

BY BRUCE ECKFELDT

*Want consumers to adopt RFID-based systems?
Make the perceived (and real) risk acceptable through
convenience, variety, and lower prices.*

WHAT DOES RFID DO FOR THE CONSUMER?

Selecting the right RFID technology solution involves myriad options in terms of frequencies, tag configurations, types of antennas and readers, and systems—each with a potentially significant effect on the capabilities of the overall system. For example, systems using higher frequencies to communicate between the tag and the antenna provide more reads per second but can be limited in terms of practical read distance, while lower-frequency systems can read from a distance but can miss many tags. Active tags dramatically increase read distance but cost much more than passive tags and have shorter life spans. And antennas that are effective in the lab can fail miserably when deployed in the real world due to unforeseen radio-frequency interference. As any engineer working on an RF system can tell you, implementing an RFID-based system is as much an art as a science.

These challenges are relatively minor compared to the privacy concerns associated with these new technologies. Major companies worldwide (such as Metro Group in Europe) have scrapped RFID programs following consumer backlash, and several U.S. states, including California and Massachusetts, are considering whether to implement RFID-

pecific privacy policies. Some Web sites (such as www.spychips.com) routinely denounce RFID applications with dire warnings of everything from privacy invasion to identity theft to bodily harm from stray radio signals. While RF systems are highly regulated by government agencies (such as the U.S. Federal Communications Commission) to ensure the technology poses no serious health concerns to the general public, the issue of consumer privacy for millions of individual consumers worldwide is indeed real.

Recent articles in the *Washington Post*, the *New York Times*, and other mainstream newspapers have highlighted the legitimate questions raised by privacy advocates about the risk of personal information abuse and consumer aversion to retailers collecting yet more of their personal data. Despite them, however, several projects have been embraced by the public without great resistance. For example, a number of U.S. highway toll-payment systems, including EZ-Pass, developed by a consortium of northeastern states in the U.S., and ExxonMobil Corp.'s Speedpass credit-card-transaction application have been accepted and grown into successful businesses.

Why the relatively straightforward adoption and positive public support of the technology in these cases? The difference between successful and shunned RFID applications turns on delivery of clear, tangible value to the average consumer. Successful applications overcompensate for whatever privacy fears they may involve. Consumers accept the risk of being tracked and their activities being monitored if they feel it's worth the benefits the application provides.

The key to a successful RFID application is how it considers the equation from the consumer's point of view. Consumers need to calculate their own delivered value and risk exposure before they willingly use the system. Companies providing RFID-based solutions must not allow themselves to assess consumer

risk and benefit solely from their own self-centered points of view, which are inherently biased in favor of the technology and its derivative uses due to their greater understanding of and experience with RFID, along with their own selfish business interests. Companies that fail to consider the consumers' interests produce a calculation in which their risk/reward equation augurs a promising solution, while the consumer's risk/reward equation yields a flop.

The Gillette Company, a consumer products manufacturer based in Boston, and other companies introducing RFID to track inventory levels and manage replenishment in thousands of retail outlets need to pre-assess their systems' benefits and risks from the consumer's point of view. Viewing the technology as a consumer would can help determine whether it's worth more to consumers to improve their chances of finding a razor on a store shelf than risk that someone will track them through tags on their packages after they've left the store.

For many consumers, the equation looks like this: Does helping Gillette reduce its fulfillment cost by letting it put tags on packages overcome the potential risk of giving up at least some of their own personal consumer privacy? Unless Gillette is able to tie the presence of tags directly to consumer benefit in terms of, say, reduced price, better products, or quicker checkout, it will likely see more resistance to the technology. Millions of consumers have already demonstrated they simply won't shop in RFID-equipped stores or buy tagged products.

Any effort to implement RFID in retail environments can be improved in two basic ways: lower the risk to consumers of losing their personal data and privacy and increase the benefit to consumers in terms of a more convenient shopping experience, lower prices, and quicker checkout. RFID developers have sought to limit the perceived risk by trying to educate consumers as to the positive benefits of RFID and providing privacy policies to explain what data is being collected and how it's being used. They have

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also developed such technologies as kill switches that disable tag functionality and destructible tags removable by consumers. However, when consumers perceive risk—regardless of technical legitimacy and even when they're wrong—RFID-using retailers have a difficult time altering their opinion and shopping habits.

Limiting consumers' risk of losing their personal data and having their privacy invaded by data-mining retailers is a difficult approach for any retailer considering RFID-based systems. A far more effective approach is to improve the value they deliver to consumers by giving them better prices, service, or experience. RFID-based technologies provide value to consumers in three basic ways:

Peace of mind. The RFID application with the greatest success in terms of adoption and proliferation involves security. The same ability that has sparked privacy-advocate outrage worldwide—positively identifying people and tracking their movements—has also motivated RFID proliferation in security systems. However, consumers know that only authorized people have access to sensitive physical locations and data and that their personal physical and data space is protected from intrusion. When tracking lacks any obvious security benefit for consumers and delivers only marketing information for retailers, the risk/reward equation doesn't add up for consumers.

Consumer convenience. The EZ-Pass toll-collection system and ExxonMobil Corp.'s Speedpass system both make it incredibly easy to perform a task without conscious thought. Despite its use as evidence in criminal trials and as a means to track the movement of people under criminal investigation—so even the most ardent technology advocates think twice about driving through a toll gate—EZ-Pass remains a highly successful RFID application in terms of consumer acceptance. This fortunate alignment of consumer and state interests results from the benefit of not having to stop, roll down the car window, get out the money, hand it to the toll-collector, get the change and receipt, put it in the ashtray, roll up the window, and start driving again being greater than the potential risk that the computer records showing I left Manhattan on Tuesday at 8:24 P.M. will someday be used against me.

Improved service. High-end fashion retailers are beginning to weigh how RFID-based systems might improve the overall customer-service and consumer-shopping and -spending experience. For example, Prada is experimenting with high-tech futuristic stores that provide real-time inventory to sales associates, on-demand multimedia displays of sexy fashions, and dressing rooms that show customers runway images of models wearing the clothes they're trying on. Casinos,

including the recently opened Wynn Las Vegas resort, are beginning to use RFID to fight fraud and give guests easy access to house credit. Airlines, including Delta Air Lines, are beginning to use RFID tracking systems to ensure that baggage arrives on time at the correct, specified destinations. The key to all these solutions is a tangible consumer benefit (such as a more pleasurable shopping experience, VIP guest treatment, and avoiding the major inconvenience of lost bags).

However, even kill tags and other risk-reduction technologies and strategies do not make up for real or perceived consumer risk when little or no value is delivered by the RFID system. Retail inventory and supply-chain-management programs (such as Wal-Mart's RFID initiative beginning April 2004) will be limited to pure back-office applications unless user companies link the presence of the technology to tangible consumer benefits. To succeed, such programs must involve researching consumer needs, as well as how to use the technology in innovative ways. For example, some creative minds at the Bar Soba nightclub in Glasgow, Scotland, have developed RFID tags containing credit card information and placed them under the skin of customers, making it possible for them to pay for drinks without having to carry a wallet or purse.

RFID solution providers must continue to limit consumer risk (perceived or genuine) as much as possible through technical means, as well as through public education. They must also redouble their focus on increasing the value of the products and services they provide and the overall customer experience they deliver. Systems that make their customers' lives more convenient and improve customer service are much more likely to achieve better adoption rates and the business success they seek, making RFID a powerful strategic business tool, rather than a source of fear and distrust for consumers. **C**

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