



Te Kaunihera o
MANUKAU
City Council

TECHNOLOGY INNOVATION

Botany Library Radio Frequency Identification



information **inspiration**
innovation

Knowledge and Understanding, Achievement, Accountability



Radio Frequency Identification: Finding Books and Freeing Up Staff

Botany Library is the country's first and only public library to have deployed a Radio Frequency Identification (RFID) solution.

The need for and expected benefits of the project and how it furthers the council's vision and strategic direction

Botany Library is Manukau's City's newest community library, opened in October 2004. It is located in one of New Zealand's busiest shopping complexes (Botany Town Centre). The Botany Library is Manukau's flagship library which showcases the city's commitment to innovation, support for learning, and development of a smart city.

Botany Library is the country's first and only public library to have deployed a Radio Frequency Identification (RFID) solution. All 40,000 stock items have an RFID tag.

The RFID project was in line with Manukau City Council's vision for a 'Smart Manukau' where communities have access to quality information and are inspired to be creative, innovative and knowledgeable.

It also consolidates and reinforces Manukau's reputation as bold, technology savvy innovators, smart and a leader in New Zealand's library and information profession/ local government.

One of the desired objectives of the project was to use technology wherever possible to free library staff up from the routine, repetitive tasks enabling them to be readily available to library users. Staff are actively encouraged to be proactive and engage library users offering assistance rather than wait to be approached. A further goal was to deliver more in terms of products, services and extended opening hours with the same or fewer full time staff equivalents as equivalent sized libraries in the region.

It was felt Botany library would be an excellent pilot site to prove the concept of improved inventory management in a fast moving dynamic environment where the focus was on service delivery with reduced 'back office' requirements demanding staff time.

Effective project management techniques


Research was undertaken nationally and internationally into the area of radio frequency identification library inventory management solutions.

A Request for Proposals was issued in October 2003. Twenty initial responses were received. Seven respondees were invited to submit full RFP responses. Of these a final shortlist of three potential vendors was established based on various criteria. Each of these was asked to provide a demonstration of their solution in January 2004. These were evaluated by a panel of Manukau library staff and one external panellist (from another library in the Auckland region).

The criteria used to make the evaluation were:

- ▶ functionality
- ▶ innovation
- ▶ support services
- ▶ price, ongoing costs
- ▶ track record, organisational capability
- ▶ implementation services, integration flexibility
- ▶ overall presentation.





A preferred vendor was identified and contract negotiations concluded in May 2004. The successful vendor was Checkpoint Meto Limited.

Change Management and Risk Assessment Registers were developed (documents available on request) to document and monitor actions required to mitigate or reduce as required. The vendor's Account Manager and the library's IT Project Manager were in close contact throughout ensuring all issues and challenges were managed in a timely and structural manner.

Network change management and integration testing of the RFID solution with the existing legacy library management system were managed via regular meetings with appropriate teams and formal change control procedures with each body e.g. Manukau City Council IT Operations, Datacom Systems Ltd, Checkpoint Meto Ltd.

The contract was on a fixed price basis so all purchasing, commissioning, implementation, testing, training, user acceptance testing (UAT), go-live, post go live support and maintenance costs were known and agreed in advance. The project was delivered on time and within budget.

A participatory approach to communicating with and getting buy in from stakeholders associated with the project

Several community consultation sessions were carried out when planning what products and services should be delivered for this community, as well as ensuring Manukau's unique 'flavour' was retained.

A RFID project team was formed separately to the existing Botany Build Project Team. It consisted of existing Build project team members, vendor representatives, library systems team and Council IT representatives.

Regular project meetings were held from official project launch date 5 July 2004 through post go-live. Close alignment was assured by participation of key library staff members in both projects providing communication and follow up on actions where they overlapped e.g. cabling, specific fitout requirements etc.

The Botany library staff have embraced the technology. 50% of the staff have worked in other branches where circulation tasks (check-in, issuing, stock management) must be done by handling every item individually. These staff enjoy the release from routine that the technology provides.


Innovation and originality

The Botany Library is a retail concept fused with information technology (IT) to provide retail services in a library environment. The approach for the deployment of all IT related systems and products at Botany Library was planned as a mix of current library products and services as well as stepping outside the norm in services and how these would be delivered. The underlying IT infrastructure was selected, evaluated and deployed to support this new philosophy.

Library Design: The implementation of the RFID technology enhanced the options to develop an innovative and creative library design. The traditional concept of library staff stationed permanently behind a large front desk has disappeared. Instead there are 3 'Ask Me' points located around the library which staff use to answer reference enquiries and register new members. Staff offer a 'meet and greet' service and 'walk the floor' to assist library users in locating information and items. And the entire returns process is out of the public area of the library in a specially designed room.

Customers: A recent customer survey indicated the Botany library customers prefer to visit the library for an average of 15-30 minutes. They are quicker visits than the average for our other libraries as they are more likely to be staff assisted and staff are more likely to be interacting with customers rather than processing stock. There are increased self help options in this library (including self pick-up of reserves) but also more staff available on the floor to help customers. A standard library has fewer self help options and usually you have to wait for someone to help you.





Security Gates: The RFID security gates let the staff know when an unissued book is being taken out of the library. The difference with these gates is that staff can easily check exactly which item has set the gate off. In the traditional system the gate alarms go off but it is impossible to identify the item which has activated the gate. The gates can also be programmed to speak to the customers requesting they see a staff member rather than a loud alarm noise.

The two main circulation tasks for all public libraries are issuing books to customers and checking them in again. The RFID solution has enabled routine library circulation tasks to be done faster, thus enabling the staff to spend less time on these traditional 'back-room' tasks and to increase customer contact time.

