



Manufacturers Look for a Total Solution

And RFID and mobile technologies answer the call.

BY KEN KRIZNER

The role of the supply chain has never been more important to a manufacturer's overall business process. At the same time, supply chains, many of which are global in nature, have never been more complex. To operate successfully, manufacturers have to reconcile these two points. And where these points intersect is where automatic identification technology can play a role in their ability to improve their business processes.

"One challenge for manufacturers is getting more information from each step of the supply chain to make better, faster decisions," says Charnsin C. Tulyasathien, group manager of mobile business solutions for Sprint Mobile Technologies in Overland Park, Kansas. "They need to make the process more efficient, which means they need better control of their inventory on the fac-

tory floor and in the supply chain."

The ability to make better, faster decisions is dependent on access to real-time information on inventory, whether it is on a pallet in a distribution center, at the marine terminal, or en route on any mode of transportation.

For years, the bar code has been the identification technology of choice for inventory management—both inside the four walls of an enterprise and throughout its supply chain. While bar codes are still extremely relevant and will remain so for the foreseeable future, radio frequency identification (RFID) and other mobile and wireless technologies are making their mark.

Improvements in costs and standards have helped propel RFID to a prominent position in industrial and distribution operations. It is an application that has a proven return on investment (ROI) for returnable con-



The focus of smartphone development continues to move from hardware to software applications. Meanwhile, the manufacturer RIM is expanding the BlackBerry platform with new offerings for developers.

tainer tracking, reusable pallets, and specialized shipping containers.

"This is the area where RFID has made a niche, because it works well and has proven to be cost effective," says John Burnell, principal of Burnell Reports, a Cleveland-area strategic communications company that monitors the RFID market. "Companies are learning that it's more cost effective to track these assets with RFID than continually losing them and having to buy replacements."

The operative word is visibility. Manufacturers know the location of their assets and equipment. They can prevent inventory build-up inside the warehouse. They can work closer with their suppliers on the back end and their customers on the front end to improve productivity.

Inside the four walls of a warehouse and throughout the supply chain, a variety of mobile and wireless technologies, such as GPS and cellular, is allowing manufacturers to have continual and constant access to their shipment, enabling them to leverage information about their inventory at any point in the supply chain.

No matter the technology, manufacturers are demanding a total solution to enhance their supply chain efficiencies. "It's just not about hardware anymore," says Tim Harvie, president and CEO of Englewood, Colorado-based Fluensee, a provider of RFID-enabled asset tracking and supply chain management solutions. "And, they are looking for a short-term ROI."

RFID hits its stride

If ever a technology has been victimized by hype, it is RFID during the past decade. RFID companies and end users were always predicting "this is the year" that the benefits of the technology would come to fruition, only to

see that hope fade. Most of the applications were compliance-driven, including such notable projects undertaken by Wal-Mart, Procter & Gamble, and the U.S. Department of Defense. "The market has stumbled; there have been successes here and there," Burnell says.

Several advancements, however, have helped improve the marketplace for RFID. Studies in recent years—by RFID users, manufacturers, and industry analysts—have found that cost is no longer a leading barrier to implementation, and everyone agrees that performance and reliability have vastly improved, Burnell says. Manufacturers can purchase tags with more memory for the same price as a year ago.

Another important achievement occurred in 2004 when EPCglobal ratified the GEN 2 standard, which paved the way for technical specifications for passive UHF interoperable systems to uniquely identify items.

These milestones, along with readjusted expectations, helped advance RFID implementation.

"There probably wasn't as much focus on the business case and ROI as there should have been [a decade ago]," says Jack Farrell, vice president and general manager of Avery Dennison Corp., a manufacturer of inlays for label converters to construct RFID tags. "Today, there is a heightened need for productivity and visibility."

While bar codes are likely still attached to the individual items inside a container, the container itself is RFID-enabled, allowing manufacturers to track it throughout the warehouse and onto the loading docks.

Many manufacturers employ reusable containers, and they must know the location of these assets at any given time. "We see manufacturers that use reusable containers buy a surplus to make sure their lines don't go down," Harvie says. "In order to improve business processes,

they have to have these assets to move inventory. Having the ability to track these containers allows manufacturers to optimize production.”

At the distribution dock, RFID helps manufacturers get the right trailers to the right door on the outbound side to expedite an accurate shipping process. RFID solutions also provide better visibility to forklifts moving containers or totes on the dock.

The next issue facing RFID is pushing the technology out beyond the four walls of an enterprise and into the supply chain in a cost-effective way. While RFID tags will never be able to outperform bar codes on individual inventory items (bar codes are essentially free because they can be printed on labels), there is the potential to be more significant throughout the supply chain.

