Demonstration of SAP Predictive Analysis 1.0, consumption from SAP BI clients and best practices

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Learning Points

- Overview of predictive analytics and use cases
- Introduction to SAP Predictive Analysis
- Demonstration of SAP Predictive Analysis 1.0
- Integration of Predictive Analysis capabilities in SAP BusinessObjects BI client tools
- Best Practices with SAP Predictive Analysis 1.0
The Predictive Analytics Story

What is Predictive Analytics?

“Predictive analysis helps connect data to effective action by drawing reliable conclusions about current conditions and future events.” ~ Gareth Herschel, Research Director, Gartner Group

Note: Data Mining and Statistics are part of the Industry’s view of Predictive Analytics.
Extend Your Analytics Capabilities

The key is unlocking data to move decision making from sense & respond to predict & act.
Data mining and predictive have been around for decades. But new market forces are changing the landscape and offering new opportunities…

**Increased business interest**
- Now that BI users know what happened, they are asking why and what’s likely to happen next
- Explosive demand from sales, marketing, and call center analyses… fraud, and government intelligence/security agencies

**Increased data value (e.g., Big Data)**
- Exploding data volume
- Expanding data varieties

**Increasing technology performance**
- Parallel processing, faster CPUs, and in-memory technologies reduce time and cost of data processing
Predictive Analytics – Use Cases
Where Predictive Analytics is used

Challenges

Forecasting

How do historical sales, costs, key performance metrics, and so on, translate to future performance? How do predicted results compare with goals?

Key Influencers

What are the main influencers of customer satisfaction, customer churn, employee turnover, and so on, that impact success?

Anomalies

What anomalies might exist and conversely what groupings or clusters might exist for specific analysis?

Relationships

What are the correlations in the data? What are the cross-sell and up-sell opportunities?

Trends

What are the trends: historical / emerging, sudden step changes, unusual numeric values that impact the business?
### How Predictive Analytics is Used in Industry

#### Business and Industry Use Cases

<table>
<thead>
<tr>
<th>Industry</th>
<th>Use Case Description</th>
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<tbody>
<tr>
<td><strong>Healthcare</strong></td>
<td>Predict likelihood of disease to begin early treatment; identify clinical trial outcomes.</td>
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<tr>
<td><strong>Banking</strong></td>
<td>Identify key behaviors of customers likely to leave the bank; improve credit risk analysis.</td>
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<tr>
<td><strong>CRM Marketing</strong></td>
<td>Identify potential leads among existing customers and intelligently market to them based on individual preferences and histories.</td>
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<td><strong>Retail</strong></td>
<td>Intelligent selection of store locations based on demographics; inventory planning.</td>
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<td><strong>CRM Sales</strong></td>
<td>Identify revenue forecast based on customer opportunities and pipeline execution.</td>
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<td><strong>Utilities</strong></td>
<td>Forecast demand and usage for seasonal operations; provide anticipated resources.</td>
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<td><strong>Government</strong></td>
<td>Predict community movement and trends that affect taxing districts; anticipate revenue.</td>
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<tr>
<td><strong>Telco</strong></td>
<td>Forecast demand on system load for capacity planning and customer scale.</td>
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Predictive Analysis Steps

Data Loading
1. Understand the business and identify issues
2. Load the data

Data Preparation
1. Visualize and examine the data
2. Sample, filter, merge, append, apply formulas

Data Processing
1. Define the model via clustering, classification, association, time series, etc.
2. Run the model

Data Visualization and Sharing
1. Visualize the model for better understanding
2. Store the model and results
**SAP Predictive Analytics Vision**

### Database to Decision Predictive Analytics
- In-database predictive and R integration
- Intuitive predictive modeling
- Advanced data visualization and easy to use exploration

### For Everyone in the Business
- Seamlessly embedded in business user applications
- Extended into BI clients and reports
- Insight into events instantly delivered to dashboards, alerts, and mobile devices

### Harnessing Powerful Big Data Analytics
- Real-time on massive amounts of structured and unstructured data
- Complex questions answered in-memory, lightning fast
- Deep Hadoop integration with built-in text analysis
SAP Predictive Analysis – Overview
What is SAP Predictive Analysis?

- Data driven approach to problem solving
- Focused on business objectives
- Leverages organizational data
- Uncovers patterns using predictive and descriptive techniques
- Uses results to help improve organizational performance
SAP Predictive Analysis - Capabilities

- Simplified User Interface for Predictive Analytics
- In Memory predictive analytics in SAP HANA
- Support for Open Source R algorithms
  - Dialogue driven interface for R algorithms
- Reads data from variety of sources
  - SAP BusinessObjects Universe
  - Personal data files – CSV or Excel
  - Relational database tables/views
- Intuitive visualizations
  - Exploratory Data Analysis
  - Predictive Analytics results visualization
  - Predictive Model visualization
SAP Predictive Analysis – Demonstration
SAP Predictive Analysis – Integration Scenarios
Predictive Analysis - User Personas

Number of users

- Large number
- 50 / 100
- 5 / 20
- 500 / 5,000

User personas

- Application End User
  - Information Consumer
  - Interactive Consumer
- All personas
- Business Analyst / Interactive Consumer
- Business Analyst
- Professional Data Analyst
- Predictive Analysis process designer / author

Embedding Predictive Analysis

- Industry applications
- LOB applications
- BI client tools

SAP PA visualization

- SAP PA
- HANA PAL
- HANA R
SAP PA Integration with SAP HANA

- SAP HANA as source of data for In Database Predictive Analysis
  - HANA Table as source
  - HANA View as source
    - Attribute View
    - Analytical View
    - Calculation View

- Sample and Filter the data in HANA
- Visualize the data in SAP PA
- Apply HANA PAL (Predictive Analytics Library) algorithms on data and visualize the results
- Persist the results back to HANA as tables
SAP PA Integration with SAP BusinessObjects

- XI 3 & BI 4 UNV universes as source of data
  - Apply data preparation techniques
  - Apply predictive algorithms on the data
  - Visualize the results

- Perform predictive analysis on data from universe
  - Using SAP PA Native algorithms
  - Using OpenSource R algorithms
  - Export the created predictive model into PMML format

- Persist the results of the analysis
  - Results written onto underlying database tables
  - Results shown on the SAP BusinessObjects BI client tools
SAP Predictive Analysis – Demonstration of Integration with BI clients
Best Practices with SAP Predictive Analysis 1.0

- For comprehensive set of functionality with SAP PA 1.0, install and configure R to work with SAP PA.
  - SCN Article here: http://scn.sap.com/docs/DOC-28396
- Understand the data before you apply any predictive algorithm
- If you have large data, it is advisable to put that into HANA and use in memory predictive analysis to speeden your analysis.
- While data mining, beware of mines
  - Are unusual values significantly affecting the model?
  - How robust is the model to changes in the data and model parameters?
  - Statistical correlation does not always mean casual relationships e.g. storks and babies...
  - Do you have all the important independent variables and can you quantify them?
Key Learnings

- Predictive Analytics enables to move decision making from sense & respond to predict & act
- SAP Predictive Analysis offers a simple and easy to use user interface for building predictive analysis with intuitive visualization
- SAP Predictive Analysis unlocks big data predictive analysis in SAP HANA using easy to use interface
- SAP PA created predictive results can be integrated into SAP BusinessObjects BI clients
Thank you for participating.

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