

RFID



IN APPAREL AND FOOTWEAR:

Store-Level Success Sets the Stage
for Bigger Benefits



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It's long been expected that the use of radio frequency identification (RFID) technology would have enormously beneficial effects for retailers. The good news is that, in apparel and footwear retailing, RFID is indeed having a positive impact — but it's the retail store, rather than the supply chain, that is seeing the biggest benefits.

Most experts predicted that the supply chain was going to be the place where RFID's abilities were first supposed to produce big returns. Case- and pallet-level tagging would improve product movement visibility, streamline distribution, make forecasting more accurate and manufacturing more responsive. It's true that RFID technology has made inroads in these above-store areas, and will continue to do so, but in apparel and footwear retailing, the most impressive RFID action is at the store level.

Item-level RFID deployments are boosting stores' inventory accuracy levels to near-100%, and this simple yet dramatic improvement is setting the stage for a host of other benefits:

- Out-of-stocks reduced by 60% to 80%
- Sales increases of 4% to 21%
- Reduction in cycle count time by 75% to 92%
- Reduction in inventory carrying costs by 30% to 59%

These figures, from real-world item-level implementations by Motorola and its technology partners, show how positively dramatic the results can be. RFID solutions sustain the improved processes and remove the human error associated with historically manual inventory collection tasks, and their practical application has provided a quick ROI through the

increased sales and enhanced customer service associated with accurate on-hand inventory.

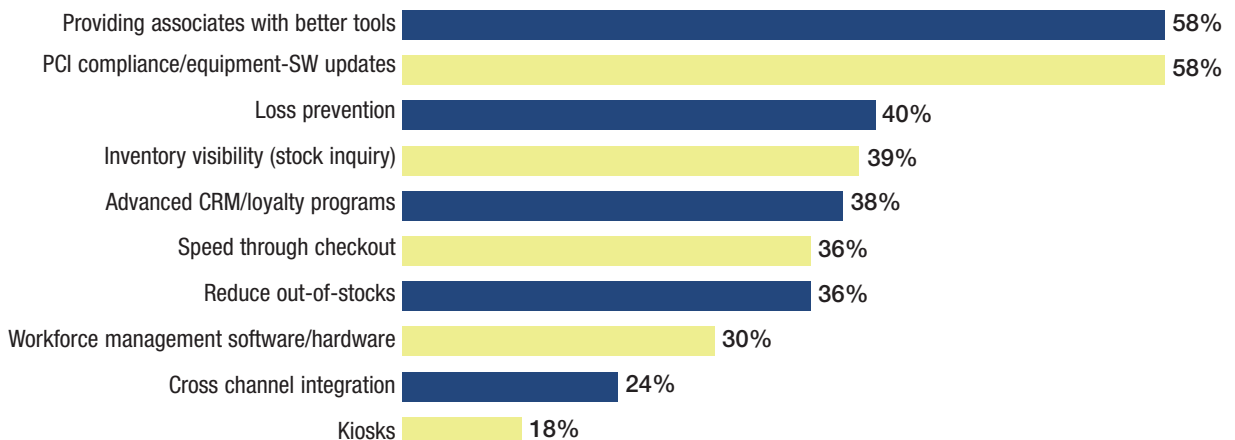
RFID's performance is especially impressive in light of retail's historical problems with inventory accuracy. "Retail stores only have correct inventory counts on 50% or less of their items," says Bill Hardgrave, Director of the RFID Research Center at the Sam Walton College of Business of the University of Arkansas. "That means retailers are basing their inventory decisions on numbers that are wrong more often than they're right. But with the retailers we've been working with on RFID deployments, we've been able to get near-100% inventory accuracy."

ADDRESSING KEY CAUSES OF CUSTOMER DISSATISFACTION

More accurate inventories are a basic building block for improving store operations and enhancing the customer experience. "If you look at the three major causes of customer dissatisfaction in a retail environment, they are items being out of stock; customers not being able to locate a product; and the checkout process," says Hardgrave. "For addressing out-of-stocks and locating particular products, item-level RFID is certainly the way to go. It has helped us solve problems that have heretofore been unsolvable, or been solvable only in ways that were not financially viable."

