TO CATCH A THIEF

Retailers are turning to more sophisticated security systems to combat shoplifters, who now are often organized rather than opportunistic. BY DAVID LITWAK

Retail theft is a problem that's as old as retail stores themselves. While shoplifting in supermarkets has become secondary to employee theft in recent years, the problem of thieving customers remains a serious one for an industry with a 1% bottom line.

According to the *2003/2004 Supermarket Shrink Survey* produced by the National Supermarket Research Group, shoplifting accounts for about 20% of supermarket shrink. FMI reports in the *2004 Security and Loss Prevention Issues Survey* that on average the merchandise per shoplifting incident had a value of $51.71, making shoplifting one of the costliest causes of loss in the supermarket. The $51.71 figure was an increase of $6.41 per incident from the previous year. So even while the number of shoplifting incidents is remaining stable, the loss to the industry from customer theft is growing substantially.

The increase in the value of the merchandise that is shoplifted indicates that there has been a change in the type of customer theft. Shoplifting has evolved into a lucrative endeavor for many perpetrators. "If you look at the independent studies, the overall shrink has not changed a whole lot over the last 10 years or so, but the mix has shifted," says Lee Pernice, retail marketing manager at Boca Raton, Fla.-based ADT Security Systems. "For a couple of years we've seen shoplifting going down as a percentage of the total shrink, but this year we've seen it starting to creep up again. There are many reasons for this, especially the economic issues in some areas. Organized shoplifting is on the rise, which contributes to the overall shoplifting numbers."

The increasing number of organized shoplifting gangs necessitates more organized efforts by retailers to thwart them. Because shoplifting was always more of a crime of opportunity than a carefully planned event, most prevention methods were concentrated at the store level. Traditionally, supermarkets have employed video surveillance, electronic article surveillance (EAS) and old-fashioned staff awareness and diligence to deter or apprehend shoplifters. Times have changed, and with the emergence of a more organized shoplifting effort, the focus of prevention has shifted from individual store effort to chain-wide planning. Aside from preventing thefts and apprehending shoplifters, chains are endeavoring to take what they learn in each store and combine the information with similar data from all stores to be used for planning.

DIGITAL INTELLIGENCE

"What we are now finding is that people are starting to make these systems [EAS and video] more intelligent and easier to monitor, analyze and control from a remote location," says Pernice. "Video over the last few years has migrated from an analog to a digital base. Once you move over to a digital platform you have the ability to use the video in much more intelligent and different ways. You are able to transmit the images—either in still form or video—over networks and collect the information centrally."

Once the video data is collected, it can be analyzed to detect patterns of

Evolution Robotics' Lane Hawk uses visual recognition technology to identify items on the bottom shelf of a shopping cart.

shoplifting and areas of particular vulnerability in store design and layout. Much more efficient prevention programs can then be developed and implemented. The video data can be monitored from a central facility, a fact that has given rise to third-party monitoring services. ADT, for example, has a new remote service that not only monitors retailer video data but also analyzes it to help operators detect weak points in the stores.

"The place where the supermarkets have the most theft is in their HBC and meat departments," says Dave Shoemaker, group vice president of strategic marketing at Thorofare, N.J.-based Checkpoint Systems, Inc. The FMI study reports that 25% of shoplifted items are HBC products and 16% are meat.

'UNTAPPED SOLUTIONS'

"There are many new untapped solutions that are waiting for supermarkets to take advantage of," says Shoemaker. Take a look at the drug store model, which sells much of the same HBC products as supermarkets. Now some 97% of the large drug chains use radio frequency (RF) technology in their EAS source-tagging campaigns. The truth is that supermarkets can now ride that same source-tagging movement and leverage the success that the drug chains have had to get the source-tagged products into their markets. There's a tremendous opportunity to use RF technology on their own HBC merchandise.

One byproduct of the use of technology to speed the checkout process is that the growing popularity of self-checkout devices has opened up a new area of opportunity for shoplifters: a checkout lane that is unattended. With self-checkout lanes appearing in a growing number of supermarkets, the ability of store personnel to supervise every cart and customer going through the registers is even more limited than before.

"Self-checkouts offer a little more opportunity to the shoplifter," says Ed Meyer, president of Scottsdale, Ariz.-based Store-Scan, Inc., manufacturer of the eBob bottom of the basket security system. "In the self-checkout lanes the lane manufacturers have put a great deal of effort into trying to prevent as much shoplifting as possible, but that isn't always enough."

Store-Scan is just introducing a new surveillance system developed directly for self-checkout lanes. The system uses a video unit that monitors the hand movements of shoppers while they are checking out. The camera shows the hand movements as products are being moved across

Source-tagged EAS labels hidden in product packaging are growing in popularity as anti-theft devices.

the scanner. It monitors the motion of the items being scanned and displays the video on a monitor that's mounted in front of the customer. Plans are to expand the system to include a second camera in each lane to watch the lower portion of the cart for any items left in the basket or on the bottom shelf of the cart. Pictures from these cameras will be sent to the associate who is monitoring the self-checkout operation.

"Bottom trays of carts are particularly vulnerable in a self-checkout," says Meyer. "I believe that the number of items going through self-checkouts are increasing, which gives retailers more of a security problem."

Whether through a self-checkout or a traditional manned checkout, the bottom shelf of a shopping cart is fertile ground for shoplifters to ply their trade. According to Alec Hudnut, CEO of Pasadena, Calif.-based Evolution Robotics, supermarkets on average lose $10 to $20 per day per checkout because bottom-of-basket items go unscanned. Security systems such as StoreScan's eBob and Evolution Robotics' Lane Hawk have been developed to detect items riding the bottom shelf before they can leave the checkout lane.

"Lane Hawk recognizes the product and rings it up right into the register, so it acts like RFID without needing the whole RFID infrastructure," says Hudnut. Lane Hawk is based on our Visual Pattern Recognition Technology. This is the same technology that exists in over 150,000 machines across the world, mostly robots. These algorithms that we have developed are used by robots to recognize objects in the environment and by military systems that are trying to recognize objects in crowds from high above."

CHECKING THE DATABASE

The system uses a camera that is mounted 10 inches off the ground in the checkout lane at about the spot where a customer would swipe a credit card, so it is well into the lane, at a point where the items should already be out of the cart and onto the belt. When the camera detects a product on the bottom shelf, the image is matched against a database of about 500 of the most commonly shoplifted items and then the UPC, price and description come up on the cashier's screen. The item is automatically entered into the transaction, eliminating the need for the cashier to act.

"The interesting thing is even though bottom-of-the-basket theft is only two to four items per lane per day, that $10 to $20 per day per lane is 10% to 20% of the grocery store's overall corporate profit, if you consider an average grocery store doing $7,500 per lane a day of revenue, of which 1% is profit," says Hudnut. "It's real money that falls right to the bottom line." □