JOHNSON COUNTY LIBRARY

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About This Report

This Case Study has been written based on a document prepared by staff at Johnson County Library entitled Radio Frequency Identification Conversion - Johnson County's Evaluation and Report. The original document is available at:

http://www.jocolibrary.org/sites/default/files/aboutus/docs/3_14_2013_Board_Report.pdf

About The Galecia Group

The Galecia Group provides technology consulting to libraries. We specialize in automated materials handling, RFID, self-service technologies and website development and support.

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IDENTIFYING THE RIGHT SOLUTION

In 2010, Johnson County Library (JCL) embarked on an initiative to implement RFID. The decision was in response to issues the library was faced related to their inability to conduct inventories and accurately track and protect against loss of items in their collection.

Before settling on RFID, other options were evaluated including locking DVDs and games cases and vending or dispensing machines but the library determined that RFID provided the most benefits including the following:

- RFID will enable staff to conduct regular inventories to improve collection management

  Inventory is essential to improving the management of the collection.

- RFID will save staff time and significant money

  The discharge function can be automated. Materials returned in book/AV return chutes can be automatically read and discharged without staff intervention.

- RFID will better secure the collection

  RFID technology works with tags affixed to library material including discs. Gates installed at library entrances are activated if materials are not checked out. Staff are notified by specific title which materials were not checked out.

PROCUREMENT

Following Board approval, the staff undertook a procurement process to identify a vendor partner. They began by developing the requirements of the new system:

- Functional, reliable RFID related equipment, including, but not limited to: security gates, self-check machines, staff RFID stations, and portable tagging carts

- Highly accurate tagging system and reception of RFID equipment with durable, high-functioning RFID tags

- Exceptional usability of RFID-related software and equipment including, but not limited to: security gates, self-check machines, staff RFID stations, staff command center, and portable tagging carts

- Unlimited training for technical and public service staff on all aspects of RFID-related equipment

- Gates should include the "smart" functionality that ensures that when the gates are activated, staff can be alerted to the specific title/item(s) that was/were not checked out prior to going through the gates

- Entire RFID system, including but not limited to gates, staff-stations, staff command center, and self-checks should all work alongside the library's integrated library system

- RFID systems and software will be updated and tested to ensure that they work with continuing upgrades of library system

- Unlimited, efficient and timely in-person service on all aspects of the RFID system, including but not limited to security gates, self-check machines, staff RFID stations, and portable tagging carts

- Timely and effective installation and calibration of security gates, checkout machines, staff RFID stations, and all other RFID-equipment

Vendor research started with the three vendors the library was already working with in some capacity relating to RFID components. The team also took into account vendors that were strategic partners with the library system vendor. Staff then interviewed other public libraries that were similar to JCL- same library system, large collection, many locations, and floating collections) that had used any of the vendors under consideration.

The library ultimately chose 3M for the following reasons:

- Existing GSA contract
- Competitive pricing
- Local service personnel
- Good experience with recent service
- Reputation for high quality equipment
- Good reputation for software

PROJECT PLANNING AND MANAGEMENT

The RFID project at JCL was unprecedented and required a great deal of planning and management. The approach that was taken became a model for future project management.

There was a core group formed, as well as several sub-teams to tackle the vast reach of responsibilities and tasks involved with a project of this magnitude.

The Core RFID Team met bi-weekly or monthly throughout the entirety of the project. Sub-teams would regularly report progress to the Core RFID Team to ensure clarity, direction, and coordination. This project management structure would go on to serve as a model for JCL's approach to future projects.

There were a total of 37 people working on the RFID Teams, which accounts for 10% of the Johnson County Library staff. The teams included:

Core RFID Team (25 members)

- Checkout Machine Sub-Team (8 members)
- Collection Tagging & Ongoing Maintenance Sub-Team (7 members)
- Communications, Promotions, & Training Sub-Team (7 members)
- Evaluation Team Sub-Team (8 members)
- Pre-Processing & Outsourcing Sub-Team (2 members)
- Retro-Tagging Implementation Sub-Team (12 members)
- Security Gates Sub-Team (4 members)
- Staff Stations Sub-Team (4 members)
- Weeding & Inventory Management Sub-Team (6 members)

In the end, every single member of the Johnson County Library staff played a role in the conversion to RFID technology. Everyone participated whether it was through evaluating contracts, training staff, tagging materials, transporting equipment, helping patrons transition to the new technology, or talking to the media.

The entire RFID project was completed between Summer 2010 and Winter 2012.