Hardgrave explains that item-level RFID solutions help increase in-stock levels by improving inventory accuracy and aiding loss prevention efforts. And because RFID-tagged items can be much more easily

Top 10 Store Systems Priorities for 2009



Source: RIS News/IHL Group 2009 Store Systems Study

located within the store's four walls than non-tagged items, store associates can more effectively address the second key cause of customer dissatisfaction — the inability to locate products.

Recent research suggests these challenges are costing retailers, both in terms of dissatisfied customers and in lost sales. A survey of shoppers conducted during December 2008 indicated that nearly one-quarter — 23% — were unable to purchase everything they needed or wanted in the stores where they shopped during the holiday season. The top two reasons cited for not being able to find what they wanted at a retailer were "Could not find the item" (42%) and "The item I wanted was out of stock" (34%). The 2008 survey, commissioned by Motorola and conducted by e-Rewards, a provider of online market research services, was administered to a representative sample of more than 2,400 holiday shoppers in the U.S., Canada and the United Kingdom.

The inventory accuracy that comes from item-level RFID deployments helps retailers address these and other issues that are among their top store systems priorities. According to the *RIS News/IHL Group 2009 Store Systems Study*, "Providing associates with better tools" was cited as the top store system priority by responding retailers, at 58%. Other key priorities included "Loss prevention" (40%), "Inventory visibility/stock inquiry" (39%), "Speed through checkout" (36%), and "Reducing out-of-stocks" (36%) — all operational aspects to which RFID can make dramatic improvements.

In addition, RFID's ability to provide a truer picture of store inventory is helping retailers serve the increasing number of customers who "pre-tail" before they visit a retail store. "At AMR, we've done some recent research suggesting that the 'moment of truth' for consumers is moving away from the shelf itself. It's moving upstream to the home, where consumers do online research," says Mike Griswold, Vice President, Retail at AMR Research. "I've seen research indicating that for certain product categories, particularly big-ticket or technologically complex items, the product

RFID: Real-World Retail Results

REDUCTIONS IN OUT-OF-STOCKS



- Increased inventory accuracy by 18.4%
- Shrinkage reduced by >1%

SALES INCREASES



- Reduction in out-of-stocks
- 19% increase in inventory accuracy

IMPROVED INVENTORY ACCURACY



- 99% real-time inventory accuracy
- 14% increase in sales
- Reduced labor costs
- Reduced out-of-stocks 80-90%

was significantly researched by the shopper before they came into the store as much as 85% of the time."

While the percentage of apparel and footwear shoppers who pre-tail is likely lower than 85%, it still indicates that more consumers are shopping with a particular item in mind — a model that RFID is ideally suited for. Any technology that more efficiently connects these shoppers with the items they want thus becomes increasingly valuable in today's retail environment.

Even when customers' expectations are not raised by their own pre-tailing activities, they are becoming less forgiving of retailers who don't have the items they want on the shelf. "Our research shows that after a consumer experiences two or three out-of-stock occurrences at a particular retailer, they'll decide to shop

somewhere else," says AMR's Griswold. In the past, retailers could risk as many as five or six out-of-stock occurrences before consumers would lose patience and switch to another store. Item-level RFID addresses this problem because "it boosts the retailer's chance of having the product when the customer shows up, so it's a great execution enabler," he adds.

"We have yet to see a retail senior executive who isn't extremely interested in real time inventory visibility," says Gordon Adams, Senior Vice President for Sales and Marketing at Vue Technology, a leading RFID software vendor. "It's not surprising considering the significant positive impact it has on sales, labor productivity, shrink and customer satisfaction...no other technology has this kind of impact across a retail enterprise."

BENEFITS FROM INCREASED CONFIDENCE IN INVENTORY DATA

Dramatic improvements in inventory accuracy are already occurring with item-level RFID deployments. Now the big challenge is convincing people throughout the retail organization that the inventory data they are seeing is indeed accurate. When these confidence levels rise, retailers can improve both customer service and operational efficiency.

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Raising confidence in the data is no easy task. “Retailers have become so used to their perpetual inventory counts being wrong that they will err on the side of being too conservative,” explains Hardgrave. “If someone calls or checks online to see if an item is in stock, the retailer may actually have three of the items in stock; however, because they have historically built in such huge margins for error, they say they don’t have any in stock. They want to avoid the worst thing that can happen, which is that they say they have something, the customer comes to the store, and it turns out they don’t.

