What does SAS® Model Implementation Platform do?
SAS Model Implementation Platform provides a controlled environment where complex systems of loan-level risk models can be implemented very quickly and transparently.

Why is SAS® Model Implementation Platform important?
SAS Model Implementation Platform helps financial institutions meet the computational challenges, tight timelines, and regulatory scrutiny of both portfolio stress testing exercises and new expected credit loss allowance standards (IFRS 9 and CECL).

For whom is SAS® Model Implementation Platform designed?
SAS Model Implementation Platform benefits financial institutions that need to efficiently execute complex analytics using a powerful risk engine. It’s built for model development and implementation teams responsible for activities like stress testing, credit loss reserving (for IFRS 9 and CECL), and loan valuation.

The decade following the financial crisis has brought significant changes to risk management. The periodic stress test exercises imposed by regulators globally (US Dodd-Frank Act Stress Test and EU-wide EBA Stress Test) require banks to demonstrate they have sufficient capital to withstand a severe economic and financial downturn. Now, accounting standards have been upended, with the new IFRS 9 and CECL standards requiring lifetime expected credit losses to be estimated at the loan level. With increasingly complex analytics required to support these exercises, a reliable, powerful and efficient risk management platform for model implementation becomes critically important.

SAS Model Implementation Platform enables financial institutions to build the types of modeling systems necessary to meet these regulatory demands and helps them run their businesses more effectively.

You can save and catalog models in a centralized, controlled environment and easily manage interconnections of component models through a user interface with minimal coding.

When you execute models, the scalable parallel processing power of the SAS High-Performance Risk engine allows for extremely fast run times and adaptive aggregation of results for quick analysis and decision making.

Tracking and logging capabilities support strong model governance, helping to ensure a robust and defendable production process.

Benefits
- Streamline the model estimation-to-implementation process.
- Improve auditability and controls with a searchable, centralized model library.
- Simplify setup and maintenance of complex modeling systems with greatly reduced coding requirements.
- Reduce model run times dramatically with massively parallel processing.
- Analyze and understand results quickly with high-speed drill-downs and on-the-fly aggregations.
- Perform A/B model comparisons and sensitivity tests easily using modular model components.
- Reduce the model validation effort with increased model reuse and greater transparency.
Capabilities

Fast and efficient model implementation

Performance is important for firms with large portfolios and complex models. Our solution uses scalable, in-memory technology for fast processing of complex systems of granular models across various asset classes. You can run multiple iterations quickly, and results are available on demand.

High-level model implementation features include:

- The infrastructure to support the simplified setup and maintenance of complex modeling frameworks.
- A streamlined model development-to-implementation process so you can quickly deploy estimated models.
- A single metadata management system for auditability and enhanced transparency.
- A scalable, in-memory risk engine for massively parallel processing without the need to write any distributed processing code.
- The ability to run multiple economic scenarios simultaneously for efficient loss forecasting or stress testing.

Simplified model and group setup

Our graphical user interface makes setting up and executing models easier. Quickly construct groups of independent models by using simplified logic to build complex...
model frameworks commonly used for credit risk analysis and stress testing. Because much of the process logic needed for implementation is handled internally by the system, the amount of SAS code you need to write – even for complex models – is minimal.

Our templates allow you to quickly implement a number of common model types, including proportional hazards models, Markov chain transition models and Monte Carlo models. You can customize and configure each template to serve your bank’s unique modeling needs. You can also:

• Search, load and execute models or generate code.
• View all model parameters, model groups, overrides and user-defined logic (UDL).
• Select mappings for model groups, portfolios, economic scenarios and products.

Central library for model execution
Our solution stores models in a controlled central environment, allowing you to easily call models for execution. You can view all details of each model, providing a high level of transparency.

Other capabilities include the ability to:

• Store all model information necessary to run each model, and then execute on demand.
• Group together complex systems of models.
• Search through a library of models based on characteristics like model ID, description, model form, version and developer.

Visual results exploration
Once an analysis is run, you can explore the results at an aggregate level and then drill all the way down to the loan level in seconds – even with millions of loan-level records. This in-memory drill-down capability allows for in-depth and informative analysis of the results.

Key Features

Streamlined model deployment
• Streamline the model estimation-to-implementation process.
• Easy-to-use run-time and analysis front end to run single models or systems.
• User-specified output (prepayment amounts, default amounts, losses, balances, principal, interest, etc.).
• Support for simultaneously running multiple economic scenarios.

Simplified model and group setup
• Efficient engine to implement complex model frameworks such as:
  • Cox proportional hazards.
  • Monte Carlo state transition.
  • Markov chain.
• Robust pre-made templates for common modeling types.
• Support for firm-specific model structures.
• User interface for model grouping with minimal coding needed.

Controlled model execution library
• Full transparency of all models to improve auditability and model governance.
• Atomic models stored in a searchable library.
• All attributes of each model fully visible to users.
• Atomic models separated from the process logic needed to connect models together into a system.

Efficient in-memory model execution
• Scalable, in-memory risk engine for fast processing on big data.
• Enhanced high-performance risk capabilities for loan-level Monte Carlo simulations.
• Integrated graphical user interface for rapid drill-down into results.

Powerful environment for expected credit loss calculations (IFRS 9/CECL)
• Support for calculation of lifetime loan losses as required by loss accounting standards (IFRS 9/CECL).

Rapid visual results exploration
• A web-based interface provides flexible risk analysis capabilities.
• Visualization of multiple scenarios.
• Ability to perform sensitivity analysis and A/B model comparisons.

Figure 3: View all model parameters, model groups, overrides and user-defined logic (UDL).
Figure 4: SAS Model Implementation Platform integrates with other SAS risk components to support a robust process for both stress testing and IFRS 9/CECL compliance.

You can:
- Make detailed analysis of loan results at multiple levels.
- Instantly export any results to Excel in table or graph format.
- Interactively explore risk.

Integration within the SAS® Risk and Finance Workbench
The SAS Model Implementation Platform and SAS Risk and Finance Workbench combine to provide a comprehensive platform for IFRS 9/CECL allowance estimation – as well as orchestration and transparency of the entire stress testing process across all types of risk, including market, credit and liquidity risk.

This modular approach allows you to:
- Expedite the process between individual model estimation and the implementation of the modeling system.
- Improve efficiencies with a common platform for IFRS 9/CECL reserving and stress testing.
- Integrate results from various stress testing models into a unified stress testing process, producing the capital calculations and generating the required regulatory reports.

To learn more about SAS Model Implementation Platform, please visit sas.com/mip.