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Case Study Update: The 10 Crucial Lessons Learned From the First Ever Global RFID Retail Deployment

Radio Frequency Identification (RFID) technology has emerged as an important tool across a wide spectrum of industries, but none has embraced it and reaped its rewards as much as specialty apparel retail. According to ChainLink’s “The RFID Renaissance” report, retail apparel and footwear will comprise half of the RFID market by 2020, up from over a third today—in both cases, far and away the largest industry in terms of RFID adoption. In many ways, this is because apparel retailers have the most to gain from item-level RFID, defined as the tracking and managing of inventory on a piece-by-piece, as opposed to SKU, level. For example, correcting inventory inaccuracies, due to their impact on out-of-stocks, is not just a cost and efficiency benefit for retailers—it directly affects both their top and bottom lines. With strong ownership or heavy influence over the supply chain, specialty apparel retailers can implement tagging programs simply and efficiently. Bundled solutions—typically tags, software, hardware, and associated services—are relatively straightforward for apparel retail and can be deployed quickly, allowing for fast pilots and efficient implementation.

In 2008, the American Apparel senior executive team faced a crisis. Throughout 2007 and 2008, the company had been opening stores at a fast clip, growing overall revenues immensely with same-store-sales lagging behind, but healthy nonetheless. After several years of expansion, however, the writing was on the wall: with dozens of new stores spread out across the world, comparable store sales were flattening. By the end of 2009, American Apparel would report an 11% decline in comparable store sales. The team knew they needed to act fast to find ways to pump new life into their freshly expanded chain of stores.

The team looked at and ranked potentially disruptive technologies, and kept coming back to item-level RFID as a tool that could change the way they operated at a fundamental level. With full ownership of their supply chain, including manufacturing in Los Angeles, CA, American Apparel exercised complete control over where and how they would tag product, and could utilize RFID to view inventory at an item level throughout their system. As the number of stores grew, so did the impact of inaccurate inventory, and the resulting out-of-stocks and underutilized store space (itself partly a result of the high amount of safety stock that had to be carried in stores to counter lack of inventory visibility) was slowing sales.

The executive team selected and piloted the system of a well-known producer of EAS tags and software that did not specialize in RFID in a few underperforming New York City stores. Unsure of the value the system showed during the pilot, American Apparel visited Xterprise to evaluate its Clarity item-level RFID software as an alternative, and came away impressed with their advanced feature set, superior performance, stability, ease of use, and consultative engagement process. In early 2009, Xterprise beat out the competition in a side-by-side comparison and was selected for a concurrent pilot, and ultimately was selected as the software solution provider for their full rollout to all of American Apparel’s stores around the globe. Xterprise provided the complete solution—software, hardware (via partnerships), and deployment and support services, which it continues to this day. Today there are over 250 American Apparel stores in 20 countries that run Xterprise’s Clarity™ software. Many of these stores have been running since 2009, with the newest deployments operational since 2011.

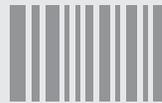
Varying Levels of RFID: Dialing in the accuracy

When Wal-Mart first mandated RFID in 2006, it was at pallet level. While this offered a huge jump in the inventory accuracy available to retailers, not until the recent ascension of item-level RFID have inventory levels become reliable to nearly 100% accuracy. The below chart looks at the different benefits and accuracy available from different levels of inventory tracking, from UPC to item-level RFID.

■ Non-RFID Method ■ RFID Method

Bar Code:

Cheap but extremely inefficient, bar codes give a highly distorted view of inventory, which can only be reconciled 1-2x a year in most cases.



70% Accurate

Pallet:

Pallet-level RFID helps monitor large shipping errors and shrink in the supply chain, e.g., whether or not the right number of pallets arrive at the store.



80% Accurate

Carton:

Carton-level RFID ensures that the proper number of packed cartons was shipped and received between factories, DCs and stores.



