Reshaping and rescoping university libraries to fit changing academic requirements

Author/Contributor:
Frances, Maude; Fletcher, Janet; Harmer, Sue

RESHAPING AND RESCOPING UNIVERSITY LIBRARIES TO FIT CHANGING ACADEMIC REQUIREMENTS

Maude Frances, Janet Fletcher, Sue Harmer
University Library, University of New South Wales, Sydney, Australia
m.frances@unsw.edu.au

Abstract
The paper outlines the strategies and processes that were adopted by the Library at the University of New South Wales, a research intensive university in Australia, to provide eResearch support services for the University's academic community. The focus of the paper is on how structural, technical, staff and content-related components of the Library were reshaped to integrate eResearch services with the organisation's existing business. Relationships between Library work units were reconfigured and new collaborations with researchers and external partners were developed. The authors conclude that organisational flexibility is a core requirement for academic libraries to be responsive to changing research practice and developments in scholarly communication.

eResearch infrastructure; library research support services; organisational change; flexible workplaces

Introduction
Changes in research practice, including methods of scholarly communication, come with new challenges and opportunities for research intensive institutions. As research activity at universities generates increasing volumes of digital content from across the research lifecycle, institutions have become more accountable for the creation and management of their research output, resulting in a need to develop strong and stable research information infrastructures. Such a research environment has given each academic library an excellent opportunity to make a significant impact within its organisation. By exploiting its experience and understanding of managing content, knowledge of information systems, and knowing the value of collaboration, the academic library can contribute substantially to research information infrastructure.

The academic library
The value of academic libraries in the 21st century is measured by how well they serve the learning, teaching and research of their institutions (Wawrzaszek & Wedaman, 2008). Changes in research practice require an academic library to move beyond just delivering central library-based systems to developing partnerships across the university by embedding library services within faculty-based structures and workflows (Wawrzaszek & Wedaman, 2008; Lewis, 2007). Furthermore, academic libraries should support global networks of scientific communication as researchers increasingly collaborate in international and interdisciplinary networks of scholars, including sharing knowledge and resources with non-academic stakeholders (Pietruch-Reizes, 2009).

These developments bring a need for a fresh approach to academic library management. A core requirement for library leaders is the ability to 'work confidently with uncertainty' in adopting new models of management that are highly responsive to a leader's parent institution (O'Connor, 2007). Most importantly, to support changes and developments in the tertiary environment, academic library management needs to actively encourage and value continuous learning and to invest heavily in staff development across all areas of the organisation (Lewis, 2007). A well educated, communicative and flexible workforce requires staff to be equipped with the skills to 'recognise and respond to the dynamism of the new service models and operate successfully amid the impermanence of the new tools' (Byrne, 2008). This requires innovative

and creative thinking, along with the capacity to plan and operate in novel situations (Neal, 2006). An increasing number of 'technologists' is also required to develop, customise and maintain sophisticated library technologies and infrastructure (Lewis, 2007).

<u>University of New South Wales Library</u>
The University of New South Wales (UNSW) is one of Australia's leading research and teaching institutions. Established in 1949, UNSW now has approximately 40,000 students, including more than 7000 international students from over 130 different countries. The University's key strategy is to become a leading research intensive university in the Asia-Pacific region, focusing on contemporary and social issues through defined strengths in professional and scientific fields (University of New South Wales, 2010). To support this strategy, a key focus for UNSW Library is to provide research support to its stakeholders. Over recent years, this focus has required the Library to undertake several structural changes.

The first significant change was during 2002-2006 when the Library underwent a major restructure process. The final outcome was moving six special libraries with a high degree of operational autonomy into one unified library (Wells, 2007). The restructure provided a flexible "fit for purpose" organisation in which new internal and external relationships and collaborations could be developed. One of the main structural changes was the re-organisation of the technical services area, with resources previously allocated to print materials redirected to support electronic requirements of a hybrid library. Within the new structure, library staff were encouraged to develop skills and capabilities for managing digital resources and systems, including learning about emerging technologies for institutional repositories and open access scholarly communication (Amos, 2006).

