Access all areas – Technical Services initiatives at UWS Library

Diane Dougall
Manager, Resources Management
University of Western Sydney

Lisa McIntosh
Electronic Resources Coordinator
University of Western Sydney

Abstract

In 2005, the University of Western Sydney (UWS) Library embarked on a range of initiatives to improve access to scholarly information for students and staff of the University. One such initiative was aimed at improving the interlibrary loan (ILL) and document delivery (DD) service for clients. The implementation of RLG ILL Manager resulted from investigation and analysis of various ISO ILL Protocol document delivery systems that would interoperate with the National Library of Australia (NLA) VDX system, and from a review of our in-house document delivery processes which were benchmarked against International and National Benchmarking studies.

A second initiative to provide better access for clients was the implementation of Serials Solutions (SS) MARC Records with a true single record approach - one bibliographic record for both print and electronic holdings. Most Libraries either load SS records into their existing catalogue, duplicating their print titles, or use an A-Z listing separate from the catalogue. The challenge for UWS Library was to develop a solution which retained the single record approach, while continuing to provide clients with a single entry point for any given serial title.

This paper discusses the pre-implementation testing and the post-implementation workflows resulting in enhanced productivity and efficiency, and provision of evidential management data for improved access for clients of the University.

First Initiative – Review of ILL/DD service and implementation of RLG ILL Manager

Background and investigation

In 2001, Technical Services at UWS Library underwent a restructure to provide increased levels of productivity and enhanced job satisfaction whilst also reducing overall processing costs. Fundamental to this restructure was the multi-skilling of all Technical Service staff to undertake the full range of tasks required of the section which included cataloguing, acquisitions, serials and document delivery (Benjamin, 2006). A rigorous training programme was implemented to ensure all staff were multi-skilled at the appropriate levels to carry out the functions of the area. This was achieved within a year of commencement.

However, one function requiring considerable improvement, reorganisation and staff retraining was the ILL/DD service. The workflows and processes were not only labour intensive but also ineffective for providing necessary evidential management data. Any management decisions were based on anecdotal ‘evidence’ and secondary data supplied by the NLA and Infotrieve (the commercial document supplier utilised by

UWS Library). Clearly, if we wanted improvements in productivity and all Technical Services staff involved in some part of the document delivery process, a review of the ILL/DD service was required.

The review of the service at UWS Library was timely, since both International and National benchmarking studies had been carried out in 2000 and 2002. An ARL study funded by The Andrew W. Mellow Foundation (Jackson, 1998) provided the impetus for many research and college libraries to carry out reviews of their current practices and to measure the performance of interlibrary loan operations. The ARL study provided a methodology for best practice which can be built on and compared over time. Utilising this methodology enabled UWS to identify the core elements of a low-cost yet high performing document delivery service operation. Further studies in best practice and performance measures were carried out by Jackson (2003), IFLA (2006) and Vattulainen (2001). Vattulainen (2001) reported that

> "high-performing operations are the ones in which efficient workflow and procedures have been established and are reviewed on a regular basis." (Vattulainen, 2001)

The NLA's 2000 benchmarking study was similarly aimed at improving services for clients. The resulting National Resources Sharing Working Group (NRSWG) surveyed the current practices and policies at many Australian libraries including the University of Western Sydney. The NRSWG, in consultation with Mary E Jackson, revised and analysed the data from the surveys and the results were produced in the final benchmarking study in 2001.

The Interlibrary Loan and Document Delivery Benchmarking Study (2001) listed five recommendations to improve services and ensure patrons receive a faster, more reliable yet less expensive service. The study recommended that improvements can be made by:

- reducing the number of steps involved in handling of requests
- automating as many of the processes as possible
- training staff in the resources and systems used for document delivery
- maintaining holdings in union catalogues
- investigating options for cooperative agreements with key requesting/supplying libraries.

UWS Library response to automating Document Delivery services

With these recommendations in mind, Library managers set about changing in-house practices to reduce inefficiencies and at the same time improve services. We implemented the recommendations that could be accomplished in the short term and then began further planning and development for a streamlined service.

In the short term, we streamlined our processes by using one preferred document supplier vendor to supply "copy" requests in the first instance. This decreased the number of searches required to fill requests and thus reduced the turnaround time for UWS clients' requests. We also supplied a UWS serials holdings data file to the document supply vendor to ensure we were not requesting materials already held by UWS.

The next phase incorporated all the other recommendations of the study.

