SAP Predictive Analysis: Strategy, Value Proposition

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Analytics solutions from SAP: Key capabilities

**Business intelligence (BI)**
- SAP BusinessObjects BI solutions
- BI clients
  - Reporting
  - Analysis
  - Dashboarding
  - Data discovery
- Integration and connectivity
  - Mobile BI
  - Integration with SAP HANA
  - Embedded analytics
  - Integration with the SAP NetWeaver Business Warehouse (SAP NetWeaver BW) component
- SAP BusinessObjects BI On Demand solution

**Analytic applications**
- Extensible, role-based analytic solutions
- Designed to work with various data sources
- Designed for specific industries and lines of business

**Enterprise performance management (EPM)**
- Strategy management
- Planning, budgeting, and forecasting
- Profitability and cost management
- Financial consolidation
- Disclosure management and XBRL

**Enterprise information management**
- Data services
- Master data management
- Event processing
- Content management
- Information governance

**Data warehousing**
- In-memory computing
- Enterprise data warehousing
- Data marts
- Data modeling

**Governance, risk, and compliance (GRC)**
- Enterprise-ready GRC
- Access risk management
- Global trade services
- Continuous transaction monitoring
SAP’s strategic focus on business intelligence

Core
- Core for innovation
- Complete BI suite
- Continued leadership

Creative
- Use by IT and departments
- Fast time to value
- Connection to the enterprise

Mobile
- First experience for BI
- Content to point of impact
- Expansion to untapped users

Extreme
- Big data
- Real time
- Predictive

Social
- Ability to capture the decision
- Information in context
- Ability to leverage the network

Innovation without disruption
Solution Overview

- Predictive Analytics is an important requirement for our Industry and LOB applications, and BI solutions. It is a significant market - $2.0B 2014 (IDC), in which we have a minor presence.

- To establish a leadership position in this space, our product strategy is to provide –
  - A modern UX/UI to support the definition of predictive analysis processes and their visualization
  - In-Database Predictive Analysis within SAP HANA for real time and large data volume data analysis
  - R integration for SAP HANA to provide a very comprehensive range of predictive algorithms
  - Embed Predictive Analysis in our Industry / LOBs / BI client tools.
What is Predictive Analysis

- Quiet Simply: - it's quantitative analysis to support predictions. Predictions of for example - product sales, costs, headcount, metrics; customer churn; credit scoring; cross sell / up sell opportunities; market campaign response; anomalies, fraud.

  “... the exploration and analysis, by automatic or semi-automatic means, of large quantities of data in order to discover meaningful patterns and rules.”

  Gordon Linoff and Michael Berry
  Authors of “Data Mining Techniques”

  “… The process of data access, data exploration, data preparation, modelling, model deployment, and model monitoring.”

  John Elder, Robert Nisbet and Gary Miner
  Authors of “Statistical Analysis & Data Mining ”
Predictive Analysis comprises primarily of Statistical Analysis and Data Mining, but can also include methods and techniques from Operations Research.
What if...

...You could identify hidden revenue opportunities within your customer base through predictive analytics?

...You could retain your high-value customers/employees/vendors/partners with the right retention offers?

...Your call center agents could delight customers with the best next-step recommendations?

...You could increase cross-sell and up-sell effectiveness through cross-channel coordination?

...You could build long-term customer / employee/vendor/partner relationships with intelligent interactions?
Extend Your Analytics Capabilities

The key is unlocking data to move decision making from sense & respond to predict & act
How Predictive Analytics is used in Retail

- Store manager of a retail chain has the historical list of transactions at his store.
- He is looking to understand whether there are any patterns between the sales of products in the store (for e.g.: any product going with the other)
- If there are any such patterns, he is looking for opportunities to either bundle the products or when customer buys one product offer discount on the other.
Expanding Market Basket Analysis

- **Effective Promotions:**
  - Potential of drag-along sales
    - If two items appear in a shopping cart often together, promoting one may increase sales of the other
  - Effectiveness of Past Sales Promotion:
    - Find out Hoarding behavior: Has the sales promotion led to the item appearing in more baskets or not

- **Rationalized Assortment:**
  - Identify true value of an item and how it effects the overall business
    - Does the low selling item appear in high value baskets

- **Store Layout:**
  - Identify departments represented in the baskets and optimize setup
How Predictive Analytics is used in industry

- **Healthcare**
  - Predict likelihood of disease to begin early treatment
  - Identify clinical trial outcomes

- **CRM Marketing**
  - Identify potential leads among existing customers and intelligently market to them based on individual preferences and histories

- **Banking**
  - Identify key behaviors of customers likely to leave the bank
  - Improve credit risk analysis.