87% Accurate

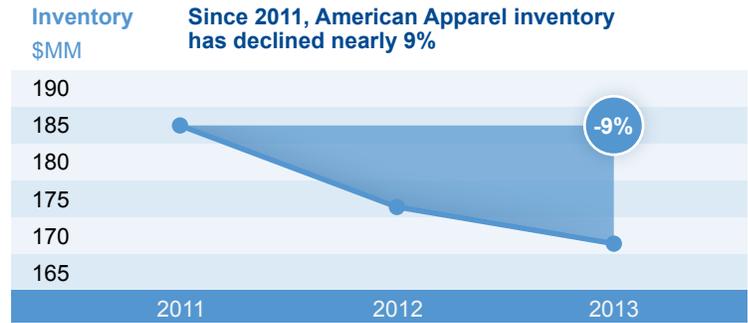
Item Level:

The gold standard, item-level RFID ensures every item that is supposed to be in any location in the supply chain is in fact there.



99% Accurate

American Apparel has placed RFID in all 248 of its stores around the world



Source: American Apparel 10-Ks from 2014 and 2013

Shortly after deploying Clarity across the chain, results were good enough that American Apparel cited RFID in their 2012 10-K as a key factor in their financial health. The increased sales, reduced shrink and lower overall inventory levels RFID afforded the company prompted then-CTO Stacey Shulman to state that RFID had saved the company by improving their financial health.

Today, American Apparel still stands as the largest global deployment of RFID in a specialty apparel retail chain. Over 99% of the items in every store are RFID tagged, with stores utilizing a mix of handheld readers, fixed readers, workstations and antennae in strategic locations throughout the sales floor, back stock, and transition points. American Apparel also utilizes Clarity's integration with their point-of-sale systems to streamline the checkout process and make inventory management simpler.

The American Apparel deployment spans hundreds of stores doing billions of annual transactions. These are the top 10 lessons learned:

1. Look for process functionality over technology hype
2. RFID drives increased sales by reducing out-of-stocks
3. The mere presence of RFID has a significant impact on shrink
4. Third party audits can be completely eliminated
5. Large-scale deployments are not as bad as you think
6. You can have a very effective solution with the right amount of integration
7. Choose the right tag-up process for you
8. RFID lowers inventory levels
9. Omnichannel requires item-level visibility
10. Your employees will be happier and more productive

1. Look for process functionality over technology hype

The Clarity product deployed for American Apparel was configured to improve a broad set of existing business processes within the store and tie to a tight objective of strong return on investment. These processes included: receiving, encoding, transfers, replenishment, cycle counting, point-of-sale (POS), Geiger counter search/find and a complete management dashboard. The hardware Xterprise deployed for American Apparel included Motorola 3190Z and NordicID Merlin handheld readers and Motorola 7400 and Alien 9650 fixed readers for POS, back stock workstations, and transition portals. With the Clarity application running on the handhelds, American Apparel had an extremely stable and reliable platform throughout the deployment.

One of the benefits of having a large and stable deployment in place is that it provides the base to test new things. Some of the functionality and technology that has been tested with various levels of success include RFID enabled POS kiosks, ceiling readers to replace RFID handheld terminals, and over-door readers to monitor tags exiting the store. Though there was (and to an extent, still is) much hype around ceiling-mounted readers, American Apparel found they were fantastic in theory and impractical in reality. The system required an unacceptable amount of physical configuration and even then was not accurate enough to replace handheld readers operated by associates in the store. After a small pilot, it was determined that the ceiling readers would not be deployed across the chain, and so they were not integrated into the Clarity solution.

It is important for retailers deploying item-level RFID to focus first on where maximum value will be created for the least amount of cost. The RFID market is rapidly growing, and with any fast-growing market comes a lot of hype. Prioritize fundamental value and then execute using the most stable, reliable and accurate solution configuration available, and you will reap the rewards of RFID-enabled inventory management.

2. RFID drives increased sales by reducing out-of-stocks

American Apparel faced a similar challenge to many of today's retailers: replenishment was limited by algorithms based on averages and predictions, and fed by inaccurate data. The end result was bloated inventory levels in back stocks and numerous out of stocks on the sales floor. Clarity allowed American Apparel to simplify the process substantially and increase confidence in replenishment simultaneously by providing extremely accurate inventory counts that drove more timely and effective replenishment. With a more accurate picture of inventory, American Apparel could more quickly identify and remedy out-of-stocks, ultimately allowing more customers to find what they were looking for on store racks and shelves.

