



THE ECONOMICS OF

Specialty apparel and department store retailers are having difficulty expanding electronic article surveillance (EAS) programs to take advantage of source tagging. Only a few major apparel retailers, such as Hudson Bay Company, Ann Taylor Loft, J. Crew, and Kohl's, actually source tag.

There are several reasons for this situation. The recent recession and its impact on retailers' financial results have constricted the amount of capital available to install EAS in more stores. There is yet to be a consensus on the most effective tag types – the paper hangtag, the sewn-in fabric label, or the disposable plastic tag. Plus, the recent press about radio frequency identification (RFID) has slowed the procurement of EAS in all retail vertical markets, not just apparel.

However, the biggest impediment to success, in my view, is the continued reliance on the "old economics" of store-by-store cost justification. Retail chains that are partially saturated with EAS are struggling with a conundrum: There can be no meaningful source tagging until EAS is cost-justified in all locations. But, cost justification will not occur without the economic benefits that accrue from source tagging.

The Perspective of History

The first successful market for EAS in the U.S. was apparel. The major penetration began in the mid-seventies and proceeded with vigor for several years. Sensormatic did not possess a viable adhesive label product at the time, but loss prevention executives wanted tags that were a physical deterrent. EAS labels were deemed too easy to compromise. Source tagging as a concept did not exist.

Prior to 1983, EAS was sold on the merits of either catching or deterring shoplifters. Since EAS was virtually the first practical solution to the problem, early results were dramatic. Few retailers worried about calculating a return on the investment. It was the proverbial "no brainer." Stores that installed EAS experienced a noticeable drop in suspicious activity, known thefts, and shoplifting apprehensions. Everyone was happy.

In early 1983, however, there was an economic downturn in the U.S. that had a dramatic effect on retailers' profitability. EAS equipment sales dropped precipitously. For the first time, merchants were being replaced by CFOs as the leaders of the large chain stores. CFOs asked a different set of questions of security managers, and EAS salesmen (myself included) had to become conversant with new terms, such as "cost effective" and "return on investment." It took time, but the EAS manufacturers began to understand that to be successful, they would have to be able to sell the financial merits of EAS as well as the security merits.

ROI the Old-Fashioned Way

The original benchmark used to cost-justify EAS was, and continues to be, the measurement of a positive change in inventory shortage. Retailers compare results before and after the introduction of EAS. They also compare results in user and non-user stores. These comparisons provide the necessary economic justification for EAS.

Historically, these activities have been governed by the concept of "standalone" return on investment (ROI). *Standalone ROI* means that individual branch store economics must support both the capital expenditure for the EAS equipment and annual expenses incurred to run the program. Net benefits (reduction of shortage at cost) must outweigh costs. Retailers would react in crisis mode to the stores with the highest shortage, and install EAS a few stores at a time.

In those days, EAS salesmen minimized any potential operating costs of an EAS program, such as tagging labor costs. They argued (correctly at the time) that there were plenty of sales associates that spent time standing around doing nothing. So, asking them to affix EAS tags didn't really increase a store's labor expenses. EAS was easily cost-justified in high-volume, high-shortage locations, but permanently unjustifiable in low-volume, low-shortage locations.

Toward the end of the 1980s, Checkpoint started to get some sales traction with adhesive EAS labels in the drug store retail vertical market. At the same time, Sensormatic junked its program to sell adhesive labels using its

EAS

Rethinking Cost Justification for Apparel Retailers

By Robert L. DiLonardo

microwave technology, and announced Ultra*Max – a technology that would become known by its distinctive “chicklet” label. U.S. hardgoods retailers, who had never before had the opportunity to employ EAS in any meaningful way, now were opting for EAS label technology.

Enter Source Tagging

The first general discussions about affixing EAS labels at the point of manufacture took place around 1990. At the time, the primary EAS vendors had determined their economic futures rested upon the classic razor and razor blade marketing strategy where maximum growth of revenue and profit

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will occur by offering a consumable item at the lowest possible price.

Both Sensormatic and Checkpoint spent considerable sums investing in the complete automation of the EAS label-making process. They reasoned that market saturation would occur by alternately pulling demand through retailers, who would eventually insist that merchandise suppliers affix the label somewhere in the manufacturing process. EAS salespeople began selling the concept of source tagging in addition to selling EAS as a solution to a localized theft problem. These marketing efforts were successful in music, drugstores, home centers, mass merchandisers, and in some supermarkets.

The classic example is The Home Depot, where, after a successful test, management decided to install EAS in all stores with the proviso that source tagging was to be implemented from “day one.”

