Building and Deploying World-Class Predictive Models and Data-Driven Strategies

**PREDIGY®: Integration and Coexistence**

The introduction of new technology into your organization can be daunting, especially when you must integrate that technology into key business processes and legacy applications. The modular architecture and open interfaces in the PREDIGY® customer analytics and decision management platform keep disruption to a minimum. This white paper describes the interfaces and options that make integrating PREDIGY with your operational applications so much easier than the alternatives.

**An Integrated Platform**

The PREDIGY platform is an integrated customer analytics and decision management platform that combines analysis, prediction and strategy. The integrated modules within PREDIGY speed the process of building and deploying world-class predictive models and data-driven strategies.

The PREDIGY platform consists of the following modules:

- **Cluster** – A framework for identifying and assessing insights hidden in structured, semi-structured and unstructured data; discovered text-based attributes can be imported into PREDIGY models and strategies.

- **Modeler** – Powerful modeling techniques and algorithms, automated variable selection, virtual variable transformation capabilities and rigorous, built-in model validation.

- **Strategy** – Simulation and forecasting capabilities that support real-time what-if analysis using any number of key business metrics; identification of a desired outcome or business measure to optimize.

- **First Data Production Engine** – Scoring of operational data against predictive models and decision trees; loading of results into a reporting database or back to the First Data system for use in other applications such as the Adaptive Control System.

Modeler, Strategy and Cluster make up the PREDIGY Design Environment, a Web-based tool for creating and modifying predictive models and decision trees.

**Getting Data Into the PREDIGY Platform**

In data analysis or production mode, PREDIGY is able to load data from a variety of sources, including text files, relational databases and Web sites. Interfaces are provided for the following data sources:

- Comma-delimited (CSV) files
- IRM (proprietary text format, similar to CSV)
- Unformatted text files
- SQL databases, via JDBC
- XML
- Web sites, via HTML crawler

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Cluster key insights to customer behavior and characteristics.

Build predictive models using advanced analytics.

Plan and simulate actions, strategies and campaigns.

Deploy and run model and strategy applications.
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In some cases, you may need to preprocess data destined for one of the modeling applications (Modeler or Cluster). These applications typically operate on historical data. Aggregation or summarization of individual data records may be required prior to loading.

If you are using a PREDIGY® application, such as PREDIGY for Payments, that has been integrated with select First Data processing platforms, the extract and preprocessing work is done for you based on predefined input data.

Getting Data Out of the PREDIGY® Solution

In data analysis mode, statisticians and business analysts interact with data in the PREDIGY Design Environment, reviewing graphical representations of distributions and results. Statistical information on variables and other data can be exported from the user interface to a CSV file.

In production mode, PREDIGY models and strategies are integrated into the overall workflow. The default output from the First Data Production Engine are text files (CSV), facilitating integration with other applications. For PREDIGY applications integrated with select First Data processing platforms, the output of the Predigy application is stored on either the cardholder masterfile or Datalink™, where it may be accessed by other applications for further decisioning or actions.

Integrating With Other applications

Use the PREDIGY application to analyze data from operational systems or to operationalize the results of your analyses through model scores or strategy codes. Analysis collects historical, demographic and communications records to build models that predict customer behavior. These models can then be used on operational data to select specific treatments for each customer.

PREDIGY Operational Modules

The input data for analysis may come from operational systems, but is more likely to be found in a data warehouse or mart, because analysis typically requires data that has been aggregated or summarized. The data warehouse or mart contains summarized account information that can be input directly into the PREDIGY platform without additional preprocessing.

On the operational side, account records are typically used as input into the Production Engine, processing the records and appending model scores and/ or strategy codes that are then consumed by the downstream operational systems. Account records are typically in text format (CSV), as is the Production Engine output.

PREDIGY operational modules
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Collections/Recovery

The PREDIGY® platform can predict customer behavior and prescribe specific actions. On the modeling side, the PREDIGY solution uses historical data extracted from the collections management system to predict how customers will respond to a settlement offer, for example.

You can combine model results with other data to produce an overall plan for a portfolio. When you feed account records through the plan, the Production Engine assigns a strategy code to each record. You close the loop by feeding account records and associated strategy codes back into the collection management system. Typically, you use the strategy codes to assign accounts to specific queues, which guide the activities of the collection agents.

Marketing

You can integrate the PREDIGY application with CRM applications in several ways. For example, you can analyze e-mails, call center notes and other text data to gain insight into customer behavior and intent. You can then use the results of such analyses to segment customers into groups with similar characteristics, feeding the resulting segmentation back into the CRM system through one of the previously described interfaces and directing promotions or treatments to specific segments by the CRM application.

You can use customer demographic data, along with response data to promotions and sales history, as input into models for predicting future behavior. Typically, models predict the likelihood of specific actions, such as response to a promotion or up-sell/cross-sell offer. The predictions are routed back into the CRM system as input into specific campaigns. After the campaign has completed, outcome data is routed back to the predictive models to improve their effectiveness.

Conclusion

Integrating predictive analytics into key business processes and/or legacy applications has never been easier than with the PREDIGY application, an integrated predictive analytics and decision management platform from First Data. The PREDIGY solution accepts input data and supplies output data in a range of standard formats that are compatible with most systems. The modular architecture provides abundant integration points with operational systems and processes, during both data analysis and production.

Models and strategies that you build with the PREDIGY platform can be integrated with collection management and CRM applications to predict customer behavior. The Production Engine scores records and can create strategy codes for records from operational systems, based on model and strategy definitions created in Modeler and Strategy. These scores and strategy codes can then be used by the operational systems (CM, CRM) to process customer/account records. Finally, support for both batch and record-based scoring enables the Production Engine to adapt to a variety of workflows and processes.

For more information, contact your First Data Sales Representative or visit firstdata.com.