INVENTORY

During the retro-tagging, the team found 7,823 items that were previously thought to be gone. These items were thought to be missing, and lost in-transit. Overall, the new, accurate size of the collection was reduced by 12.4%.

The Library has committed to conducting a regular full inventory of the collection and implemented the following additional procedures:

- Weekly search for missing and lost items to lower loss rates and maintain accuracy
- Tracking items in the catalog when they are used as an ongoing inventory practice
- Looking for items that are have not been used after a period of time

AUTOMATION

Clerks spent approximately 35% of their time checking in returned materials. It is labor intensive and can result in mistakes because of the amount of materials touched and the attention to detail needed. Clerical staff didn't always have the time to accomplish other needed duties. As a result, Information Services staff and managers often assisted with clerical functions. These duties included processing and shelving holds, checking out patrons, handling fines, etc.

With RFID, approximately 20% less staff time will be needed to check in returned material. That time can be spent on other tasks such as direct patron service. The clerical support Information Services and Management will be needed much less. The reduction in the number of touches per item results in more efficient processes. More efficient processes lead to fewer staff needed to perform such tasks, as well as fewer processing errors which results in higher customer satisfaction higher return on taxpayer dollar.

Sorters

Sorters automate the check-in and sorting of materials. The error rate with sorters is less than 1%, according to 3M scientists. Sorted material only needs to be organized onto carts and shelved. Materials requiring special attention are sorted into a particular bin. Staff can then handle those exceptions more efficiently. Sorters speed up the check in process as well as offer a more accurate process.

The ideal setup for sorters is to have them take materials from the internal and external material drops because it enables for 24-hour processing. It also eliminates the need for staff to come in to manage large return volumes during holiday closures. Three locations have sorters installed. These locations were prioritized as ideal locations for sorters because of their circulation volume and building layout. Library staff estimate a 1-2 year payback from the three sorters based on the reduction of 3 FTE in clerical staff.

EVALUATION

Theft Reduction

One of the driving factors in JCL's decision to select RFID was the potential reduction in theft. According to theft tracking via incident reports, the library has been able to reduce theft by approximately 70%.

A 70% reduction in theft cannot be attributed to RFID alone. In conjunction with the implementation of an RFID system, a large-scale staff education process was launched to raise staff confidence in addressing patron behavior issues, including theft and suspicion of theft. Key outcomes of this process pertaining to theft reduction included familiarity with policies concerning theft, information on the techniques and deterrents of retail theft, and role-playing various theft scenarios. This process was designed to empower staff to proactively address issues in the library, in the name of excellent customer service with the expectation that staff would view themselves as the primary theft-deterrent system and the RFID gates and tags as merely an alert system.

Staff Time Saved

RFID technology has proven to reduce time spent on materials handling as well.

Materials getting checked in, or discharged, are turning over faster. The following shows the improvement in the manual discharge process alone—without automated sorters.

Time spent discharging a tub of materials pre-RFID	36:43
Time spent discharging a tub of materials post-RFID	32:12
Total time saved on each tub	4:31
Percentage saved	12.3%
Annual Savings (6.4 Million Annual Circulations)	1.54 FTE

LESSONS LEARNED

Inventory

- Big benefit from doing a simultaneous inventory while tagging
- Discovered gaps and errors that were unexpected
- Realized inventory needs to be maintained diligently
- Must wait several months for items to be returned in order to tag the majority of the collection

Staffing

- Staff have higher accuracy rates in tagging than volunteers
- Having the buildings closed greatly facilitates and expedited the tagging
- Training
- Hands-on practice was the best way to train staff
- It's ideal to train people on tagging as soon as possible to the time they will actually be tagging
- Have a few "extra" people who can troubleshoot tagging stations and restock tags so as not to disrupt the flow of the taggers

Evaluation

- It was difficult to know what to measure. The library didn't have all the statistics the team wanted so they were unable to do a before/after comparison. Statistics that would have beneficial to have beforehand include:
  - Claims returned – difficult to capture
  - Inventory number – only snapshot number really – plus it is constantly changing
- Had to use data based on anecdotal information. Made assumptions and figured out how to prove it.
- Were able to determine that the true savings comes with implementing sorters
  - Instant check-in without staff intervention
  - Drastically reduced number of claims returned
  - Items pre-sorted- gets items on shelf faster
  - Can't have sorters at every location
- Proving tagging will ultimately save clerk time is harder to prove, less dramatic number
  - Faster time to process returns
  - Faster processing of holds
  - Faster processing of clear holds
- Reporting number of "found" items is somewhat subjective – can be manipulated depending on what and how one counts