

## focus on PRACTICE

## RFID: The Wave of the Future

**in practice** Wal-Mart Stores, Inc., the world's number one retailer, operates more than 8,400 retail units under 55 different banners in 15 countries and employs more than two million people around the world. What's more, Wal-Mart came in first place among retailers in *Fortune* magazine's 2010 Most Admired Companies survey. With fiscal 2010 sales of \$405 billion, Wal-Mart is able to exert tremendous pressure on its suppliers. When Wal-Mart announced in April 2004 that it was beginning a pilot program to test *radio frequency identification* (RFID) technology to improve its inventory and supply chain management, suppliers and competitors took notice.

One of the first companies to introduce bar codes in the early 1980s, Wal-Mart required its top 100 suppliers to put RFID tags on shipping crates and pallets by January 2005, with the next 200 largest suppliers using the technology by January 2006. As of February 2007, Wal-Mart officials said that 600 of its suppliers were

RFID-enabled. Although Wal-Mart's ultimate goal is to have all of its 100,000-plus suppliers on board using electronic product codes (EPC) with RFID technology, progress has slowed as Wal-Mart's suppliers remain unconvinced of RFID's cost savings.

The major issue with RFID tags is per-chip cost. In 2004, when Wal-Mart announced its intent to use RFID tags, they sold for 30 to 50 cents each. Wal-Mart requested a price of 5 cents per tag, expecting increased demand and economies of scale to push the price down to make them more competitive with inexpensive barcodes. Increased demand has brought the price of current-generation RFID tags to about 15 cents apiece, but barcodes cost only a fraction of a cent. Barcodes help track inventory and can match a product to a price, but they lack the electronic tags' ability to store more detailed information, such as the serial number of a product, the location of the factory that made it, when it was made, and when it was sold.

Wal-Mart expects the RFID technology to improve its inventory management, and it remains committed to advancing its use of RFID. During the 2010 National Retail Federation's Big Show convention, Wal-Mart's CIO, Rollin Ford, said, "We're still bullish on RFID." He also indicated that Wal-Mart ran some apparel pilots last year that showed good results and that the retailer plans to "eat what we cook." Wal-Mart manufactures some apparel items and controls its own supply chain, and Ford indicated that Wal-Mart plans to use RFID technology in its apparel supply chain. Wal-Mart will then share the benefits and best practices with its suppliers, which might want to achieve the same benefits from the technology.

► *What problem might occur with the full implementation of RFID technology in retail industries? Specifically, consider the amount of data that might be collected.*

Source: "2010 Most Admired Companies," *Fortune* (March 22, 2010); Wal-Mart, *Wal-Mart 2010 Financial Report*, [http://cdn.walmartstores.com/sites/AnnualReport/2010/PDF/01\\_WMT%202010\\_Financials.pdf](http://cdn.walmartstores.com/sites/AnnualReport/2010/PDF/01_WMT%202010_Financials.pdf); Mark Roberti, "Wal-Mart CIO Still 'Bullish' on RFID," *RFID Journal* retail blog, <http://www.rfidjournal.com/article/view/7315>.

suppliers. When quality problems arise, production must be stopped until the problems are resolved.

The goal of the JIT system is manufacturing efficiency. It uses inventory as a tool for attaining efficiency by emphasizing quality of the materials used and their timely delivery. When JIT is working properly, it forces process inefficiencies to surface.

Knowing the level of inventory is, of course, an important part of any inventory management system. As described in the *Focus on Practice* box, radio frequency identification technology may be the "next new thing" in improving inventory and supply chain management.

### Computerized Systems for Resource Control

Today a number of systems are available for controlling inventory and other resources. One of the most basic is the **materials requirement planning (MRP) system**. It is used to determine what materials to order and when to order them. MRP applies EOQ concepts to determine how much to order. Using a computer,

### materials requirement planning (MRP) system

Inventory management technique that applies EOQ concepts and a computer to compare production needs to available inventory balances and determine when orders should be placed for various items on a product's *bill of materials*.