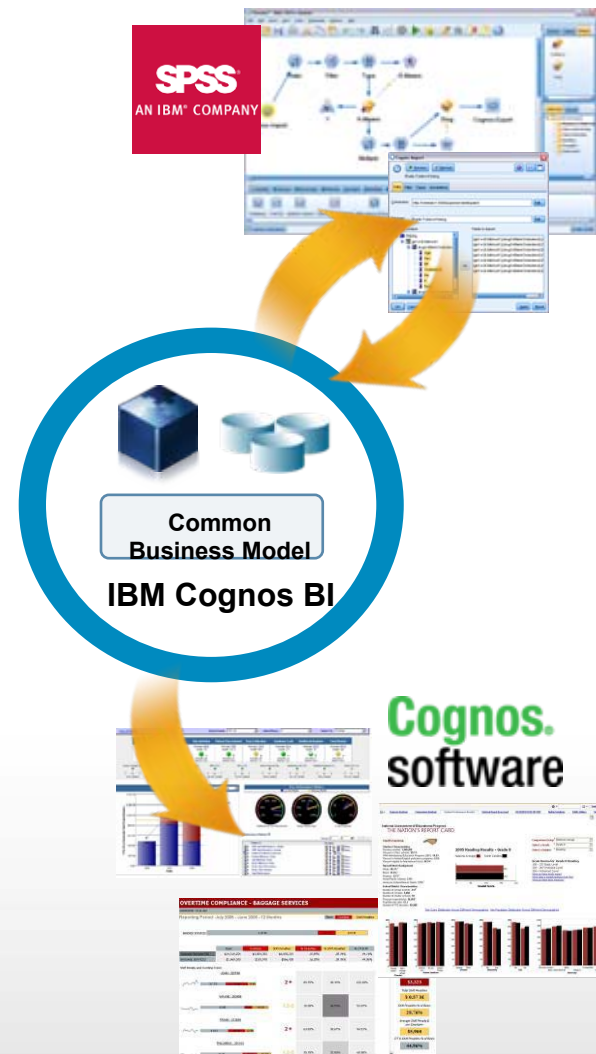
Deliver the power of predictive analytics into the hands of the business users

Uncover key insights in your corporate data by integrating predictive analytics as a core activity to drive business decisions

Integration with IBM SPSS Modeler

Solution Highlights

- Leverage BI to identify problem or situation needing attention
- Develop factual context using reliable trends, patterns and predictions.
- Easily distribute the results to broad user communities





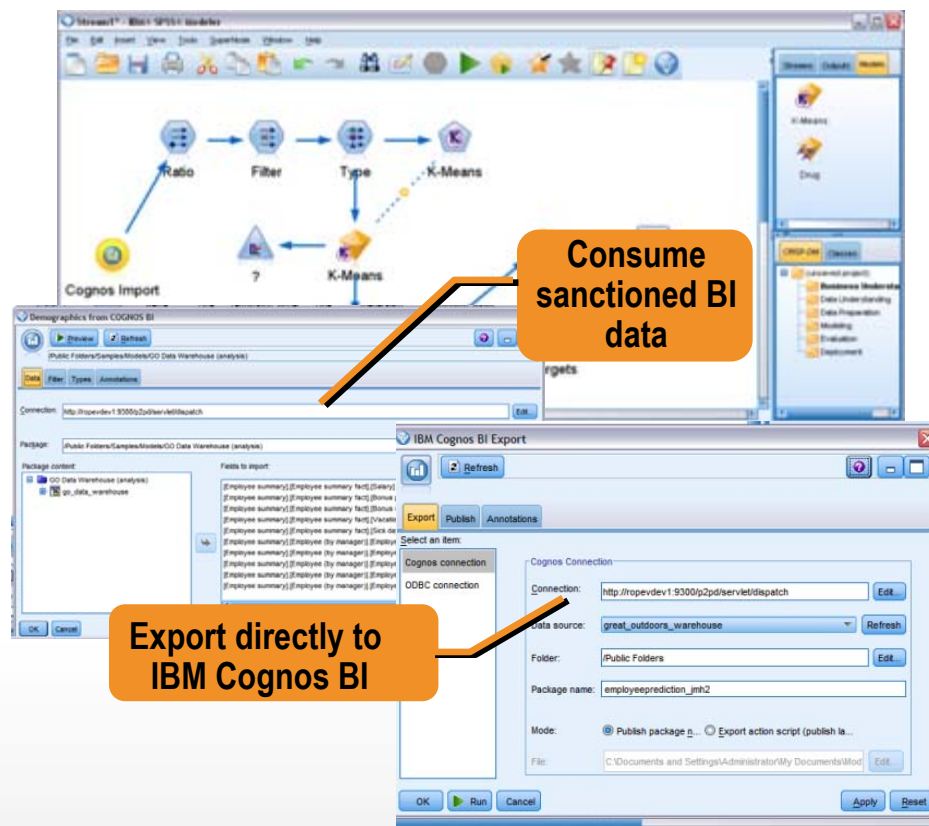
Streamline process to create and distribute predictive results

