



Fighting Financial Money Laundering

Bancolombia strengthens anti-money-laundering capabilities with Predictive Analytics

Overview

Business Challenges

After the passage of stricter money-laundering reporting requirements for Colombia's banks, Bancolombia needed to develop new approaches to analyzing transaction data. In addition, an acquisition that substantially enlarged the bank revealed serious drawbacks in its old rule-based analytic tools.

The Solution

Bancolombia discovered predictive modeling software from SPSS, an IBM Company, after acquiring another bank and found the solution to be superior to what it had been using. Bancolombia now uses IBM® SPSS® Modeler® to mine transactional data and detect suspicious transactions that may have resulted from money laundering or terrorism financing.

According to the BBC Monitoring Service, approximately \$2.7 billion are laundered in Colombia each year, much of it funneled through convoluted networks of banks, offshore accounts, shell companies, Ponzi schemes and the black market peso exchange. More often than not, the money stems from – and helps finance – criminal activities ranging from drug trading to gun smuggling and terrorism.

Although Colombian banks have no investigative or prosecutorial responsibilities in suspected cases of money laundering and terrorism financing, they must comply with stringent reporting requirements set by the federal government's Superintendencia Financiera de Colombia. In 2008, the agency passed Directive 026, which tightened requirements and imposed stricter deadlines on financial institutions for submitting reports on suspicious transactions.

To help meet these requirements – and to better anticipate and guard against these transactions – Bancolombia employs IBM SPSS Modeler, a data and text mining workbench that helps the bank mine vast amounts of transactional data to identify ongoing and potential money laundering or terrorism financing. After the bank switched to Modeler, it was able to improve the speed and precision of its compliance reporting, integrate and centralize data from its multiple branches and lines of business, and substantially lower the cost of analyzing individual transactions.

A tactics game

Grupo Bancolombia is Colombia's largest private bank, with more than 6 million customers, US\$31 billion in assets, 700 branches, and 2,300 ATMs. The bank provides traditional commercial and retail banking services, including checking and savings accounts, loans and mortgages, and investment banking and brokerage services. As the nation's leading bank, it strives to set the standard for banking practices and regulatory compliance, including detecting and preventing money laundering through its accounts.

Of the many red-flag scenarios banks must be on the lookout for in the international cat-and-mouse maneuvers of money laundering, two stand out: smurfing and fractionation. Smurfing involves dividing a large transaction into smaller ones, then having many agents (smurfs) deposit them into multiple banks.



*IBM SPSS Modeler was formerly called PASW® Modeler.



Business Benefits

- Achieved a 40 percent improvement in the quality of its suspicious transaction reporting, as evidenced by the number of cases picked up as leads by the national investigative agency
 - Generated productivity savings of nearly 80 percent by reducing the number of staff needed to review its massive transaction volume while increasing reporting by 200 percent
 - Redeployed staff to work on generating new business
 - Reduced the number of customers analyzed in each segment from 4,000 to 130, allowing for more targeted and cost-effective analysis
 - Clarified data and increased accuracy by centralizing reporting from the bank's 700 branches
 - Gave the bank new flexibility in adapting its models to meet rapidly changing money laundering techniques
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Typically such transactions fall below a statutory limit (\$10,000 in the U.S.) requiring a financial agency to file a report with a government agency. Fractionated transactions involve large transactions that are scattered among several accounts.

Several years ago, in an effort to improve overall detection results, Bancolombia developed proprietary anti-money laundering alert system that combined variables from both the customer and transaction to identify abnormal patterns. But the solution's shortcomings quickly became apparent when Bancolombia acquired a rival bank Conavi, which swelled its customer base to four million. Among the problems: an inefficient, decentralized reporting structure that complicated smurf detection; rigid parameters and rules that couldn't be easily reset to reflect evolving criminal practices; and a limited ability to analyze data in ways that could predict behavior.

"Initially the structure was to identify daily alerts that would be handled in a decentralized manner by the commercial team," says Francisco Ruiz, Bancolombia's Compliance Officer "But the explosion in the number of alerts generated by suddenly having four million customers made this process very difficult and cumbersome. We had to decide how to restructure our process so that it was centralized with different techniques."

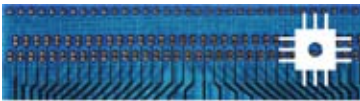
Analyzing transactional patterns

Bancolombia began exploring different tools and approaches. Prevention, detection and reporting capabilities were paramount. "Our objective was to replace traditional warning systems based on parameters and rules with data mining models capable of detecting unusual or suspicious behavior through transactional data analysis," says Felipe Correa, Compliance Section Manager.

