

Tracking Totes With RFID Gives Co-Op Fast Results

To cut down on theft of high-value items, a U.K. retailer cooperative has adopted RFID-enabled totes to improve shipment visibility.

By Claire Swedberg

Dec. 31, 2007—[The Co-operative Group](#), the largest customer-owned business co-op in the United Kingdom, has deployed an RFID system to track cigarettes, alcohol and some other types of high-value, theft-prone items sold in its 500 convenience stores around the north of England. The deployment began in October and follows a 2006 pilot project designed to provide a return on investment within six months.

The co-op decided to investigate RFID's ability to improve the visibility of the small shipments it sends in individual boxes—as opposed to the large cartons full of products it ships in large metal cages—to about 500 U.K. convenience stores. These small shipments often get lost due to being either misplaced or stolen as they move across the company's supply chain.

In 2006, United Co-operatives—another U.K. retailer co-op that has since been amalgamated with The Co-operative Group—attempted to deter theft of small shipments of valuable goods by sending them in sealed, unmarked plastic tote boxes, rather than in large metal cages in which the product could be more easily seen and identified by potential thieves. However, such totes also went missing—both for the high-priced items thieves recognized as being packed within the totes, and for the totes themselves—often never returning from the retail point.

To remedy this problem, United Co-operatives asked supply chain solution provider [Skillweb](#) to provide an RFID-based system that could track each individual tote. Skillweb affixed an ultrahigh-frequency (UHF) EPC Gen 2 RFID tag, made by [UPM Raflatac](#), to each plastic tote at the company's distribution centers in Talke Pits (in Staffordshire) and Bradford. It then encoded each tag with a unique ID number. Virginia-based manufacturer [Rehrig](#) provided the totes, which measure 3 feet by 2 feet by 2 feet.

"During the pilot, we had issues with reading the tags, both in-bound, where we were reading bulk numbers of totes, and out-bound, where we were slowing the operators down," says Chris Wright, Skillweb's managing director. "However, success came as the technology itself improved—better readers, better tags and better knowledge of how to tune the system and get maximum benefit from it."

No longer a pilot, the RFID system is fully deployed at the co-op's Talke Pits DC, and the co-op is currently in the process of permanently installing the same system at its Bradford facility, but Wright hopes to see it expand further. "We are currently working with The Co-operative Group to see where and how we might take the solution forward," Wright says, declining to provide specifics.

When an order is received at a DC, the staff locates the items, packs them in totes, inputs the order number into co-op's back-end database on a PC and drives them through an RFID portal made by RFID reader

manufacturer Sirit as the totes are loaded onto a truck. Each distribution center also has an in-bound Sirit reader portal, used to interrogate the tags attached to empty totes as they are received at the DCs. "The totes can be unloaded from trucks and pass through an RFID portal at a rate of up to 80 stacked totes at a time," Wright says.

The out-bound interrogators forward the tag ID numbers of filled totes through a cable connection to co-op's LAN, to Skillweb's Web-based software system, along with the date, time and location in which they are being loaded and their destination. That data is associated with the stock-keeping unit (SKU) numbers of the products packed within the totes, and stored on Skillweb's managed servers. The co-op's managers view the data through Skillweb's Web services. In-bound readers then capture the RFID numbers as the empty totes arrive at the DC, signaling the system that the totes have been returned.

The stores do not yet have RFID interrogators. Rather, a written receipt of the specific totes is recorded and manually entered into the Skillweb system once the shipment has been received. Empty totes are then shipped back to the DC and again scanned by the RFID portal readers, confirming that the containers were returned.

In the past, stores were able to claim they had already sent the totes back to the DC. However, the RFID system provides The Co-operative Group with automatic records as to whether the containers have been returned. If a store doesn't return its empty totes, it is charged for them. Thus, although stores occasionally reported not receiving specific items or totes in the past, or that they had already shipped them back to the DC (when, in fact, they had not), the RFID system makes it simpler for co-op to confirm that a specific tote and the items within left the DC, and that the empty tote was received (or not received) later at one its DCs.

RELATED_ARTICLES "The key to the system is visibility of the distribution of the totes and their return back to the warehouse," Wright states. The ROI, he notes, comes from not utilizing one-use cardboard boxes, as well as reducing the theft of containers' contents. The system cost £62,600 (\$123,000) and is projected to save the organization £123,000 (\$244,000) over the course of three years. That savings includes £14,000 (\$28,000) in one year by not using cardboard, £5,000 (\$10,000) per year in reduction of theft and £22,000 (\$44,000) per year in reduced manpower.

"Creating an RFID solution is an art form," Wright says. "There are multiple factors and features that have to be considered—from the product that needs to be tracked, to the data flow and resulting management intelligence. Hardware manufacturers should stop the hype," he says, citing claims that RFID, in and of itself, can solve all supply chain problems, "and let professional integrators get on with their jobs."

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