Introduction to Predictive Analytics: SPSS Modeler

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Welcome! The Webinar will begin at 12:00 pm EST
LPA Events Calendar

**Upcoming Webinars**

- Today - *Introduction to Predictive Analytics with SPSS Modeler*

- 3/8 @ 12:00 EST – *Better Clinical Analytics for your NextGen Implementation*

- 3/21 @ 12:00 EDT - *Smarter Planning and Budgeting with IBM Cognos TM1*

- 4/18 @ 12:00 EDT- *Solving the Location Analytics Blind Spot: Location Analytics with ESRI Maps for IBM Cognos*

Register here: [http://www.lpa.com/events/](http://www.lpa.com/events/)
LPA Systems

Founded in 2001

- Offices in Rochester, NY, Dallas, TX and Houston, TX
- Consultants located throughout U.S.
- Hundreds of active enterprise, mid-market and OEM clients

Partners

- IBM Premier Business Analytics Partner
  - IBM Cognos, TM1, SPSS, and Big Data/Netezza
- Esri Silver Tier Partner

Extensive business analytics consulting experience

- 100% IBM Business Analytics certified
- Tenured consultants with an average experience of 10+ years
- Wide variety of industry, functional and domain experience
- Expertise from Data Warehouse through Predictive Analytics with BI and FPM in between
How We Can Help?

Cognos based solutions for Healthcare and Hospitality markets

Authorized Reseller for

- IBM Business Analytics Software - Licensing & Renewals
- ESRI Maps for IBM Cognos - Licensing & Renewals

Training

Cognos Business Intelligence

- Migrations and Upgrades
- Health Check - Performance Tuning and Troubleshooting
- Administration / Configuration
- Metadata, Report, and Dashboard Development
- SDK and Custom Authentication Provider
- Esri Maps for IBM Cognos installation, configuration, implementation and training

SPSS Predictive Analytics

TM1 Enterprise Planning and Budgeting

Data Warehouse / Big Data
Agenda

• What is Predictive Analytics?
• Predictive Analytics in Business
• Predictive Analytic Process and Analyses
• Demo
• Summary
• Q&A
Why Analytics?

“At a time when companies in many industries offer similar products and use comparable technology, high performance business processes are among the last remaining points of differentiation”¹

¹Competing on Analytics’
T.H. Davenport & J.G. Harris
Analytics is a set of business intelligence technologies that enables the understanding of retrospective data with the goal of understanding trends via comparison.

Using analytics is like driving your car and watching traffic through the rear-view mirrors and not seeing the dangers ahead.
Predictive Analytics is a set of business intelligence technologies that uncovers relationships and patterns within large volumes of data that can be used to predict behavior and events. Unlike other BI technologies, predictive analytics is forward-looking, using past events to anticipate the future.

Using predictive analytics is like driving your car and watching traffic through the front windshield and making course corrections using GPS to predict traffic situations beyond your immediate vision.
Where does Predictive Analytics fit in the Business Intelligence space?

### Applications for Predictive Analytics

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Other</td>
<td>12%</td>
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<tr>
<td>Supply Chain</td>
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<td>Surveys</td>
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<td>Quality Improvement</td>
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<td>Customer Service</td>
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<td>Fraud Detection</td>
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<td>Attrition/Churn/Retent...</td>
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<tr>
<td>Budgeting &amp; Forecasting</td>
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<tr>
<td>Customer Acquisition</td>
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<td>Campaign Management</td>
<td>46%</td>
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<tr>
<td>Cross Sell/Upsell</td>
<td>47%</td>
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Imagine If Decision Makers Could...

- **Physician**
  - predict and treat infection in premature newborns 24 hours earlier?

- **Loan Officer**
  - adjust credit lines as transactions are occurring to account for risk fluctuations?

- **Retail Sales Associate**
  - determine who is most likely to buy if offered discounts at time of sale?

- **Telco Call Center Rep**
  - apply inferred social relationships of customers to prevent churn?

- optimize every transaction, process and decision at the point of impact, based on the current situation, without requiring that everyone be an analytical expert
Predictive Analytics offers Unique Insights to Answer those Tough Business Questions
Three Predictive “Pillars”

- Predictive Customer Analytics
  - Acquire
  - Grow
  - Retain

- Predictive Operational Analytics
  - Manage
  - Maintain
  - Maximize

- Predictive Threat & Fraud Analytics
  - Monitor
  - Detect
  - Control
The consumer has taken charge...