Leverage your investment in data modeling and IBM Cognos BI

IBM SPSS Modeler 14.1

Solution Highlights

- Interact with familiar data view
- minimize IT involvement for data access and preparation.
- Automatically publish predictive results to Cognos BI package



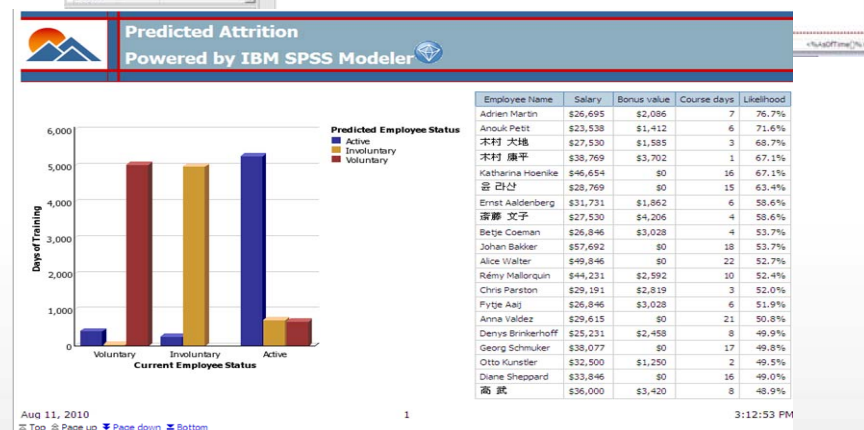
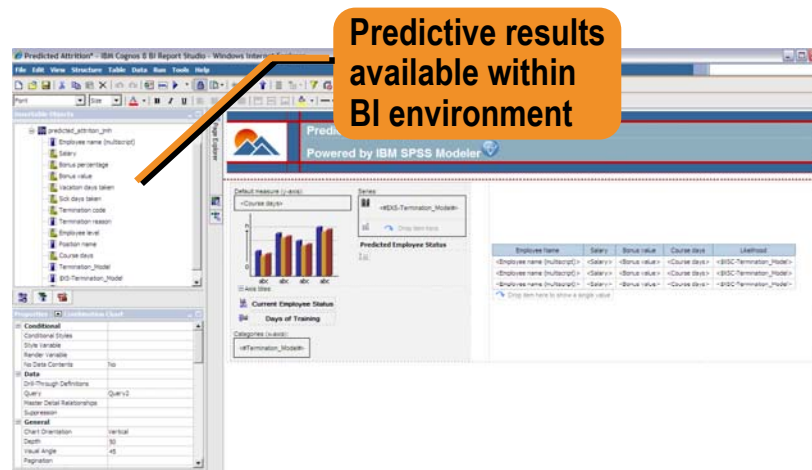
Add predictive intelligence IBM Cognos BI Dashboards

Focus efforts around the future – anticipate, rather than react.

