



Guidewire Predictive Analytics Platform

Enabling a Smart Core System

DATA SHEET

P&C insurers today need data and analytics to create better products and customer experiences that drive growth and profitability. While storage and processing costs continue to fall with the advent of cloud computing, most insurers are not seeing the ROI they expected from investment in analytics. New approaches are needed to standardize and socialize the model-building process to efficiently leverage advanced techniques and implement the resulting insights.

The natural place for analytics insights is, of course, within the everyday workflow of the user, but this is a process full of complexity and challenge. Many insurers struggle to bridge the gap between employing analytics across only a few claims and underwriting use cases versus scaling it across the enterprise, embedding it in the organizational culture, and using it to shape everyday decision-making.

To address the strategic challenges insurers face today, they need an end-to-end predictive analytics solution purpose-built for the P&C industry. Guidewire Predictive Analytics is such an enablement platform. It provides insurers with the capability to create, deploy, and integrate models at scale. Guidewire Predictive Analytics can be used to build and deploy new models or import existing models and then deploy them. It also provides an integration framework that is core system agnostic. This means model outputs can easily be used with Guidewire core applications (Guidewire PolicyCenter, Guidewire ClaimCenter, and Guidewire InsuranceNow) or with a third-party core system.

Guidewire Predictive Analytics comprises three key apps:

- **Build:** Enables customers to build new models or upload existing models and data sets. It also allows for review of model results to determine the business impact.
- **Deploy:** Enables customers to build rules and parameters around one or more models, complete any variable transformations, and create API endpoints that can be called from core systems.
- **Monitor:** Helps detect model deterioration or find abnormal activity with deployed models. It lets customers know when it is time to refresh their models.

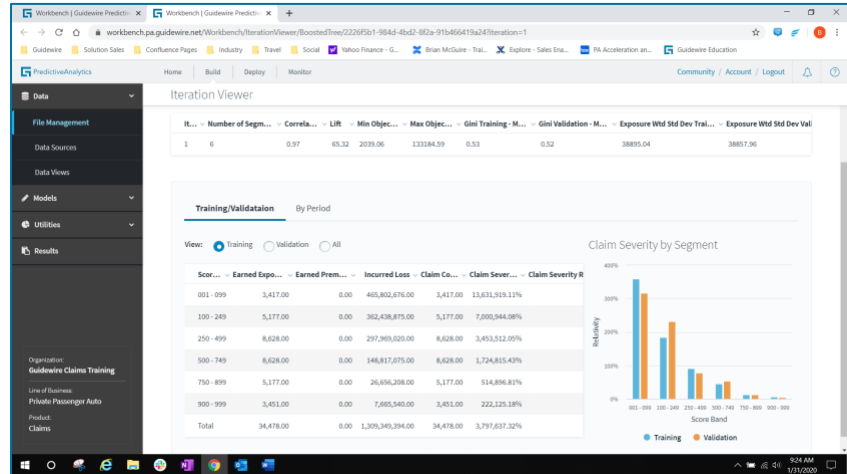
In addition, a real-time integration framework to operationalize model outcomes into Guidewire core systems complements Guidewire Predictive Analytics, increasing the efficiency of the total process for Guidewire core customers.

Build

Build lets you upload, validate, and promote your data; invoke the analytics engine to create models that are based on that data; import predefined models; and apply a pre-existing model to a new set of data or to data that was aged (that is, was preprocessed to simulate a future change).

Build requires a ready data source in a comma-separated values (CSV) file to get started. Build offers the following capabilities:

- Data:** Upload data sources, extend their content, and derive data views for model creation and scenario use.
- Models:** Create and update algorithms that extend preset types, such as a generalized linear model (GLM) or a boosted model of trees, and then fit a model by pairing an algorithm with a data view and submitting the processing job. Available modeling types include tree-based approaches (such as boosting and bagging techniques), regression-based approaches (including GLMs and several forms of penalized regression), and neural networks. Each of these include automated versions that produce arrays of models for review. You can also import an externally created model.
- Utilities:** Create and update scenarios that specify models to be applied to new or aged data, and then apply that scenario by pairing it with a data view and submitting the processing job.
- Results:** Review details on the jobs that were submitted to fit a new model or to apply a scenario. You can also compare models, export model results, and evaluate the results of automated processes.



Typical analysis objectives for insurance, such as loss cost or loss ratio, are derived from the metrics on which the objective is based; for example, loss, exposure, and premium. Other targets can be customized for flexibility.

An array of output is provided for each modeling type, enabling the modeler to both evaluate the results and diagnose beneficial changes to the input parameters. The use of holdout data is embedded in Build so that the modeler can explore the lift and consistency of models created.

Build also facilitates the sharing of model output, encouraging collaboration and supervision. In addition, all choices made in the creation of the predictive model—from data transformations after data have been loaded into the application to final selections of modeling parameters—are recorded to provide a complete audit trail for the future.