When we looked at 'reducing the number of steps involved in handling requests' it was clear that any improvement in services was depended on automating our processes. We had already initiated an online request form for receiving ILL requests via email. However, this was far from satisfactory as each request needed to be manually checked in the Library catalogue and National database and was then rekeyed into the National Library system for action.

An investigation to acquire an ISO ILL management system ensued. The system had to be both cost effective and efficient for a small operation (in 2002, less than 12,000 transactions per annum were recorded). The Library identified the basic system requirements which would ensure improvements in our service. Any additional enhancements or services offered by the selected system would be considered a bonus.

The new system was required to

- Interoperate with Kinetica Document Delivery (KDD) service (now Libraries Australia) using ISO standards
- handle all communication electronically (both incoming requests and outgoing responses to patrons)
- provide access to reports
- store and track all requests (including non-protocol library requests)
- provide Z39.50 capabilities to access local catalogues
- manage invoicing for non-protocol library requests
- retain a listing of requests for copyright compliance purposes
- work seamlessly with ARIEL electronic document delivery software

Following the demonstrations carried out by shortlisted vendors and subsequent evaluation process, RLG ILL Manager software was selected. This software offered the library:

- a single simple system for managing all ILL transactions
- an easy to use interface simplifying staff training and improving productivity
- complete request tracking capabilities, including non protocol requests thus eliminating the need for paper files
- patron access to web interface request forms and the capability of handling all communication about the requests electronically thereby eliminating most manual data entry, checking and delivery notifications
- extensive online and on-demand reports and statistics, accounting and invoicing, enabling the Library to track activity, performance, copyright compliance, invoicing, and patron transaction summaries
- a standard ISO compliance and connectivity to other libraries and ILL systems, interoperating with KDD and using Z39.50 searching capabilities to connect to the Kinetica database and the UWS Library's catalogue
- full integration with ARIEL software for document transmission
- and it was affordable!

We now had a system which matched our requirements, and would virtually eliminate paper copies and files; check incoming requests against identified catalogues for availability; notify patrons where and when to pick up items; track all requests; manage invoicing; and provide reports for evidential management data. Moreover, it

provided the means to automate workflow and processes for the Technical Services' staff of the Library. All we needed to do now was implement!

Testing and implementation

As with any systems implementation, the project started with an ideal plan and a good deal of enthusiasm. At the onset, we had negotiated with RLG to have a development version of the software for testing and a production version for implementation. Our plan included setting up the development version so that we would only need replicate it for the live version. Eventually, all technical services staff would have access via client interfaces to RLG ILL Manager so that daily activities could be carried out at their own work stations. Once the technical applications were set up, Australian specific data was added, eg loan periods and delivery costs.

The development version was populated with a patron load extracted from the University's student records system. We encountered a problem with the migration of patron data and matching fields within RLG ILL Manager which delayed progress and our enthusiasm wavered. However, once this was sorted, the determination to see the system up and running was again high on the agenda and enthusiasm to finalise the implementation was restored. We contacted the NLA for a full Library supplier data file. The Library systems' staff mapped this data to matching fields in RLG and the load went smoothly. Any future updates to this supplier file in RLG would be supplied by NLA at the time of implementation.

In late January 2005, initial testing with the system email addresses and NUC symbols was carried out with Flinders University Library, S.A. The three South Australian university libraries had also purchased RLG ILL Manager and there were mutual benefits to be gained from exchanging test requests - as a supplier and as a requestor. Testing was successful between identical ISO ILL systems. A more thorough analysis of the requests and extensive interoperability testing would be carried out when working with other ISO ILL systems. However, we did continue sharing tests and offering advice to our colleagues in South Australia over the next few months as we took up other challenges with NLA and Infotrieve.

Initial testing with NLA stalled. Our first tests highlighted problems with client identification numbers and matching delivery methods with those in VDX. While NLA carried out interoperability testing with RLG (USA) and continued to review our problems, we moved to testing with Infotrieve (USA). We also thought that we were more likely to initially succeed in one aspect of document delivery; that of "requestor", than attempting both types of actions - supplier and requestor. Document delivery email addresses and NUC symbols were exchanged with Infotrieve and testing commenced in February 2005. Moving through the assigned tests required significant perseverance to overcome the problems associated with time differences, holidays and availability of staff in USA to carry out the tests. The testing involved actioning supplied, non-supplied, conditional YES and NO responses, replying to multiple messages, completing, receiving, suspending locations, filling all fields with maximum data, checking delivery/billing addresses, fax and telephone numbers. The tests seemed endless but, as we were soon to find out, not nearly as extensive and exhausting as those NLA were about to demand of us. We completed testing with Infotrieve by the end of March and they were ready to implement. We then returned to testing with NLA.

