



RFID Developments

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APICS members from all types of industries need to be aware of major announcements relating to Radio Frequency Identification Technology (RFID). During the past several weeks, the *Wall Street Journal* has printed several articles about recent RFID developments. Specifically:

1. “China Opens Front in Standards Debate”

Beijing Targets Technology to Track Shipped Goods Using Radio Frequencies

By CHARLES HUTZLER (1/19/04)

--China wants to be included in setting worldwide standards for RFID

--From the article, “Nearly 70% of Wal-Mart's world-wide procurement consists of Chinese-made products, and the retailer wants suppliers to begin using RFID to track shipping containers and pallets beginning in 2005.”

--China had \$438 Billion in exports last year

--From the article, “The U.S. and Japan are allocating different ultrahigh frequency radio bands for RFID, potentially creating a headache for manufacturers that supply both countries.”

2. “Inventory Tool to Launch in Germany”

Wireless System is Seen as Successor to Bar Codes; Metro AG Leads Wal-Mart

KEVIN J. DELANEY (1/12/04)

--From the article, “Metro's RFID rollout, planned for November, is expected to reach 250 stores and 10 central Metro warehouses in Germany

within the first year and involves 100 of its biggest suppliers, representing 65% of its sales in Germany.”

3. “Steve Wozniak Works on Tracking System”

By DON CLARK (1/8/04)

--From the article, “Mr. Wozniak's closely held company -- dubbed Wheels of Zeus Inc., or WOZ -- is developing a system that uses low-cost radio tags that could be attached to objects, people, or animals. By combining satellite location-finding technology with radio base stations, the tags could help consumers or companies protect goods against theft and ensure the safety of children and pets,” Mr. Wozniak said.

One of the common threads in all of these articles involves the application of RFID technology to improve track and trace capabilities within the supply chain. **Tracking** involves knowing the physical location of a particular item at all times. **Tracing** is the ability to know the historical locations, the time spent at each location, record of ownership, packaging configurations, and environmental storage conditions for a particular item.

Combined, these capabilities integrated across entire supply chains will produce a revolutionary increase in inventory turnover and general coordination between firms. The long-term prospect is that advanced track and trace systems will interface with ERP Systems, providing accurate information on demand and supply, and reducing the negative impacts of the “bull whip” effect that so often leads to overproduction and slow moving inventory.

Along with the immense potential for RFID to improve supply chain efficiency, APICS members also must recognize the huge challenges such a technology puts forth. Namely, there are three areas ripe for further research and development:

Interfaces – The potential to have track and trace capabilities for upstream and downstream supply chain activities means that new computer interfaces must be built for ERP systems to take full advantage of real time information. This is a daunting task, however, new developments such as open operating software will speed interface design.

Economics – RFID chips are still relatively expensive, restricting use to cases and pallets where the cost of the chip is a small percentage of total product cost. With the exception of high value items, it will probably be more than five years before RFID chips will provide unique identification for individual consumer items such as bottles of juice on store shelves. New models of cost analysis are needed to understand the break-even point between improved information about the supply chain and the cost of implementing and maintaining a RFID system.

Privacy – With improved information flows, there will always be tough questions concerning privacy. Not only is consumer privacy a concern but also privacy and security for industrial firms.

To overcome these challenges, industry, non-profit educational organizations, the government, and academia will need to work together forming a team of unparalleled size and scope. APICS, an early leader in the refinement of bar code applications, is in a position to make significant contributions to the development of RFID. Toward this end, members need to think about what types of activities might enhance their ability to understand, evaluate, and apply RFID technology in practice. In subsequent articles, I will offer some insight concerning what other non-profit organizations are doing to provide balanced information about RFID technology.

1/21/04

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