Ed Wolfe, currently operational vice president of loss prevention for Bloomingdale’s, was the driving force behind The Home Depot’s loss prevention program at the time of the decision to install EAS. According to Wolfe, “the test demonstrated that we would save money by reducing our shortage. But, we had some logistical problems that proved to us that source tagging was the only practical method of protecting enough SKUs. There was no space in the receiving area to house the merchandise, and the amount of handling required to place tags near our barcodes made it too difficult and time consuming to tag in the stores. We never really had a choice. It was source tagging or no EAS.”

With or Without EAS?

The early adopters of EAS in the apparel market achieved more than satisfactory returns on their investments as they increased the usage of EAS by increments. However, future ROI analyses must incorporate a broadened perspective if more retail chains are to realize the economies of scale associated with source tagging.

First, financial executives should include an additional pro forma ROI calculation using a “with or without” comparison. This would serve to compare results of a chain-wide investment with an immediate implementation of source tagging to the continued piecemeal addition of EAS in qualified stores.

Second, instead of establishing a profitability target for each store, cumulative net present value (NPV) should be pooled over all locations. The “haves” should subsidize the “have nots.” This idea has been used in store operations for many years.

My first experience with this rationale occurred in the mid-seventies when I was involved in a conversion from

electronic cash registers to POS terminals. The department store chain (currently part of Rich’s-Macy’s) had eleven full-line stores and one gift shop in the beach resort of Sea Island, Georgia. The shop was so small that it was barely functional in the off-season (summer). Yet when the chain decided to convert to POS, this shop was outfitted with the same hardware and software as the main stores. A favorable ROI for the gift shop was never an issue. The chain needed a system in all locations to streamline its data capture methods, and the equipment was installed...period.

This same argument should be transferred to EAS procurements. Excess profit contributions from the high-volume, high-theft stores should be used to subsidize the smaller, less theft-prone units, so the entire chain can enjoy the economic benefits of source tagging:

- The elimination of tagging labor costs,
- The assimilation of tagging cost out of expense and into the cost of goods, and
- Incremental sales from the role of EAS as a capable guardian of the merchandise assortment.

The Cost Mix Has Changed

The two main cost categories for an EAS procurement are acquisition costs and usage costs. There has been a subtle change in the valuation and the mix of these costs over the past ten years. Their relative size has become inverted, as technological advances have tended to reduce the cost of the equipment and tags on a per unit basis, while rising wage rates have increased all costs associated with using EAS on a daily basis, such as tagging and equipment maintenance. This shift has a profound effect upon the profitability of an EAS investment over the long run.

Acquisition Costs. In the early 1980s, the list price of an EAS system and tags was far higher than it is today. For example, a pedestal system that protected a six-foot doorway cost about \$10,000, and the list price of a reusable plastic tag was \$1.35. EAS labels (if you wanted to use them) were between a

nickel and a dime each. Even when discounted, the per-item cost of outfitting a department store with EAS was very high relative to today. The capital portion of an EAS acquisition used to be the overwhelming majority of the total cost. Interest rates were much higher, so internal rate of return (IRR) hurdle rates for an acceptable project were higher, too. Accelerated depreciation schedules were allowed at the time, so capital costs were depreciated within three years. Pro forma ROI analysis focused upon a five-year horizon, and since usage costs were considered minimal, EAS continued providing shortage reduction benefits for "free" as long as the EAS equipment could be successfully maintained. The May Department Stores Company employed this strategy for years.

In today's market, six feet of system coverage can cost as little as \$1,500. A plastic tag is available direct from a Chinese manufacturer for as little as thirteen cents (not good quality, but yes, that's correct). For sake of illustration,

we can assume the average tag price to be about sixty cents. Labels are around two to three cents. The cost of proximity deactivation has decreased by 50 percent. Historically, low interest rates are very helpful in reducing profitability requirements. As a result, the capital portion of an acquisition can be a much smaller fraction of overall cost. Additionally, these costs end at the conclusion of the depreciation schedule. Like many government programs, usage costs have grown precipitously with no end in sight.

Usage Costs. When the minimum wage was about \$2, apparel retailers were able to staff stores well enough to assimilate the annual cost of affixing tags and labels into the normal selling labor costs. Today, the fully burdened hourly cost of retail labor is anywhere from \$8 to \$12, depending on geographic location and job description. It can be substantially higher in labor union-controlled distribution centers. As a result, tagging labor is no longer considered a free by-product of a store's

wage costs. They are accounted for separately on the pro forma ROI.