IBM Cognos Business Intelligence

Solution Highlights

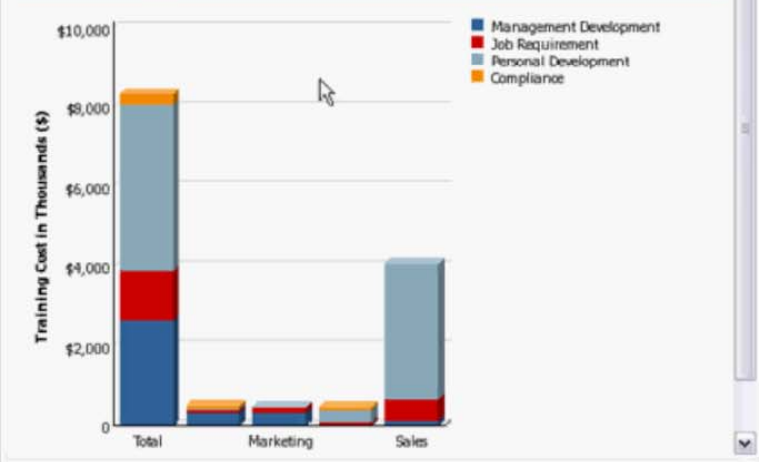
- Predictive results immediately available to IBM Cognos Business Intelligence
- Easily compare current state to predicted result
- Measure by effect of key factors on predicted outcome.



Name	Modified	Actions
<input type="checkbox"/> Cognos1234	August 5, 2010 11:09:45 AM	More...
<input type="checkbox"/> Cubes	August 20, 2009 8:53:40 AM	More...
<input type="checkbox"/> export1234	August 5, 2010 12:18:21 PM	More...
<input type="checkbox"/> export12345	August 5, 2010 12:33:42 PM	More...
<input type="checkbox"/> exportax	August 5, 2010 1:02:06 PM	More...
<input type="checkbox"/> exportbatch	August 5, 2010 12:50:06 PM	More...
<input type="checkbox"/> Metrics	September 16, 2008 10:32:57 AM	More...
<input type="checkbox"/> Models	August 19, 2009 2:39:40 PM	More...
<input type="checkbox"/> Sample Template	August 19, 2009 2:44:23 PM	More...