- **Utilities**
  - Forecast demand and usage for seasonal operations;
  - Provide anticipated resources.

- **Government**
  - Predict community movement and trends that affect taxing districts
  - Anticipate revenue.
Where is Predictive Analytics used

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?

Trends

What are the trends: historical / emerging, sudden step changes, unusual numeric values that impact the business?

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?
Leverage the complementary capabilities of both SAP Predictive Analysis and SAP HANA

Integrated and optimized for interoperability, enabling the combination of real-time and operational analytics, access to big data, and predictive capabilities

If it’s available through HANA, it can be used for data mining and predictive analysis – gain real-time access to BPC, BW, ERP, Analytic Applications, and more

Prediction x Real-time + Big Data = Competitive Advantage
Predictive Analysis & SAP HANA: A Perfect Marriage

Predictive Analysis

- UI for Predictive Queries
- Business Focus
- Low Learning Curve
- HANA Optimized
- SAP Optimized & Integrated
- SBOP Integration Options

Deepest Insight
Intelligent Answers
Fast Performance
No Data Left Behind
SAP Integrated
Competitive Advantage

SAP HANA

- Ideal for Predictive Queries
- Column Store
- Compression
- In-Memory Optimized
- SAP Optimized
- SAP In-Memory Computing Platform

Increase your access to and reliability to data
Predictive Analysis with SAP HANA

- Simplified UI/UX for predictive analysis in HANA
- 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 SBOP PA
- Apply HANA PAL algorithms on data and visualize the results
- HANA as source of data through JDBC
  - Apply algorithms on the data and perform the analysis
  - Visualize the results
- Persist the results back to HANA as tables
Predictive Analysis with SAP BusinessObjects

- XI 3 & BI 4 UNV universes are supported as source of data
  - Prepare the data using data preparation techniques
  - Apply algorithms on the data and perform the analysis
  - Visualize the results
- Perform predictive analysis on data from universe
  - Using SBOP PA algorithms
  - Using Open Source R algorithms
  - Export the created predictive model into PMML format
- Persist the results of the analysis
  - Results can be written onto underlying database tables
  - Results can be shown on the SAP BusinessObjects BI client tools
Predictive Analytics: Vision

Database to Decision Predictive Analytics

- In-database predictive analytics and R integration
- Best in-class predictive modeling
- Advanced data visualization and easy to use exploration

For Everyone in the Business

- Seamlessly embedded in business user applications
- Intuitively 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
Target Applications Areas

- Maximize Customer Revenue and Retention
- Customer loyalty
- Cross sell and up sell opportunities
- Next best offer
- Churn prediction and reduction
- Improving marketing campaign response rates
- Market basket analysis
- Crime and Threat Control for the Public Sector
- Retain/recruit good employees
- Enhanced Human Capital Management
- Predict student enrollment
- Reduce maintenance cost
- Identify opportunities for manufacturing process improvement
- Reduce quality defects
- Fraud detection/risk management
- Improve demand/assortment planning
Target Industries and LoB

- **INDUSTRY**
  - Retail
  - Health Care / Pharma
  - Insurance
  - Oil & Gas
  - Financial Services
  - Manufacturing
  - Transportation
  - Government
  - Education

- **LoB**
  - Marketing
  - HR, HCM
  - Market Intelligence
  - Consumer Intelligence
  - Product Planning
  - Category Management
  - Customer Service, CRM
  - Contributor Relations
  - Risk or Fraud Prevention
  - Tax or Revenue Collection
  - Finance
  - And more...
Key Learning

- Predictive Analytics unlocks data to move decision making from sense & respond to predict & act
- SAP Predictive Analysis provides a simple, unique and excellent GUI and User experience with SAP HANA
- SAP Predictive Analysis proved predictive capabilities on data directly sourced from Universes
- A modern GUI for the definition and execution of predictive analysis processes
- SAP Predictive Analysis provides unique GUI for consuming R packages
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