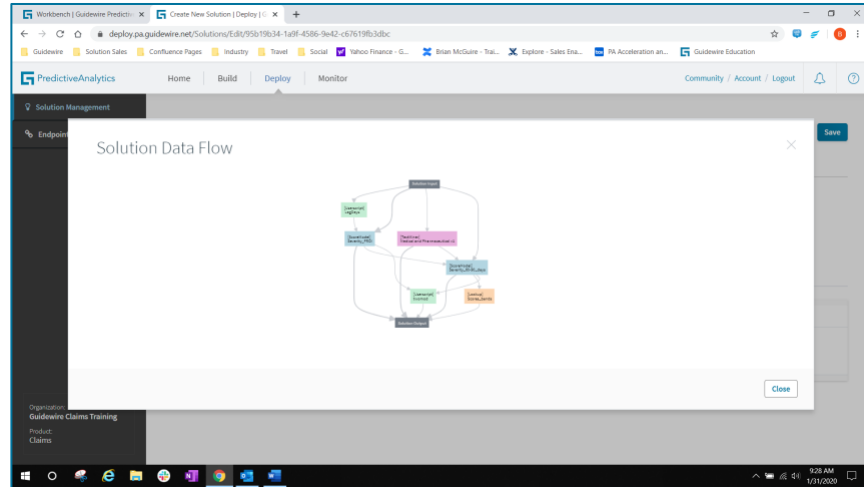
Deploy

To realize the benefits of predictive analytics, the results must be integrated into real-life business processes. Whereas data used for analytics is typically cleaned and prepped, real-time production data is not. To successfully deploy a predictive model, it needs to be surrounded by transformations and business rules that define what information is returned in different situations. In addition, the information required to improve a business process is

often a transformation or mapping of the results from predictive models onto a set of actions. In Deploy, the additional rules and transformations are specified, and the resulting solution is pushed to a cloud-hosted environment.

Deploy lets you combine one or more models, augment those models with supplemental logic, and deploy the resulting solution to a server. A solution is an interrelated set of components, or transformers, that are deployed as a unit. The transformers that are available include the following:

- Model(s) that you created using Build
- Model(s) that you imported
- Lookup tables populated by uploading CSV files
- Scripts written in Python
- Text miners
- Other enrichments that Guidewire provides



Every model in a solution provides the model's estimate of the target objective, a standardized version of the model estimate (typically a three-digit score), and an estimate of the influence of each input variable on the model output. Exactly what is included in the output from the solution is controlled by the user in the definition of the solution.

With the solution defined, Deploy also generates one or more endpoints that reside at a cloud location provided by Guidewire. An endpoint includes a test environment and production environment, and you can deploy a single solution to any endpoint. Deploy keeps track of the versions of each solution that have been deployed, as well as which version is currently in the test environment and production environment. A deployed endpoint is ready to be called through an API.

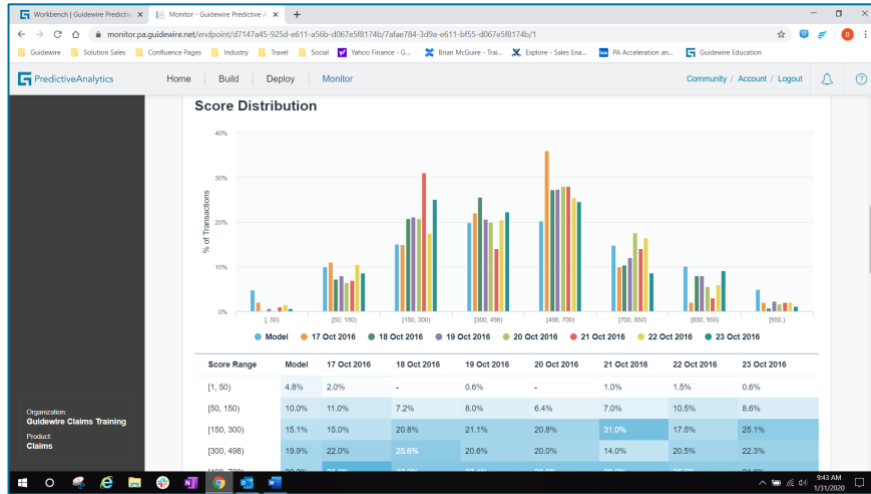
To facilitate testing, you can download an endpoint tester application from Deploy. This allows the user to send input to deployed solutions in the test environment to evaluate the response before moving to production. You can also use an API development tool to build a REST service to practice accessing data against the test environment, which is useful when preparing to write custom code and to submit batch requests. Use your custom code and the batch processor to further verify the runtime behavior. When you are satisfied with the test results, you can deploy your solution to the endpoint's production environment.

Monitor

Monitor is an analytics tool that lets you view details on the test- or production-level transactions that were processed at a given endpoint during a given period. The goal of monitor is to understand if the data being pushed to the solution's models are similar to the data that were used to create the models. Slow shifts in the business over time can indicate a need to revisit or rebuild an operational model. Sudden shifts can indicate changes in data handling that need to be investigated and addressed.

