

Executive summary

Purpose

The purpose of this study is to investigate the extent of implementation of RFID systems in California public and academic libraries, and to ascertain the goals of libraries in implementing RFID, as well as the costs and benefits associated with the use of this technology. The gathering of such information, it is hoped, will inform and assist libraries that are contemplating the purchase of RFID systems by providing them with information from libraries that have already adopted such systems. This data can provide a framework, a planning tool, for libraries to use in making their own cost-benefit projections and can help inform their decisions about RFID adoption.

Method

Two surveys were done. In the first, a list of libraries that have either initiated or completed the process of implementation was compiled. These libraries were sent surveys requesting information about their library, choice of vendor, date of implementation and the cost of equipment, tags and supplies. The purpose of the second survey was to obtain more detailed information from these libraries about the process of implementation, the costs associated with it, the goals of implementation, the on-going costs, the benefits, detriments and cost savings derived from the use of RFID systems.

Surveys

Twenty-seven California libraries were known to have purchased RFID systems by the data collection date (end of 2005) of the first survey. Twenty-four of these libraries responded to the first survey. Of that number, two-thirds (16) were public libraries and one-third (8) were academic libraries. Collection size being tagged ranged from 3,500 items to over half a million. The earliest date of implementation was 1999, with seven libraries (29%) implementing between 1999 and 2002. The rest of the libraries were implementing between 2004 and 2006, with 11 libraries still in the process of implementation during the second data collection period (Jan-May 2006). Seventeen of the libraries (71%) purchased RFID in preparation for a move into a new or renovated facility.

The second survey requested more in-depth information about the goals, process and results of implementation. Eighteen libraries responded. The most frequently cited major goals, reported by 13 of 18 libraries (72%), were to promote patron self-check out and to increase security/reduce theft. Of the 18 libraries that responded to the second survey, however, only 9 (50%) of the libraries were either complete or far enough along in their implementation to provide information about on-going costs, benefits and detriments. The most frequently reported major benefits (5 of 9 libraries or 56%) were patron self-check and patron satisfaction (5 of 10 responses or 50%).

Study limitations

This study should be regarded as preliminary. It can provide a jumping off point for future studies once more data becomes available. The number of California libraries known to have purchased RFID systems is very small – only 27 libraries. Even less information – from nine reporting libraries – was gathered about systems that have been implemented to the degree

that most or all of the system is up and running. Because of the limited number of libraries able to provide details about the results realized from RFID, general conclusions cannot be drawn. Further, because most of the implemented systems have been in operation only a short time, many of the benefits and detriments have not yet become entirely clear. In these areas, the information presented should be regarded as anecdotal, or at most, somewhat indicative. The value of this study, it is hoped, is to inform libraries that are trying to learn more about the costs and benefits of RFID by reporting on the experiences of libraries that already have such systems, even though these reports lack statistical weight.

Goals

The two most common goals in migrating to RFID, cited by 13 of 18 libraries (72%), were to introduce or increase patron self-check and to insure the security of materials. Typically, public libraries, with their larger circulation, were more interested in self-check, while academic libraries were more interested in security. The ability to do inventory interested each of the 18 libraries that responded, with 11 of them (61%) seeing it as a primary goal, and seven of them (39%) listing it as a secondary goal. Libraries were also asked what they did not hold as a goal. Reduction in the cost of processing new materials was not expected to be realized ("not a goal") by 11 of the libraries (61%). 9 libraries (50%) were not seeking to implement patron self-return (patron self-check in of materials).

Benefits/Detriments

The two most common benefits realized by libraries that implemented RFID were patron self check and patron satisfaction. Of the nine libraries that reported on benefits realized in this category, five libraries (56%) said that patron self check was a major benefit, and three libraries (33%) reported it as a minor benefit, for a total of 89% indicating it as a benefit. Patron satisfaction was reported as a major benefit by five libraries out of 10 responses (50%), as a minor benefit by two libraries (20%), thus totaling 70%. Reduction in lines at the circulation desk were reported as major benefits by four libraries (40%), and as minor benefits by another two (20%). Increased equipment reliability was realized by four libraries out of seven responding (57%) as a major benefit, and by one library as a minor benefit. Four responses were received about detriments pursuant to implementation. Two libraries (22%) were unable to realize reductions in the cost of processing new materials. One library each reported that processing materials was not faster, and that security was not increased/theft was not decreased after adoption of RFID.

Costs and benefits

Not surprisingly, a large cost associated with adoption of RFID is the expense of the individual tags. The average cost of tags reported by libraries is \$.68 (at time of initial purchase). AV tags tend to be more expensive, at \$1.08 each. New equipment also is costly, but comparable to the electro-magnetic systems currently in use in many libraries. Tagging is very labor intensive, with the average time to tag clocked at one minute per item. Depending upon who does the tagging, this can also be a significant expense. The cost of purchasing tags for new materials after implementation seems comparable to the cost at the time of original purchase. Maintenance costs vary since they generally are based upon the value of the equipment purchased.

Benefits in the form of cost savings were realized both in the reduction in number of staff needed to circulate books and in improved productivity of staff. Of the nine libraries that reported on benefits, only four provided information on circulation staff levels before and after implementation. All four libraries were able to reduce the number of circulation staff assigned per hour. At two of these libraries, (both of whom moved into new buildings), circulation also increased. So either less staff were circulating the same amount of materials, which provides cost savings, or less staff were circulating more materials, indicating both cost savings and increased productivity. Staff check in with RFID also looks like a promising area to find cost savings and/or increased productivity.

For libraries without previous security systems, the installation of RFID security gates should certainly cut down on theft, which would represent a significant savings. However, we have no data from any of the respondents which quantifies the amount saved in materials not stolen. For libraries that already owned theft detection systems, the situation is even less clear. We have no data about whether the RFID detection rate is better than previous systems, and no loss-rate data to compare.

Inventory systems also seem a very promising way for libraries to improve service and potentially save money when misshelved, missing and requested items are found. However, not enough libraries have implemented this system yet for there to be much data.

Other benefits reported by libraries relate less to cost and more to improvements in quality of service, including patron satisfaction (5 libraries), reduced lines at the circulation desk, and increased equipment reliability (4 libraries).

How to figure costs and benefits

Based upon the information gathered from the libraries in this survey, an outline and a spreadsheet have been included in this report that list the categories of possible costs and benefits to be considered when planning for an RFID adoption. Again, it should be emphasized that these categories were generated based upon a very limited number of responses, and can only give an indication of where cost and benefit may be realized. Each library will have to look at its own situation and goals, and attempt to project these figures based in part upon the experience of other libraries and on its unique configuration of factors.

Conclusion

The old saw that "more research is necessary" is apt in the case of RFID in libraries. Although this report hoped to provide more specific guidance through the collected experience of libraries that have already adopted the technology, this goal proved illusive due to the small number of libraries that are fully implemented, and the short amount of time since implementation. It will be helpful, not only for each individual library deciding to purchase an RFID system, but also for other libraries if certain baseline data are collected that can form the basis of a "before and after" snapshot. Thus, future studies could have comparative data on goals realized or not, as well as benefits and drawbacks of RFID systems. Such a study could give a more definitive answer about whether the benefits outweigh the costs of RFID systems. But, even with such data, value must be determined according to goals set, and should be considered, to the best of each library's ability by thoughtful planning before purchase.