“However, with RFID’s improvements to inventory accuracy, retailers can be more confident,” he adds. “When the store says ‘We have it,’ the retailer knows with a level of certainty that they actually do have it — and that they can find it quickly and easily. For the consumer, that really helps improve the customer experience and builds brand loyalty.”

Greater inventory accuracy and higher confidence levels give retailers a number of operational advantages. They can create more precise store promotions, improve their reaction capabilities to overstocked items, and implement better replenishment models. With a clearer, more accurate picture of what (and how many) items are where, they can also reduce safety stocks as well as overall inventory levels. This lowers inventory carrying costs up front, and improves margins by reducing the need to sell safety stock at marked-down prices later.

DRAMATIC CUTS IN CYCLE COUNT TIMES

The biggest improvements in inventory accuracy are being seen with RFID implementations that use mobile and handheld readers. The RFID Research Center’s Hardgrave notes that greater use of RFID-enabled mobile devices has been part of a recent increase in item-level deployments by department stores, apparel and footwear retailers. The increased activity, visible since early 2008, has been helped by several technological and marketplace improvements. “RFID tag prices came down a couple of years ago and that helped, but the tags themselves are just better — they’re providing better read rates and better performance across the board,” Hardgrave reports. “And the advent of mobile devices has provided much

greater flexibility, especially in apparel and footwear, where the idea of cycle counting is so important. The handheld technology in particular, which allows one to take inventory at will, has really opened up things we hadn’t been able to do with static RFID readers.”

For retailer American Apparel, mobile reader technology has been a big part of its RFID success story, which began with an initial store-level deployment in November 2007. American Apparel’s boutique-style stores display a specific planogram with, typically, only one of each style, color and size for maximum impact, so it’s critical for them to be appropriately stocked. “We knew sales would



Handheld readers and item-level RFID tags are making on-demand cycle counts practical for apparel and footwear retailers.

increase if we could represent every style and ‘flavor’ of item on the shelves, and RFID has helped us do that,” notes Zander Livingston, Director of RFID at the Los Angeles-based retailer. “With the use of RFID and the Motorola MC9090-G RFID handheld scanners, we’ve reduced the time needed for inventory cycle counts from 70 to 80 hours per week down to 12 to 15 hours, and we’re still getting greater than 99.9% inventory accuracy.”

Livingston describes the multiple store-level benefits that flow from item-level RFID. “We did a big cost-benefit analysis and found that, on average, we were able to cut our stock room labor costs by 25% to 35%,” says Livingston. “These employees’ time is now being utilized to organize, receive and ship

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AT AMERICAN APPAREL, INVENTORY ACCURACY IS JUST THE BEGINNING FOR RFID

When American Apparel began item-level RFID deployments, improving inventory accuracy was the primary benefit the retailer sought. The technology has not only delivered handsomely in this area, boosting inventory accuracy to greater than 99.9%, but it has also provided a wide range of related benefits — from dramatically reducing cycle count times to cutting stock room labor costs by 25% to 35%.

Now that inventory accuracy has set the stage, American Apparel is looking at extending the value of its RFID deployments. At the store level, the retailer is examining the feasibility of additional RFID read points, such as fitting rooms and store entrances, which would increase item visibility and improve loss prevention. Above the store level, the retailer believes wider rollouts of item-level RFID will boost visibility throughout the organization, creating more accurate forecasts, streamlining distribution, reducing the need for markdowns, and improving sourcing and manufacturing processes.

American Apparel began item-level RFID deployments in a single store back in November 2007, and it currently has eight stores equipped with the technology. The retailer uses Motorola hardware, including Motorola MC9090-G RFID handheld scanners, and now uses the Clarity ARS retail apparel application from Xterprise, Inc.

“The focus from Day One was inventory management, and with RFID we have been able to improve our item-level accuracy to greater than 99.9%,” says Zander Livingston, Director of RFID at American Apparel. “We have a boutique-style sales floor, with one of each size, style and color on the floor, so we can equate accurate inventory in our stock room with keeping the sales floor appropriately stocked. With RFID, we can compare each store’s template — which describes the proper type and number of items that are supposed to be on the sales floor—with the current live inventory. So when an item gets displaced, whether it’s been sold, moved, or stolen, we know that it needs to be replaced.”

