**INSIGHT ON TECHNOLOGY: RFID AUTOIDENTIFICATION: GIVING A VOICE TO YOUR INVENTORY**

It’s 10 p.m. Do you know where your containers are? Wouldn’t it be nice if your containers could talk to you, call home every now and then to report their progress towards your loading docks? Radio frequency identification (RFID) makes that possible today, and in 2011, even your jeans will be given a voice inside, and maybe outside, the store where you purchased them.

If you’re in business anywhere in the world today, and that business involves physical goods, then chances are quite good that your business depends on the movement of goods in containers. In fact, there are more than 200 million sea cargo containers moving every year among the world’s seaports, and nearly 50% of the value of all U.S. imports arrive via sea cargo containers each year. The containers are loaded onto ships, and stacked high on the deck. The containers also fit on the back of trucks and on railway carriages. So when the containers are unloaded from the ship, they continue their journey from the port on the back of trucks or trains. It is a fast and efficient way of moving cargo. A standard container is about 20 feet long, 8 feet wide, and 8 feet high, and can hold about 47,900 lbs of cargo

Prior to the development of containers, all ocean-going cargo was loaded and unloaded onto ships in huge nets by dock workers, one package at a time. While the container revolutionized ocean shipping, vastly increasing productivity and reducing breakage, keeping track of 200 million cargo containers is difficult. While each container has its own permanent ID number painted on the side, as well as a bar code identification tag, this number must be entered manually by dock workers or scanned up close. Identification of containers is slow and prone to errors. If you had to find one container on a dock containing over 1,000 containers, you would have to read each ID number until you found the one you wanted. All by themselves, containers can’t talk.

Tracking containers is just one part of the larger B2B product identification problem. Retailers such as Walmart, Target, and Amazon find it difficult and expensive to track millions of annual shipments into and out of their warehouses and sales floors; the automotive industry finds it costly and difficult to synchronize the flow of parts into its factories; the U.S. Department of Defense logistics system finds it difficult to track the movement of troop supplies; and the airline industry often loses bags in transit.

Thirty years ago, the development of the Uniform Product Code (UPC) and the ubiquitous bar code label was an initial first step towards automating the identification of goods. But the bar code technology of the 1970s still required humans or sometimes machines to scan products. The problem with bar codes is that they don’t talk—they are passive labels that must be read or scanned.

Today, a new technology to replace bar codes is being deployed among the largest manufacturing and retailing firms. RFID involves the use of tags attached to products or product containers that transmit a radio signal in the 850 megahertz to 2.5 gigahertz range that continuously identifies themselves to radio receivers in warehouses, factories, retail floors, or on board ships. RFID labels are really tiny computer chips and a battery that are used to transmit each product’s electronic product code to receivers nearby.

RFID has several key advantages over the old bar code scanner technology. RFID eliminates the line-of-sight reading requirement of bar codes and greatly increases the distance from which scanning can be done from a few inches up to 90 feet. RFID systems can be used just about anywhere—from clothing tags to missiles to pet tags to food—anywhere that a unique identification system is needed. The tag can carry information as simple as a pet owner’s name and address or the cleaning instruction on a sweater to as complex as instructions on how to assemble a car. Best of all, instead of looking at a warehouse filled with thousands of packages that can’t talk, you could be listening to these same thousands of packages each chirping a unique code, identifying themselves to you. Finding the single package you are looking for is greatly simplified. RFID tags produce a steady stream of data that can be entered into Internet-and intranet-based corporate applications such as SCM and ERP systems.

In 2011, the global RFID market is estimated to be $5.3 billion, with a U.S. market of $3 billion. The RFID market is expanding rapidly because of the growing use of RFIDs by governments and private industry, as well as the explosive growth in item-level RFID.

