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Tag Cost and ROI

Nothing in the RFID industry has been more controversial than the Auto-ID Center's claim that it could produce a prototype for an RFID tag that would sell for 5 cents in high volumes. With the intense focus on the investment suppliers will have to make to comply with RFID tagging requirements issued by Wal-Mart and the U.S. Department of Defense, *RFID Journal* did a detailed analysis



of when end users might be able to buy a simple, read-only license plate tag for 5 cents, to help suppliers plan staged rollouts (see The 5-Cent RFID Tag). Our report concluded that the market would reach the volume needed to drive the price down to 5 cents in 2007.

The analysis was based on the cost of producing a microchip, attaching the antenna and creating an inlay (the tag and antenna mounted on a plastic or paper base). The economics of the semiconductor industry are well documented. Sanjay Sarma, the former head of research at the Auto-ID Center, used an understanding of the silicon industry to conclude that, using conventional technologies, it would require an annual volume of 30 billion tags to drive down the price of the chip to a little more than a penny; attaching the antenna and creating the inlay account for the rest of the cost. Our analysis looked at when the market might consume 30 billion tags annually and factors in unconventional assembly technologies, which could lower costs more quickly.

Some, no doubt, will say our forecast is wildly optimistic. Others might say we weren't bullish enough. I'm confident that we balanced the forces at work in the market and came up with a solid forecast. We spelled out how we came to our conclusion in painstaking detail. Our goal was not to encourage companies to wait until the tag price falls to a nickel to deploy RFID, but to give them a benchmark to use today to plan phased deployments.

It's long been my view that the tag cost issue is something of a red herring. I've heard executives say that they can't get a return on investment with a tag price of \$1 or more. I would ask them at what price they could get an ROI. Invariably, they would say they don't really know. If you don't know what the tag price has to be to get an ROI, then how do you know you can't get it at \$1 per tag?

The fact is a company could spend \$50 per tag and \$40,000 to install each reader and still make a return on investment for certain applications. Don't believe it? That's exactly what the railroad industry did in North America. By automating the tracking of rail cars, it cut the number of people needed to walk up and down tracks reading numbers painted on the sides of cars. It also reduced delays and improved customer service.

That may be an unusual example, but the point is the railroad industry wouldn't be reaping huge benefits from RFID today if it had waited for the price of tags to fall to a nickel. Moreover, if companies are looking at RFID only to track cases of product, they are looking at it too narrowly. Virtually all companies have reusable assets they could track with tags that cost more than 5 cents each and still get an ROI. Even when the price of a simple RFID tag falls to a nickel, many companies will be using more expensive active (battery-powered) tags to track everything from heart defibrillators to pallet jacks. And I expect to see widespread use of RFID sensors to monitor the status and condition of shipments. Sensors will likely cost more than a nickel for a long time to come.

Of course, if a company needs to tag cases of paper towels or cereal for a large retail customer, they are going to want the cheapest tag that meets the requirements. Our reason for determining when the price of a simple license-plate tag would fall to 5 cents was to give companies guideposts. RFID technology needs to be deployed in stages. High-value products that are often stolen or out of stock can be tagged profitably

today with a 30-cent tag. As prices fall, the types of products and applications suitable for RFID will expand dramatically. Companies should do their analysis and plot an adoption path. And if every company moves quickly to deploy RFID where it makes sense today, our prediction will be off because tag prices will fall much more quickly. That's OK—we'd rather see your deployments succeed.

Mark Roberti is the founder and editor of RFID Journal. If you would like to comment on this article, click on the link below.

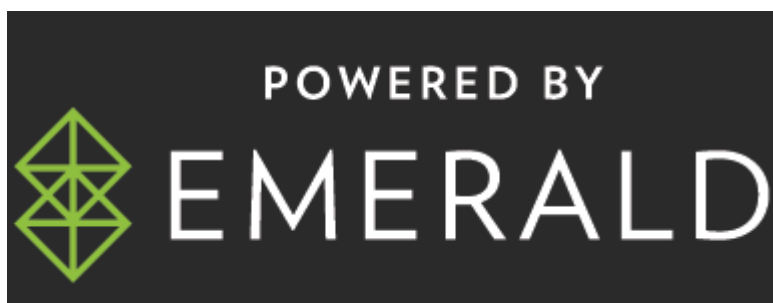
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