The net result of this, as has been disclosed publicly by American Apparel, was sales lift ranging from 3% to over 10% after RFID was fully implemented. These numbers are in line with the results other specialty retailers and brand owners with retail stores have realized.

American Apparel, Inc. Announces Comparable Sales for June 2013 Increased 7%

Press Release: American Apparel, Inc. – Mon, July 8, 2013 10:59 PM EDT

	2013						Q2		YTD	
	January	February	March	April	May	June ⁽¹⁾	2013 ⁽¹⁾	2012	2013 ⁽¹⁾	2012
Sales Growth										
Comparable Store Sales										
Stores	7%	3%	5%	4%	7%	5%	5%	14%	5%	14%
Online	23%	24%	24%	(1)%	38%	22%	19%	28%	21%	25%
Total	10%	5%	8%	3%	10%	7%	7%	16%	7%	16%
Wholesale Net Sales	13%	2%	(11)%	5%	27%	16%	16%	10%	9%	13%
Total Net Sales	11%	1%	1%	3%	16%	7%	9%	13%	6%	13%

(1) Preliminary, subject to adjustment.

3. The mere presence of RFID has a significant impact on shrink

As Xterprise entered into the American Apparel deployment, the business case analysis was focused on how reducing out of stocks would increase sales. As discussed above, the company did in fact see significant sales increases due to the reduction in out-of-stocks. But in addition to a sales increase, the company found something it did not expect: a reduction in shrink (particularly internal) associated with item-level inventory accountability. Internal shrink fell dramatically after RFID was deployed, and American Apparel has publicly reported a reduction of over 50% in shrink, attributed to the implementation of Xterprise’s Clarity RFID solution. This reduction was achieved merely by the presence of RFID, without integration with existing EAS or loss prevention systems.

Most retailers who want to use RFID for loss prevention believe they will need to go through the complexity of integrating the RFID system with their EAS system; what American Apparel found was that simply having a higher level of accountability throughout the supply chain for each and every item reduced the temptation for items to mysteriously vanish into the ether.

4. Third party audits can be completely eliminated

With inventory accuracy above 98% and technology that enables complete store cycle counts as often as desired, it is only a matter of time before the CFO and CIO come to the conclusion that paying a 3rd party thousands of dollars per store once or twice a year to count garments by hand with less accuracy than store associates’ multi-weekly RFID-enabled counts does not make a lot of financial sense. Once American Apparel reached ~150 stores, they began using the inventory scan results enabled by RFID as the source of input to the balance sheet calculation.

Eliminating 3rd party audits and enhancing the reliability of the balance sheet isn’t the only way CFOs have found their companies can benefit from item-level RFID: another benefit gained from deploying Clarity is that the higher level of confidence in inventory can enhance their ability to leverage it for more attractive financial facilities with banking partners. In the past, a bank would look at the hand counted inventory pool and discount it because it was known that hand counting produced significant distortion in the numbers. With RFID, they have more confidence that reported inventory is both timely and accurate, enabling the firm to increase its liquidity.



5. Large-scale deployments are not as bad as you think

American Apparel knew that to effectively deploy and utilize their new item-level RFID solution while capturing ROI in a short amount of time, it would need to be rolled out to multiple stores across the globe every day. Xterprise evolved an installation and kitting process that allowed American Apparel to meet these objectives by leveraging the existing store systems teams at American Apparel, training them and tapping into their expertise in order to accelerate deployment and minimize costs. The method proved highly effective, as the American Apparel team managed the physical site prep and application installation using Xterprise installers and reader configuration templates. To further maximize effectiveness with minimal cost, Xterprise provided remote support and, in the case of upgrading existing stores, performed most of the database back-up and restoration.

“**...RFID (deployments)...have allowed us to reduce our unit inventory levels...**”

– American Apparel 2012 Annual Report

As a team, Xterprise and American Apparel were able to fully deploy the solution to 20-30 stores a week with very little time onsite. Retailers tend to envision a long, expensive, and highly disruptive process for deploying RFID, but, as American Apparel has shown, with the right hardware footprint, software solution and good training, the full impact of item-level RFID can be achieved with minimal ‘hands-on’ deployment requirements.

