"SHALL WE CONSIDER RFID?"

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ABSTRACT: The vendors are reporting the implementation of RFID in more libraries. We look at the technology and describe its uses generally and specifically to libraries. There are libraries implementing RFID but full utilization can only be obtained through the development of library standards. Interoperability requires mutual agreements between libraries and vendors to provide tags and readers that allow for resource sharing.

WHAT IS RFID?

Radio frequency identification (RFID) is a technology that makes use of the use of radio activated computer chips on tags to track items. The tags used by libraries are flat adhesive labels about 1-inch square. The latest radio frequency identification is made possible with the use of tags that are also called transponders in compliance with ISO 15693. These passive transponders hold up to 2kbits of data, that equals approximately 250 characters on a 13.56 MHz signal. These newer tags can be re-programmed with the reader and as the storage space increases on the tags more functionality will become available.

The antenna in the tag picks up signs sent by the "reader" devices. As opposed to barcodes, which must be scanned, these tags can be read through cloth or plastic.

BENEFITS OF RFID

As radio frequency identification (RFID) continues to gain in use as a significant new technology being implemented in the United States, more libraries are realizing the benefits. These benefits include:

- the ability to have almost instant inventories,
- the ability to make better use of self-check stations,
- the ability to reduce theft and have better security of collections,
- reduction in repetitive stress injuries among staff,
- more accurate check-in of materials, and
- quicker re-shelving times.
By being able to simply walk past the books with a handheld inventory reader to do an inventory, rather than scanning each individual book, doing regular inventories will become much easier. Therefore, libraries will be able to do inventories on a regular and frequent basis. Doing a complete inventory after installing RFID allowed the University of Nevada libraries to find more than 500 lost items at a savings of over $40,000.00 in replacement costs (Carlson 2004).

Circulation becomes much simpler with the use of RFID tags. Staff at terminals and patrons at self-check-out stations simply place the stack of books on the checkout station, rather than having to scan each book individually. The current use of barcode scanners by staff has lead to repetitive stress injuries in many circulation desk workers. Since there is no need to open the book or move a wand there can be a significant reduction in these injuries by using RFID. RFID will also increase efficiency and get people through the checkout line quicker since each book does not have to be handled individually.

RFID allows you to use one tag for barcode and security strip. The scanners set up at library exits work much the same as our current security gates.

An RFID scanner can be placed in the book drop, which allows each book to be checked in as soon as it is returned. Quicker re-shelving is made possible by having return bins set up to sort returned books.

**PRIVACY ISSUES AND RFID**

Many librarians and consumer advocates have concerns about personal privacy using RFID. There is a widely held belief that as the technology becomes more accepted and standardized a third party could read the tags on books checked out or items purchased.

Libraries are storing a minimum of information on the tag, usually only the barcode, and no information that ties it to the patron. The barcode then must be linked to the library’s online system to determine other information, such as title. In a further attempt to protect the patron’s privacy, Checkpoint is offering a device that you can use to cover the tag when you are not in the library.

There is currently a RFID privacy task force sponsored by ALA, BISG, and NISO which includes major publishers and retailers.

**VENDORS OF RFID TAGS**

All major vendors provide smooth transitions to radio frequency. They also provide equipment to print and program tags and wands/readers are available on short-term lease. The tags currently cost between 50 and 80 cents, but as the technology is in greater use, it is anticipated that the cost will be lower.
The TAGSYS RFID tags as distributed by Vernon RFID also transmit a return signal to the reader at 13.56 MHz based on a proprietary match between readers and tags.

The Vernon RFID tags have 128 bit tags that are pre-programmed to hold the item ID, the security bit and variable memory that the company recommends be used to hold item information. Vernon RFID does not recommend re-programming the tags (Vernon RFID 2004).

3M has a very smooth migration path and is known for its great support. However their tags are write once read many (WORM) and do not utilize the security bit. 3M recommends that libraries stay with the magnetic strips for security.

Bibliotheca Library Systems advertise a more open system based on ISO 15693. This standard is a subset of ISO 18000-3, which covers asset management. Bibliotheca is marketing heavily in the United States and has many installations in Germany and Switzerland.

Checkpoint is currently the leader in North American installations (Anon 2004).

FURTHER INFORMATION

Research institutions provide in-depth white papers to help sort out the technology and its evolution. One recent white paper authored by TIBCO sums up the caveat this author has come to embrace:

analysts warn that companies that rush to develop ‘slap and ship’ RFID programs specifically to satisfy mandates like these are likely to implement technologies that will need to be replaced in just one or two years. In addition, these purely mandate driven RFID initiatives fail to consider and leverage the many ways that RFID can enable internal improvements in areas such as revenue generation and operational efficiency (TIBCO 2004).

RFID Research And Training Facilities

MIT’s Auto-ID Labs
http://www.autoidlabs.org/

National University of Singapore
http://www.nus.edu.sg/

Nanyang Technological University
http://www.ntu.edu.sg/publicportal/

Republic Polytechnic
http://www.rp.edu.sg/index.asp
University of Cambridge in England
http://www.cam.ac.uk/

Adelaide University in Australia
http://www.library.adelaide.edu.au/

Keio University in Japan
http://www.st.keio.ac.jp/
(Gresema 2003).

Standards Associations:

International Organization for Standardization (ISO)
http://www.iso.ch/iso/en/ISOOnline.frontpage

The Uniform Code Council
http://www.us-council.org/

EPC Global is a partnership between the commercial standards-setting organizations The Uniform Code Council and EAN International. It is an international consortium dedicated to improving the supply chain. They are working to develop further standards for RFID. And they set the standards for barcodes and establishes electronic product code (EPC) prefixes for different companies and sets the standards for XML schemas.
http://www.ean-ucc.org/

Privacy Groups

Consumers Against Supermarket Privacy Invasion and Numbering (or CASPIAN)
http://www.nocards.org/

American Civil Liberties Union (ACLU)
http://www.aclu.org/

Electronic Privacy Information Center
http://www.epic.org/

Center for Democracy and Technology (CDT)
http://www.cdt.org/

Privacy Rights Clearinghouse
http://www.privacyrights.org/links.htm

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Regular News Sources

Data Collection (Italy/France and Spain)
http://www.editricetemi.ti

e.Logistic Magazine
http://www.elogmag.com

Frontline Solutions
http://www.frontlinetoday.com

Frontline Solutions Europe
http://www.flseurope.com/fse

Identá (Germany)
http://www.ident.de

Vertical Systems Reseller
http://www.verticalsystemsreseller.com
Supply Chain Systems
http://www.scs-mag.com

RFID Journal.
http://www.rfidjournal.com/

RFID News
http://www.rfidnews.org/

Transponder News
http://rapidttp.com/transponder/editor1.html

eWeek
http://www.eweek.com
BIBLIOGRAPHY


Vernon RFID. 2004 “Answers to Frequently Asked Questions” From a promotional CD provided by Vernon RFID.