Issuing: Botany customers use the RFID self-issue machines to issue their own material. The machines are faster and easier to use than the non-RFID machines in our other libraries.

It does not matter which way items are presented to the units to be issued (unlike the standard machines where the barcode must be paced precisely under the scanner), as long as they are within range of the sensors. Several items can be read at once so users can place a pile of books (3-6) instead of placing each item one by one.

The self-issue units are unique in New Zealand. They are multi lingual with English and Maori the main languages in use. Chinese and Korean are scheduled for deployment with the next release. Users particularly like the ability to issue multiple items simultaneously via a touch screen with a simple four step process.

The self-issue machines can also issue magnetic media without damage. The conventional machines damage audio book and video tapes even if the item is accidentally put near the machine. This has alleviated stock damage of these types of items.

The self-issue machines are the only ones in Manukau that work if the library computer system is offline. All Manukau libraries recently migrated to a new library management system. All libraries were offline for a 2 day migration period. At Botany there was no discernible difference for the customers as issuing was done as normal through the self-issue machines.

Pay items must still be issued by staff at the cash transactions desk. However, the RFID technology allows several items to be issued at once here as well. RFID readers are positioned under the 'invisible' readers desk. Items are waved above the desktop instead of being scanned by handheld or overhead scanners requiring line of sight visibility.

Issues are very high: 308,789 from October 04 to June 05.

Returns: In a conventionally organised library, staff are rostered to process returns every hour of the day. This involves the scanning of each items barcode one by one. At Highland Park library 2-4 staff are rostered on the issue/returns process for the whole day (16-32 hours of staff time).

At Botany the books are automatically taken off the customer's record as the books are put through the returns slot. Staff then just pack the books onto small trolleys for shelving.

In periods of high book returns (early morning clearing of overnight slots or if computers are offline for any length of time) all staff have to be on circulation duties or the piles of books become unmanageable. At Botany the returns are cleared very quickly. Recently, the library was offline for 6 hours but the backlog of the day's returns was cleared in 90 minutes.

Successful results


- Community uptake of the new library has been phenomenal. From October 2004 to June 2005, 3904 brand new members have joined Botany Library. An average of between 8,000 and 11,000 visitors enter the library per week.

Visitor numbers compared to other nearby branches

Library Branches	Visitors October 2004 - May 2005
Botany	285,450
Highland Park	193,606
Howick	200,380
Pakuranga	204,209

- Overall the RFID technology has created a 20-50% saving of staff time spent on routine, non customer contact tasks. This saving has been invested into customer service enhancements such as a 'meet and greet' role and floor walking rather than staff being positioned behind a desk.
- Botany has self check usage of 65% average per month (next nearest equivalent sized location has 44%).
- Feedback from users has ranged from curiosity to delight and amazement at the ease of the issuing process.
- A recent customer survey showed that Botany customers come to the library for an average of 15-30 minutes. The increased efficiencies of the issuing process enables these customers to spend time using the library resources rather than standing in line at an issue desk.
- Because of the fast returns process, stock turnover continues to run at 103% per month (next nearest similar sized library has 82% turnover). These figures are the highest within the Manukau region.
- The other hardware associated with the RFID solution is inventory wands. Previous stock takes involved each library closing for one business day and all staff being involved in the process. A library with a stock size similar to Botany would normally use 10 staff for 8 hours. At Botany the entire stock can be wanded and accounted for with 4 staff (with 4 wands) in under two hours.
- There are several library tasks which involve staff having a hard copy of lists of books and going to the shelves to find them. Lists of books for bulk loans (to rethomes), books for deselection or misplaced items. The data for these lists can be downloaded from our library management system and one staff member can take an inventory wand to find the items.
- A daily task is the list of books which customers have requested which need sending to another library for the customer to collect. A typical list is 10 hard copy pages long and contains approximately 60 items. Usually, at least 4 staff divide the list up and search for the items in the first one to two hours of the day. When the list is loaded into the wands one staff member can complete the reserves searching in half an hour.
- Library staff also count items which have been used in the library only. These items are usually collected up and individually scanned through a barcode reader. At Botany this process takes a maximum of 5 minutes using the RFID staff readers which enables 6 books at a time to be read. The inventory wands can also be used for this purpose so the books do not have to be collected and taken to a staff reader at all but can be wanded 'where they lie' and immediately reshelfed.



- 
- ▶ An efficiency gain in terms of opening hours to FTE ratio has been realised with the library open 68 hours per week with 13 FTE. An equivalent sized library in a similar demographic area opens 47 hours per week with 13.5 FTE. This has presented us with many opportunities to investigate new ways of delivering more products and services based on equivalent staffing levels.

The project was a 'good, sensible and right thing to do'

Manukau Libraries is continually looking for opportunities to add value to its core business. We particularly place a high value on the role staff play in delivering excellence. In this respect, there is a preference for moving staff away from routine tasks, and into roles where their skills and expertise can be optimised. The RFID project has allowed this to occur, resulting in significant benefits for staff and the customer.

We have given our customers access to technologies they did not have access to before and the general reaction is amazement.

The library has received acclaim from numerous visiting librarians, both nationally and internationally, eager to see the innovations implemented in Botany. Just prior to the opening of the library, an international delegation of librarians focusing on the concept of 'library-as-retail' visited the library. The group included delegates from the USA, United Kingdom and Australia.

In February, the library hosted a meeting of the Metronet Group - an Association comprising the managers of the largest public libraries in New Zealand. The group included visitors from Dunedin, Christchurch, Wellington, Hutt City, Hastings, New Plymouth, and Tauranga.

Botany library is a showcase nationally for other public library systems. In the past librarians travelled to Singapore to see the technology in action, now they come to Manukau.

