

GUS Home Shopping

“By producing more accurate forecasts... service has improved and overstocking decreased.”

**– Matthew Biddle
Senior project analyst
GUS Home Shopping**

Situation

GUS Home Shopping, the catalog division of Great Universal Stores and the U.K.'s second largest general retailer, mails 14 million fashion catalogs per year and delivers about 395,000 orders daily to customers in the British Isles and Europe.

Critical issue

To maintain its profitability, market share and customer loyalty in an increasingly competitive environment, GUS Home Shopping must accurately estimate customer demand for the items in its catalogs. More precise forecasts before each new sales season begins would enable the company to:

- Reduce the cost of excess inventory
- Order popular catalog items in sufficient quantities
- Provide better customer service

Solution

With Clementine, GUS Home Shopping creates models that estimate the demand for each item in its catalog and also determines the risk level associated with each forecast. Today, the company knows – before it's too late – which items will be in demand and adjusts its orders to suit.

Results

- Improved forecasts for a projected 3.8 percent savings over the previous season
- Increased customer loyalty through better service and decreased overstock

Like other retailers, GUS Home Shopping knows future success depends on ordering the right items in the right quantities at the right times. If customers want items not in stock, they'll go elsewhere – and the company quickly loses money and market share.

To gather forecast demand data, the company mails preview fashion catalogs to 60,000 customers three months before each season begins. As an incentive to order, customers receive discounts for a two-week period. Analysts use the resulting information to forecast final demand for each item. The merchandising managers rely on these forecasts to allot approximately 25 percent of their budgets, about £200 million (more than \$300 million).

For many years, the company has generated forecasts by using multiple regression analysis and mainframe software. But these estimates were often too conservative. Shortages of popular items

resulted in back orders and unhappy customers. The alternative – overforecasting demand – was even worse, as it produced too much unsold stock.

So Matthew Biddle, senior project analyst in GUS Home Shopping's forecasting and commercial analysis department, needed to find a more precise method of creating these estimates. The company also brought in Cap Gemini consultants, who quickly introduced Clementine, SPSS' data mining workbench for rapid, visual modeling.

Clementine's capabilities immediately impressed GUS Home Shopping. According to Biddle, “On the mainframe, we had no graphical way of seeing patterns and trends. Clementine enabled us to explore new variables and quickly build new models. In the process, we generated further ideas.

“Having seen Clementine at work firsthand, we knew it was a product we could make great use of.

GUS Home Shopping, *continued*

“Popular items are more likely to be in stock, so customers are satisfied with GUS’ service and less vulnerable to appeals from the company’s competitors.”

It was easy to get up and running, gave us a new approach to analyzing our data, and produced some impressive results,” said Biddle.

The analysis was repeated for several seasons, with Biddle and the consultants comparing the forecasts made by the two systems. Using the same input variables, they created forecasts with neural networks in Clementine and with multiple regression analysis on the mainframe. They constructed forecasting models for the 6,500 or so items in each catalog with historical data from the previous three completed seasons.

For each season, GUS Home Shopping found Clementine’s neural network models produced superior forecasts, reducing the mean absolute error by up to 4 percent and the standard deviation by up to 10 percent. Also, by using Clementine’s rule induction techniques, GUS Home Shopping achieved a 20 percent improvement in assigning each forecast to the right risk level.

These days, Clementine’s forecasts and risk estimates – not multiple regression results – appear on merchandising managers’ reports. And these numbers form the basis for managers’ final buying decisions.

Improved forecasts for a projected 3.8 percent savings

Because GUS Home Shopping now produces better forecasts of demand, it has greater confidence that it is ordering the right fashions in the right quantities. According to Biddle, in the most recently completed season, this capability produced a projected savings of 3.8 percent when compared with the previous regression method. And with further refinements, future savings promise to be even greater.

Increased customer loyalty and decreased overstock

GUS Home Shopping not only saves money by using Clementine, but also keeps its customers coming back for more. Popular items are more likely to be in stock, so customers are satisfied with GUS’ service and less vulnerable to appeals from the company’s competitors. The result? A more loyal customer base and greater profits.

Looking ahead: deploying models for increased insight

To gain more ROI from Clementine and its data mining investment, GUS Home Shopping plans to check into the capabilities of Clementine Solution Publisher. This new deployment product from SPSS would enable Biddle to automate the entire forecasting process once the models have been built. Currently, some manual intervention is needed to put the new forecasts onto existing reports produced by a mainframe production system. Clementine Solution Publisher will enable the forecasting stream built in Clementine to be exported in C code and stored on the mainframe or UNIX so the production system can run automatically and produce reports overnight, ensuring that merchandising managers receive this important decision-making information as early as possible.

In coming months, Biddle and his colleagues also plan to use SPSS products to forecast product returns and predict demand trends for particular items.

That’s because SPSS has provided the wealth of analytical power that GUS Home Shopping requires to maintain and significantly improve its market share.

SPSS Inc., 233 S. Wacker Drive, 11th floor, Chicago, IL 60606-6307

For more examples of SPSS customer stories, visit our Web site at www.spss.com/spssatwork/