Suppose an average department store uses 200,000 plastic EAS tags, and the normal inventory turnover for apparel is three times per year. So, EAS tags are affixed 600,000 times per year. If the average employee can affix 120 tags per hour (two per minute), and his fully burdened hourly wage rate is \$12, then the store must spend \$48,000 in tagging labor expense per year. This same labor task would have been accomplished "free" in previous years.

Retailers typically measure shortage levels and loss prevention expenditures separately, but rarely analyze the two components together. In a speech given to the Source Tagging Council in 2001, Tom Cole, chairman and CEO of Federated Logistics and Operations, emphasized the importance of focusing upon "the total cost of shortage." At the time, the total cost of shortage at Federated was the fifth largest operating expense behind selling, advertising, real

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Cost Comparison: EAS All at Once, Or Piecemeal?

One of the main reasons to rethink the economies of implementing EAS is that it is ultimately less costly to install EAS in all stores rather than a few stores per year. Wholesale adoption of an EAS program provides retailers with the opportunity to reap the benefits of source tagging. To buttress the argument, consider the following hypothetical example.

A department store with 200 units is considering EAS. Acquisition costs for systems, detachers, and reusable plastic tags are \$150,000 per location. These expenditures will be depreciated over seven years. Annual usage costs are \$48,000 per store for tagging labor, and other annual expenses are \$5,000 per store. Using conventional analytical methods, management identifies thirty high-shortage stores for installation in the first year, and twenty additional stores to be installed in each of years two, three, and four, for a total of ninety installations out of 200 locations. This saturation rate covers 80 percent of the chain's shortage and 45 percent of the sales volume.

The alternative is to install EAS in all 200 units in the first year, and begin source tagging immediately. Under these assumptions, acquisition costs are \$75,000, because no reusable tags will be used. Annual usage costs are zero for tagging labor and \$5,000 for other expenses. The expected shortage reduction for both scenarios is equal, and the horizon for the ROI model is ten years. Which set of

assumptions is less costly, therefore more profitable?

For the ninety piecemeal installations, the total acquisition cost is \$13.5 million. Since the installations are staggered over the first four years, total usage costs are \$34.1 million for tagging labor and \$3.9 million for other expenses. Over ten years, the total cost of operating the program is \$54.8 million, with annual recurring costs of \$4.77 million into the foreseeable future.

If the 200 stores are installed up front, the cost picture is significantly different. Total acquisition costs are \$15.0 million, but annual usage costs are only \$1.0 million per year. The equipment is fully depreciated after year seven, and the only recurring cost is the \$5,000 per store for other expenses. Total cost over the ten-year horizon is \$25.0 million.

The accompanying chart plots the total annual cost (acquisition costs are depreciated) for each scenario. This exercise was undertaken solely for illustrative purposes, but the point is dramatic. All 200 stores could be protected for less than half the cost of protecting the ninety high-shortage locations.

Food for thought. If your management had the benefit of this analysis in advance of a decision, which scenario would be chosen? If you find yourself in the piecemeal installation situation, does it make economic sense to "bite the bullet" and install EAS in the rest of the chain?

	Reusable (plastic) Store Applied Store Removed		Limited Re-Use Store Applied Store Removed		Disposable (plastic) Source Applied Store Removed		Disposable (any type) Source Applied Home Removed	
Tag Acquisition Costs								
Tag Cost	\$0.560		\$0.260		\$0.145		\$0.180	
Pin Cost	\$0.000		\$0.000		\$0.000		\$0.000	
Ink Cost	\$0.000		\$0.000		\$0.000		\$0.000	
Total Tag Cost	\$0.560		\$0.260		\$0.145		\$0.180	
Freight Cost per Unit		\$0.010		\$0.008		\$0.008		\$0.008
Tax Rate	6.0%	\$0.034	6.0%	\$0.016	6.0%	\$0.009	6.0%	\$0.011
Cost of Capital	8.0%	\$0.045	8.0%	\$0.021	8.0%	\$0.012	8.0%	\$0.014
Tag Useful Life (years)	7		7		1		1	
Inventory Turnover Rate	3		3		1		1	
Number of Uses	21		21		1		1	
Total Tag Acquisition Cost		\$0.648		\$0.304		\$0.173		\$0.213
Acquisition Cost per Use		\$0.031		\$0.014		\$0.173		\$0.213
Tag Usage Costs								
Tagging Labor Wage (burdened)	\$12.50		\$12.50		\$1.00		\$1.00	
Removal Labor Wage (burdened)	\$12.50		\$12.50		\$12.50		\$0.00	
Tagging Rate per Hour	120		120		120		120	
Removal Rate per Hour	300		300		300		300	
Tagging Labor Cost per Cycle		\$0.104		\$0.104		\$0.008		\$0.008
Removal Labor Cost per Cycle		\$0.042		\$0.042		\$0.042		\$0.000
Loss/Damage Rate	3%	\$0.017	3%	\$0.008	1%	\$0.001	1%	\$0.002
Cost to Recycle	\$0.02	\$0.020	\$0.02	\$0.020	\$0.00	\$0.000	\$0.00	\$0.000
Usage Cost per Cycle		\$0.183		\$0.174		\$0.051		\$0.010
Acquisition + Use Cost per Cycle		\$0.214		\$0.188		\$0.225		\$0.223