Interoperability testing between NLA and RLG had ground to a halt while issues were being addressed by both parties. We picked up on the testing and were able to resolve the match point issue between RLG and VDX system. We also added

Australian specific service levels to RLG. Further modifications to the exact wording of delivery methods also assisted with data matching. Screen dumps and set up information were exchanged and at least 100 test actions to requests were also exchanged - requiring every type of action imaginable.

It was at this stage that we reviewed our plans and looked at our options. We had two choices – either we continued testing with NLA and held up for full implementation, or we carried out a partial implementation which would involve going live with only Infotrieve as a supplier. We were confident that we would resolve any interoperability problems with NLA and we were anxious to see some results from our work. Partial implementation would also provide time for staff to become familiar with the new system. Infotrieve was advised of a commencement date and Library staff met to devise interim measures for continued document delivery service. Some staff would continue with the current workflow for 'requestor of loans' and the 'supplying of loans or copies' within KDD. Most staff would search for articles/copies and forward to Infotrieve to action via RLG ILL Manager.

Implementation with Infotrieve was seamless and staff were keen to take on the new system. Work flows were amended, and even this small change in the document delivery process produced a faster, more efficient service for our clients. Paper documentation of requests was no longer required as requests could be tracked in RLG. Although some staff found it more difficult to relinquish their paper copies than others!

Boosted by our success with Infotrieve, we intensified our efforts in testing with NLA. We set up the Z39.50 connections to our local catalogue and to the Kinetica database. It was here that we met our next stumbling block. We could search the Kinetica database from within RLG and locate titles, however we were unable to view the holdings of these records via the Z39.50 connection. There was no quick fix to this problem and we knew that this was going to mean a work around once we went live. As a 'requestor' of loans, we would need to search Libraries Australia for holdings and manually add the NUC symbols to the rota and requests in RLG. Whilst this situation was not ideal, the workaround was not considered insurmountable.

Recognizing and resolving this display problem, we continued preparing the production server for full implementation and made the following changes:

- Changed the invoice formats for non-protocol libraries
- Reformatted pick slips so that all information was available on a single sheet
- Created standard email responses
- Tested input of 13 digit ISBNs in requests
- Converted the USA date format to accept Australian date format
- Added an Australian copyright message so that it appeared on cover sheets
- Worked with NLA to create one single NUC symbol with the 7 UWS campus libraries NUC symbol feeding into the new NUC.

We drafted procedures and made preparations for the changeover. We understood that there would be a two month lag on completing the actions on those requests extant in KDD. Once RLG was fully implemented all new requests would be actioned in RLG. Staff were prepared, trained and keen to commence.

Final interoperability testing with NLA and KDD gateway was completed in early July 2005 and we were given the 'green light' by NLA.

Results

Full implementation took place on 20th July 2005. We were jubilant. The ILL/DD system change over was achieved with no interruption to client service. NLA staff were pleased and celebrated our success as one of the first libraries to implement ISO ILL operations outside the LIDDAS group. We were the first Australian Library to implement RLG ILL Manager. We finally had an ILL/DD service which was reliable, fast and affordable and which would improve access for UWS clients. Current data for the period 1st October 2005 to 30th September 2006 displays a marked improvement of service.

UWS as supplier
3,033 loan requests received with an 82% fill rate and a response time of < 6 hours
2,282 copy requests with 55% fill rate and a response time of < 1 hour

UWS as requestor
1,728 loan requests with 93% fill rate via KDD and an average response rate of 5 days.
5,535 copy requests with 98% fill rate by Infotrieve and an average response rate of 2.7 days.

It should also be noted that all requests from UWS staff and students are processed within 6 hours of receipt by the Library.

Prior to the review of our ILL/DD services and their subsequent automation, our response rate for UWS clients was significantly higher and the response from users of Document Delivery has been overwhelmingly and consistently high.

So, where to now? With the sale of RLG, we again reviewed the available options, selecting Relais as our preferred system. The lessons we learnt from the RLG implementation stand us in good stead, and we are currently implementing Relais with a view to be live by the beginning of first semester.

Our staff are not concerned by the change and look forward to the further enhancements which we believe Relais will offer.

