

The yoga and sports apparel retailer has increased its e-commerce sales by tracking the locations of millions of goods as they move throughout its stores.

By Claire Swedberg

Tags: Retail, Apparel, Inventory / Warehouse Management, Visibility

Apr 18, 2016—Global athletic apparel company [lululemon](#) reports that it has boosted its in-store revenue by deploying a radio frequency identification system at all of its stores to track its products' movements as they arrive at stores, are placed on display on the sales floor and are sold. The system has increased the company's inventory accuracy to 98 percent, says Jonathan Aitken, lululemon's RFID program director, which is one reason that the company's revenue is up, since its stores know what goods are available in the back room to be restocked on the sales floor and purchased. The company's ability to access RFID-based inventory data and choose to sell goods online or in store accounted for 8 percent of e-commerce revenue for the quarter, said Stuart Haselden, lululemon's CFO, during the firm's third-quarter investor call in December 2015.

Aitken will describe the project for the deployment in detail during a keynote at [RFID Journal LIVE! 2016](#), to be held next month in Orlando, Fla. Aitken's speech will take place on May 3 at 5 pm.



lululemon's  
Jonathan Aitken

By adopting RFID, lululemon strove to reduce the amount of time that its educators (store employees) spent counting inventory, as well as increase merchandise visibility within each store, thereby enabling shoppers (referred to as guests) in the store and online to find what they seek, at the location where they need it. The system consists of [Tyco Retail Solutions'](#) TrueVUE Enterprise Software and RFID Sensormatic readers, [Avery Dennison](#) RFID printers and tags, [Technology Solutions \(UK\) Ltd.](#) (TSL) handheld RFID readers and [Zebra Technologies](#) (Motorola Solutions) RFID reader antennas in the back room and RFID handhelds at the point of sale (POS).

To date, Lululemon has already tagged 3.5 million items at its three distribution centers, as well as at a third-party warehouse. Its suppliers tag another 6.7 million units annually with tags provided by Avery Dennison.

The RFID system was first launched as a pilot at two stores in 2013, where the company studied the technology's effectiveness for 11 months. Based on the pilot's early success, the project was expanded to 12 locations in 2014. Beginning in April 2015, lululemon rapidly rolled out its RFID-enabled inventory system at all North American and Hong Kong stores during a period of just six months, finishing in the third quarter of last year. RFID is now standard at all new store openings in North America.

"From the time that lululemon decided to move forward, they were live in 300 stores in nine months," says Doug Wilson, an account executive at Tyco Retail Solutions. "This is an incredibly fast-paced business, so one challenge is simply keeping up with customer service and sales-floor replenishment. The store personnel move very quickly throughout the day."

Each lululemon store is unique. Therefore, the implementation, especially regarding RFID shielding, was slightly different for every store. Some locations were painted with RF-blocking paint, Aitken says, while others received RFID-shielding ceiling tiles, but most ended up with a back room that "looked a little like the inside of the International Space Station."

Initially, Tyco led a professional-services planning effort to scope out the full range of hardware, software and services that would be required. Part of this engagement, Wilson says, was intended to plan the actual rollout to all stores. "As part of this phase," he states, "we designed and documented the primary use cases identifying value, and worked with the lululemon team to develop the eventual technical architecture and software configuration."

The vast majority of garments and accessories, including yoga mats and blocks, have soft tags applied to their "Why We Made This" (WWMT) hangtags that are attached to goods at the point of manufacture in more than 30 factories throughout 15 countries, using Avery's RFID printers and cloud-based printing service.

Due to the short turnaround time required for orders placed, as well as the printing of specific details about the products on the labels shortly before the goods are shipped, the majority of lululemon manufacturers generate the labels onsite.

Vendors access the service and download the WWMT hangtag information and sequences of RFID EPC identification numbers, explains Robert Pernice, Avery Dennison Retail Branding and Information Solutions' market development manager, so that they can then be encoded and printed out on the Avery RFID printers. "Many factories continue to use Avery Dennison's service bureaus to source finished RFID media, but it was clear, in this case, quicker media turns would be needed," he states. "In general, garment delivery lead times between factories and retailers are shrinking, and there is a growing need for faster turnaround." Lululemon, he adds, is on the forefront of this trend.