It was in the process of examining the technology at newly acquired Conavi that Bancolombia discovered IBM SPSS Modeler.

Smarter Banking:

Using Data Mining to Uncover Money Laundering



Instrumented

More than 1.3 million transactions per days are collected from the bank's core systems, providing the raw data for statistical segmentation and analysis.



Interconnected

Data mining techniques help the bank analyze transactional patterns across multiple business segments and generate reports that enable collaboration with government fraud-investigation agency.



Intelligent

Predictive modeling allows the bank to narrow down the number of transactions requiring detailed analysis by 95 percent, saving resources and speeding report production.



Solution Components

Software

- IBM SPSS Modeler

IBM Business Partner

- Infómese Ltda. – SPSS Andino
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“With IBM SPSS Modeler, we have been able to transfer 80 percent of our money-laundering detection resources into bringing new business into the bank.”

— Francisco Ruiz, Head of Compliance,
Bancolombia's Compliance Officer

“First we began implementing Modeler into our own structure, and then we developed our own information intelligence unit that made use of the solution,” says Ruiz. “The predictive modeling solution proved to be a good ally in helping us structure new ways to approach anti-money laundering responsibilities within the organization.” Infómese-SPSS Andino, the official IBM SPSS Distributor in Colombia for ISVs and Technology Partners, helped the bank understand Modeler’s potential and provided key technical support and guidance during the implementation.

Bancolombia sought to use Modeler to examine transactional behavior in every one of its segments and activities – an effort that involved analyzing around two million transactions per day. Specifically, the bank wanted to examine two scenarios that would help it identify deviations: expected transactional patterns for its different commercial segments and activities; and normal transactional patterns for individual customers within each segment. By defining expected and typical patterns, the bank could then mine the data to identify unusual transactions or sudden changes in behavior.

To accomplish this, Bancolombia deployed Modeler to analyze transaction patterns by key variables such as seasonal variation, transactional sub-segments, age, occupation, and so on. Modeler helps analysts visualize the results by arranging the output in easy-to-view scatter plots, percentiles and clusters. “Without Modeler, it would be difficult to detect relationships between originators and beneficiaries who send and receive transfers internally,” Correa says. “Criminals use these networks precisely because they won’t be detected by traditional systems.”

Clear results

Bancolombia’s predictive models produced rapid, significant benefits for the bank, starting with enabling its specialized analysis unit to narrow its focus to smaller, more precise segments. Under its old decentralized system, staff routinely had to analyze 120,000 customers and transactions per year. “We were able to bring that down to between 5,000 and 6,000. That’s a huge efficiency gain,” Correa says.

At the same time, the bank has increased the number of suspicious operation reports it files with the government from 400 to 1,200 – an increase of 200 percent. Furthermore, there has been a substantial improvement in the quality of these reports, as evidenced by the number of reports considered worthy of pursuit by the government. “Prior to implementing Modeler, only 57 percent of our reports met the highest rating in terms of quality and thoroughness,” says Ruiz. “Now, 97 percent of our reports are ranked at the top of the scale.”

An unsought but welcome benefit has been huge productivity savings generated by this new approach. “In the past, we needed over 1000 Commercial team members to do the number of reviews we had to do. We now need 22,” says Ruiz. “So, with the new methodology and strategy using Modeler, we have been able to transfer almost 80 percent of those resources into bringing new business into the bank. These are enormous efficiency gains that are helping the company concentrate on improving the bottom line.”

About IBM Business Analytics

IBM Business Analytics software delivers complete, consistent and accurate information that decision-makers trust to improve business performance. A comprehensive portfolio of business intelligence, predictive analytics, financial performance and strategy management, and analytic applications provides clear, immediate and actionable insights into current performance and the ability to predict future outcomes. Combined with rich industry solutions, proven practices and professional services, organizations of every size can drive the highest productivity, confidently automate decisions and deliver better results.

As part of this portfolio, IBM SPSS Predictive Analytics software helps organizations predict future events and proactively act upon that insight to drive better business outcomes. Commercial, government and academic customers worldwide rely on IBM SPSS technology as a competitive advantage in attracting, retaining and growing customers, while reducing fraud and mitigating risk. By incorporating IBM SPSS software into their daily operations, organizations become predictive enterprises – able to direct and automate decisions to meet business goals and achieve measurable competitive advantage. For further information or to reach a representative visit www.ibm.com/spss.



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