



## Business Analytics



# Business Analytics and SAS Practice

## Chevron

### CLIENT SITUATION

Chevron Oronite Global Formulators is an organization within Chevron that develops, analyzes and tests formulation models for petrochemical additive formulations. The formulators working within the organization have the requirement to share model data with and collaborate with other formulators around the world. The formulators show each other models and develop consensus on appropriate models to be published to the more general audience.

Chevron had previously utilized the SAS Enterprise Business Intelligence Suite and Enterprise Guide 3.0 as their platform for additive model development and distribution. The formulators worked in SAS Enterprise Guide to process data and build predictive models – mostly using Regression or ANOVA.

While these tools were being used, their full functionality was not being utilized and the models were not available to users without SAS expertise. The purpose of the Automotive Modeling Platform System (AMPS) project was to enhance these SAS tools to allow modelers and engineers to more easily share information about and exploit additive formulation models.

The new system would provide Chevron with the following benefits:

- Allow non-programmers to create, publish, and execute additive models
- Standardize the modeling process and documentation
- Save time for modelers by simplifying model creation and publication
- Save development money by building upon existing technology investments

### COMSYS SOLUTION

Chevron selected COMSYS as the sole vendor to complete this engagement because COMSYS had the most comprehensive SAS expertise available and the internal statistical expertise needed to complete the project successfully. COMSYS also had the ability to integrate the newly developed SAS components with the additional technologies required.

COMSYS utilized experts in SAS and Windows development to enhance Enterprise Guide and create a portal application to meet the objectives of the project. The portal application was built using the SAS Enterprise Business Intelligence server platform.

#### Delivery Approach

COMSYS offered Chevron a flexible development solution allowing for multiple design revisions in the course of the project. The project team was led by a Project Manager using a careful change control process. The project team initiated the project with the creation of an early prototype provided to Chevron for installation and infrastructure testing. The approval of this prototype was followed by a two month period of intense development using resources at the SAS Center of Excellence in Kalamazoo, Michigan. Progress on the development was shared with Chevron through weekly status calls and online WebEx session design reviews.

The first fully functional rollout was offered to the client two months after project startup with numerous revisions in the following two months. After the base product was proven successful, the project team was able to proceed with additional enhancements to expand functionality.

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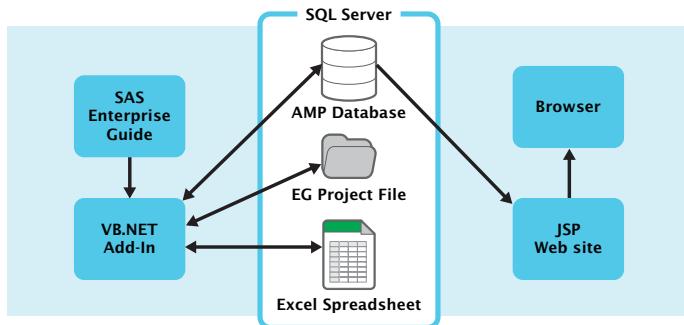
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## AMP System Design

The AMP system had three main components:

- The Enterprise Guide Add-in is a customization to SAS Enterprise Guide that allows the modeler to publish information about the model. The published information is stored in the Model Information Database.
- The Model Information Database holds project and model data, and source files including description, parameters, dependent and independent variables, and other necessary information for running the additive models.
- The Information Delivery Portal Custom Portlet is a customization to the SAS Information Delivery Portal (IDP) product. The custom portlet allows the user to search for, review, and run models that have been published to the Model Information Database. The Portlet was designed to be easily used by non-SAS programmers.



The Enterprise Guide application is connected to a SQL server database used to store project and model data as well as source files. The Enterprise Guide application runs on the model developers' desktop machines. AMP system modelers may be disconnected from the Chevron network and work with a local installation of Enterprise Guide. When they connect to the network, they upload their EG project and Excel source data files to a server. All files are stored in a central repository using ADO.NET to upload the files.

The AMP system shared data across the web using a JSP Portal. This allowed users to see all models stored on the SQL server and to perform dynamic calculations on them using a standard web browser. The portal was developed using JSP, HTML and javascript. The system connected to the SQL server database, dynamically building javascript statistical calculations.

The AMP system uses the available Windows, SQL Server, and SAS security features for identification and authentication of users.

## CLIENT BENEFITS

Following the initial completion of the base application, Chevron was able to roll out the application to all formulators. Response from the formulators was extremely positive with immediate feedback on usability and additional requirements coming back to the project team. These additional requirements were incorporated in the subsequent releases of the solution.

The project was considered a complete success as it was able to meet the goals set out at project initiation. The greatest benefit to the client came from the ease of use of the application for non-SAS programmers.

The application successfully achieved its objectives of allowing full collaboration within the group. This collaboration allows for substantial savings in time and costs of tests on the additive formulations. Models can more easily and quickly be updated as more data becomes available. This will improve Chevron Corporation's success of winning in competitive bidding situations.

The success of this project has led to additional work to expand the system beyond the core group of formulators.

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