The following details are available for a set of transactions that are grouped by day, week, month, or year:

- The total number of transactions
- The average score that came from each model, regardless of whether the score was a solution output
- The number of transactions that failed with an error, by type of error
- For a given model, the distribution of scores for the transactions (included for comparison is the same distribution of scores seen on the data used to create the model)

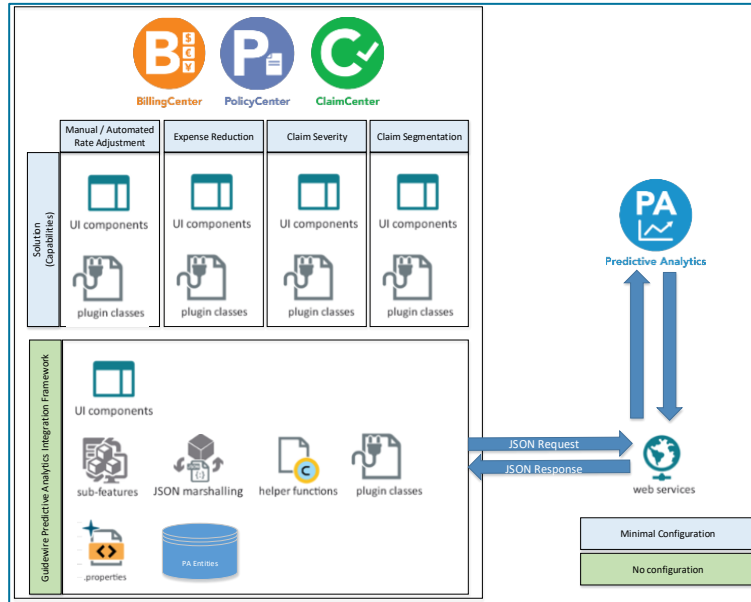


- For a given input element, the distribution of the values for that data element for the transactions (included for comparison is the same distribution on the data used to create the model)

Monitor provides several key functions. Before a solution is moved into production, the results from the test environment can be viewed to see that data flows and transformations are performing as expected. Once fully operationalized in production, Monitor enables users to verify the expected performance of the model. When drifts over time (or sudden changes) are seen, the details of the individual data elements enable the user to diagnose the issue to understand what part of the business mix may be changing in a material manner.

Integrate: Enabling a Smart Core System

Once the right models are ready, Guidewire Predictive Analytics provides a blueprint for operationalizing model outcomes into PolicyCenter and ClaimCenter. In addition, a real-time integration framework plugin (ready-to-use code) uses HttpClient to call a RESTful service published in Amazon Web Services (AWS), and configuration tools define the scheduled times or triggering events that initiate these calls. Where necessary, screens are revised to display the model insights. Workflow modifications are triggered by the system to route the claim or submission to the right person, based on model suggestions.



The Guidewire Predictive Analytics integration framework provides common configuration items for mapping and adding input fields to be sent to the scoring service, data model extensions, additional screens, user interaction workflows, visual cues, business rule changes, and notifications based on the model outcomes. It also includes many

helper functions and utilities, such as error handling; a dashboard that provides an overview of all deployed models; and search capabilities.

A true Smart Core system is only possible if you are using PolicyCenter or ClaimCenter along with Guidewire Predictive Analytics.

Benefits

Guidewire Predictive Analytics is the only AI/ML platform specific to the P&C industry. It enables a true Smart Core system that delivers fast business value through a seamless connection from data intake to actionable insight. An investment in Guidewire Predictive Analytics elevates the work of your insurance knowledge workers by:

- Creating an environment that manages advanced analytics at scale by easily building new models as well as importing and deploying existing models
- Reducing your time-to-value with rapid deployments and integration with core systems (Guidewire as well as third-party)
- Enabling the “consumer data scientist” persona with flexibility, automation, and business user control
- Managing model risk with insights into performance and warnings of degradation
- Delivering measurable value for all deployed business use cases
- Supplying long-term sustainability by ensuring interoperability with your core system today and in the future

In addition, Guidewire provides numerous ready-to-use low-risk/high-value solutions designed for specific P&C business problems in claims, underwriting, and pricing. Guidewire Predictive Analytics is supported by subject matter experts to remove friction throughout the entire analytics life cycle to drive better business outcomes.

About Guidewire Software

Guidewire delivers the industry platform that P&C insurers rely upon to adapt and succeed in a time of accelerating change. We provide the software, services, and partner ecosystem to enable our customers to run, differentiate, and grow their business. As of the end of our fiscal year 2019, we were privileged to serve more than 380 companies in 34 countries. For more information, please visit www.guidewire.com and follow us on twitter: [@Guidewire_PandC](https://twitter.com/Guidewire_PandC).