The first major initiative that required an understanding of emerging technologies was the ARROW (Australian Research Repositories Online to the World) demonstrator project (Payne, 2005). UNSW, in partnership with Monash University (lead institution for the project), the National Library of Australia, and Swinburne University of Technology, established ARROW in 2004 to develop and test software solutions, standards and workflows to support institutional repositories. An outcome of the ARROW project was UNSW's institutional repository, UNSWorks, which was launched in 2007. This was built on a Fedora repository with separate software applications for discovery and deposit of content. The management of content, as well as system development and maintenance, was the responsibility of the Library's ARROW project team. This team became Library Repository Services (LRS) at the conclusion of the ARROW project.

During the ARROW project, a number of partnership projects were also developed between LRS and research groups in UNSW's academic community. LRS collaboratively designed and built the Membranes Research Environment (MemRE) and Social Science Research Materials (SSRM) to support research collaboration, including discovery and sharing of research assets (Cox et al., 2009, Frances & Croucher, 2009). Both projects were based on business cases and requirements of members from the UNSW research community. MemRE supported the research of projects in a multinstitutional and multidisciplinary research cluster by storing and providing web-based access to research publications, as well as information about properties, and characterisation and visualisation methods for membrane materials. At the conclusion of the project, MemRE content was made publicly accessible. SSRM was built to support Australian social and policy research in HIV, hepatitis C and related diseases. SSRM content included research material from across the research lifecycle, policy documents and related health education and media resources. It was intended for use by academic researchers as well as non-academic research partners from government and community organisations.

To meet the requirements for dissemination of repository content and for sharing content between repositories, LRS developed tools to support collaborative research. "Citation Builder" originally developed under the ARROW project, draws on DC metadata in repository records to dynamically generate publication lists for display on faculty-based web pages. An enhancement to Citation Builder enables the inclusion of Harvard-style formatted citations in record metadata. A second tool, the "Selective Harvester", supplements local content with content from other repositories. It links UNSW's repositories to national and international OAI-compliant research infrastructure by harvesting records from selected repositories, filtering harvested records using

keywords provided by researchers, and ingesting filtered records into UNSW-based repositories.

Projects to services
UNSW Library's approach in developing information infrastructure to support UNSW research projects was to work in partnership with researchers who had identified needs relating to management of research materials and workflows. Adopting this "bottom-up" strategy served various purposes for the Library. It provided diverse test beds for investigation and experimentation with emerging technologies, protocols and standards, (e.g. OAI-PMH and MODS). Working closely with researchers also gave the Library insight into existing and emerging research practices and requirements for information management in different disciplinary contexts. This allowed the Library to develop systems, tools and services with functions and features defined by actual business cases. Most importantly, it provided a necessary grounding and starting point for the Library to establish a program of user-centred eResearch and data management services for researchers at UNSW. However, with the increasing number of partnership projects and services to manage, the Library needed to merge the work done in LRS into existing Library systems and services. In other words, UNSWorks and the partnership projects needed to shift from projects to services.

The Library was technically well positioned to integrate new and existing services, having already deployed a single front end, Ex Libris's Primo, branded as "SearchFirst", over the Library's catalogue and databases. The project included customising Primo to give a consistent look and feel to the catalogue and other library web-based applications. As Primo enables both distinct and blended views of various data sources, Library senior management soon recognised the value in also using Primo as the front-end on UNSWorks and partnership projects.

Existing functionality of UNSWorks and of partnership projects, however, meant that additional modifications to Primo were required. Another layer of complexity emerged when a new partnership project with the Faculty of Medicine was established. This was due to the project having a number of user requirements that differed from those of previous projects. A major modification, for example, was to link Primo to a tool that enables academic and research staff to add and edit content without mediation from library staff. To make these modifications scalable and sustainable, a framework was developed for delivering multiple repositories to academic faculties. The framework enabled research units within academic faculties to retain control of the repositories' content. The Library continues to be responsible for content discovery by developing and supporting the various distinct and blended views of this data.

Re-organisation of the Library enabled more attention to research support services. This shift in focus, from predominantly reader services to services for researchers as creators and authors, raised various content-related issues for the Library. Adding research output from UNSWorks to the Library's integrated search service, for example, required a rethinking of the scope of the Library's collection. The Library also needed to consider acceptable standards for data entry and quality control and responsibilities relating to rights management. Content of repository services include author and publisher versions of academic and non-academic publications, research data, material used in the conduct of research (e.g. questionnaires and survey instruments), media clippings and various ephemera. The content is added by researchers, authors and faculty-based administrative staff and can be automatically imported from external national and international OAI-compliant repositories. As full text content is publicly available, provisions under the Australian Copyright Act of 1968 and Copyright Amendment Act of 2006, relating to rights of use for research and educational purposes, were not always applicable. Copyright of content in both UNSWorks and the partnership projects was held by researchers, UNSW or other universities, research partners, and academic, government and community media publishers. As a result, authentication and rights management workflows and metadata have been built into the services to enable library, academic and administrative staff to manage copyright and related matters.

