

Data Sheet: ADAPA for SAP HANA

Real-time Analytics to Drive Real-time Decisions

SAP created waves in the big data analytics market by introducing HANA®, its platform for real-time analytics and applications. HANA takes an innovative approach to the analytical processing of big data by optimizing both hardware and software for databases. By combining columnar data storage, massively parallel processing and in-memory computing, HANA dramatically accelerates the performance of critical computations, enabling real-time analytical capabilities that support real-time decision making in a wide variety of business contexts.

Zementis shares SAP's passion for dramatically accelerating organizations' ability to analyze big data sets, generating real-time business insights and thereby radically increasing business agility. With this in mind, we developed ADAPA® for SAP HANA.

ADAPA for SAP HANA is a dynamic, highly flexible platform for scoring advanced predictive analytic models for big data in real time. It allows organizations to interpret massive volumes of data, even constantly changing data, on an almost instantaneous basis. With ADAPA and HANA, organizations can rapidly deploy and run predictive models that reveal critical insights from their data.

The result? More agile data science operations, more rapid model deployment to business decision makers and more insightful business decisions that happen at the speed of data.

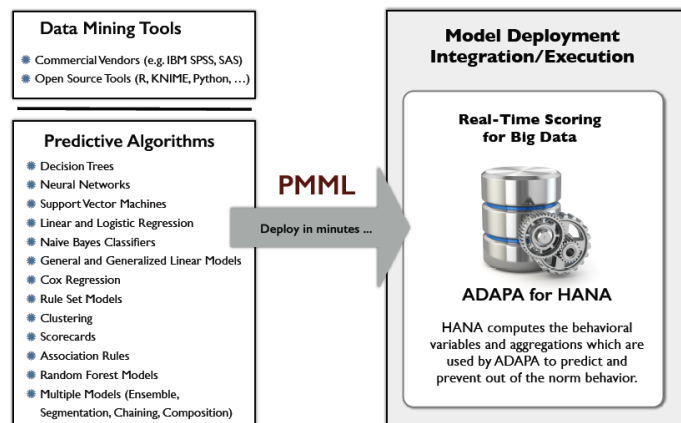
ADAPA Features

ADAPA uses the Predictive Model Markup Language (PMML) standard to import and deploy predictive models. PMML, created by the Data Mining Group, is the de-facto standard format for representing statistical and data mining applications. PMML eliminates the need for custom code and proprietary model deployment solutions, facilitates scalability and reliability of model execution via an uniform deployment platform, and supports the exchange of predictive models between different applications and vendors.

With PMML, ADAPA supports a wide range of predictive modeling techniques, including:

- Association Rules
- Decision Trees for classification and regression

- Neural Network Models: Back-Propagation, Radial-Basis Function, and Neural-Gas
- Support Vector Machines for regression, binary and multi-class classification
- Linear and Logistic Regression (binary and multinomial)
- Naïve Bayes Classifiers
- General and Generalized Linear Models
- Cox Regression Models
- Rule Set Models (flat decision trees)
- Restricted Boltzmann Machines
- Clustering Models: Distribution-Based, Center-Based, and 2-Step Clustering
- Scorecards (including support for reason codes and point allocation for categorical, continuous and complex attributes)
- Multiple Models: Model Composition, Segmentation, Chaining, Cascade and Ensemble, including Random Forest Models and Boosted Trees.



ADAPA also simplifies and streamlines data pre-and post-processing, by implementing the definition of a data dictionary, automating values handling (missing, outlier and invalid values), and performing various other data transformation tasks, including:

- Value Mapping
- Discretization
- Normalization
- Scaling
- Logical and Arithmetic Operators
- Conditional Logic (IF-THEN-ELSE)
- Built-in Functions
- Lookup Tables

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- Business Decisions and Thresholds
- JSON
- Customs Functions (user-defined)
- Text mining and regular expressions

The use of PMML accelerates model deployment and allows users to instantly and easily deploy predictive models from various commercial or open source data mining tools, including SAP Predictive Analysis, KXEN, IBM SPSS, SAS and R.

ADAPA for SAP HANA

In addition to enabling agile model deployment, ADAPA for SAP HANA provides scalable real-time scoring of the core model. The joint solution combines the Zementis ADAPA scoring engine for execution of predictive analytics with the in-memory computation capability of SAP HANA. Once scoring requests are sent to ADAPA, ADAPA executes predictive models while offloading expensive model preprocessing steps to HANA. HANA then returns pre-processed variables and aggregated values back to the model in ADAPA, which in turn computes the predictive model output and returns the final result to the calling application.



Real-time execution of predictive models depends critically on HANA being able to serve complex data lookups and aggregate profile computation in a few milliseconds. In a high-volume data environment, it may be necessary to compute such aggregation or lookup functions over millions of transactions. The combined scalability of ADAPA and HANA not only make this possible... ADAPA for SAP HANA makes this possible in real time, and as a scalable capability. This is predictive analytics power for your business.

Key Benefits

What makes ADAPA for SAP HANA unique? This joint solution combines the benefits of an open standard for predictive analytics with the power of in-memory computation. Together, ADAPA and HANA comprise a seamless, off-the-shelf platform that businesses in any industry can deploy to enable predictive analytics for the

most complex types of business challenges... massive data volumes, flowing in real time, with an imperative to generate insights and drive business decisions as quickly as possible.

Zementis ADAPA and SAP HANA enable customers to implement predictive solutions which are:

- **Highly Scalable:** Score advanced predictive analytics models for big data, do it in real time, and do it at scale
- **Plug & Play:** Use standard features of HANA, without complex customization or optimization
- **Standards-based & Vendor-neutral:** Deploy any predictive model from virtually any data mining tool
- **Industry-agnostic:** Implement this powerful predictive analytics capability in any industry

About Zementis

Zementis, Inc. provides software solutions for predictive analytics.

The company was founded on the principle that data science teams and IT departments can collaborate seamlessly and efficiently, allowing predictive models to rapidly move from development to deployment, so that businesses and other data-centric organizations can easily incorporate predictive analytics into their routine operations. Agile deployment of predictive solutions is the cornerstone of the Zementis philosophy.

Core solutions include ADAPA®, a decision engine for predictive analytics, and UPPI™, a universal plug-in utility for industry-leading analytics and data warehouse platforms. Zementis customers can deploy these solutions on-premise or in the cloud, with access via an intuitive Web-based console, via one of multiple industry-leading analytics platforms or as a simplified Hadoop interface.

To learn more about how your organization can benefit from Zementis, go to www.zementis.com, e-mail us at info@zementis.com or call one of our office locations.



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