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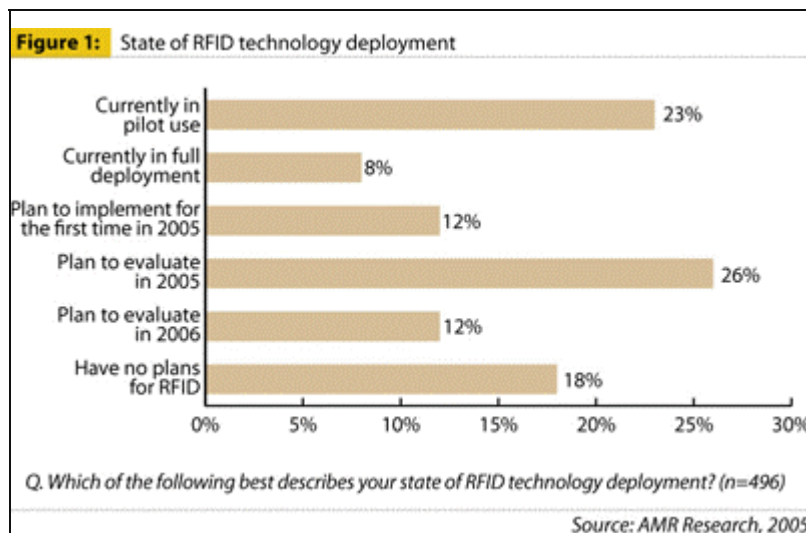
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RFID ADOPTION: Has the Supply Chain Golden Child Reached Maturity?

By Christine Pothier, Marketing Manager at ModusLink

As prices decline and the technology improves, manufacturers are finally starting to embrace RFID deployment. The technology has been around for close to a decade but early adopters saw less than favorable return on investment (ROI), causing a serious lag in widespread implementation. Like any other nascent technology, RFID systems have improved with age and the industry is primed to give it another chance. According to a study by AMR Research, only 18 percent of companies surveyed had no plans for RFID.

The profitability of an organization depends heavily on its ability to achieve the highest levels of operating efficiency and, more often than not, the burden of cost reduction falls on the supply chain. RFID adds a new dimension to supply chain management and holds great promise as a long-term cost-reduction measure. Before a company formulates an RFID strategy, it needs look beyond the technology itself to understand the greater business context that will drive benefits through the applications.



This article provides an overview of the potential business benefits for manufacturers; an update on current implementation challenges; and a framework for developing an RFID

strategy that positively impacts the supply chain for long term benefit. Understanding the full potential of RFID is critical to achieving maximum ROI.

The Benefits . . .

The technology itself is designed to streamline processes associated with the movement of product through the supply chain, providing retailers and their suppliers with the ability to automate costly and time-consuming processes. This level of automation can greatly improve the efficiency of the supply chain and drive significant cost savings.

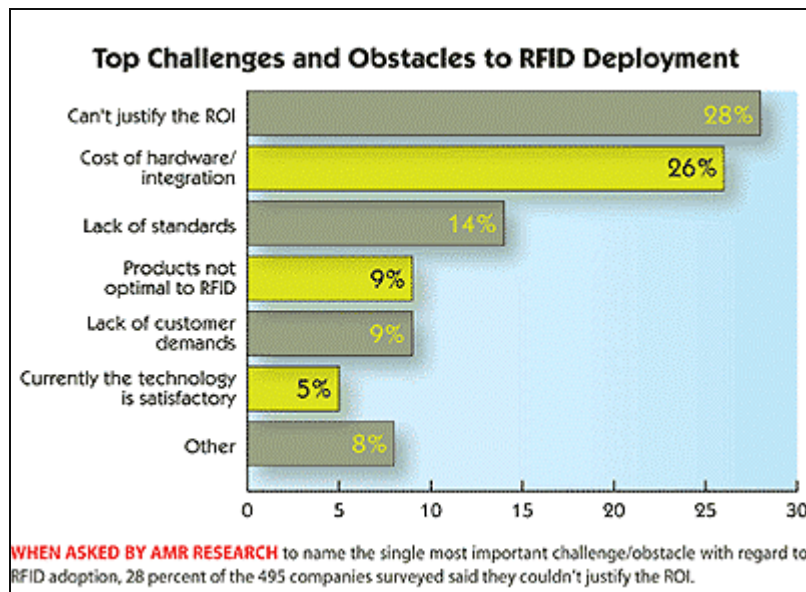
With better control of physical assets, companies can reduce manual labor and handling costs; increase order accuracy and fill rates; improve all facets of inventory management and fulfillment; and ultimately increase profitability.

However the true value of the technology goes beyond its ability to control physical assets and lies in its ability to provide greater visibility into the end-to-end supply chain. RFID gives companies a real-time view of supply chain activities and can provide companies with invaluable information about security, sourcing, inventory management, asset utilization and customer demand. The ability of companies to utilize this information to reform business processes and make better business decisions will be the determinant factor for ROI. Tapping RFID's potential to change the way you do business is the difference between merely installing RFID technology or implementing an RFID strategy that meets business needs.

In summary, RFID provides:

- Better control of physical assets
- Real-time visibility into the end-to-end supply chain
- More effective business processes
- More effective decision making

The perception of lack of ROI is the single largest impediment to full-scale RFID adoption in the marketplace today. ROI is dependent upon the ability to re-create the movement of goods in the physical world and capture it in an RFID data structure — the specific data elements and attributes that will be input and collected by RFID systems and the formats in which they will be exchanged. The current lack of standards for this data has been one of the most significant challenges of RFID. In fact, there are a number of obstacles to overcome before the technology lives up to its full promise as the “golden child” of supply chain management.