The retailer is in the process of expanding its item-level RFID deployment to an additional 38 stores, and is also looking at new applications in stores with existing deployments. “We’re testing fitting room readers in one store prior to a multiple-store rollout,” says Livingston. “Once you have an RFID system and a structure up and running, it’s very easy to add functionalities, such as additional read points, or even working back up to the manufacturing

process. We’re looking forward to getting into the other customer service capabilities that RFID offers.”

Point-of-sale applications are another area American Apparel is exploring. By integrating RFID scanning into the POS, the retailer can move from barcode scanning, which requires line-of-sight optical reads, to simply moving RFID-tagged items across a reader pad. This speeds up the checkout process, a common area of customer dissatisfaction in retail.

Most impressively, RFID has allowed American Apparel to replicate the retail “eye” of its CEO, Dov Charney, in any store location. “Dov Charney can walk into a store, walk into a stock room and simply start pulling items that aren’t represented on the floor,” says Livingston.

“When he gets the sales floor to the condition he likes it to be in, our sales get an immediate jump. So we knew sales would increase if we could represent every style and ‘flavor’ of items on the floor. RFID has allowed us to do that.”

Sales floors are getting — and staying — fully stocked with far less labor than was required before. Livingston reports that RFID’s ability to reduce cycle count times — from 70 to 80 hours per week down to 12 to 15 hours — has contributed to a 25% to 35% reduction in stock room labor costs.

Wider rollouts of RFID technology will give American Apparel an edge in a number of crucial areas. “It will create more accurate forecasting, which in turn will streamline many of the demand inefficiencies in our manufacturing processes,” says Livingston. “A big part of this coming into 2009, when there’s an economic recession happening, is the idea of having more accurate manufacturing of items so that we can reduce shrink and markdowns. We can see using RFID to automate all that item-level communication back to the factory.”

RFID will also create a multiplier effect for the abilities of people throughout the organization. “At the highest levels, we have great talent in this company,” says Kris Doane, the information technology lead on the RFID project. “In addition to Dov Charney’s ability to go into a store and see what’s missing, we have merchandising, retailing, and design talent. With an item-level RFID system, and the technology we’re putting in place, we can enable that talent to have insight into what’s happening at individual stores — and we can leverage that talent through to those individual stores.”



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items out of the store, which is what a stock room employee should be doing — not counting items by hand. So RFID has not only sped up the time spent on cycle counts, it’s allowed us to use the time better so that the stores are very organized.

“We’ve found that the performance of RFID-enabled stores gets better and better the busier they are, compared with our non-RFID stores, because it keeps everyone organized and focused on their responsibilities,” he adds. “It’s a real win-win with this basic RFID system.” (For more details on the current state of American Apparel’s RFID deployments, see related story on page 5.)

RFID MAKES ‘ON DEMAND’ CYCLE COUNTS PRACTICAL

Hardgrave’s data shows that American Apparel’s experience is not atypical. Employees using barcode scanners to take inventory can scan 200 to 250 items per hour. With an RFID handheld reader and item-level tags, that figure is nearly 5,000 items per hour. “That’s a 96% reduction in the labor it takes to do inventory, and the accuracy with RFID is higher,” says Hardgrave.

The use of mobile readers provides retailers with the flexibility to conduct cycle counts when — and where — they are needed most. “Without RFID, complete inventory checks are done perhaps twice a year, because they are extremely laborious, very disruptive, and actually not that accurate,” says Hardgrave. “With RFID, a retailer could do a cycle count once a week, or they could tailor their cycle counts to the needs of individual departments — for example those with a higher turnover of items could be done more often.”

“From our deployments, we’ve seen that by leveraging RFID technology, retailers can have a significant impact — not just on in-stock levels but on all the processes that support those in-stock levels,” says Tom Racette, Director, RFID Business Development for Motorola. “We believe RFID solutions for the department store environment can better sustain in-store processes through faster replenishment and more efficient, more consistent restocking. This creates a

shopping environment where shelves are full of the sizes and styles customers are looking for, leading to higher sales and less need to use markdowns as a means to move product.”

