There are currently four major competing products that are widely used. The author of SCF has used all four competing products in the work of creating scorecards for many years. In actual work, they all have some inconveniences in use, so SCF mainly made improvements to these areas to greatly improve the productivity of users. Compared with the four competing products, it has the following advantages:

# Support no code

**Three of the four competing products require programming, and the other one can use interface configuration, but the operation is not as convenient as writing configuration files .** When using SCF, you only need to focus on the business itself. You can develop a scorecard by controlling SCF through text instructions, and output the process information to Excel to form a professional model report. Since the configuration file is easy to view, users can easily review and trace the modeling process.

Note: SCF has a large number of built-in instruction sets, which can help you process complex data without programming. SCF also has a complete mechanism to support your customized development intention (the main purpose of SCF at this time is to help users improve the accuracy of the model through the built-in algorithm library). The purpose of this product is not to provide a black box fool-style scorecard production product, but to provide users with a modeling tool that can improve work efficiency and improve model accuracy compared to existing products. Let users focus on business and data.

# Built-in workflows

Scorecards belong to the field of data analysis and modeling. They require a lengthy workflow, and the order of the process is very important. However, even practitioners who have worked for many years may accidentally miss certain nodes or get the order between nodes wrong. Modeling work is different from programming work. Some errors are difficult to detect, resulting in the wrong model being used to make decisions, causing undetectable losses in the medium and long term. In summary, scorecard development requires a mature process. Through more than 20 years of modeling experience, the creators of SCF have summarized and practiced a set of process methodologies in actual work and applied them to SCF. The four competing products all hand over the process to developers. SCF provides a mature process while also supporting developers to develop their own processes. SCF also provides an additional more convenient option.

Note: SCF componentizes each node in the process, and each component supports separate input and output, so SCF also supports flexible personalized process modeling and provides some original algorithm components, which makes its process flexibility no different from other competing products, but with more powerful functions, faster development, and better model effects. Even so, SCF still recommends that you use the built-in process, because this set of processes is the result of more than 20 years of work experience of senior data experts in SCF.

# Support multiple languages

SCF was created with the goal of exporting to the world and setting standards. Therefore, multi-language design was already done during production. SCF currently supports Chinese, English, Japanese, Korean, German, French and other languages. Switching to a language only requires modifying 2 to 3 characters. With the current neural network translation tools, a new language can be added within 10 minutes.

# Equal frequency segmenter with global error minimum analytical solution

SCF has a built-in self-developed equal frequency segmenter, which can calculate a set of nodes to minimize the equal frequency segmentation error. And each node is in the original data. It also solves the common contradiction between discovering special values as early as possible during data analysis and covering up special values during online applications (but giving timely warnings). **Not only competitors, but other algorithm packages also do not implement similar functions.**

# Use the minimum probability change instead of the information gain indicator to suppress the formation of too small bins

This feature allows users to have an intuitive measure of the size of the bin limit. **Three of the four competing products do not support this feature.**

# Automatically determine binning constraints

**Of the four competing products, three do not support this feature.**

# Mathematical innovation improves production efficiency and quality

The creator of SCF has studied mathematics for many years and is good at effectively combining multiple mathematical branches such as discrete mathematics, numerical analysis and statistics to solve industry problems. Bin node calculation is an important part of scorecard development. The author of SCF derives a mathematical formula for it to calculate the optimal bin nodes under business constraints. This set of nodes is the global optimal analytical solution. **Among the four competing products, three do not support business constraints and cannot be applied in actual production, and must be returned to manual processing. When there are many data dimensions, the time spent on manual binning cannot reach the accuracy of SCF even in monthly units. Another competing product can support binning with business constraints, but the solution it provides cannot reach the accuracy of SCF. When solving problems without constraints, although the four competing products can automatically solve them, they still cannot reach the accuracy of SCF. The** high accuracy of SCF is due to mathematical innovation.

# Extended Bidirectional Stepwise Logistic Regression and Linear Regression

Based on the experience of using bidirectional stepwise regression, the creator of SCF extended it to make it more business-friendly. The main extensions are:

1. When deciding whether to introduce or delete the current variable, indicators such as KS, AUC, and LIFT are added so that the logistic bidirectional stepwise regression algorithm can cope with a variety of business scenarios.
2. Users can customize indicators. For example, consider the credit price of the current variable (under testing).
3. When deciding whether to introduce or delete the current variable, other data sets can be used to calculate model evaluation indicators to reduce model overfitting.
4. Users can customize the symbols of variable coefficients. Variables that do not conform to the symbol settings will not be selected for the model. Variable selection and business verification are performed simultaneously to avoid repeated modeling due to conflicts between business and model.
5. In addition to adding P-VALUE constraints, SCF also adds correlation coefficient constraints and VIF constraints. Variable selection and model diagnosis can be performed simultaneously to avoid repeated modeling due to model diagnosis failure.
6. You can specify the variables that must be entered into the model. If the specified variables conflict with the constraints in D and E, there is a reasonable solution mechanism.

**The above functions are not only not available in competing products, but no implementation of any bidirectional stepwise regression algorithm with similar functions has been found so far.**

In addition, SCF's bidirectional stepwise regression also supports multiple processes to speed up calculation efficiency.