The Challenges . . .

- **Cost:** While the cost of the technology itself is coming down, the overall cost of adoption including the ramp up process is very high. This is due to manpower and training, pilot program testing and increased demands on enterprise networks.
- **Systems:** RFID deployments result in massive amounts of data collection and this data needs to be managed, stored, processed and made available in real time. This increases the demand on storage systems, network bandwidth and enterprise software.

While integration of RFID middleware with enterprise software systems, like ERP, has become easier, customization is often required. According to a Forrester Report, "No Business Intelligence or enterprise application vendor has a legitimate roadmap for analyzing and reporting RFID data." The report went on to say that they, "expect this hole to exist to the end of 2006." The perceived gap has to do with data integration challenges and the degree to which current enterprise applications can automatically analyze, report and interpret the data collected. Of course, ERP software vendors are currently working to update their systems with RFID specific application logic.

- **Standards and Interoperability:** The exchange of data is a major component of RFID. Product is coded with a unique serial number, an Electronic Product Code (EPC), to track its movement throughout the supply chain. RFID technology enables data to be collected in association with each EPC read. The ability to collect this data along multiple points in the supply chain and then present it, interpret it and utilize it is the holy grail of RFID. The problem is that, to date, not all readers are interoperable and there has not been one standard being used for data structures. While Gen 2, an information interchange introduced by EPCGlobal, will go a long way to solve some of these problems, not all companies are using the standard and proprietary RFID technology still peppers the marketplace. In addition, devices released in late 2005 and 2006 will be the first iterations of equipment based on the new standard, and, as such, it will be a while before the manufacturers work out all the bugs and provide firmware upgrades to address any issues identified.

For RFID to be truly successful and succeed in securing widespread adoption, it is critical that retailers and suppliers have agreed upon data structures to create a "single version of the truth."

According to Mike Meranda, president of the EPC/RFID standards group, EPC Global U.S., "Having a standardized data structure is a foundational step needed to share information. Today, it costs companies thousands of dollars per month to do electronic data interchange over value-added networks."

For example, Target and Wal-Mart had previously been providing data in different formats requiring suppliers to manually access retail extranets to download and make sense of the disparate data. Recently, these major retailers have begun to work together to promote standardized data structures with their suppliers, but other major retailers have been working on their own data exchange pilot programs using different RFID framework technologies.

Until major retailers finalize their strategies and standard data structures are agreed upon and implemented consistently, it will be difficult for suppliers to cost-effectively deploy RFID strategies that realize the true potential of RFID.

- **Privacy:** There are a number of privacy and regulatory concerns to be addressed as well and these relate primarily to item-level tagging and their ability to capture retail selling information and track buyer data. Six states and the federal government introduced privacy bills last year and some are calling for FCC regulation. Wal-Mart faced public outrage recently for its early item-level tagging strategy as customers picketed a Texas store. Full-scale adoption of item-level tagging is still a ways away as privacy concerns and the cost implications of tagging low-cost commodity products are ironed out.

By 2007, RFID technology budgets will double, RFID tag purchases will reach 1.6 Billion, and 83 percent of today's pilots will convert to full-scale implementations, according to Accenture's global management consulting and technology team.

The current RFID climate is overwrought with a sense of urgency, especially in the consumer goods and retail industry, with companies eager to reap the potential supply chain rewards promised and comply with the plethora of aggressive mandated timetables set forth by major retailers. This is forcing many manufacturers to implement immature technology in a narrow, compliance-driven scope. Before rushing to adopt a stepping-stone RFID solution that does not fully exploit the potential of RFID, consider the following key factors:

The Plan . . .

1. **Understand the bigger picture.** RFID deployment is not just a technology project; it will affect a wide range of business processes. Don't try to fit the system into your current business; you need to leverage the technology to re-engineer business processes across the organization. To do this effectively, you will need to make a financial and managerial commitment to the technology involving a broad range of resources throughout the supply chain.
2. **Collaborate.** Full-powered RFID is interdependent and requires an integrated effort between supply vendors and outsourcing partners. For supply chain partners, fulfillment is their core competency and manufacturers should take advantage of their resources, technology investments and expertise. Collaboration from the beginning will help to exploit the full potential of RFID, reduce cost of deployment and speed adoption.
3. **Pinpoint business "pains" using pilot projects.** A one-size-fits-all scenario does not work; live pilots help companies build experience and learn what works and what doesn't. Be sure your pilot program helps you discern what your unique product and supply chain "pains" are and helps solve these specific business issues. A pilot program is a great opportunity to formulate your data structure elements to ensure that you capture the type of information you need to make better business decisions. A company concerned with asset tracking may focus on different elements than one concerned with supply chain efficiency. Your business case will shape the direction you should take with your implementation.
4. **Adapt.** Flexibility is key when seeking ROI as you may face initial technical and process difficulties. Differentiate between what you *have* learned about the flow of goods in your supply chain and what you *expected* to learn, and modify your pilot and your business processes to reflect the information. The creation of an EPC manifest linking key business information to RFID data elements will help to build the business context that will drive benefits.
5. **Integrate systems.** Devise a strategy for integrating the RFID data management platform with existing enterprise systems. Work with your ERP, CRM or BI application vendors to ensure easy access, interpretation and usage of the valuable information collected by RFID tags. The greatest ROI comes from turning data into information and information into action.

Working with a knowledgeable supply chain vendor to leverage its expertise and ongoing RFID experience is a cost-effective strategy that allows manufacturers to ramp up quickly without committing scarce resources that could be better used on their core business competencies.