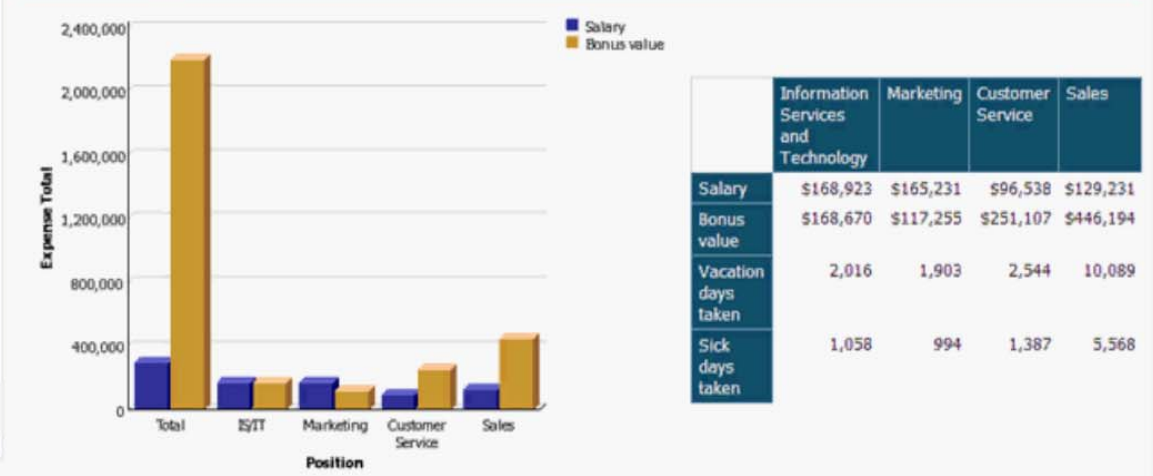
Employee Training Costs

Employee Training

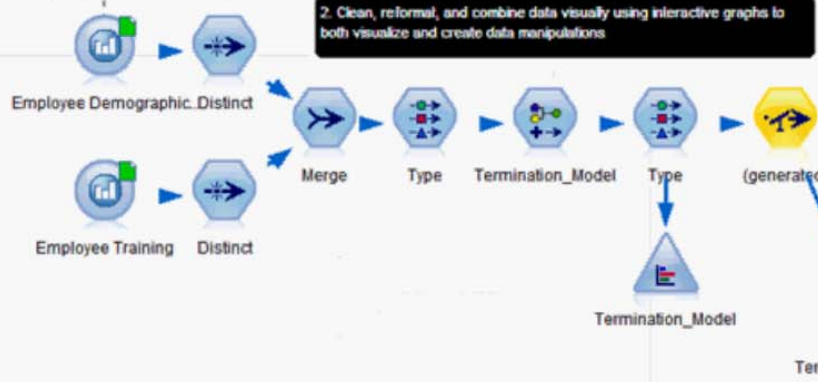


Salary and Bonus Metrics

Global Salary Report



1. Get data from virtually any source



2. Clean, reformat, and combine data visually using interactive graphs to both visualize and create data manipulations

3. Choose from a wealth of individual modeling techniques or use auto-modeling techniques to create powerful models that get results

Streams Outputs Models

Termination...

CRISP-DM Classes

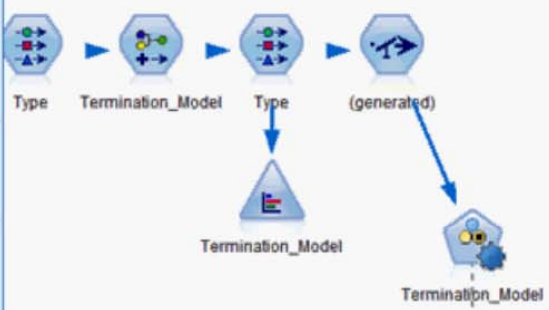
- (unsaved project)
- Business Understanding
- Data Understanding
- Data Preparation
- Modeling
- Evaluation
- Deployment



1. Get data from virtually any source

2. Clean, reformat, and combine data visually using interactive graphs to explore and create data manipulations

- Edit...
- Connect... F2
- Disconnect F3
- Rename and Annotate...
- New Comment...
- Cut Ctrl+X
- Copy Node Ctrl+C
- Delete Delete
- Load Node...
- Retrieve Node...
- Save Node...
- Store Node...
- Cache
- Data Mapping
- Create SuperNode
- Generate User Input Node
- Run From Here



3. Choose from a wealth of individual modeling techniques or use auto-modeling techniques to create powerful models that get results

Streams Outputs Models

Termination...

CRISP-DM Classes

- (unsaved project)
- Business Understanding
- Data Understanding
- Data Preparation
- Modeling
- Evaluation
- Deployment

All Automated Classification Association Segmentation

Auto Classifier Auto Numeric Auto Cluster Time Series C&R Tree Quest CHAID Decision List Linear Regression PCA/Factor Neural Net C5.0 Feature Selection Discriminant Logistic GenLin Cox SVM Bayes Net SLRM

Employee_Attrition_Final2* - IB

File Edit Insert View Tools Sources

Get data from virtually any source

Employee Demographics

Employee Training

Favorites Sources Record O

All Automated Classification Association Segmentation

Auto Classifier Auto Numeric Auto Cluster Time Series C&I

Server: Local Server

Employee Demographics

Preview Refresh

/Public Folders/Samples/Models/GO Data Warehouse (analysis)

Data Filter Type Annotations

Connection: Edit...

