

The RFID Benchmark Report

Finding the Technology's Tipping Point
Business Value Research Series

Aberdeen *Group*

Manhattan
Associates

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Executive Summary

Though Radio Frequency Identification (RFID) is a relatively mature technology, its adoption in the supply chain is still in its relative infancy. With this additional exposure, RFID has become a controversial topic among the media, technology, and business communities. Evangelists trumpet its capabilities and potential, while detractors attack it as being invasive and unable to deliver on its promised benefits. To find the right perspective with which to view it, AberdeenGroup surveyed 250 industry executives and managers on how their companies view RFID as an enabling technology, both in its ability to deliver value today and in the future. The responses we received tell us much about the strengths and weaknesses of the RFID market and what combination of events and technical advances would create a much broader adoption of the technology in the future.

Key Business Value Findings

Survey participants made one thing very clear: RFID is here to stay (Figure 1). The survey results also tell us much of what it will take to motivate broad adoption across enterprises, moving passive adopters to active proponents.

While RFID is fundamentally a data collection technology, it adds significant capabilities and details above and beyond other traditional data collection technologies such as barcodes or voice recognition systems. RFID gives us a multi-dimensional view of status, location, condition, and state of people, process, and product. In this sense, RFID isn't just about identification; it also entails additional environmental and contextual information related to the identifier. Until this can be fully exploited through the use of technology-based applications, analytical tools, and hardened enterprise-scale technical infrastructure (all only starting to be developed now), adoption rates won't meet the expectations most market watchers set.

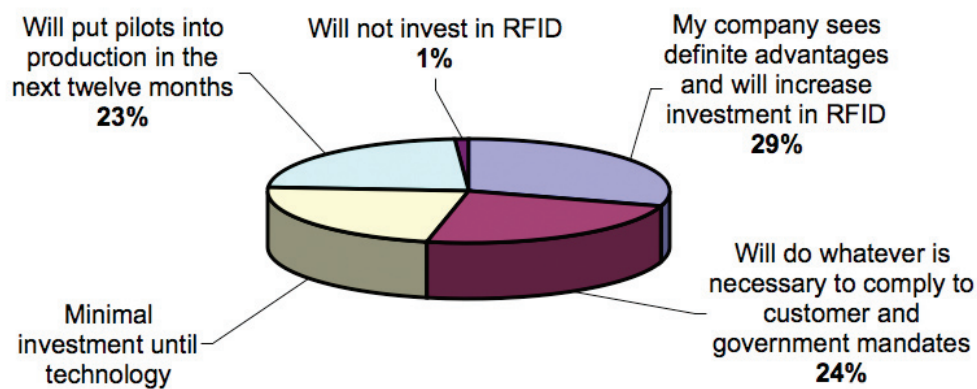


Figure 1: RFID Investment Plans for Next Three Years

Technology, however, isn't the only issue blocking wider adoption of RFID. Particularly for those companies involved in industry-wide solution deployments, new business models and processes are being developed in parallel with the technology supporting them. This is a high-risk, high-reward endeavor that relatively few companies are eager or capable of leading.

This is not to say that every RFID implementation carries extremely high risk. We found many companies that had implemented the technology to enhance a current, well-structured process, and they were very satisfied with the results they realized. Asset management was, by far, the leading application of the technology in these cases, followed by production, transportation and security.

Implications & Analysis

Regardless of whether adoption is being driven by mandate or companies seeking to raise internal performance levels, the survey reports a growing number of enterprises ready to launch new RFID pilots in the next 12 months. Results show that many companies expect to spend, on average, more than twice what they are now spending on external services and technologies. This is a key indicator of market growth, one we expect to see increase as technologies and processes mature.

Network management, storage, EAI, and even ERP vendors have been slow to support RFID initiatives. No more than 15% of companies participating in the survey felt technology firms in these categories were very helpful in their RFID deployments. It is unlikely this condition will continue. Major technology companies have announced broad ranging initiatives to build the ecosystem necessary to mainstream the technology. And start-ups continue to receive venture funding to fill the voids left by larger companies. The market recognizes that the challenges and opportunities go well beyond just overcoming the limitations presented by the laws of physics at a loading dock or production line. A whole second wave of process and technical development is under way, one that is necessary for the growth of RFID.

Recommendations for Action

RFID has made significant strides in the past three years. We are still in the early stages of extracting its maximum benefits. The following are recommendations for building a go-forward strategy on RFID adoption:

- [Re-evaluate your position on RFID adoption.](#)

When a technology reaches its tipping point, moving from unique to ubiquitous, its adoption grows at a very rapid pace. RFID is not for every company, but in industries that will reach the tipping point first, a late start could mean competitive disadvantage.

- [Identify who the real stakeholders are in RFID pilots.](#)

In the Wal-Mart RFID pilot, most of the predicted near-term value will accrue to sales and marketing within a supplier, yet it is regarded as largely an internal operations initiative. Several leading companies have given oversight responsibilities to their sales and marketing organizations, so that not only cost but benefit will be recognized, giving the company a balanced view of progress.

