

Growing RFID Adoption Brings IT Challenges

An Aberdeen survey shows that many companies are grappling with how to manage and integrate multiple geographically separate RFID systems.

By Beth Bacheldor

June 16, 2006—During the next few years, RFID will transition from a technology affecting the edges of a company's operations to one that'll permeate processes and workflow across an organization, intensifying the need for reliable, secure and centrally managed RFID initiatives, according to a new study released today from consulting and research firm Aberdeen Group, located in Boston.

Aberdeen bases its report on surveys conducted between April and May 2006 with companies that have either implemented or are in the process of implementing RFID within their organizations. Almost 50 percent of respondents said that by 2008, they will have two to 10 RFID-enabled geographically separated sites within their own local area networks. All the respondents indicated they expected the number of such sites to grow to 20 and 100 by 2011. The companies surveyed spanned the consumer products, consumer electronics, health-care, pharmaceutical, aerospace and defense and high-tech industries.

Such RFID expansion throughout their operations will force the companies to rethink business processes, IT integration and even RFID middleware, and will illuminate the need for data reliability and integrity, says John Fontanella, senior VP and research director of Aberdeen's supply chain consulting practice and author of the study, "The RFID Benchmark Report: Scaling RFID Implementations from Pilot to Production."

"What people are looking at is how to connect all the data that's collected at the edge - including RFID data, sensory technology data, data from handhelds - and integrating that into their overall operations," Fontanella says.

Only a third of companies reported that they are able to integrate, onto a common IT infrastructure, RFID-related processes and technology across their entire corporation, according to the study.

"Besides the huge integration challenges that all companies will have with that, there's also the issue of process variability," he adds. Companies will have to develop strategies and IT systems that can work across a variety of processes, even mirrored processes that are essentially the same but differ because they are conducted at different locations. "For example, the process of shipping goods from a dock may stretch across an organization, but there will be variability at each location because there may be differences in the workflow sequences or differences in the customer requirements," Fontanella says.

An example of the move toward integrating RFID throughout an organization is its growing presence within manufacturing and distribution operations. According to the survey, 31 percent of respondents will integrate RFID with their programmable logic controller (PLC) systems within 24 months, and 12 percent have already done so. Thirty-eight percent will integrate RFID with their automated conveyors within 24 months (16 percent have done so), and 41 percent will integrate RFID with their manufacturing execution systems within two years (15 percent have done so.)

Illustrating just how important integration and process variability is becoming, the study found that the respondents are increasingly concerned about whether their current application and infrastructure technologies can support RFID and whether RFID products can accommodate multiple business processes. In fact, 33 percent of the respondents characterized as average adopters and 27 percent of aggressive adopters said a priority in choosing RFID products was the flexibility to accommodate multiple business processes. Aberdeen defines the average adopter as a company that forecasts that RFID readers will be installed in 10 to 30 sites by 2011; 55 percent of respondents in the survey fit that description. Aggressive adopters are companies that forecast they'll have RFID readers installed in more than 30 sites by 2011 (15 percent of respondents). Slow adopters are those that forecast RFID readers will be installed in fewer than 10 sites by 2011 (30 percent).

Equally important, data reliability is top of mind for 73 percent of aggressive adopters and 63 percent of average adopters. "Data integrity and reliability trumps cost," says Fontanella. "In our two previous surveys, the leading concern was cost. But as companies integrate RFID technology into their operations, they have to absolutely be able to rely on it. The message we are getting is companies are looking for value. Cost is still a central issue, but as you introduce RFID into your overall infrastructure, you can't afford breakdowns or technologies not operating correctly."

Companies are looking closely at centralized control and oversight of their RFID initiatives in order to improve data integrity, the report found. Thirty-eight percent say they want to create single point of control for reader management, and 35 percent say they want to centralize management and administration of RFID processes.

Perhaps one of the more surprising findings in the study is that companies are rethinking the role of RFID middleware, Fontanella says. "RFID middleware as we know it is dead, and companies are rethinking what RFID middleware is and how it is deployed."

One reason, according to Fontanella, is that RFID middleware has been tasked with too many responsibilities: integration, workflow management, even data integrity. So companies have started using other technologies to perform those tasks, such as enterprise application integration (EAI) tools that allow the unrestricted sharing of data and business processes across networked applications or data sources, and service-oriented architectures (SOA), which are platforms of Web-based services that that communicate with each other within a distributed systems architecture.

According to the study, 46 percent of aggressive adopter respondents say they will rely on application extensions from their enterprise applications to perform middleware functions, such as managing RFID data and processes, throughout their operations.

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