David Shannon, senior vice president for marketing and strategy for Mountain View, California-based Savi Technology, foresees the possibility that every “major mobile asset or object with significant value” being tracked in the supply chain by either active or passive RFID within the next decade.

“It will become part of a pervasive connectivity network to drive efficiency and innovation,” he says. “As the technology becomes pervasive, companies with good supply chains will start using information to engineer inventory out of their networks without compromising the ability to deliver. They can manage a more effective supply chain.”

Full supply chain visibility

As RFID hits its stride in a manufacturing enterprise, mobile and wireless technologies are making an impact in the supply chain. These technologies are compatible for manufacturers with a worldwide supply chain, where inventory can be monitored at any point on the globe, no matter what mode of transportation.

Mobile and wireless technologies such as GPS, cellular (including 3G), and the General Packet Radio Service (GPRS) network are enabling manufacturers to check on the status of their inventory in real-time.

“It is just not about the four walls, it is about the complete supply chain,” Sprint’s Tulyasathien says of mobile technologies.

Mobile and wireless technologies leverage a solution that is independent of a manufacturer’s warehouse management or inventory management systems, says Neil Smith, CEO of Savi Networks, a joint venture between Savi Technology and Hutchison Port Holdings, the world’s largest ocean port terminal operator and developer.

The solution used by Savi combines technologies that can track an ocean-borne cargo container as it moves from the factory to its final destination. As the inventory moves, the end user can get a fix on its position using GPS. Cellular technology communicates the inventory’s location to SaviTrack, a Web-hosted platform.

It can also be used for security purposes. If a container comes open during transit, the information is transmitted to the platform in real-time. Environmental monitors can also check temperature and humidity.

Smith says the solution can allow a manufacturer to shift from the more expensive airborne option to ocean transportation. “By tracking the shipment, manufacturers



can have a more thorough understanding of their supply chains, giving them the reliability that has always been the stronghold of air transportation,” he points out.

One challenge for manufacturers is getting more information from each step of the process to make faster, better decisions. “[Mobile and wireless] technologies allow for better control of inventory on the factory floor or in the supply chain,” Tulyasathien says.

Just-in-time inventory requirements, for example, make it necessary for companies transporting materials from origin to final destination to meet tighter delivery schedules and provide real-time status updates. It’s equally important for those companies to be able to locate anything from entire containers to single parcels in a matter of minutes.

Mobile solutions from Sprint can help manufacturers improve productivity by enabling secure remote access for mobile workers. With GPS software, companies can know where their workforce and vehicles are at all times, optimizing assets and responding to customer needs immediately by integrating with existing back office systems. The technology can enable a company to optimize scheduling and dispatching to coordinate routes and loads, as well as

Alien Technology provides UHF RFID products and services to customers in retail, consumer goods, manufacturing, defense, transportation and logistics, pharmaceuticals, and other industries.

maximize income. Customers can receive real-time status alerts and ETAs.

The technology can also drill down to the longitude and latitude of the location of a delivery, and the driver can snap a picture of the package as another way to verify shipment.

No matter the application, mobile and wireless technologies allow manufacturers to manage their inventory and processes more efficiently. "It allows you to collect information in real-time, as opposed to waiting for [the information] to be processed later," Tulyasathien says. "Inventory can be better managed on the fly, and it helps in the decision making process."

More than just technology

While individual technology items can be of benefit to a manufacturer, most vendors offer a total solution that encompasses mobile and wireless, RFID and bar codes. Sprint has mobile solutions that combine bar code scanning with wireless technology. Likewise, Fluensee has an asset management solution that can use any combination of active or passive RFID tags, GPS, and bar codes simultaneously.

Along with advances in technology, there has been a critical advancement in the mindset of C-level executives as to how that technology fits into the twin goals of improving business processes and the bottom line.

"Executives are looking at their entire business process, not just buying tags and readers," Avery Dennison's Farrell says. "We look at it as a way to transform the process throughout the entire enterprise, not just as an individual project."

The technology can help reduce costs in labor and the logistics process, and improve customer service. These are bottom-line costs savings that any manufacturer operating on tight margins can appreciate.

"At the end of the day, everyone is bottom-line focused," Farrell points out. "If you can do the job with less labor, you can invest that money in new products and programs. You can spend management time doing more analysis, rather than just addressing everyday issues. This hastens a more efficient supply chain."

Savi Technology's Shannon believes identification technology allows manufacturers to treat their supply chain as part of the warehouse, applying the same techniques to reduce the amount of inventory in the supply chain.

"That will have a fundamental and massive impact on the cost of manufacturing," he says. "That will put more money back into their pockets to reinvest or reward their shareholders." **WT**

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