Package: Edit...

Package content: Fields to import:

- GO Data Warehouse (analysis)
- go_data_warehouse

[Employee summary].[Employee summary fact].[Salary]
[Employee summary].[Employee summary fact].[Bonus percentage]

OK Cancel

Employee Training

Preview Refresh

/Public Folders/Samples/Models/GO Data Warehouse (analysis)

Data Filter Types Annotations

Connection: Edit...

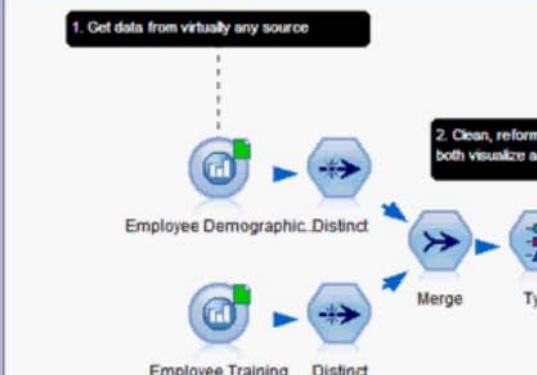
Package: Edit...

Package content: Fields to import:

- GO Data Warehouse (analysis)
- go_data_warehouse

[Employee training].[Employee training fact].[Course days]
[Employee training].[Employee (by manager)].[Employee (by manager)].[Employee].[Employee na

↔



Type

Preview

Types Format Annotations

Read Values Clear Values Clear All Values

Field	Measurement	Values	Missing	Check	Role
Bonus value	Continuous	[0.0,2270...]		none	Input
Vacation d...	Continuous	[0.0,90.0]		None	Input
Sick days t...	Continuous	[0.0,47.5]		None	Input
Termination...	Continuous	[150,158]		None	None
Termination...	Nominal	"Active e...		None	None
Employee l...	Continuous	[1,7]		None	Input
Position na...	Nominal	"Account...		None	Input
Course days	Continuous	[1.0,31.0]		None	Input
Termination...	Nominal	Active,In...		None	Target

