



Are You Aiming Too Low with RFID?

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Too many RFID programs focus solely on increasing supply chain efficiency. Aim higher and you'll profit more, says Jonathan Byrnes.

by Jonathan Byrnes

In many companies, managers are preparing to use RFID (Radio Frequency Identification) technologies to make existing supply chain processes more cost-efficient. The problem: By focusing on cost efficiencies, they are losing opportunities to use RFID to change the basic nature of their supply chains.

RFID, in which products are "tagged" with chips that "announce" their identity when hit with a non-line-of-sight electromagnetic field, offers the promise of huge gains over time (see "[Who Will Profit from Auto-ID?](#)"). These gains come from two areas: (1) analytical, or business intelligence, applications, which are rooted in marketing and materials management; and (2) production, or validation, applications, which are rooted in operations and physical distribution.

Analytical applications improve supply chain coordination, ensuring that the right amounts of the right products are in the right places at the right times. An example of this is using RFID to get an early read on demand trends, and transmitting this information throughout the supply chain to align production and inventory levels. Production applications, on the other hand, reduce handling costs and improve handling accuracy. Employing RFID to reduce labor at the receiving dock exemplifies a production application.

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The key success factor is to focus early on analytical gains, and only later on production gains. Unfortunately, all too many companies are losing critical opportunities because they are going about it backwards.

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Paving the cowpaths

Many managers are wondering what RFID means to them, and how to manage it. RFID technologies offer an opportunity to utilize analytical applications to make sweeping improvements in supply chains relatively quickly, and to follow these with further rounds of production-based improvements over time. If the sequence is reversed, managers are in danger of simply focusing on making inherently ineffective processes more efficient, a process we call "paving the cowpaths."

One of the exquisite challenges of living in Boston is navigating the labyrinthine maze of streets in the downtown area. This part of town is the oldest part, and the streets follow the original paths formed by settlers driving their cows to pasture. Traffic flows poorly because the city fathers simply paved the cowpaths, making the ineffective more efficient. It's much easier to navigate Back Bay, a part of Boston with grid-like streets, built on landfill centuries later.

Paving the cowpaths, or focusing first on production applications, causes two problems: (1) there is a steep opportunity cost, because analytical applications produce relatively rapid gains at low cost, and quickly generate cash; and (2) once large-scale, production-oriented RFID systems are deployed, many business processes will be frozen and harder to change.

First things first

Analytical applications are very cost-effective because they require only selective deployment of RFID. For example, visualize a retailer with four different types of products: steady-moving staple products, like socks; seasonal products with known demand patterns, like notebooks at back-to-school time; short-lifecycle products with hard-to-predict demand, like printers; and promotional products with unknown demand. RFID should be deployed differently for these different product groups to achieve supply chain alignment.

Steady-moving staple products. No need for RFID at all because demand is predictable, and both production and inventories can be predetermined.

Most RFID teams are largely comprised of mid-level operations and IT managers.

Seasonal products with known demand. No need for RFID here either, except on a sampling basis to ensure that demand stays within expected boundaries.

Short-lifecycle products. RFID is critical here to align production and channel inventory with actual demand, and to ensure crisp product lifecycle transitions with minimum markdowns and out-of-stocks.

Promotional items with unknown demand. RFID is important here, too, but for different reasons. Production generally is relatively fixed, but deployment to stores can be determined by real-time selling trends using RFID rather than predetermined product “push-out.”

Importantly, in the latter two cases, RFID can be deployed differentially, with all items tagged if the particular product is relatively expensive or the demand pattern is especially volatile, and only a sample of items tagged for inexpensive products. This aligns the costs and benefits. Similarly, handheld readers can be used, and the information can be passed directly through the Internet to independent analytical software, avoiding the need to rewrite major systems.

