

4.1 OPENING VIGNETTE: Cabela's Reels in More Customers with Advanced Analytics and Data Mining

Advanced analytics, such as data mining, has become an integral part of many retailers' decision-making processes. Utilizing large and information-rich transactional and customer data (that they collect on a daily basis) to optimize their business processes is not a choice for large-scale retailers anymore, but a necessity to stay competitive. Cabela's is one of those retailers who understands the value proposition and strives to fully utilize their data assets.

BACKGROUND

Started around a kitchen table in Chappell, Nebraska, in 1961, Cabela's has grown to become the largest direct marketer, and a leading specialty retailer, of hunting, fishing, camping, and related outdoor merchandise with \$2.3 billion in sales. Credited largely to its information technology and analytics project initiatives, Cabela's has become one of the very few truly omni-channel retailers (an advanced form of multi-channel retailer who concentrates on a seamless approach to the consumer experience through all available shopping channels, including bricks-and-mortar, television, catalog, and e-commerce—through computers and mobile devices).

Essentially, Cabela's wanted to have a single view of the customers across multiple channels to better focus its marketing efforts and drive increased sales. For more than a decade, Cabela's has relied on SAS statistics and data mining tools to help analyze the data it gathers from sales transactions, market research, and demographic data associated with its large database of customers. "Using SAS data mining tools, we create predictive models to optimize customer selection for all customer contacts. Cabela's uses these prediction scores to maximize marketing spend across channels and within each customer's personal contact strategy. These efforts have allowed Cabela's to continue its growth in a profitable manner," says Corey Bergstrom, director of marketing research and analytics for Cabela's. "We're not talking single-digit growth. Over several years, it's double-digit growth."

USING THE BEST OF THE BREED (SAS AND TERADATA) FOR ANALYTICS

By dismantling the information silos existing in different branches, Cabela's was able to create what Tillotson (manager of customer analytics at Cabela's) calls "a holistic view of the customer." "Using SAS and Teradata, our statisticians were able to create the first complete picture of the customers and company activities. The flexibility of SAS in taking data from multiple sources, without help from IT, is critical."

As the volume and complexity of data increase, so does the time spend on preparing and analyzing it. Faster and better analysis results comes from timely and thorough modeling of large data sources. For that, an integration of data and model building algorithms is needed. To help organizations meet their needs for such integrated solutions, SAS recently joined forces with Teradata (one of the leading providers of data warehousing solutions) to create tools and techniques aimed at improving speed and accuracy for predictive and explanatory models.

Prior to the integration of SAS and Teradata, data for modeling and scoring customers was stored in a data mart. This process required a large amount of time to construct, bringing together disparate data sources and keeping statisticians from working on analytics. On average, the statisticians spent 1 to 2 weeks per month just building the data. Now, with the integration of the two systems, statisticians can leverage the power of SAS using the Teradata warehouse as one source of information rather than the multiple

sources that existed before. This change has provided the opportunity to build models faster and with less data latency upon execution.

"With the SAS [and] Teradata integration we have a lot more flexibility. We can use more data and build more models to execute faster," says Dean Wynkoop, manager of data management for Cabela's.

The integration enabled Cabela's to bring its data close to its analytic functions in seconds versus days or weeks. It can also more easily find the highest-value customers in the best locations most likely to buy via the best channels. The integrated solution reduces the need to copy data from one system to another before analyzing the most likely indicators, allowing Cabela's to run related queries and flagging potentially ideal new prospects before the competition does. Analytics helps Cabela's to

- **Improve the return on its direct marketing investment.** Instead of costly mass mailings to every zip code in a 120-mile radius of a store, Cabela's uses predictive modeling to focus its marketing efforts within the geographies of customers most likely to generate the greatest possible incremental sales, resulting in a 60 percent increase in response rates.
- **Select optimal site locations.** "People used to come to us with suggestions on where they'd like our next store to be built," says Sarah Jaeger, marketing statistician. "As we move forward, we proactively leverage data to make retail site selections."
- **Understand the value of customers across all channels.** With detailed customer activity across store, Web site, and catalog purchases, SAS helps Cabela's build prediction, clustering, and association models that rate customers on a five-star system. This system helps enhance the customer experience, offering customer service reps a clear understanding of that customer's value to better personalize their interactions. "We treat all customers well, but we can develop strategies to treat higher-value customers a little better," says Josh Cox, marketing statistician.
- **Design promotional offers that best enhance sales and profitability.** With insights gained from SAS Analytics, Cabela's has learned that while promotions generate only marginal additional customer spending over the long haul, they do bring customers into their stores or to the Internet for catalog purchases.
- **Tailor direct marketing offers to customer preferences.** Cabela's can identify the customer's favorite channel and selectively send related marketing materials. "Does the customer like the 100-page catalogs or the 1,500-page catalogs?" Bergstrom says. "The customer tells us this through his past interactions so we can send the catalog that matches his or her needs. SAS gives Cabela's the power to conceivably personalize a unique marketing message, flyer, or catalog to every customer. The only limitation is the creation of each piece," Bergstrom says.