estate, and employee benefits. Cole used the forum to announce Federated's source-tagging initiative, noting that its operating divisions would or should put an EAS tag on 500 million items annually.

Aside from an aborted test of factory-applied sewn-in EAS labels on private label apparel, Federated has yet to implement the program in any meaningful way, and they continue to incur millions of dollars in tagging labor

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costs. Plans are in place to begin a small-scale program in a few merchandise categories during the winter of 2003 - 2004 in two Federated divisions.

Measuring Benefits

Conventional ROI theory has relied upon the inventory shortage reduction to supply the "pot of gold" from which the EAS investment can be justified. In order to satisfy the requirements of the CFO, loss prevention executives have always searched for bona fide statistics from case studies in order to buttress their arguments to senior management. There have been quite a few internal studies undertaken over the last twenty years, but results from only a handful have been published.

In 2001, PriceWaterhouseCoopers (PWC), the widely respected international consulting firm, validated the retail industry's cost-justification

methods for EAS in two comprehensive statistical studies conducted during 2000 for one of the nation's largest supermarket chains. According to the report, the common scope of the studies was to "determine the impact of EAS on reducing in-store shrink" and to "develop a calculation to predict a return on investment for a fully compliant EAS program." One study measured performance in locations protected by ADT/Sensormatic systems and took identical measurements in locations protected by Checkpoint Systems products. The study found that the retailer:

- Acknowledges the value of a properly managed EAS program,
- Realizes significantly reduced overall store inventory shortage, and
- Will earn an acceptable return on investment in EAS.

In low-shortage, low-sales-volume stores, shortage reduction has been...and will continue to be...insufficient to justify EAS. More demonstrable benefits are needed from two primary areas: additional sales from items that can be merchandised openly rather than behind lock-and-key, and the recognition by the CFO that sales plans are more likely to be achieved in EAS-protected stores than in unprotected stores.

Measuring the Impact on Sales. In demonstrating the power of the EAS deterrent, discussions typically center on the theory of "preserving the heart of the merchandise assortment, so items may be sold instead of stolen."

Instinctively, merchants are able to conclude that item "sell through" improves when EAS is in use, but there are few real statistical studies that prove it. CVS Drug Stores and Arthur Andersen conducted an in-depth investigation into

the issue in 2002 and were able to conclude that

- There is a direct relationship between "pilferage" (Arthur Andersen's term for shoplifting) and out-of-stock conditions,
- There is less theft in EAS locations, and
- Sales of test items in control stores without EAS under-performed those in EAS locations.

In the apparel business, the implications of pilferage and "stock outs" are more profound than with consumer products. For example, twelve packages of Tylenol® on a drugstore shelf are interchangeable. If six are stolen, a customer still has six identical items to choose from. No sales are lost until the shelf is empty. With apparel, the same style shirt is ordered with the help of an analysis of sizing, known as a size range. Twelve shirts on a rack will be identical except for size. Common sizes make up a higher proportion of the dozen. But a single theft could result in an unrecoverable loss of sales, even though eleven blouses are left on the rack. The overall success of the sales plan is immediately compromised. So, in the apparel business, the loss of a single item can be more economically catastrophic than in hardgoods.

Summary

The overwhelming majority of apparel specialty and department store retailers, the early adopters of EAS, have benefited greatly from its use, but have grossly overpaid by continuing to employ the old economics of store-by-store cost justification. They now find themselves in a trap in which escalating, and never ending, usage costs, low shortage, and low sales volume prevent them from cost-justifying EAS in all stores.

Those retailers who implemented EAS with an immediate vision toward source tagging have essentially avoided this situation, and have been able to reap source tagging's economic benefits. In order to make the transition to source tagging, apparel retailers must rethink the method by which they cost justify EAS procurements. ■



ROBERT L. DILONARDO is a well-known authority on the electronic article surveillance business, retail accounting, and the cost justification of security products and services. He is the principal of Retail Consulting, which provides strategic and tactical guidance in retail security equipment procurement. He can be reached at 727-573-0453 or by email at rdilonar@tampabay.rr.com.