

New University of Arkansas Study on Item-Level Apparel Tagging Interesting, but Cause-Effect Relationships Not Clear

96 Percent Faster Cycle Count in Store? Thawing Out “Frozen” SKUs

SCDigest Editorial Staff

One of the bright spots for RFID in the consumer goods to retail supply chain has been the interest in item-level tagging in the apparel and footwear sectors. While the activity there has mostly been of a pilot nature (with some exceptions, such as American Apparel stores), sentiment from retailers in this area seems very bullish, and nearly all have reported very positive results from a series of pilots and other tests.

With that backdrop, Information Technology Research Institute at the University of Arkansas, under the leadership of **Dr. Bill Hardgrave**, who among other responsibilities is Director of the RFID Research Center there, recently released results of a study looking at the impact of item-level tagging on inventory accuracy and related matters at Dillard's department stores.

The study involved the men's jeans areas of two stores that used item-level tags on the goods and two stores that did not. However, one of the stores that did not have the tags closed during the test, so the non-tagged results were based on one store, and one test store was also dropped.

From the report (available at: [Item Level RFID For Apparel: The Dillard's RFID Initiative](#)), it is a little difficult to understand the full methodology, but it appears that two of the stores were equipped with RFID readers at several strategic points in the back room and store floor, and associates in the jean's department were equipped with handheld RFID readers. Associates in the other store had bar code readers.

Items in the two RFID-enabled stores were tagged upstream and were received into the stores using

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RFID.

First, however, a five weeks of baseline data was collected, using an outside service to perform physical inventories and compare them again perpetual inventory system data. Then during the fifth week, Dillard's itself performed its semi-annual physical inventory of all stores. That showed that 17% of the categories in the jeans area had wrong inventory counts in the system (6% understated and 11% overstated). The non-RFID test store had 12% of errors.

(As with any type of physical inventory, how the metric is determined is of critical importance. Was being off one pair of jeans included as an over or understatement? This isn't clear.)

After the corporate inventory, perpetual inventories were reset using what should now be accurate numbers, though of course there are human errors that occur during the physical inventory process as well.

What happens next is not clear from the report,

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and SCDigest was unable to reach Dr. Hardgrave, who is out of the office this week. It appears that the cycle counts were done in the RFID-enabled stores using handheld RFID readers, and performed using bar code scanners in the control store. It is assumed that other RFID reads, such as in receiving, were also used in update perpetual inventories.

If the RFID-based cycle count was different than the perpetual inventory (PI) system, the PI was updated in the test store.

The charts on page 2 show these results. The report says the percent of "perfect counts" in the RFID test store went up 4% from the baseline, while they declined 13% in the non-RFID control stores.

What is not clear is the actual cause of this improvement. It appears to be the cycle counts and frequent and highly accurate PI adjustments based on these RFID reads. The report says that using RFID for cycle counts can reduce the time to perform the counts by as much as 96% (5.5 minutes to "count" 1500 items versus

2 hours, 18 minutes for bar code scanning).

The study found benefits from this improved accuracy in terms of reduced out-of-stocks and lower levels of "frozen" inventory, in which PI overstatement errors lead to a near permanent out of stock situation for some SKUs, with the system thinking there is inventory there and so it is never replenished even though the inventory is gone.

Of course, the famous "Hawthorn Effect," in which just being studied causes improvement in a process, also needs to be considered in the analysis.

As with some passed reports from the Center, it adds to the body of knowledge but leaves SCDigest with some questions. Nevertheless, the opportunity to improve inventory management through RFID in the difficult to manage apparel sector seems clear.