



Using Information Technology

NABISCO NET BRINGS SWEET SUCCESS*

To maintain 10 percent annual growth in a market that's growing at only 2 percent, Nabisco, Inc. the \$7.7 billion processed-food company is putting intelligent-software-agent technology on more than 5,000 desktops.

These "agents" are programs that sort and sift through mounds of data culled from diverse sources to provide their users with the precise information they need.

Moreover, many of these agents can track user-behavior patterns and proactively fetch the most sought-after data, analyze it and even recommend appropriate courses of action.

"The amount of groceries and food people are buying is generally the same," says Erik Iversen, director of application development services at Nabisco. "What changes is the mix of what people buy and when they buy it. This means we have to know what individual consumers and specific groups of consumers are purchasing in different regions and different seasons."

So, how does the giant food processor go about providing its 300 business managers and more than 4,000 salespeople the latest, most appropriate information on consumer-buying patterns?

The answer is NabNet, Nabisco's corporate Intranet, which connects more than 300 sites nationwide.

The Intelligent agents are part of the IT retooling effort, which was needed to support the cookie maker's strategy to provide its managers, marketers, and sales people with timely information about consumer buying patterns. These applications draw on a series of interconnected databases, including Nabisco's Integrated Sales Information System (ISIS) decision-support system.

ISIS actually consists of two databases: the corporate data warehouse holds Nabisco-specific data, including the company's sales and revenue figures, and a data mart that stores general information about the food industry, such as daily national cookie and cracker purchases broken down by brand.

Much of this data is purchased from Chicago-based Information Resources (IR). Bar-code scanners located in stores across the country feed point-of-sale data to IR's data center, which, in turn, pumps the information to Nabisco's system.

To identify exceptions and variances in consumer buying patterns, Nabisco uses, a sales and marketing expert system from IR.

Intelligent agents coupled with rules-based logic let the expert system determine the average performance of different Nabisco brands and calculate sales opportunities. It is also used to help the food company set pricing for different brands.

Nabisco's corporate and consumer information are integrated using Axsys, a suite of advanced business-analysis applications from Information Advantage Inc. Nabisco has added extensive agent technology to Axsys to integrate several sets of data and utilize its networks more efficiently.

This all comes together through an Executive Information System. Using Microsoft's MS-Mail electronic-mail system as the transport, homegrown intelligent agents fetch business-related information from news wires, sales and revenue data from ISIS, and consumer data from Information Resources. The intelligent agents find, filter and automatically forward data in or near real time to 300 Nabisco executives.

A financial manager, for example, could choose to receive fast-breaking news on Nabisco's stock price, its competitor's revenue figures, updates on Nabisco's latest sales figures and year-to-date revenue, plus any change in consumer buying patterns. The smart agents provide a concise analysis of the data and its implications for a specific decision-making process. In this way, Nabisco's managers can get snapshots of the business and are able to react very quickly to changes in the market.

Every rosy picture, however, has its thorns. Having intelligent agents fetch and deliver data to thousands of desktops across WAN links can create network bottlenecks and cause line costs to soar. To prevent network paralysis, Nabisco is storing key data as close to users as possible.

Nabisco knows the rule that 20 percent of the data accessed by a given user typically provides 80 percent of the answers he or she is looking for. Therefore, the IS department prestages that 20 percent of the information a salesperson is likely to need most of the time, and moves it as close to him (her) as possible in the network, so the access of data is localized.

With an annual Information Systems budget of \$100 million and 450 network specialists at its disposal,

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Nabisco has the resources to pull off an application of this magnitude. The system is based on Microsoft's NT. Although NT on the desktop may not be right for many businesses, it supports the intelligent agents that look like the wave of the future for organizations attempting to cope with information overload.

For those interested in following Nabisco's lead, the company offers words of encouragement—and also of caution. Intelligent agents play a critical role in the company's ability to respond to the market by providing employees with pertinent information quickly, rather than a core dump of fragmented data that could take hours to sift through. Another consideration is that network and E-mail infrastructures to support the agent-based applications must be in place first. "It's not for the faint of heart; you have to anticipate network-bandwidth demands in building agent applications," the company said.

The experts agree. Professor Marvin Manheim of the Kellogg Graduate School of Management and the Transportation Center at Northwestern University, Evanston, Ill., who headed the development of intelligent-agent prototypes for the steel industry in the early '90s, says Nabisco's experience typifies that of other companies.

"Intelligent agents can work independently of the user and provide useful information and even advice, but useful intelligent agents behave unpredictably," Manheim says.

"Therefore, there needs to be careful, thoughtful steps for developing, testing, deploying and, especially, managing agents," he adds.

When such care is taken, managing things such as cookie sales becomes a piece of cake.

QUESTIONS FOR CASE

1. Prepare a diagram which will show the various IT tools used and their interfaces.
2. What data mining activities are done by the intelligent agents?
3. How can the agents track user-behavior patterns?
4. Why is the system connected to the EIS?
5. What is the role of the expert system in ISIS?
6. What marketing decisions are supported by ISIS?
7. List all the different tasks that are performed by intelligent agents.
8. Discuss the role of the email and the importance of the networks.
9. Why is the network-bandwidth such a critical success factor?
10. How all this contributes to the phenomenal growth rate of Nabisco? Can smaller competitors compete?
11. Enter the web site of Nabisco. (www.nabisco.com) Prepare a 1 page report about the company and its business. Why is IT so important for this company?
12. Information advantage (www.infoadv.com) is a vendor of different business analysis tools, enter the Web site and prepare a report about the tools and their capabilities.