Second Initiative – Investigation and implementation of Serials Solutions (SS) MARC records – a "single record" approach

Background and investigation

The need for a MARC record service became evident as the UWS electronic journal collection increased exponentially during 2003/4. The electronic preferred Library Collection Development and Access Policy mandating the provision of access to information rather than ownership saw a massive shift to electronic provision which continues to this day. Within the two year period, 2003/4 UWS Library e-collection grew from some 8,000 e-titles to over 30,000.

The Library had always provided access to electronic serials via the catalogue with an integrated single record rather than maintaining separate or parallel access via a system such as an e-journal portal with an A-Z list. This was a conscious decision to provide a single point of entry to the provision of access to scholarly information and resources for UWS clients.

Management of serial changes was a manual process reliant on publishers and vendors providing regular updates. Updates of serial titles, holdings and URL's was collected by the Electronic Services Librarian and provided to Technical Services staff to make the changes when time and priorities allowed. Large scale updates, such as changes to publisher base URL's, were made by the Library systems team but again were dependent upon availability of system staff time to write and run programs to implement these changes. The provision and quality of the updates themselves however often proved less than satisfactory. They were time consuming to complete and often lead to incorrect or incomplete data provided to clients in a less than timely manner. New datasets could not be easily added to the collection whilst still maintaining the single record approach.

UWS has always maintained a single record policy in order to provide the simplest but most complete way for clients to find information they require, regardless of format. Although we had investigated several serial management products prior to 2005 their incompatibility with this policy was the main reason we had not proceeded with implementation. We felt that it would be a retrograde step in the provision of a quality service to our clients.

In January 2005 we attended a demonstration by Serials Solutions (SS) at the Information Online Conference. During discussion with Serials Solutions representatives we explained what we wanted to achieve, namely the goal of providing accurate and timely data within the scope of our single record policy. SS thought that this might now be possible and agreed to work with UWS to try and make it a reality.

Preparation involved several different tasks by staff within various sections of the Library. Serials Solutions provided a specified set of test records based on UWS dataset holdings. 100 existing UWS records were manually loaded to our ILMS training database. These records were selected to represent all possible variations and permutations such as single electronic holding, multiple electronic, electronic plus print holdings and print holdings only – not to mention differing print holdings at multiple locations across the 7 UWS libraries.

Against the live database Systems staff ran a report on duplicate ISSN's and also on records with no 022 field in the MARC record. Technical Services staff then "cleaned up" these records and added ISSN's wherever such data could be located. This process was a good exercise in itself but was vital to allow for optimal data matching when and if Serials Solutions records were to be loaded.

A Systems staff member then wrote the first draft of the match/merge program.

Testing and Implementation

Significant testing over a six month period was required to match UWS records with Serial Solutions records. This involved importing, then overlaying records in the UWS Voyager test database. Thorough checking was undertaken at each step to ensure the matching of bibliographic records was successful; that the program was updating holdings (online version only); and that the holdings were displaying correctly.

Two different display options had been considered - either making the 856 field viewable or creating a new Marc Format for Holdings (MFHD) record. We decided to go with the second option which was scripting the 856 field from the bibliographic record into an 866 field on a holdings record to ensure consistency of display for all formats of material in the catalogue.

It was always understood that match points between the UWS record and the SS record were going to be critical to the success of the project. We considered a number of possible match points. The unique SSJ number provided with each Serials Solutions MARC record was the obvious match point but would only be viable after the initial load and overlay of records into our system, thereby adding the SSJ number to our serial records. We decided our first load would match on the 022 ISSN field and then the 245 title field. Incoming records had to find a 100% match on either of these fields. As part of our MARC record configuration documentation we had requested CONSER print/neutral records which generally contain the print ISSN in the 022 field subfield a. We requested that if the print ISSN was unavailable that the e-ISSN be placed in the subfield a rather than subfield y. We also requested the removal of the [Electronic Resource] GMD from the 245 subfield h. Both of these customisations allowed for comparable matching with current UWS MARC records.

In January 2006, we received the initial load of 33,000 SS Marc records.

These records were run against the match/merge application and then loaded to the live database. Reports from this process showed a 90% match rate against existing UWS Marc records. This was considered a resounding success! A final report on duplicate titles was run to manually merge any problem titles.

Processing serials Solutions records

Serials Solutions provides three files for updating serial holdings once a month, a file of new records; a file of updated records; and a file of records to delete.

The application is coded in Visual Basic and uses Endeavor's BatchCat library to update the Voyager database. Essentially the application compares a file of Serials Solutions records with the library's serial titles. If a match is found the SS record overlays the matching library bibliographic record. If no match is found the SS record is imported into the library database as a new bibliographic serials record.