The tagging of apparel by companies such as Marks & Spencer and American Apparel is now in the rollout phase with 200 million RFID labels being used for apparel (including laundry) globally in 2011. In total, about 2.35 billion tags will be sold in 2011. Major computer firms such as Microsoft, IBM, and Hewlett-Packard are investing over several hundred million dollars each over the next five years to develop RFID software that will link RFID data to firms’ SCM systems. Walmart, the world’s largest retailer, has made RFID an important part of its supply chain strategy. It began by mandating that its top 100 suppliers place RFID tags on all cases and pallets headed for the firm’s Dallas distribution centers. Currently, about 600 of Walmart’s U.S. suppliers are tagging cases and pallets of some of the products they ship. About 1,000 Walmart stores are RFID-enabled, with another 400 planned, as well as six of its distribution centers. In 2010, Walmart introduced even more sophisticated electronic ID tags to track individual pairs of jeans and underwear (as opposed to pallets of clothing). Called “item-level” tracking, the idea is to put an RFID tag on every item of apparel in inventory. This will permit near instant inventory analysis, continuous restocking, and an estimated increase of 14% in sales according to industry research. In the not-too-distant future, item-level tracking will enable walk-by checkout at grocery and apparel stores, and the end of checkout lines. In addition to Walmart, JCPenney, Target, Bloomingdale’s, Benetton, and American Apparel will use item-level tracking in 2011.

Walmart will place so-called removable “smart tags” on each piece of clothing. The smart tags can be read by handheld scanners at the point of sale, or elsewhere in the store. The smart tags will allow Walmart managers to learn, for instance, which sizes of Wrangler jeans are missing, and which sizes should be re-ordered. In January 2008, the RFID program at Sam’s Club became mandatory, with suppliers charged $2 per pallet for deliveries without RFID tags. Although Walmart remains committed to the technology and estimates that it could increase sales by $287 million by using RFID technology, its implementation to date has had mixed results because suppliers have been reluctant to pay the costs of attaching RFID tags to pallets. Walmart has had to subsidize this cost in order to gain acceptance from suppliers.

As adoption of the technology increases, RFID will have a profound impact on B2B e-commerce by reducing the cost of tracking goods through industry supply chains, reducing errors, and increasing the chances that the right product will be sent to the right customer.

SOURCES: “Car2go Test Drive: RFID, GPS, and Mobile Apps Make for a Smarter Smart,” by Tim Stevens, Engadget.com, March 14, 2011; “Suddenly RFID is Hot Again,” by Dan Gilmore, Scdigest.com, August 17, 2010; “Walmart Will Track You and Your Undies With RFIDs,” by Matthew Zuras, Switched.com, July 26, 2010; “Walmart Radio Tags to Track Clothing,” by Miguel Bustillo, Wall Street Journal, July 23, 2010; “RFID Market Projected to Grow in 2010,” by Ilya Leybovich, Thomasnet.news.com, March 11, 2010; “RFID Printers Adapt to Changing Market Needs,” by Brian Albright, Integrated Solutions, September 2009; “Bar Code Labelling, RFID, ASNs All Smooth the Flow of Goods,” SCDigest.com, September 9, 2009; “Global RFID Market to be Worth USD 5.56 Billion in 2009,” Report, The Paypers.com, August 27, 2009; “IDTechEx Report: Apparel RFID 2008-2018,” by Cathryn Hindle, Just-style.com, August 12, 2009; “The Up and Down of Walmart RFID Implementation,” by EcoSensa, March 24, 2009; “Apparel RFID 2008-2018” by Cathryn Hindle, IDTechEx Report, August 12, 2008;” Walmart RFID Plan Has Mixed Results,” RFID News, April 28, 2008; “Walmart Gets Tough on RFID,” by Mary Hayes Weier, InformationWeek, January 19, 2008.

A good example of collaborative commerce is the long-term effort of P&G, the world’s largest manufacturer of personal and health care products, from Crest tooth-paste to Tide soap, to work with suppliers and even customers to develop 50% of its product line over time. In the past, for instance, P&G would design a bottle or product package in-house, and then turn to over 100 suppliers of packaging to find out what it would cost and try to bargain that down. In 2011, using Ariba’s procurement network, P&G asks its suppliers to come up with innovative ideas for packaging and pricing. Taking it a step further, P&G’s Web site,

Top of Form

Page Go to the specified printed page number

Bottom of Form

.

Bottom of Form