Production applications, on the other hand, require comprehensive tagging and reader deployment, and very high levels of accuracy. For example, if a retailer wants to use RFID to replace cashiers or receiving labor, all items have to be tagged and readings must be validated. This creates the very high costs that many companies find daunting, and leads to questions like, “Is it really economical to tag a grape?” In addition, production applications require extensive rewriting of software systems to accommodate new data structures.

Different set of managers

Analytical applications involve a very different set of managers than do production applications. Determining sales trends in real time allows a company to alter its product mix, product presentation, and merchandising, as well as its inventory levels and order pattern. These are largely marketing-oriented activities, with close supply chain coordination. They invite close coordination with vendors for marketing-oriented tasks like rapid product development and lifecycle management, as well as for production scheduling and fulfillment.

Use RFID as a springboard for a comprehensive review of your supply chain.

While many companies theoretically have the information needed to align channel activities with real-time demand, in most companies this information is embedded in systems that are ponderous and inflexible. RFID enables marketing and supply chain managers to create parallel, highly-flexible streams of information that can be routed through the

Internet in real time to analytical applications both within the company and within channel partners in a very nimble, responsive manner. This is analogous to using a PC for spreadsheet analysis, rather than waiting in line to program the mainframe computer.

Production systems, on the other hand, largely involve operations managers, with grassroots IT support. Saving labor on the receiving dock, or managing a cross-dock operation with more accuracy, produces cost reductions in product handling. These applications are single-department in scope and nature. They only incidentally involve vendors, and there, in operations matters such as resolving shipment deductions and discrepancies.

The gains from production applications, however, are more intuitively obvious because they involve lowering the costs of existing processes, like paving the cowpaths. Analytical applications, on the other hand, require developing new business processes and organizational relationships, both within a company and with the company’s channel partners.

It is not surprising, therefore, that most companies have focused on production applications, and most RFID teams are largely comprised of mid-level operations and IT managers. The closely watched Wal-Mart and Target RFID initiatives have understandably focused all the attention on supplier tagging of cases and pallets. Much less often are top-level marketing managers in companies and their channel partners driving RFID programs. This is the source of the problem.

The five-step solution

The highest-leverage RFID opportunity is to use it as a springboard for a comprehensive review of your supply chain. This can be done in five steps.

First, form a team that includes marketing as well as supply chain managers. The team should work under the direction of the vice presidents involved. For example, in one forward-thinking consumer products company, the key vice presidents meet monthly to consider how RFID could change the business.

Second, visualize what you could do if you had access to real-time supply chain information. Resist the natural instinct to want a full set of information. Instead, be creative and selective. Divide your products into categories according to their product flow characteristics, as described above. What is the *minimum* information needed to manage each category? Who would act on this information? What would these managers do differently?

Third, create a short list of supply chain improvements for the near term, and a more comprehensive list for the longer term. This will guide you on how comprehensive a tagging program you need in the near term. Most companies will find surprisingly large immediate benefits at remarkably low cost from analytical applications that involve selective tagging and sampling.

Fourth, and most importantly, specify how the related business processes in the company and in channel partners should change to act on this information. Most supply chain systems that are performing below expectations disappoint because the organization is not using them well even though they are technically sound.

Here you start the real work of changing the organization to use the information. This involves altering processes, measures, and skill levels. Even a small amount of RFID information if used well will produce enormously better results than comprehensive RFID information that drowns an organization. In fact, one of the biggest dangers of RFID is that it is capable of producing so much information that the data is ignored.

Fifth, and finally, end the process where most managers are tempted to start: laying out facilities and figuring out how to tag products. This is the easy part, which is why most companies are focusing on it. Instead, prioritize the ways that RFID can produce gains, and you may well find that the largest gains come at a relatively low cost and with surprisingly few technological or operational issues to overcome.

By the way, don't forget the production applications. While these are costly and involve long-term projects, it is important to start looking at these early. But don't make these the only focus of your early efforts.

The true promise of RFID is to make supply chains better, not just to make parts of them more efficient. To accomplish this, you need one part technology to nine parts vision and good management.

See you next month. 

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