The re-arranged library
Academic libraries traditionally tend to be structured with units providing frontline services to clients (reference, liaison, training, collection development) which are supported by "back office"

units (IT, technical services, human resources, building services). To integrate repository and eResearch services into mainstream library services required UNSW Library to rethink how to do its work. It needed to consider how best to restructure its services to provide not only the technical support but also how to build even stronger relationships with its community. It was also important to realign its resources to put more emphasis on digital services and resources. As a result, the Library's senior management implemented a rearrangement of the Library's structure. The rearrangement was designed to move from frontline/back office thinking to a structure where work was integrated and required the collaboration of all units. The Library's technical services department was disestablished, with the Electronic Resources Unit moving to a newly formed Digital Libraries Services Department (DLSD), Print Resources Unit to the Central Services Department (CLD) and the Document Services and the Collection Development & Policy Unit moving to Information Services Department (ISD) (UNSW Library, 2009).

Once the rearrangement was put in place, various strategies for sharing and developing expertise across Library work units were implemented, including attendance at staff meetings and seminars of other units, joint development of resources and services, and staff transfers between work units.

A critical area of collaboration was between staff from LRS and the Library Applications Support Unit (LASU). A program of peer mentoring and temporary staff transfers was established between repository and system maintenance staff to facilitate the transfer of knowledge and skills between the units. Two staff members, one from each unit, met regularly over a six month period in a structured series of theme-based sessions to investigate Primo and Fedora capabilities and methods for providing functions such as full text indexing, de-duplication of records and creation of permanent identifiers for repository records. In addition to implementation of innovative solutions, an outcome of the meetings was a presentation to all Library staff and to an international software users' meeting (Riccardi, 2011). An LASU staff member was seconded to LRS for twelve months to develop a wider understanding of Library systems and applications in LRS, and to take back to LASU a practical knowledge and skills required to support the Library's repository systems and tools.

Close collaboration has also been necessary with ISD's Academic Services Unit as it is the outreach librarians who promote library services to the academic community. Regular meetings with repository staff, along with presentations about emerging projects and services, provide up-to-date information and a broader understanding of trends and services for researchers. Librarians inform academic and research staff about open access publishing, research metadata, and methods and infrastructure for disseminating and sharing research material. In addition to fielding queries from the research community and identifying potential partnership projects, outreach librarians provide input to LRS services to ensure that emerging library services are user-centred and fit for purpose.

One of the most useful methods for communicating eResearch developments across the Library is the SearchFirst Development Group (SDG). Originally established as part of the Library's Primo implementation project, SDG continues to meet on a monthly basis to allow librarians to raise issues from the University's community and for library staff to discuss technical and content issues. All members of the SDG keep in mind that eResearch services come from user needs, and decisions are based on the benefits of the user rather than what is possible technically. The SDG is where future developments are discussed, planned and budgeted. These developments are then incorporated into the Library's overall strategic planning and budgeting process with different library departments taking on responsibility for implementation.

Staff development
To better understand about repository and eResearch services, professional development needs were identified for Library staff. Staff from across all areas of the Library regularly attend national and international eResearch, open access, digital library and library systems' conferences and technical workshops. Library staff are encouraged to attend sessions outside their comfort zone and/or outside his or her primary areas of responsibility. This has resulted in some lively debate and some "left field" suggestions on how to do things. Of course there is also a need to build in-house skills for developing and customising library systems. In particular, java

web development skills were identified as a core requirement in building and maintaining web services. Integrating workflows across the Library requires new sets of skills for managers and other staff. Project management skills, including communications planning, were developed particularly as professional librarians need to talk to IT and web development staff. Data Librarianship has been identified as one of the library's strategic initiatives. Under this initiative, positions have been created to "grow" data librarians, with strategies employed to develop data librarianship expertise within the Library's existing workforce.