Customers have lost confidence in institutions
- 76% of customers believe companies lie in advertisements
- Growing trust gap in many consumer focused industries

Technology is changing how customers interact
- Social media changed purchaser influence; opinions viewable instantly
- Mass customization and personalization of products and services

Expectations have changed
- Focus is on value, transparency and accountability
- Customers want to be seen holistically across the enterprise

Institutions need to rediscover their customers
- Consumers are experiencing brands in new ways though new channels
- Micro-targeting: the move beyond 1 on 1 is accelerating

Sources: http://www.nae.edu/cms/Publications/The Brodge/Archives/7356/7596.aspx; Internetworldstats.com; Strategy Analytics; Informa
New business challenges create a need for analytics

Traditional Approach
- Sense and respond
- Instinct and intuition
- Skilled analytics experts
- Back office
- Automated

New Approach
- Predict and act
- Real-time, fact-driven
- Everyone
- Point of impact
- Optimized
Customer Analytics can help

- Calculate, monitor and maximize profitability of each customer through targeted up sell and cross-sell efforts
- Understand interconnected factors that influence customer lifetime value
- Increase the profitability of every customer interaction through predictive analysis of customer needs, preferences and propensity to buy
- Boost profits and reduce costs by targeting only customers with the highest lifetime value potential
- Personalize up-sell or cross-sell opportunities that maximize customer lifetime value
- Satisfy and retain loyal, profitable customers and attract others like them
Three Predictive “Pillars”

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Volatile times demand pervasive visibility & flexibility

- Speed
- Flexibility
- Cost
- Quality
- People
- Capital
- Process

Agile businesses have 29% higher earnings per share.

48% of product companies view "improving quality (fewer flaws)" as the key challenge in smarter products.
Operational excellence is everyone’s business

- Forecasting
- Product Lifecycle Management
- Inventory Management
- Service Management
- Procurement
- Development
- Distribution
- Asset Management
- Support

360 degree Customer View

IBM Premier Business Partner
Operational Analytics can help

- Identify and resolve issues earlier in the product lifecycle process reducing warranty claims.
- Create a continuous feedback loop of previous learning from reliability modeling improving quality and reducing warranty costs.
- Reduce machine downtime due to parts failure resulting in increased yields and throughputs.
- Identify Production line issues affecting quality using anomaly detection helping identify problems early on in the process before it escalates into a much more costly problem.
- Provide the ability to predict necessary maintenance over a time horizon in order to schedule and group maintenance more effectively thereby avoiding downtime.

Manage your operations
Maintain your infrastructure
Maximize capital efficiency
Three Predictive “Pillars” to enable strategic objectives

- Acquire
- Grow
- Retain

- Manage
- Maintain
- Maximize

- Monitor
- Detect
- Control
Fraud is expensive and becoming more widespread

Types of Fraud

- Benefit/welfare fraud
- Financial services (plastic card/check) fraud
- Healthcare fraud
- Insurance fraud
- Retail fraud – returns,
- Credit fraud
- Customs fraud
- Tax fraud (evasion)
- Occupational fraud – workman's comp
- Identity theft, bribery, insider trading and money laundering are sometimes also classified as fraud.
Managing threat and fraud is a balancing act

- Impact
- Advantageous
- Reliability
- Preventative
- Timings
- Proactive

- Cost
- Adverse
- Regulatory
- Corrective
- Repercussions
- Reactive
Threat and fraud analytics can help

- Spot suspicious claims early to expedite legitimate claims
- Improve overall customer satisfaction and retention by handling claims more rapidly and releasing payments faster
- Integrates data analysis and workflow across departments speed referral of questionable claims and reduce third-party collection fees
- Police department crime units and task forces develop plans for special actions and interventions. Improved reaction time to crimes by positioning officers at the right place and the right time
- Transforms massive amounts of patient data into key insights, helping hospitals optimize the efficiency on payment collections
How is it done?

Capture

Predict

Act

Feedback Maintenance Reports

Predictive Maintenance

Data

Financial Data

Performance logs

Sensor Data

Production Logs

Environment Data

Maintenance Logs

Association

Clustering

Classification

Forecasting

Predictive Models

Likelihood of failure based on multiple methods

Business Rules

Make expert knowledge explicit

Process Automation & Optimization

Automate prediction & deployment process

Process Management & Control

Monitor & manage analytics process

Plan

Use scenarios & analytics to perform resource, inventory & asset planning

Optimization

Define decision optimization

Produce Scores & Recommendations

Integrate with Maintenance Planning

Scoring

Deploy Decision Models

Predictive Models

Business Rules

Process Automation & Optimization

Feedback Maintenance Reports

Process Management & Control

Perform Root-Cause Analysis

Perform Decision Models

Update Expert Knowledge

Deploy Decision Models

Feedback Maintenance Reports

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Execute

Perform Maintenance based on optimized planning

Integrate

Receive pro-active Maintenance recommendations

Prevent

Receive pro-active Maintenance recommendations

How is it done?
IBM SPSS Modeler

- High-performance data mining and text analytics workbench
- Utilizes structured and unstructured data
- Creates predictive analytics for data driven decision making
- Enables superior outcomes and positive ROI
Data Mining Methodology – CRISP-DM

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<td>Define Success criteria</td>
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<td>Determine Data Mining Goals</td>
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<td>Monitor and Maintain</td>
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Demonstration
Conclusion

➢ A tougher competitive environment is driving organizations to adopt predictive analytics

➢ Predictive Analytics is a transformational technology that enables more proactive decision making, driving new forms of competitive advantage

➢ Predictive Analytics enables decision makers to predict future events and proactively act upon that insight to drive better business outcomes
References

1. Competing on Analytics – TM Davenport and JG Harris
3.
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QUESTIONS?
Introduction to Predictive Analytics: SPSS Modeler

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End of Presentation