REAL WORLD CASE 2

Wal-Mart, BankFinancial, and HP: The Business Value of AI

Some managers still think that artificial intelligence—the decades-long effort to create computer systems with humanlike smarts—has been a big flop. But executives at many companies know better. Artificial intelligence (AI) is often a crucial ingredient in their stellar performance. In fact, AI is now a part of the technology of many industries. AI software helps engineers create better jet engines. In factories, it boosts productivity by monitoring equipment and signaling when preventive maintenance is needed. And in the pharmaceutical sector, it is used to gain new insights into the tremendous amount of data on the human genome.

The finance industry is a real veteran in such technology. Banks, brokerages, and insurance companies have been relying on various AI tools for two decades. One variety, called a neural network, has become the standard for detecting credit-card fraud. Since 1992, neural nets have slashed such incidents by 70 percent or more for the likes of U.S. Bancorp and Wachovia Bank. Now, even small credit unions are required to use the software in order to qualify for debit-card insurance from Credit Union National Association.

Wal-Mart. Like banks, retailers collect huge amounts of data. Wal-Mart Stores Inc. (www.walmart.com), for instance, harnesses AI to transform that raw data into useful information. Wal-Mart consolidates point-of-sale details from its 3,000 stores. Data-mining systems sift instantly through the deluge to uncover patterns and relationships that would elude an army of human searchers. Data-mining software typically includes neural nets, statistical analysis, and so-called expert systems with if-then rules that mimic the logic of human experts. The results enable Wal-Mart to predict sales of every product at each store with uncanny accuracy, translating into huge savings in inventories and maximum payoff from promotional spending.

BankFinancial. The potential for mining cost-saving and revenue-boosting ideas from data is increasing as companies build bigger data warehouses, computers grow more powerful, and vendors of analytic software introduce products that are easier to use. But while many of the products that can answer those questions use esoteric techniques such as neural networks, logistic regression, and support-vector machines, they don't require a PhD in math, users say. Indeed, the biggest stumbling block to using "predictive analytics" is getting the data, not analyzing it, they say.

That has been the case so far at BankFinancial Corp. (www.bankfinancial.com) in Chicago. It uses the Clementine data-mining "workbench" from SPSS Inc., to develop models that predict customer behavior so the bank can, for example, more accurately target promotions to customers and prospects. The bank uses Clementine's neural network and regression routines for these models.

It's also beginning to use PredictiveMarketing, SPSS's new package of "best-practice templates" for helping users set up predictive models. PredictiveMarketing will reduce the time it takes the bank to develop a model by 50 percent to 75 percent, says William Connerty, assistant vice president of market research. The first major application is a model to predict customer "churn," the rate at which customers come and go. It will be used to identify the customers most likely to leave the bank during the coming month. The problem is, the model has access only to account information prepared from weekly and monthly summaries, not to the daily customer activity that would make it more timely.

"The biggest obstacle is getting transaction data and dealing with disparate data sources." Connerty says. The data that BankFinancial needs in order to assess customer loyalty comes from several bank systems and unintegrated customer survey databases. A lot of systems integration and interface work needs to be done before the bank will see the full fruits of its modeling tools, Connerty says.

HP Enterprise Systems. Hewlett-Packard (www.hp.com) has an Enterprise Systems Group that pulls together people with diverse backgrounds and strong analytical skills for its group that does predictive modeling of customer behavior. The group is part of "CRM operations" under a vice president for sales, says Randy Collica, a senior business/data mining analyst.

HP uses software from SAS Institute Inc. in Cary, North Carolina, to mine its database of customers and prospects, using AI techniques to predict customer churn, loyalty, and where to target promotions. HP also mines its huge stores of unformatted text data from its call centers, including e-mails from customers and prospects and text typed in during voice calls with SAS predictive analytics for text. The techniques use "lead ratings" of call center personnel's assessments of a caller's readiness to buy—coded as "hot," "warm," or "suspect"—to predict the customer-led rating of noncoded text sources with 85 percent accuracy, Collica says.

Case Study Questions

1. What is the business value of AI technologies in business today? Use several examples from the case to illustrate your answer.

2. What are some of the benefits and limitations of data mining for business intelligence? Use BankFinancial's experience to illustrate your answer.

3. Why have banks and other financial institutions been leading users of AI technologies like neural networks? What are the benefits and limitations of this technology?

Sources: Adapted from Otis Port, Michael Arndt, and John Carey, "Smart Tools," *BusinessWeek*, The BusinessWeek 50, Spring 2003; and Gary Anthes, "The Forecast Is Clear," *Computerworld*, April 14, 2003, pp. 31–32.