View current fields View unused field settings

OK Cancel Apply Reset



1. Get data from virtually any source



Employee Demographic



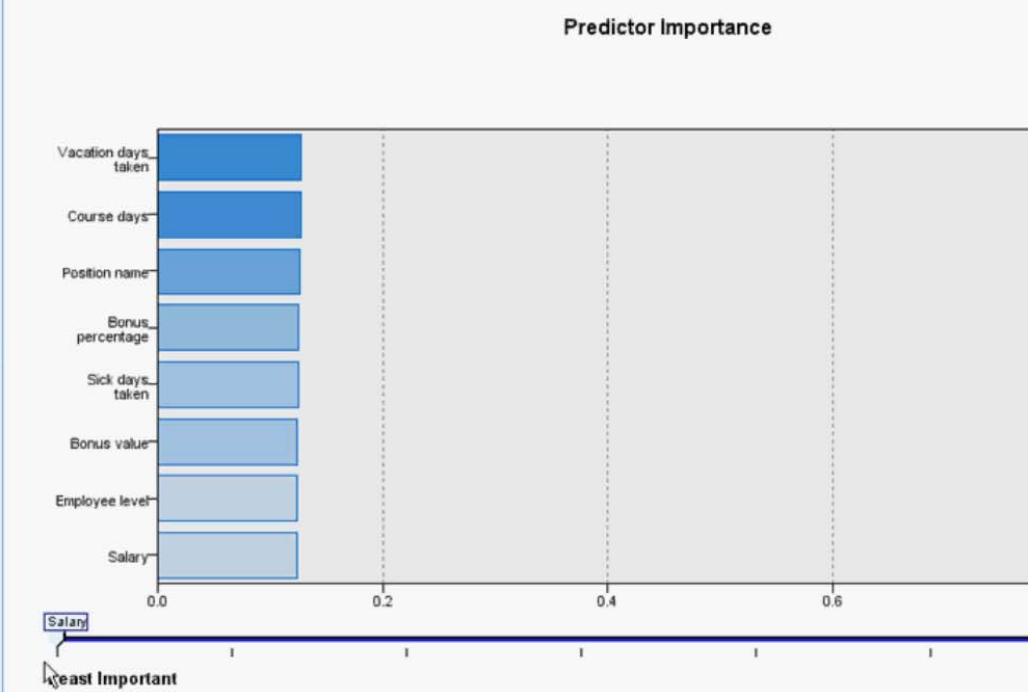
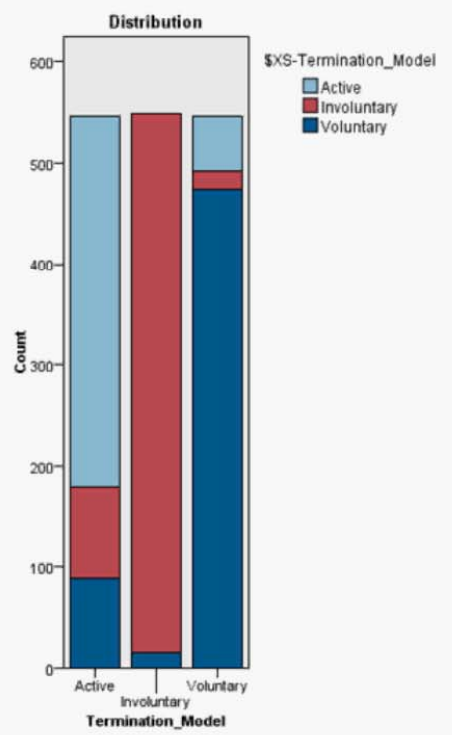
Employee Training

Termination_Model

File Generate View Preview

Model Graph Summary Settings Annotations

Graphs are calculated based on all models in the Model tab, deselection of models on the Model tab will not be reflected in these graphs.



Favorites Sources Record Op

All Automated Classification Association Segmentation

Auto Classifier Auto Numeric

OK Cancel



IBM Cognos BI Export



Select an item:

- Cognos connection
- ODBC connection

Hint: You must define both a Cognos connection and an ODBC connection.

Cognos Connection

Connection:

Data source:

Folder:

Package name:

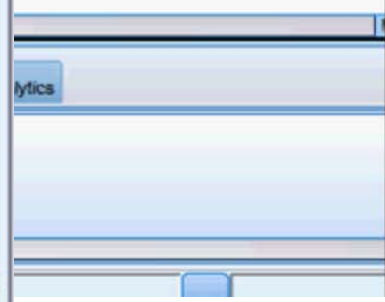
Mode: Publish package now Export action script (publish later)

File:

Generate an import node for this data



...e intuitive model visualizations to understand
...ts and deploy results to the enterprise in a variety
...ys



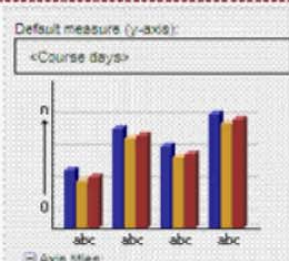
Insertable Objects

- predicted_attrition_mrh
 - Employee name (multiscript)
 - Salary
 - Bonus percentage
 - Bonus value
 - Vacation days taken
 - Sick days taken
 - Termination code
 - Termination reason
 - Employee level
 - Position name
 - Course days
 - Termination_Model
 - SXS-Termination_Model

Properties - Combination Chart

- Conditional**
 - Conditional Styles
 - Style Variable
 - Render Variable
 - No Data Contents: No
- Data**
 - Drill-Through Definitions
 - Query: Query2
 - Master Detail Relationships
 - Suppression
- General**
 - Chart Orientation: Vertical
 - Depth: 50
 - Visual Angle: 45
 - Pagination