6. You can have a very effective solution with the right amount of integration

Most retailers have made significant investments in systems that manage inventory, execute point of sale transactions, refine and plan merchandise, and gather and analyze data for numerous purposes. In addition to becoming the inventory management system of record, RFID systems enable improved functionality of existing store, supply chain and enterprise systems, helping retailers to derive more value from past investment.

American Apparel was confident enough in Xterprise’s Clarity solution that they utilized it as the inventory execution system of record, using the data generated at an item-level to drive store and floor-level replenishment across their chain. Xterprise integrated with American Apparel’s Retail Pro point of sale systems, linking the checkout process via RFID readers in order to achieve extremely accurate inventory and a faster, better checkout experience for both customers and employees. Clarity also provided daily non-RFID-to-RFID inventory adjustment reports for analysis of RFID process compliance as well as providing a window into potential shrink within the store. This reconciliation served as a ‘reality check’ for American Apparel, helping enhance their confidence and trust in the item-level RFID system.



Xterprise found through past experience that retailers and solution providers alike often overlooked the importance of frequently updating the store’s product catalog. Updating the catalog is critical to keeping inventory data up-to-date and accurate. To rectify this, Xterprise designed Clarity to integrate with the merchandizing system and upload new items to the product catalog every night. Clarity enabled store managers to move inventory levels up and down by SKU, allowing each to store to check inventory levels against their specific merchandizing plan. Eventually, American Apparel built an internal portal that enabled them to manage the merchandizing template centrally, via a simple interface to Clarity. This has made replenishment and inventory management even easier for American Apparel.

7. Choose the right tag-up process for you

Once American Apparel chose to roll out Clarity to all their stores (along with the aforementioned readers), which included deciding how and where they were going to tag items in the future, they faced a task that seemed both daunting and inefficient: tagging existing inventory, already sitting on store shelves, with RFID-enabled tags in a process known as ‘tag-up’. Xterprise was able to share their knowledge and experience with American Apparel on all three credible methods of tagging up existing inventory: tagging parties, gradual tagging and a hybrid method.

Initially, with over 25,000 items to tag in each store, American Apparel opted to tag-up using tagging parties—essentially flooding each store with personnel to knock out the task in as little time as possible. Simple RFID sticker tags were placed on existing price tickets and then

encoded over the air using Clarity's encoding functionality and a Motorola handheld. Although this method was fast, it was also found to be very disruptive for a small store footprint.

As deployment scaled, American Apparel introduced the idea of a gradual tag-up. This approach involves tagging new product at the factory while simultaneously using the Clarity application in stores to tag a small amount of existing product on a daily basis. Over time, existing inventory is either replaced by tagged items from the factory or manually tagged in-store. The entire store could be tagged, piece by piece, in about a month. While slower to activate an entire store, the gradual method came with an unintended secondary benefit: associates in the store were completely comfortable using Clarity by the time the entire system was live and 100% utilized. For the last 100 stores, American Apparel implemented a combination of scaled back tag-up parties and gradual tag-up, providing an optimal balance of speed and minimal disruption of store operations.

“**American Apparel stores reduced their back stock so much that they were able to increase sales floor space by as much as 10%**”

8. RFID lowers inventory levels

Typically RFID solutions are marketed around their ability to boost sales through the reduction of out-of-stocks and shrink. While these benefits are fundamental to the value proposition, one equally impactful benefit that is under-discussed is the impact on store inventory. For American Apparel, one of the challenges prompting their switch to RFID was trying to balance the cost of maintaining appropriate inventory levels to limit out-of-stocks and maximize sales without creating excessive safety stocks that would take up valuable store space and have to be liquidated if they did not sell. With RFID, American Apparel achieved this balance, seeing an in-store inventory reduction of over 20%, driven by better inventory management and control. Clarity's ability to provide back-stock-to-sales-floor replenishment reports, highlighting what items were available in back stock that could be moved to the sales floor, as well as store-level replenishment reports highlighting stock outs and enabling more accurate and agile replenishment from the distribution center, were instrumental to achieving lower overall inventory levels. American Apparel used Clarity to enhance its effectiveness at managing inventory in the warehouse as well, integrating it with their RMS system to drive more accurate picking of orders for store replenishment.