Avery Dennison  
Retail Branding and  
Information  
Solutions' Robert  
Pernice

The RFID deployment was completed quickly, on a wide scale across the entire supply chain—including the implementation of RFID tag printing and encoding at more than 30 factories across 15 countries. "Something like this had not been done before on this scale," Pernice states. Avery Dennison worked with each nation's regulatory agencies to ensure that the RF transmission from the RFID printers met that country's standards. The majority of printers were certified quickly, but the firm was able to support the nations that took longer using their service bureaus in Asia and North America.

Lululemon's DC workers tag any goods that are received or reworked at the distribution center without tags attached. The employees download tag information from Avery Dennison's system for the untagged goods, then print and encode the labels using either an Avery Dennison RFID printer, or encode the data onto blank RFID tags on rework station PCs running Tyco TrueVue software.

Tags are not typically interrogated at the distribution centers. The first read usually takes place when goods are received at one of the stores. For this purpose, staff members use a TSL sled handheld reader attached to an [Apple iPod](#), running a TrueVue app, to read the RFID tags, capture each item's Electronic Product Code (EPC) number and forward the EPC to the TrueVue software residing in lululemon's data center. The Tyco software then updates the item's status as received.

Upon moving merchandise from the back room to the sales floor, workers update each item's status by reading its RFID tag via a Tyco Sensormatic RFID reader with a Zebra pad antenna, connected to a touchscreen PC.

Personnel conduct weekly inventory counts via the handheld TSL reader, both on the sales floor and in the back room. According to the company, it takes about a half hour to conduct the count at each location.

When a customer purchases a product, a store employee utilizes a Zebra DS9808-R RFID scanner installed at the sales desk to read the EPC number and bar-coded UPC, and the system updates that item's inventory status as sold in the TrueVue software. Restocking data for all items purchased is then displayed on a screen running TrueVue in the back room, and is also available to the RFID-enabled iPods used for mobile restocking.

Early on during the RFID installation process, lululemon had to overcome some physical challenges in order to ensure accurate tag reads. Each of the company's stores average 3,000 square feet in size, with a high density of product contained within that space. In fact, the firm claims to have some of the highest sales per square foot among all retailers within the United States, and indicates that its products do not remain in the store for long. While traditional retailers have four major seasons, with product "living" in the store for three months, lululemon's average product lifecycle is less than 45 days.

Stores receive shipments five times a week, consisting of two drops of new product merchandise and five drops of replenishment items. Each inbound shipment to the store is composed of dozens of cartons, densely filled with product averaging 35 to 65 units per carton.

Each store's stockroom has a relatively small footprint. To accommodate the use of RFID within an environment in which merchandise is densely packed in the back room and on the sales floor, the retailer had to perform some re-engineering. Every store had to change the way it folds and hangs merchandise, to ensure easier and more accurate RFID read rates.

During the pilot, the company discovered that at a store's point-of-sale terminals, products could be unintentionally placed over the Tyco IDX-9000 readers, thereby incorrectly causing those items to be removed from inventory. Therefore, lululemon integrated the POS software with the RFID system so that the TrueVue software could differentiate between items that had actually been purchased and those that had merely been placed there unintentionally.

Once the RFID system was taken live, Aitken reports, inventory accuracy increased to 98 percent—which he calls a significant improvement. "Now we know, with precision, what product is in each store," he states, "enabling us to confidently provide an omnichannel solution meeting the wants and needs of our customers."

The technology has not only proven to increase omnichannel sales, lululemon reports, but has also reduced labor hours at each store. Prior to this deployment, the company employed two staff members, communicating via walkie-talkies, to update inventory each morning before the store opened, and then assigned roving workers throughout the day to update product from the back whenever they noticed items were running low. Now, the stores can continuously restock the sales floor throughout the day. Prior to the RFID deployment, the average stock-out level for items located in the back room but not on the sales floor was more than 250. The level of stock-outs is now less than 50 items at any given time, with some stores reaching a goal of zero out-of-stocks regularly throughout the day.

This month, Aitken says, the company's mobile teams are updating the [lululemon iPhone app](#) to provide omnichannel functionality. With the updated version, when a guest shops on the app, the RFID database enables the app to display a nearby store at which the product is available in the exact quantity, size and color desired. The customer can then choose to order online, pick up the item at the nearest store or call to request that they be shipped out. RFID-enabled phone sales are credited to the store's daily sales goals.

"With unprecedented visibility into our inventory," Aitken explains, "we can now ensure a full assortment of our goods are on the selling floor and available for guests to pick up, try on and enjoy."