- [Link RFID with other strategic IT initiatives.](#)

While establishing viable value propositions for RFID is a difficult task, don't miss the fact that the technology is part of a much larger wave of change affecting all enterprise technology with the adoption of service oriented architecture.

Key Takeaways

- Most companies buy into the RFID vision.
- The legacy of forced adoption still follows RFID.
- Don't paint all RFID projects with the same brush.
- Mandates provide urgency, but more is needed to create the tipping point.

For the first time ever, a new technology offers companies the opportunity to monitor and manage the location, state, status, and condition of products, assets, and even people, bringing process automation to a level unthinkable just a few years ago. It's tough to argue against having these capabilities, but most companies are stymied on how to successfully integrate RFID into their current business processes.

Companies Believe in the RFID Vision, but Lack a Compelling Reason to Get There

For better or worse, the Wal-Mart mandate made the world stand up and take notice of RFID. Suppliers of the retail giant were required to implement an immature technology with little understanding of how it would benefit themselves or their customer. This legacy of forced adoption still exists, with more than 50% of respondents saying that the inability to create an internal value proposition for RFID is the single most difficult obstacle in creating greater support internally for further adoption of the technology (Figure 2). Despite the presence of this formidable obstacle in the short term, the survey also points out that there is still an undercurrent of optimism about RFID. Almost 60% of senior management surveyed says it holds great potential value for their companies, and two-thirds also feel RFID would help them create significant differentiation in their business processes. Disillusionment in the present and yielding to optimism for the future are difficult positions to reconcile, leaving open the question of how companies will make the leap. This is the source of the confusion that plagues RFID today.

Customer Mandates Provide Urgency for RFID Adoption, but Won't Sustain it

The power of customer mandates is the momentum builder in the RFID market today. Nearly a quarter of all respondents say they will do whatever their customers request of them, regardless of what internal benefits they receive. However, the majority of respondents aren't as passive in their views about RFID adoption. Forty-four percent believe RFID will make their companies more attractive to do business with, and another 25% indicate RFID will be a requirement of doing business in the next two years. Only a small minority of companies feel supplier and customer relationships would not be impacted by not implementing RFID.

Complying with customer requirements provides the impetus for RFID implementation in the short term, but companies want to capture more value from it than just improving customer relationships. Over half of our respondents are not satisfied with simply implementing "slap and ship" programs to satisfy customer mandates, but are actively looking for other ways to create value with RFID. Two-thirds of companies with revenues of more than \$1 billion, for example, say they want to use RFID to improve visibility into the status of direct material and services over multiple facilities as well as meet customer requirements. All parties receiving mutual benefit from deploying RFID is a key component in having the technology realize faster adoption rates than its use being driven by mandate alone.

PACE Key

Aberdeen applies a methodology to benchmark research that evaluates the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows:

Pressures — external forces that impact an organization's market position, competitiveness, or business operations

Actions — the strategic approaches an organization takes in response to industry pressures

Capabilities — the business process competencies required to execute corporate strategy

Enablers — the key functionality of technology solutions required to support the organization's enabling business practices

Survey respondents also told us cost and ease of implementation and use are critical factors in adoption. Two-thirds of all respondents said price was the leading criteria for selection of what hardware, software, or services they would use within their initiatives. Experience counts too: More than half of our survey respondents rank implementation track records as being the second most important element in making vendor-selection decisions of vendors. Finally, 45% said a vendor's ability to offer bundled services including software, tags, readers, and implementation services is a very important part of the selection criteria.

Don't Paint All RFID Projects with the Brush of EPC

Companies are implementing RFID projects today and receiving benefits. Cross-industry initiatives are ambitious programs, ones whose success is predicated on accepting industry-wide standards and collaborative working relationships between supplier and retailer. The AberdeenGroup survey finds, though, that companies implementing RFID outside the orbit of Wal-Mart pilots face a less complex task. Almost a third of discrete manufacturing companies responding to the survey use some variant of RFID technology to manage company assets, and, in the process, claim improved internal operations performance. A quarter of respondents say RFID has allowed them to improve security and integrity of products and process, and nearly the same number say it has helped them improve management of the flow of goods outside the enterprise. Rather than shirk from investment in RFID, these companies are active and voluntary users of the technology.

Finding RFID's Tipping Point

In the process of writing this report, interviews were conducted with industry, government, and technology leaders to find what they thought would be the combination of events that would lead to the tipping point of RFID, in which the technology moves from being unique to ubiquitous. Some said the tipping point has already been reached with the announcement of the Wal-Mart mandate or the ratification of the Gen 2 and ALE standards in 2005. Others believe increased adoption of RFID by retailers will accelerate growth. All are critical factors in the evolution of RFID, but tipping points are rarely recognized until long after the events they trigger transpire. From survey responses, it is clear that no one event will trigger its tipping point. Rather, it will be the result of a combination of factors, many of which we are only starting to think about today.