As previously disclosed by American Apparel, the Clarity RFID system enabled a significant reduction (exact numbers confidential) in store inventory across the chain. Filtering out excess inventory takes time and consistent execution, and American Apparel was able to recognize this benefit after approximately 6 months. In several cases, American Apparel stores reduced their back stock so much that they were able to increase sales floor space by as much as 10%, allowing them to repurpose that real estate, increasing SKU mix on the sales floor and driving incremental sales.

9. Omnichannel requires item-level visibility

One of the most hyped concepts in retail today is omnichannel. While omnichannel can mean many different things to many different people, what is consistent across definitions is the delivery of product to customers via a single integrated experience (or channel). RFID is instrumental in enabling retailers to seamlessly deliver product regardless of what channel the customer made the purchase through and what channel the customer wishes to use to obtain the item itself.

American Apparel was one of the first retailers to realize this, relying on Clarity to provide an up-to-date and accurate view of inventory that their eCommerce system could use to identify which stores were in the best position to provide fulfillment of web purchases, dropping the order to the appropriate store or distribution center where it could be picked and shipped. The Clarity system is then used to complete the order and remove that in-store inventory from the available pool. Because of item-level RFID, American Apparel has achieved a greater level of flexibility and reliability in meeting customers' omnichannel demands.

10. Your employees will be happier and more productive

As American Apparel deployed their item-level RFID system to stores around the globe, they saw many of the expected benefits: out-of-stocks fell, inventory levels declined, and omnichannel fulfillment was more reliable than ever before. Even some surprising benefits, like shrink reduction, were logically intuitive, at least in retrospect. What no one anticipated, however, was the fast adoption of RFID as the 'new normal' by employees, and the level of job satisfaction they gained through using the system.

With the mundane, hours-long task of manual counting a thing of the past, employees could focus on what they viewed as their real job: serving customers. The stress of not knowing where an item was, or whether they even had any in stock, was eliminated. It was common to hear employees pronounce, only half in jest, that if they had to move to a store without RFID, they'd quit. Numerous studies have borne out the benefit to the bottom line of a motivated, happy workforce. While American Apparel does not have statistics comparing employee satisfaction before and after RFID, one thing is for certain: RFID makes employees' lives easier and more productive, freeing them up to engage with customers.

Conclusion: Where do we go from here?

American Apparel originally deployed item-level RFID amidst the promise of lower out-of-stocks and greater inventory accuracy, which they hoped would improve their ability to efficiently manage a variety of processes. They were pleasantly surprised to achieve all of these goals and more, becoming one of the first companies to make RFID a centerpiece of their operational philosophy, in everything from the SKU assortment they are able to carry to utilizing their many stores as miniature distribution centers to more efficiently fulfill online orders. Central to this has been their willingness to trust the data item-level RFID provides, and consistently enforce compliance with the streamlined processes RFID enables.

Throughout the process, Xterprise has been there to guide and learn alongside American Apparel, racking up a storehouse of lessons learned and practical know-how that can only be gained through experience, enabling it to build a robust, stable RFID software application that can scale to support the largest retailers in the world. While RFID is rapidly gaining momentum as a necessity in apparel retail, the technology's heyday still lies in the future. Tags are being developed that work on things like metal and liquid that cannot be easily read today, and their overall cost is declining each year. Someday, even the cheapest and most perishable items in stores will come with an RFID tag, enabling inventory visibility like never before.

American Apparel will continue to incorporate the volumes of data provided by their RFID systems to drive better analytics and business processes, alongside other innovative retailers looking for a competitive advantage and pragmatists drawn in by the reliable and tangible business case RFID produces. Xterprise will continue building even more value-added solutions that deliver actionable data and insights in a way that is easy and affordable to implement. The benefits of RFID are still being discovered and, as American Apparel learned, can transform the way a retailer does business.



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