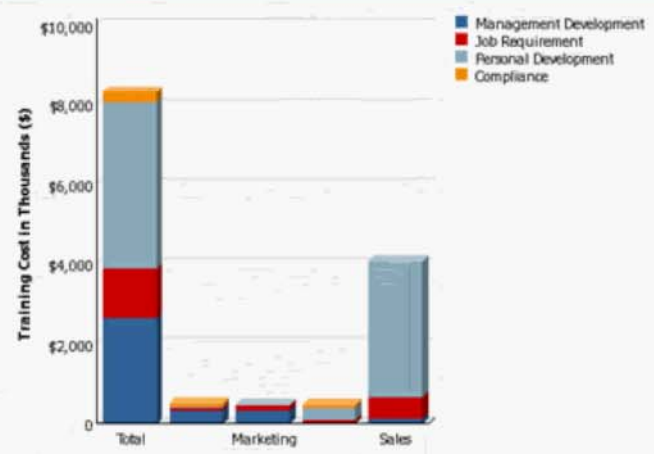
Predicted Attrition
 Powered by IBM SPSS Modeler



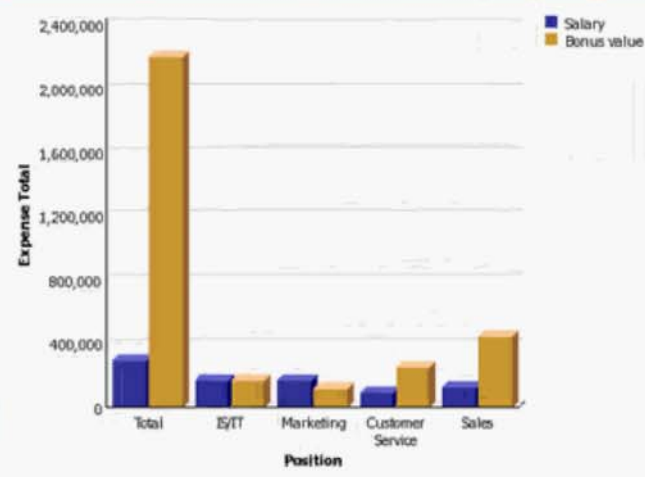
Employee Name	Salary	Bonus value	Course days	Likelihood
<Employee name (multiscript)>	<Salary>	<Bonus value>	<Course days>	<SXS-Termination_Model>
<Employee name (multiscript)>	<Salary>	<Bonus value>	<Course days>	<SXS-Termination_Model>
<Employee name (multiscript)>	<Salary>	<Bonus value>	<Course days>	<SXS-Termination_Model>

Drop item here to show a single value

Employee Training



Global Salary Report



	Information Services and Technology	Marketing	Customer Service	Sales
Salary	\$168,923	\$165,231	\$96,538	\$129,231
Bonus value	\$168,670	\$117,255	\$251,107	\$446,194
Vacation days taken	2,016	1,903	2,544	10,089
Sick days taken	1,058	994	1,387	5,568

