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## The Decade Ahead

At this time of year, it's common for editors to make predictions for the 12 months ahead. Given that it's the start of the second decade of the 21st century, I think it's more useful to look ahead to the next 10 years.

First, though, I'd like to take a look back at the past 10 years. In 2000, almost no one had heard of radio frequency

identification. Texas Instruments, NXP Semiconductors (then known as Philips Semiconductors) and a few other companies had successful businesses selling RFID chips mainly used in automobile immobilizers, access-control cards and animal identification systems. No one was making huge investments in RFID hardware or software, and very few companies were using it.



Things changed when Wal-Mart, Procter & Gamble, Gillette (then a separate company), Unilever and other major international companies funded research at MIT aimed at using RFID to create the next-generation bar code. The Electronic Product Code (EPC) was proposed as a means of collecting and sharing supply chain data among business partners. That led to the introduction of ultrahigh-frequency (UHF) RFID and stimulated interest in all types of RFID systems, and such interest then led to an explosion in the number of companies offering RFID technologies.

When I first learned about the work being done to make it possible to use RFID in open supply chains and subsequently launched *RFID Journal*, I realized the technology would be used in far more innovative ways than just tracking pallets and cases. While RFID is not as pervasive as I thought it would be in the retail and consumer packaged goods sectors, it has spread to more industries, as I had anticipated it would.

In fact, in the past 10 years, we've gone from a world in which very few companies had heard of RFID to one in which the technology is now being used in every industry and every

country on the planet. So what does the next decade hold in store? Here are my predictions for the next 10 years, and if you haven't read it yet, check out our current print magazine, which depicts what the world might be like in the year 2030.

**Performance issues will not be a concern for passive systems.**

Today, the ability to read tags consistently is a big obstacle to adoption. Many end users mistakenly believe that if you can't read every tag every time, then RFID provides little value. While the laws of physics won't be repealed over the next 10 years, vendors will continue to improve the technology to the point at which interrogators will read the tags you want them to read consistently. And best practices will emerge for dealing with situations in which every tag can't be read, such as when they are on cases buried in the middle of a pallet of canned goods.

**Standards for active systems will solidify.** Active systems don't have the performance issues that passive tags have, but there has been a lack of standardization. The adoption of the ISO 18000-7 standard for active tags means that end users will be able to purchase active tags and interrogators from a variety of vendors. This should not only lower costs for end users, but also stimulate innovation as vendors try to differentiate their products. ZigBee and Wi-Fi standards for active systems will continue to be popular, but for supply chain applications, I see ISO 18000-7 dominating.

**More industry-specific solutions will make adoption easier.**

RFID systems will not only get better, they will also address industry needs more effectively. In the early days of RFID, vendors too often wanted to sell tags and interrogators, letting end users figure out what to do with them. Over the past few years, however, some companies have developed solutions for specific industries, or partnered to create them. This trend will accelerate, as the RFID vendor community's experience with early adopters enables them to create solutions that address industry-specific issues.

**Adoption will occur in fits and starts.** Everyone thought Wal-Mart's RFID mandate would propel adoption. That didn't happen, yet RFID continues to gain ground in all industries. In some sectors, industry regulations—drug pedigrees in pharmaceuticals, for instance—will drive adoption, but mostly it will be the successful use of RFID by one company that will encourage others to use the technology. *RFID Journal's* news stories and case studies of successful deployments in myriad industries are seeds that will flower, produce more seeds and lead to increased adoption.

**By 2020, almost every company with more than \$500 million in revenue will be using RFID.** Given the number of ways in which RFID can be utilized, it's difficult to imagine that businesses will not find ways to use the technology to improve asset utilization, track tools, manage inventory and more. There are many success stories available today, and that number increases each year. Some firms will use RFID to solve a single business problem, but many others will benefit from using the technology in a variety of ways.

By the end of the decade, all major apparel retailers will be employing radio frequency identification at the item level. All or most hospitals will be using RFID to track high-value equipment. Most major manufacturers will be utilizing the technology to track parts, materials, containers, tools or other assets. And companies across other industries will be using RFID to track mobile assets.

**By the end of the decade, forward-thinking companies will be deploying RFID enterprise-wide.** My vision has always been for businesses to deploy RFID as an enterprise-wide infrastructure that will provide a steady stream of data regarding the location and state of assets, inventory, materials, parts, tools and so forth. Getting there will take time, because RFID systems are complex, but by the end of the decade, forward-thinking companies will have, or be close to having, a robust infrastructure that can be used to dramatically reduce

operational costs. They'll also be analyzing the collected data in new ways to provide additional benefits. This is already happening. Hospitals, for instance, are utilizing RFID information to predict the use of particular equipment and reduce their rental of same during slow periods without risking patient safety.

The past decade has been the most fulfilling in my 25-year journalism career. I have had a unique view of an industry evolving. I have seen vendors develop innovative products. I have spent a lot of time with end users who have developed new ways to use RFID, and with researchers who have either documented RFID's impact on business or conducted research that has moved the technology forward. I anticipate that the next 10 years will be even more exciting as companies begin to capitalize on all of the things RFID can do.

*Mark Roberti is the founder and editor of RFID Journal. If you would like to comment on this article, click on the link below. To read more of Mark's opinions, visit the RFID Journal Blog or click here.*



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