Survey participants see a growing role for RFID in the future, with the implication that a tipping point will be reached when the use of the technology will become a very real option to increase top- and bottom-line growth. These predictions, though, ring hollow, if compelling value propositions, along with supporting technologies, aren't introduced to accelerate RFID's adoption rate.

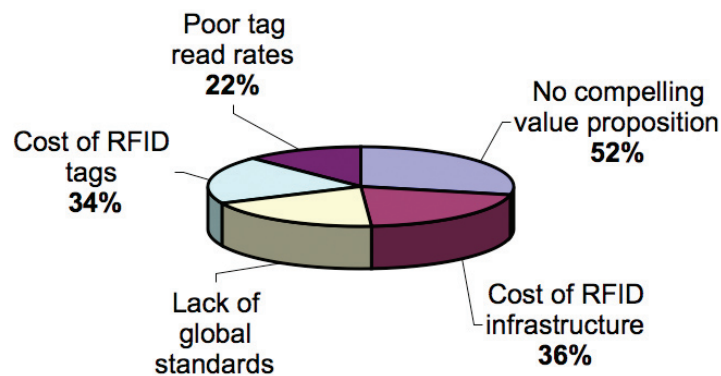


Figure 2: Top Obstacles to RFID Adoption

Recommendations for Action

Key Takeaways

- Companies regard internal RFID expertise as a competitive advantage.
- Market makers are using consultants to build strategic roadmaps.
- A late start with RFID could put a company at a competitive disadvantage.

As we have seen, respondents to our survey take very different approaches to RFID adoption (Table 5). Market laggards would like to ignore the entire RFID phenomenon. Market opportunists are much more likely to adopt it, but require solid evidence that it will recognize ROI rapidly. Market makers have their eyes set on transforming today's business processes in the hopes they can wring competitive advantage from it. Whether laggard, opportunist, or market maker, there are lessons to learn from the experiences of respondents to the Aberdeen survey.

Market Laggard Next Steps

- **Reevaluate your position on RFID.**

RFID is not going away. By most accounts, when the technology does reach its tipping point, its use and adoption will grow at a very rapid pace. RFID is not for every company, but for industries that will reach the tipping point first, a late start could mean competitive disadvantage.

- **Experiment; it entails very little risk.**

The RFID technology choices companies have today are much greater and much less costly than when the first wave of adopters began their pilots. Prices on readers and tags are dropping, and integrators are offering bundled services and technology at price points in the low five-figure range. On-Demand RFID is another option, with at least one vendor asking for no initial investment and pricing services and hardware on the rate of throughput.

	Market Laggard	Market Opportunist	Market Maker
Process	RFID initiative focused on mandate compliance	RFID initiative focused on meeting mandates and improving internal operations	RFID initiatives focused on meeting mandates, improving internal and external operations
Organization	Either IT or business likely to have sole responsibility for RFID implementation	High reliance on outside consultants for RFID implementation	Business and IT share RFID implementation responsibilities; use consultants and integrators to develop strategic direction
Knowledge	Least likely to build internal expertise in RFID; most likely to blame vendors for project shortcomings	Actively builds internal RFID expertise; preference for predefined implementation roadmaps and turnkey solutions	Regards internal RFID expertise as competitive advantage; actively markets RFID initiatives to the company at large and external entities
Technology	RFID data not used internal to the company by any process or system	RFID data integrated to internal systems	Integrates with external systems to capture and distribute data collected with RFID

Table 5: Different Approaches to RFID Adoption

- **Involve both business and IT in the pilot process.**

RFID pilots are an investment in the future. Understanding the capabilities of RFID beyond identification is the value returned. Business operations and IT must participate in a coordinated fashion to translate capability into action and understand the steps required to maximize the benefit of data collected.

Market Opportunist Next Steps

- **Identify who the real stakeholders are in RFID pilots.**

In the Wal-Mart pilot, most of the predicted near-term value will accrue to sales and marketing within a supplier, yet it's regarded as largely an internal operations initiative. Several market makers have given oversight responsibilities to their sales and marketing organizations, so that not only cost but benefit will be recognized, giving the company a balanced view of progress.

- **Stay abreast of market developments.**

The RFID market is moving quickly on all fronts. New and enhanced technologies from enterprise application, analytics, infrastructure, and hardware vendors are aiming to change the cost/benefit and scalability equations of RFID.

Market Maker Next Steps

- **Link RFID with other strategic IT initiatives.**

While the task of establishing viable value propositions for RFID is daunting, don't forget that the technology is part of a much larger wave of change affecting all enterprise technology. The adoption of service-oriented architecture (SOA) will change how applications and infrastructure are designed, deployed, and used. With it, the enterprise will have much greater flexibility in how it builds its processes, and gain the flexibility it will need to differentiate itself in the marketplace.

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