Aug 5, 2010

1

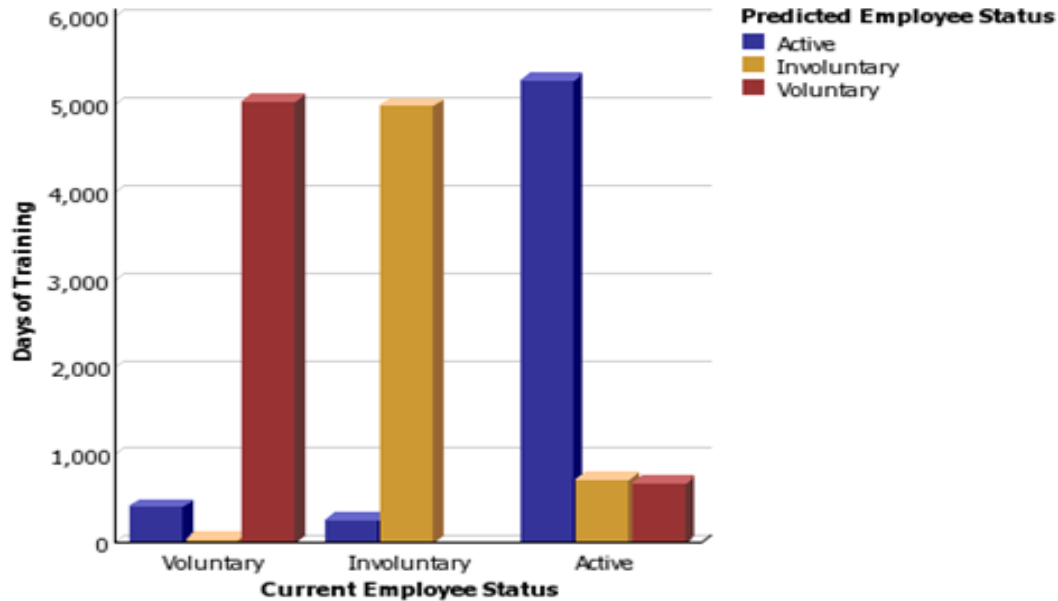
3:15:46 PM

Predicted Attrition



Predicted Attrition

Powered by IBM SPSS Modeler



Employee Name	Salary	Bonus value	Course days	Likelihood
Adrien Martin	\$26,695	\$2,086	7	76.7%
Anouk Petit	\$23,538	\$1,412	6	71.6%
木村 大地	\$27,530	\$1,585	3	68.7%
木村 康平	\$38,769	\$3,702	1	67.1%
Katharina Hoenike	\$46,654	\$0	16	67.1%
윤 라산	\$28,769	\$0	15	63.4%
Ernst Aaldenberg	\$31,731	\$1,862	6	58.6%
斎藤 文子	\$27,530	\$4,206	4	58.6%
Betje Coeman	\$26,846	\$3,028	4	53.7%
Johan Bakker	\$57,692	\$0	18	53.7%
Alice Walter	\$49,846	\$0	22	52.7%
Rémy Mallorquin	\$44,231	\$2,592	10	52.4%
Chris Parston	\$29,191	\$2,819	3	52.0%
Fytje Aaij	\$26,846	\$3,028	6	51.9%
Anna Valdez	\$29,615	\$0	21	50.8%
Denys Brinkerhoff	\$25,231	\$2,458	8	49.9%
Georg Schmuker	\$38,077	\$0	17	49.8%
Otto Kunstler	\$32,500	\$1,250	2	49.5%
Diane Sheppard	\$33,846	\$0	16	49.0%
高 武	\$36,000	\$3,420	8	48.9%

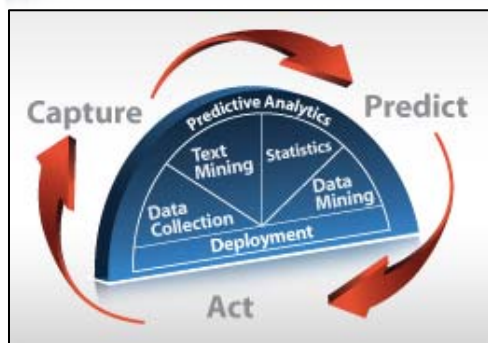
Summary



How are we doing?

Why are we on/off track?

What should we do next?



Drive the widespread use of data in decision making



Inserting “intelligence” at key decision points in business processes to improve outcomes and automate decisions



We are what we think.
All that we are arises with our thoughts.
With our thoughts we make the world.

(Hindu Prince Gautama Siddharta, the founder of Buddhism, 563-483 B.C.)

Meet us at the booth to share your thoughts