Building Relationships
As is evident with the repository projects, building strong working relationships between the Library, Ex Libris and the University's community has been vital to the projects' success. At an operational level, the Library works closely with staff from the Deputy Vice Chancellor (Research) Research Strategy Office, UNSW's Graduate Research School and a number of high profile UNSW Research Centres to integrate eResearch processes and services into established programs and workflows. As academic and research staff are busy people, a major role for outreach librarians and data librarians is to keep eResearch in the headlines. This is achieved not only through formally funded projects, but by describing the work and issues in reports to faculties and schools, in discussions with individuals, in presentations to various university cohorts, and so on.

Primo has proven to be a versatile product in developing repository services and hence our relationship with Ex Libris is extremely important. Library staff regularly teleconference with Ex Libris colleagues in Israel and have built a strong collegial network with other Primo customers around the world. These relationships enable UNSW Library to influence and actively contribute to developments with Ex Libris's products.

At a more institutional and strategic level, in 2009, the University Librarian recommended the establishment of UNSW's eResearch Coordination Group. This Group is a forum to ensure that the University has an integrated approach within eResearch. UNSW is also a member of Intersect Australia Ltd, New South Wales's major eResearch organisation. Intersect was founded to provide high quality eResearch services and solutions to its members (Intersect Australia Limited, 2010).

Conclusion
As research output increases in volume and complexity, faculties and research centres of research intensive institutions will require substantial support to manage the content. Academic libraries are well positioned to provide this support due to a long history of managing information and systems. However, to be able to anticipate and respond to these changes, academic libraries need to build more flexible organisations where resources can swiftly move between projects, where services can easily adapt to evolving and new developments within institutions and beyond, and where internal and external collaborations are fundamental to library services.

References

Amos, H. B. (2006, December). *Digital libraries and institutional repositories: Drivers for organisational change.* Paper presented at International Conference on Digital Libraries, New Delhi. Available from http://handle.unsw.edu.au/1959.4/18582

Byrne, A. (2008). Web 2.0 strategy in libraries and information services. *Australian Library Journal, 57,* 365–376. Accessed from http://www.alia.org.au/publishing/alj/57/ALJ_Vol_57_No4_2008.pdf

Copyright Act, No. 63 Australia. (1968). See http://www.comlaw.gov.au/Details/C2010C00476

Copyright Amendment Act, No. 158 Australia. (2006). See http://www.comlaw.gov.au/Details/C2006A00158

Cox, S., Frances, M., Croucher, J., Sidhunata, H. & Leslie, G. (2009, June). *MemRE: Collaborative development of an integrated research environment.* Poster presented at CERN workshop on Innovations in Scholarly Communication (OAI6), Geneva. Available from http://handle.unsw.edu.au/1959.4/40692

Frances, M. & Croucher, J. L. (2009, June). *Research infrastructure for problem-based research: Aligning research, policy and practice.* Paper presented at 5th International Conference on e-Social Science, Cologne. Available from http://handle.unsw.edu.au/1959.4/40920

Intersect Australia Limited. (2010). See http://www.intersect.org.au/

Lewis, D. W. (2007). A strategy for academic libraries in the first quarter of the 21st century. *College & Research Libraries, 68,* 418–434.

Neal, J. G. (2006). The research and development imperative in the academic library: Path to the future. *portal: Libraries and the Academy, 6,* 1–3.

O'Connor, S. (2007). The heretical library manager for the future. *Library Management, 28,* 62–71.

Payne, G. (2005, February). ARROW institutional repositories: A report on the decisions and experiences of the ARROW projects. Paper presented at the ALIA Information Online Conference, Sydney. Available from http://arrow.monash.edu.au/hdl/1959.1/51178

Pietruch-Reizes, D. (2009) A new look at the university libraries in context: European research area. *Library Management, 31,* 36–41.

Riccardi, S. (2011, May). *Customising Primo V3 for discovery of digital collections.* Paper presented at ELUNA Conference, Milwaukee, IL. Available from http://handle.unsw.edu.au/1959.4/50438

University of New South Wales. (2009), *B2B Blueprint to Beyond – UNSW Strategic Intent.* Available from http://www.unsw.edu.au/about/pad/strategicintent.html

UNSW Library. (2010), *Organisational chart.* Available from http://www.library.unsw.edu.au/about/corporate/orgchart.html

Wawrzaszek, S. V & Wedaman, D.G. (2008). *The academic library in a 2.0 world* (Research Bulletin, Issue 19). Boulder, Co, Educause Center for Applied Research.

Wells, A. (2007). A prototype twenty-first century university library: A case study of change at the University of New South Wales Library. *Library Management, 28,* 450–459.