Overlaying means that all fields except 001 (record ID) are removed from the UWS record, and all fields from the SS record, except 001, are added to the UWS record. BatchCat updates the 005 field. If the UWS record has an electronic holdings record attached, the holdings 856 field(s) are replaced with the 856 fields(s) from the SS record. One implication for the library of this process was the need to ensure that 100% of our existing electronic serials holdings were reflected in the SS knowledgebase. Thus, any print holdings attached to the UWS record are left intact. When an SS record is imported into the library database, a new electronic holdings record is created for it. The 856 field(s) from the SS record becomes part of the new holdings record.

Comparing records

On start-up, the application runs a query against the library's database and retrieves all serial bibliographic records. It then reads in a file of Serials Solutions records, selected by the user. Each SS record is compared with each UWS record. The first comparison is on the 035 field. If a match is found the UWS record is overlaid. If no match is found on field 035, the next comparison is on field 022, subfield a. No comparison is made on subfields y or z. When a match is found the UWS record is overlaid. If no match is found on either the 035 or 022 the UWS record and the SS record are compared on field 245. Comparison is on the entire field. If a match is

found here, the UWS record is overlaid. If no match is found on any of the above comparisons the SS record is imported.

Title matching is done by removing all characters in the 245 field except a-z, A-Z and 0-0 for both titles. The first character of the UWS title is then compared with the first character of the SS title. If a match is found the second character from each title is compared, and so forth.

The Deletions module in the original project was kept separate from rest of the process. The 035 field is extracted from each SS record in the Deletions file and compared to the 035 field in the UWS serials records to determine which records to delete. Next, the MARC holdings records for each to-be-deleted bibliographic record are examined. If the bibliographic record has an e-holding only, then the holding is deleted together with the bibliographic record. If the bibliographic record has an e-holding in addition to print holdings, the e-holding is deleted, and the print holding(s) and bibliographic record are left alone. If the bibliographic record has only print holding(s), nothing is deleted. The 856 should be removed from all bibs which survive the deletion process. In fact, the 856 is removed from all bibliographic records, whether they be deleted or whether they survive with print holding(s).

The error rate to date has been negligible with only 2 records incorrectly overlaid. In both these instances the original UWS record had contained an incorrect ISSN.

Initially the application was run over the weekend to minimise the impact on clients, but as the majority of records are now updates matching on 035 field the application is run on the same day the file is received from Serials Solutions.

Future

It has now been a year since the implementation of Serials Solutions. Our decision to retain our single record policy was a worthwhile exercise for our clients in that we were able to continue providing a much wanted and popular service. At the same time we have achieved improved work flow with less staff resources required in maintaining the integrity of the data within the catalogue.

We are currently refining the original program to include automatic updating of bibliographic records to remove any reference to ‘electronic version’ where we no longer have access to the e-version but where print is still retained and we therefore are not removing the record completely. Moreover, Serial Solutions will be including e-books within their knowledge base in 2007. With some 15,000+ e-books, we will be looking to expand the match/merge application to include electronic monographs.

What have we learned from this exercise? Preparation is the key to a successful experience. We planned, tested, amended our parameters, re-tested and then tested again. Perseverance also played a major role. All vendors had told us it was not possible to retain our single record approach, and our initial testing seemed to confirm this. However failure was not an option yet nor was the continuation of a manual updating procedure for a collection which was almost doubling in size annually. When added to our absolute commitment to continue providing a high quality service to our clients, the only remaining option was to ‘make it work.

Nine months from inception, the result has been an international ‘first’ and we have been pleased to provide our programming to colleagues around the world.

References

Benjamin, R. (2006). Tech trials? Top'd, Turn'd and Transform'd. (p. 4) (Unpublished).

Jackson, M. E. (1998) Measuring the performance of interlibrary loan operations in North American Research and college Libraries. Washington, DC: Association of Research Libraries.

Jackson, M. E. (2003) Assessing ILL/DD Services Study: Initial Observations. ARL. 230/231. http://www.arl.org/newsltr/230/illdd.html (Accessed August 2006)

National Research Sharing Working Group. (2001). Interlibrary Loan and Document Delivery Benchmarking Study. Canberra, ACT: National Library of Australia.

Vattulainen, P. (2001). Nordic Study of Performance Measurement of Interlibrary Loan and Document Delivery Service". http://www.nrl.fi/nvbf/nordicpm.htm (Accessed August 2006)