The integrated analytics solution (SAS Analytics with the Teradata in-database solution) allowed Cabela's to personalize catalog offerings; select new store locations and estimate their first-year sales; choose up-sell offerings that increase profits; and schedule promotions to drive sales. By doing so, the company has experienced double-digit growth. "Our statisticians in the past spent 75 percent of their time just trying to manage data. Now they have more time for analyzing the data with SAS. And we have become more flexible in the marketplace. That is just priceless," Wynkoop says.

Cabela's is currently working on analyzing the clickstream patterns of customers shopping online. Its goal is to put the perfect offer in front of the customer based on historical patterns of similar shoppers. "It is being tested and it works—we just need to productionalize it," Bergstrom says. "This would not be possible without the in-database processing capabilities of SAS, together with Teradata," Wynkoop says.

QUESTIONS FOR THE OPENING VIGNETTE

1. Why should retailers, especially omni-channel retailers, pay extra attention to advanced analytics and data mining?
2. What are the top challenges for multi-channel retailers? Can you think of other industry segments that face similar problems?
3. What are the sources of data that retailers such as Cabela's use for their data mining projects?
4. What does it mean to have a "single view of the customer"? How can it be accomplished?
5. What type of analytics help did Cabela's get from their efforts? Can you think of any other potential benefits of analytics for large-scale retailers like Cabela's?
6. What was the reason for Cabela's to bring together SAS and Teradata, the two leading vendors in the analytics marketplace?
7. What is in-database analytics, and why would you need it?

WHAT WE CAN LEARN FROM THIS VIGNETTE

The retail industry is among the most challenging because of the change that they have to deal with constantly. Understanding customer needs and wants, likes and dislikes, is an ongoing challenge. Ones who are able to create an intimate relationship through a "holistic view of the customer" will be the beneficiaries of this seemingly chaotic environment. In the midst of these challenges, what works in favor of these retailers is the availability of the technologies to collect and analyze data about their customers. Applying advanced analytics tools (i.e., knowledge discovery techniques) to these data sources provides them with the insight that they need for better decision making. Therefore, the retail industry has become one of the leading users of the new face of analytics. Data mining is the prime candidate for better management of this data-rich, knowledge-poor business environment. The study described in the opening vignette clearly illustrates the power of analytics and data mining to create a holistic view of the customer for better customer relationship management. In this chapter, you will see a wide variety of data mining applications solving complex problems in a variety of industries where the data is used to leverage competitive business advantage.

Sources: SAS, Customer Case Studies, sas.com/success/cabelas.html; and Retail Information Systems News, April 3, 2012, <http://risnews.edgl.com/retail-best-practices/Why-Cabela-s-Has-Emerged-as-the-Top-Omni-Channel-Retailer79470>.

4.2 DATA MINING CONCEPTS AND APPLICATIONS

In an interview with *Computerworld* magazine in January 1999, Dr. Arno Penzias (Nobel laureate and former chief scientist of Bell Labs) identified data mining from organizational databases as a key application for corporations of the near future. In response to *Computerworld's* age-old question of "What will be the killer applications in the corporation?" Dr. Penzias replied: "Data mining." He then added, "Data mining will become much more important and companies will throw away nothing about their customers because it will be so valuable. If you're not doing this, you're out of business." Similarly, in an article in *Harvard Business Review*, Thomas Davenport (2006) argued that the latest strategic weapon for companies is analytical decision making, providing examples of companies such as Amazon.com, Capital One, Marriott International, and others that have used analytics to better understand their customers and optimize their extended supply chains to maximize their returns on investment while providing the best customer service.