



FOCUS ON: Inventory Management

market-basket analysis

Market-Basket Mystery

What do beer and diapers have in common? For retailers, the answer could be powerful.

Before the dot.com boom of the 1990s, market-basket analysis was a new process that promised to turn the terabytes of data being collected at the POS into brilliant merchandising and promotional decisions.

Unfortunately, when retailers saw how much computing power was required to crunch the numbers, many lost interest in market-basket analysis, and the technology disappeared from the scene—until a few years ago.

Market-basket analysis is a term that describes data-mining solutions that find correlations between items in the customer's shopping basket. Merchandisers can apply these findings to respond to customer demand more effectively. It also helps them make more powerful planogramming decisions that consider the different kinds of items consumers are most likely to buy in the same shopping trip. The sheer number of SKUs in the store make it impossible to consider all possible correlations between items using human intellect alone. That's where market-basket analysis comes in.

The relationship between beer and diapers is an oft-cited example of a product correlation that has become data-mining urban legend. Reputedly, new fathers who suddenly have no time to go out and socialize will pick up a six-pack of beer when making a Huggies run. It's a good example of the potential findings of market-basket analysis, because it illustrates an exploitable relationship that's not obvious at first glance.

Although it's probably a stretch to expect retailers to stock diapers alongside the beer, if acted upon properly, effective market-basket analysis can bring increased sales, a stronger in-stock position and increased customer satisfaction.

According to Forrester Research analyst Lou Agosta, sometimes unprofitable, slow-selling items drive purchases in ways that can't easily be seen in the numbers. For example, if a market carries eight different types of olives but only half of them sell consistently, a manager might consider only eliminating the four poor performers. But an analysis of olive purchases might reveal that when the poor



performers sell, it is usually with high-margin items. These are the kind of merchandising decisions that can help retailers become more customer-driven.

Although retailers can't be expected to stock diapers next to beer, market-basket analysis, when used properly, can increase sales and customer satisfaction.

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Dedicated to the task: Market-basket analysis is especially popular among grocers. For example, Ahold USA, the domestic division of Dutch grocery giant Royal Ahold, recently replaced its legacy data warehouses with Netezza servers to process and store customer-loyalty data, and to support market-basket analysis. The data from customer-loyalty programs is fertile ground for market-basket analysis because it enables retailers to consider correlations not only between items bought on the same shopping trip, but also across multiple trips. It also permits retailers to consider purchase decisions in context with the customer's profile.

Grocery chains need lots of processing power for market-basket analysis, since they have one of the largest customer bases in retail and their SKU counts run into the tens of thousands of items. And each new item added to the sample only increases the amount of work geometrically.

According to Paula Rosenblum, director of retail research at Aberdeen Group, "It's a natural for grocery stores because of their use of loyalty programs and cards. It facilitates the cross-sell."

Market-basket analysis is being utilized by many other kinds of retailers, as well. In a recent Aberdeen Group survey, 38% of the companies polled said they used market-basket analysis and felt it had a positive effect on their business.

Chase-Pitkin Home & Garden, a division of Wegmans Food Markets, is a firm believer of market-basket analysis and has used it for the past four years to compete against home improvement giants The Home Depot and Lowe's.

"Our system started out serving one initiative but has been leveraged to be used across the entire enterprise," says CIO Chris Dorsey. "It's evolved into a complex business-intelligence tool that is being used by all levels of the organization."

One of Chase-Pitkin's most innovative applications of market-basket analysis is to aid in the creation of project cards that are distributed with the products it sells. Each card instructs the consumer on how to perform a task such as fixing a toilet or installing a rain gutter. The parts needed to complete the job are listed on the back. The cards typically are placed with the parts needed so all a customer has to do is grab the proper parts and tools, all from the same place.

The cards also help cross-sell related products, which Dorsey says has paid off. "Once you sell the core items, everything else is simple. We can certainly say it's helped our sales increase by double digits."

On the Web and beyond: Market-basket analysis is being applied to other retail channels, as well. It is proving to be



very effective for e-retailers such as Amazon.com, which has become known for its powerful cross-selling. Ultimately, this could lead to multichannel transparency by creating a single source of customer data that all channels draw from. The advantage of this would be more insightful customer service, well-coordinated marketing efforts and even on-the-fly promotions that could adjust dynamically. A few companies already are exploring this last concept, though implementation is still a while away.

The bottom line, says Forrester's Agosta, is that market-basket analysis enables retailers to respond to their customers' needs more effectively. "I think we are becoming a nation of shopkeepers. Retailers and sellers of all kinds are looking for more interesting associations so they can make the right offer at the right place and the right time. It's a process in which technology really helps." **RTQ**

Market-basket analysis is especially popular among grocers, because the data from customer-loyalty programs can be used to consider correlations between items purchased on multiple shopping trips.

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