Mixing RFID in the Auto-ID Blender

Before deploying RFID, first be sure to consider all the automatic-identification and data-capture systems available to you.

By Chris Hook

Feb. 19, 2007—As I observe the different facets of how we commonly perceive RFID systems, it appears the rush to deploy radio frequency identification has caused many people to forget the humble but ubiquitous bar code. The reality is that bar-code systems have transformed our lives, our businesses and our efficiency.

I'm old enough to remember the days before bar codes were used in supermarkets, when two manual processes were used for identifying prices and capturing the data at the point of sale. One process entailed pricing items individually, using stickers marked with the unit price, then having employees read and enter the data manually. The alternative, advanced approach involved numeric price look-up (PLU) codes, still used today on fresh produce. With the advent of reduced-space symbology (RSS) bar codes in supermarket point-of-sale transactions, however, this latter process is changing as well.

What do these technology-enabled advancements represent to us as consumers? How has bar coding made a difference in retail store operations, providing a better shopping experience? For starters: much faster and more accurate data capture, and overall improvement in replenishment and other in-store operations.

With regard to commentaries referring to a "convergence" between various auto-ID technologies, I comprehend the viewpoints and agree that convergence will occur, but to what extent? I feel it is also important to consider how the differing and complementary front-end technology systems will coexist in a particular domain of use, and I suggest that this conceptual approach is less combative and more aligned with what we observe in actual practice.

Consider the use of RFID for freeway tolling, in such systems as Illinois' I-PASS or the Northeast's E-ZPass—the advent of these systems did not totally replace cash. Wholesale, overnight displacement of an older form of technology rarely occurs due to varying factors, including business inertia, the scale of deployed systems that would need to change and standards-development cycles. As it was with cash versus I-PASS or E-ZPass, so will it also be true in the case of bar codes versus RFID in supply chain operations.

I am a passionate believer in the potentially disruptive nature of new technologies, and the complexities this creates as you ponder product development—as a technology provider or system deployment, or as an end user. I note with considerable interest the increasing number of cell phones equipped with near-field communications (NFC) technology, for instance. NFC-enabled phones include passive 13.56 MHz RFID chips that can be used for contactless payments and a range of other purposes. ABI Research predicts that 50 percent of cell phones will be equipped with this technology by 2010 (see NFC Is Appealing But Lacks Infrastructure).

How might this impact other growing RFID applications, such as electronic ticketing for mass transit? First, there would be a coexistence of complementary forms of payment for services. Second, forecasts made about

the rise in quantity of passive RFID smart tickets for mass transit may be suspect if disruptive influences I have described are not taken into account. A third impact involves the need to confirm that payment systems can be easily adapted to handle both NFC tickets, and contactless, conventional-format smart tickets. And a fourth is the change in the business model from the transit authority holding the float of money associated with issued tickets, to favoring those companies involved in handling the processing of micro-payment transactions, thereby deriving unexpected revenue.

Does NFC pose a disruptive threat to smart tickets? I believe it does.

I return to the RSS thread for a moment. Consider that, potentially, the use of RSS bar codes on fresh-food items sold to consumers could have a profound impact on the ability to achieve traceability "from farm to customer" in complying with food-safety requirements. In terms of transformation, this would just be the tip of the iceberg when you take into account the need to rethink how metadata is described, stored and shared. On reflection, isn't this form of potentially disruptive (or enabling) technology exactly what companies are examining for item identification and traceability in the pharmaceutical supply chain? Another caution, then, is to watch for "parallel disruptors"—that is, solutions created to serve the needs of one industry that can be adapted, sometimes rapidly, to serve similar needs in another.

Perhaps there's more to this illustration that's worth exploring. We see the humble bar code being augmented in its utility, leveraging existing data-capture infrastructure by carrying additional data useful to trading partners. We now see relatively inexpensive RFID tags with embedded sensors able to log temperature or other environmental parameters, and otherwise doing things bar codes can't. This, of course, is with a keen eye toward leveraging deployed data-capture infrastructure where appropriate; sharing additional data in a well-defined, standardized manner; and identifying opportunities to change business processes.

I see more disruption on the horizon. Perhaps, to some expert practitioners, what I'm about to describe is already near and present in their thinking, because they have delved more deeply into the topic. Enabled by the availability of standards-compliant, high-performance, cost-effective passive RFID systems, companies are examining and starting to appreciate the benefits of item-level tagging. Certain consumer goods, such as prerecorded DVDs and CDs, are already being considered appropriate for item-level tagging. Deployments of item-level tagging systems, which might include smart shelves, will result in numerous business-process changes concerned with, for example, replenishment operations and the handling of goods returned for credit. Each item will be uniquely identifiable and, therefore, traceable at key points of visibility along the supply chain.

RELATED_ARTICLES As it was with bar codes replacing price stickers, so it will be that passive RFID will replace bar codes in certain applications. The natural and predictable migration from one form of identification and data-capture solution to another will be based on its ability to handle the task more effectively and efficiently—and, thus, to improve business processes.

As such, I recommend you keep an open mind as you postulate how a business problem may be solved, or a business process transformed, or a new revenue opportunity created, all through the use of auto-ID and data-capture systems. It is important not to immediately jump to conclusions regarding which technology to apply, and to maintain a focus on the disruptive nature of new technologies. Consider what the technology-enabled evolution or transformation will mean to your business, and be sure that the solutions developed and deployed are adaptable to meet future needs.

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