

German Study Finds Most RFID Deployments Deemed a Success

University of Freiburg researchers, interviewing several hundred RFID users, found more than 70 percent expect to amortize their investment within four years.

By Rhea Wessel

Oct. 23, 2008—A recent report from the University of Freiburg finds that most German companies currently employing RFID view their deployments as successful, run more than one RFID application and use the technology for more than just replacing manual processes.

Jens Strüker, an assistant information systems professor currently on a one-year sabbatical from the university, conducted the project from April to August 2007. He says he launched the research project because he was fed up with studies available in 2006 regarding Germany's RFID market.



Jens Strüker

The studies Strüker found at that time did not drill into RFID's use, he says, nor did they address issues companies face when implementing the technology. Instead, those studies had focused on multiplying technology suppliers' sales figures to predict that the market for RFID would be worth billions of euros in the coming years, or made predictions based on the examples of individual RFID applications by extrapolating those to entire industry sectors.

Strüker says he decided to conduct his own research, and to write a report that would be useful for guiding government policy and business decisions, by examining the status quo of how radio frequency identification is employed, as well as the problems companies face with RFID. Individual elements of the study were pre-published in technical, peer-reviewed journals, confirming the study's methodological rigor.

The report, published in May and available here for free, includes data from 283 respondents whose companies utilize RFID. Strüker and a team of researchers at the university's Institute of Computer Science and Social Studies contacted a random selection of 20,000 companies to solicit responses. They also advertised the study to attract respondents that presently use or plan to employ RFID, and contacted known RFID users as well.

As expected, Strüker says, the report showed RFID is far from a mass-market technology, but that a large majority of the companies that use the technology are "exceptionally" successful with it. To measure the elusive variable called a company's "success," the researchers designed several

questions. They asked if each firm plans to end its use of RFID, if it reached the goals set out at the start of the application, and when it expected to achieve a return on its investment (ROI).

Only two respondents indicated their company planned to stop their use of radio frequency identification, with more than 70 percent of all RFID users estimating an amortization of their investment within four years. "I'm very familiar with IT," Strüker states, "and I can say that this [ROI] is enormously fast."

The vast majority of the respondents said they used passive RFID tags—either high-frequency (HF) or ultrahigh-frequency (UHF)—attached to a variety of objects. The information also showed that a majority of companies reached their goals with RFID, though Strüker says it can be harder to measure benefits derived from RFID's ability to provide more accurate business data than it is to measure the technology's ability to reduce labor costs and personnel expenses.

Additionally, researches concluded that because most RFID users struggle to measure their applications' performance, they require low-cost and efficient tools for doing so. Total cost of ownership (TCO) is the most prominent method for measuring performance, according to the study, which also cites activity-based costing (ABC), individual performance indicators (IPIs) and balanced scorecards (BSCs) as other measurement methods that may be useful in determining how well a company's RFID implementations perform and benefit their operations.

Radio frequency identification has potential for a variety of industries, the report finds. "It's not true that RFID is a technology for the retail industry," Strüker says. "No single industry seemed to be ahead." Of the individuals that responded when asked which industry their company served, some 41 percent said they were in manufacturing, about 12 percent indicated retail and 25 percent indicated other services.

The study also determined that RFID is not a stand-alone application, and that one RFID application often spawns another. "This was very surprising to me," Strüker says. "You can see, from the numbers, that a few companies have lots of different applications. The early adopters look for the next application immediately, and they're very successful."

Asked about the advantages of RFID, 78 percent of the 147 respondents that answered this question said they benefited from improved information regarding business processes. At least 57 percent, meanwhile, reported benefiting from improved or new processes.

According to Strüker, the data shows that if implemented correctly, RFID can do much more for companies than just replace their manual processes. "In an analysis of the connection between the realized target improvements and the RFID performance effects," the report notes, "a significant dependency could be observed... RFID-based reduction of manual data acquisition does not systematically contribute to performance improvements... The results suggest that it is necessary to exploit the possibility of improved information about enterprise resources, or to re-engineer business processes on the basis of RFID."

Finally, the report showed that a major impediment to RFID adoption involves the technology's integration into existing processes and IT infrastructure. Some 68 percent of respondents whose companies actually employ RFID cited cross-company business process integration as the greatest barrier.

The research was sponsored by the University of Freiburg, the Industrial Research Foundation and German publishing company VDI Nachrichten, which initially published the report. A luxury hotel in Freiburg offered a prize for participating respondents—a free weekend stay and a meal in the hotel's high-end restaurant.