SATO

Case Study

Industrial-Style Technology Streamlines Library Operations | Farmington integrates RFID and barcode labels to reduce checkout time by 40%

Farmington Community Library Director Beverly Papai obviously sees technology as opening new opportunities and not something to fear. Not only does she use it for the operation side of library management, but for a library's core business: providing information. The increase in the library's circulation, she says, isn't due just to a growing, educated population and a new facility. It's also due to the information technology Farmington Hills offers.

The Farmington Community Library system isn't your grandfather's library.

Dark, dinghy, stuffy went out long ago in libraries, but Farmington Community Library offers much more than well-lit facilities, including videos and CDs along with reference books and paperbacks.

It has borrowed operations and material handling ideas, as well as technologies, from industry to improve the service it offers customers and to keep its costs down.

Beverly Papai, director of the public library in Farmington Hills, MI., reasoned that if industry could gain tremendous material handling

efficiencies from new technologies, libraries should be able to do the same.

Located in the growing Detroit suburb of Farmington Hills, the library faces both a physically expanding situation and an increasing circulation, all without a comparative increase in staffing funds. Library circulation will top 1 million by June, Papai predicts, and will continue growing.

"We're fortunate to live in a community with a higher-than-average norm education level," says Papai.

Farmington Hills has a substantial

number of professional/managerial and sales/technical workers. Ninety percent of its high school students go onto higher education. On top of that, the library serves close to 4,000 businesses without corporate libraries.

Eyeing all this, Papai says, "I know my public demand will substantially increase, possibly 25% to 50%, however, I will most likely not realize an equivalent increase in my staffing budget."

To resolve the issue, Farmington Community Library instituted an integrated radio frequency identification (RFID) tag and barcode system using a dozen printers from

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SATO America. Many industries use the two technologies to track products through production and equipment locations. The technological tools improve customer service and allow companies to expand while containing costs and employment levels.

"If employing new technology can change what the staff is required to do so that we can maintain or slightly increase staffing, than I have spent my money well. That's what we're looking at with this system," says Papai.

Halfway into the combined physical expansion and new library-automation project, Papai has already proven the truth of her belief in automation technologies. The growing library reduced checkout time at one of its branches by nearly 40% with the SATO-printed barcode labels integrated with the RFID system.

Creating the New System

Tri-State Tape & Label, Beverly, NJ., worked with Bill Bewlay at Leeming Management Systems, Somerset, NJ, and others to set up the system and integrate the barcode and RFID readers with the library's existing database.

First, the old barcode label in each book was scanned to pull up the data associated with that book. Then the book's new RFID tag was read, integrating its pre-programmed number with the book's database information and old barcode number. Simultaneously, reading the tag instructs the SATO printer to produce a new bar-coded label with the new RFID tag number in Codabar barcode symbology and in human-readable characters.

The SATO CL408*e* thermal transfer printer produces the 14-digit Codabar barcode symbol on a white film label, along with the library's name and logo. TriState sales manager George Righter chose the SATO printer for the job because of its reliability.

"In my experience SATO products are the most reliable out there. When I put a SATO printer in a place, I don't have to worry about it. When it does need service, it is very easy to do. SATO printers are very user friendly and very durable," says Righter.

The price is right too, he says. " The pricing is very, very reasonable. They have the best value. I can go on and on about the value of SATO printers."

TriState selected white film for the label, rather than standard paper stock, for longevity and durability. The labels have an interior die cut 1/4 inch around the perimeter of the label

allowing that portion of the liner to be pulled away to expose a special adhesive. This archival adhesive doesn't yellow, keeping the label appearance clean and sharp. The 2.5-inch square label is manually affixed over the RFID tag on the inside book cover. The label looks like any standard plate label on the inside cover of a book. It is difficult to remove and disguises the chip underneath.

From Standard Practice to Innovation

With the assistance of epixtech in Provo, UT, the RFID reader ties into an automated library system. Now, when a clerk passes a book over the RFID reader pad, it reads the same number encoded in the barcode on the SATO label. Simultaneously, the tag is turned off, to allow the book to pass through the exit reader, and the library's inventory is adjusted to record the item as checked out, to whom, the date and when it is due back.

"It typically takes 30-40% less time to check out materials now. People aren't opening and closing the book and reading the barcode with a wand. They are just moving the book over a pad. The movement is smoother, faster, very efficient and very accurate," says Papai.

So why is the barcode still on the label? While the branch has switched to the new RFID system, the main library is still using a bar-coded checkout method. Books can be exchanged between the different facilities, so both technologies must be used together until the main library is converted in 2001 or 2002, says Papai. It's a good example of two technologies and multiple vendors working side by side to assist each use.

"The different companies have been extraordinarily cooperative to resolve any problems," Papai says. While many libraries use an RFID system to make sure

only checked out books leave the library, the Farmington Community Library system has added other applications. Soon, the library system will expand the RFID tag applications to inventory control use and for book returns.

Using an RFID wand, library workers can record what books are on its shelves just by walking down the aisles of books. "Typically, libraries do not have time to do inventory. It is tremendously time consuming. This is great, however, because instead of handling each book, you can just walk down a section of an aisle and the computer wand reads it. You don't have to point it because it's multidirectional, so it takes both sides of the aisle. It's just remarkable," says Papai.

The biggest test, however, will come by 2002, when the main branch is renovated, nearly doubling the size from 38,000 square feet to 74,000 square feet. Papai expects an automated material handling system to meet the anticipated increase in use with only minimal staff increases. When the main library's renovation is completed, returned books, both from the outside drop-off box and those returned inside will go on a conveyor. The books will pass through readers that will send them to specific sections of library carts for eventual return to shelves by library staff.

"It will totally eliminate manual check in and sorting of books. That will be effective for 90% of materials that come back to us," says Papai.

"We're also considering applying this to more than books and library materials. Every organization has to be responsible for fixed assets. There's no reason we can't put tags on tables and chairs and then just walk through a room with an inventory reader. No more searching for tags on a table," says Papai.

As in industrial uses of bar-coded and RFID tagged systems, Papai would like to see the barcode label or RFID tag installed at the point of origin--when the book is published. She'd also like more information stored on each tag. Says she, "I'd like to see author, title, copyright date, ISN number and retail price stored on the tag. If I had all that information, then I wouldn't have to key it into my system. I'd save a tremendous amount of time."

Concludes Papai: "This is definitely one instance where public institutions can learn from industry and apply the same efficiency standards to a government operation."

And maybe, an instance where industry can learn from a visionary government institution once thought of as dark and stodgy.