

School Studies RFID's Effect on Wal-Mart

The University of Arkansas is carrying out research at Wal-Mart stores in order to quantify the ability of RFID to decrease retail out-of-stocks.

By Jonathan Collins

Apr. 18, 2005—Research underway at Wal-Mart stores by the University of Arkansas may soon provide insight into how much impact RFID deployments may have in decreasing retail out-of-stocks.

"This is a major, major project across a large number of stores, for a long period, with data collected very frequently and across all products," says Bill Hardgrave, an associate professor and the executive director of the Information Technology Research Institute at the Sam M. Walton College of Business, University of Arkansas, in Fayetteville, not far from Wal-Mart's headquarters in Bentonville. "By the midsummer we should have some preliminary insights," he says.

Reducing out-of-stocks—a problem that impacts retailers and their suppliers around the world at an estimated rate of around 8 percent of items—has long been touted as one of the key benefits and driving forces behind deploying RFID in the retail supply chain. But the claim has largely been theoretical because of the limited deployment of radio frequency identification, the multiple causes of out-of-stocks and the multiple reactions that consumers have when a product they are looking to buy is unavailable.

"Reducing out-of-stocks or improving product availability is probably the single biggest area of potential consumer benefit from the use of RFID EPC," says Milan Turk, the director of global customer e-business at Procter & Gamble, a founding member of the Auto-ID Center and a supplier to Wal-Mart. "We need to use pilot activity to understand and validate how it works and how big the benefit is."

Working closely with Wal-Mart, the University of Arkansas has been tracking out-of-stocks at a number of the retailer's stores, including its Wal-Mart Supercenters and its Neighborhood Markets stores. Half of the stores being studied use RFID in their operations; the other half do not.

The study is just part of the RFID-related work being carried out at the University of Arkansas. With financial backing from ACNielsen, Intel and Microsoft, as well as additional financial support from a host of RFID vendors and end users, including Wal-Mart, the university established the nonprofit RFID Research Center in February. Its facilities already include a 7,800-square-foot lab containing the latest technology from a variety of vendors and housed off campus in a working warehouse owned and operated by Hanna's Candle Co., another of the center's sponsors. The lab, which opens officially next month, is physically screened off from the rest of warehouse, but there is no RF shielding between the lab and the working warehouse. The RFID Research Center also comprises on-campus classrooms.

The off-campus lab has been outfitted with equipment to simulate the way that RFID tagged products are handled by Wal-Mart, according to Hardgrave. This includes two dock doors, a pallet rack, a forklift, a 90-by-30-foot conveyor system and swinging doors identical to those installed between the back room and the sales floor at a Wal-Mart store.

"We will be able to provide an independent service able to say what [equipment] works and what doesn't," says Hardgrave. The lab aims to help Wal-Mart suppliers select the best RFID equipment and systems to implement RFID into their operations and meet Wal-Mart RFID mandates by running tests to determine which tags and readers will best help them tag their products. The service will be offered for a fee, according to Hardgrave.

The center will also examine the development and design of data systems, data integration and data analytics, as well as the potential return on investment from RFID deployment—a line of research that has already led to the study on the impact of RFID on out-of-stocks.

The university began including RFID in its undergraduate and graduate curriculum this academic year, and students in a range of business, IT and engineering courses have learned about the technology.

Copyright ©2005 RFID Journal, Inc. All Rights Reserved