ADDITIONAL BENEFITS ON THE HORIZON

For the retailers who do invest in store-level RFID solutions, improved inventory accuracy is a strong beginning. There are also a range of additional benefits, both within the store environment and throughout the retail organization.

“The RFID solution that is deployed initially becomes the framework from which additional solutions can be deployed,” says Jim Caudill, Senior Vice President of Marketing and Strategy at Xterprise, a leading RFID software company focused on retail. “Once the item-level deployment is successfully installed, the retailer can speed the checkout process with RFID-assisted point-of-sale (POS); help reduce shrink and loss; and speed up the restocking process to the sales floor, and replenishment from the supplier or factory to the store.”

American Apparel’s Livingston agrees. The retailer is piloting fitting room RFID readers as a way to increase product visibility within the store. “Once you have an RFID system and a structure up and running, it’s very easy to add functionalities such as additional read points,” he says.

As item-level tags are applied to a larger percentage of a store’s inventory, and as more stores within a chain deploy the technology, product visibility improves on a larger scale. “With RFID, you get quicker demand signals about what is actually selling,” says Hardgrave. “Retailers can use this not only to drive sales in one store, but also to push information up the supply chain in real time so they know where to allocate product.”

Hardgrave gave the example of different-colored products selling at different rates in different locations. “Maybe a yellow sweater is selling well in one part of the country and a blue one is selling well in another,” he says. “It’s preferable to use demand signals to pull the appropriate product through the sup-

ply chain, versus the products simply being made and sent out, with the retailer hoping it's being sold wherever it's sent — and then taking markdowns when it doesn't sell. RFID and its ability to deliver real-time demand signals will make supply chains much more flexible, and much quicker to respond to things that we can't respond to now."

He adds that improved item-level visibility also gives a clearer indication of where precisely in the supply chain shrink or inefficiencies may be occurring. Improving loss prevention and streamlining distribution processes is particularly important in the apparel and footwear industries, where timely deliveries can have a big impact on margins. "In apparel, a couple of weeks could be the difference between selling an item at full price versus half price," says Hardgrave. "If retailers can find the bottlenecks in their supply chains and move items through more quickly, everybody wins."

AMR's Griswold agrees about the importance of any technology that reduces the need for markdowns. "Particularly in this economy, the ability to postpone or eliminate markdowns is a huge opportunity," he says. "Right now retailers are hemorrhaging on markdowns, and RFID provides a vehicle to minimize that."

In the longer term, the item-level product movement data could be a treasure trove for product designers, merchandisers and forward planners. "People are finding that there's a significant value in visibility, including seeing what products customers are buying with other products," says Griswold. "This type of cross-selling data can flow upstream so that retailers can make better assortment decisions, and also improve in-store merchandising."

CONCLUSION

For a technology that utilizes a tiny tag, RFID is already having a huge impact. At the store level, it's boosting inventory accuracy to previously

RFID's Proven Business Benefits

- Reduction in OOS by 60% to 80%
- Better inventory accuracy: Between 98% and 99.9%
- Reduction in cycle count time by 75% to 92%
- Reduced inventory carrying costs by 30% to 59%
- Reduced receiving time by up to 91%
- Improved conversion rate by up to 92%
- Increased units/transaction by 19%, and \$/transaction by 6%
- Increased sales from 4% to 21%

Source: Data from Motorola and partner implementations

undreamed-of heights and making frequent, on-demand cycle counts practical and cost-effective. These basic benefits are boosting in-stock levels, and also helping make store associates more efficient by providing them with accurate, up-to-the-minute data about products' presence and current location within the store. Item-level RFID solutions are thus allowing retailers to address two key causes of customer dissatisfaction — out-of-stocks and inability to find products — while at the same time boosting sales and controlling their store labor costs.

As item-level RFID solutions expand, this store-level visibility can be spread across the supply chain and throughout the retail organization. With clearer, more timely demand signals, retailers will be able to streamline product replenishment and distribution while addressing shrink and improving the entire door-to-floor process. With more of the product people want moving more quickly through distribution channels, sales will increase and the need for markdowns will decrease. Retailers can also use the detailed data that RFID solutions produce to improve forecasting, assortments, and merchandising, so that RFID's benefits continue to grow for many years to come. ■



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