Assessing the benefits of a national print repository: an Australian overlap study

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ABSTRACT

This paper reports on current research assessing the potential space savings that can be made if Australian academic libraries implement a national repository for the storage of legacy print collections. The paper reports on data derived from a collection overlap study based on members of the CARM (CAVAL Archives and Research Materials) Store in order to estimate the impact of a fully implemented national repository. It includes a calculation of the shelf and floor space that libraries might potentially retrieve for other purposes.

INTRODUCTION

Research libraries have long depended on remote, high-density storage to deal with expanding collections and lack of storage space in their principal library site.[1] Increasingly remote storage is seen not only as a necessity required to manage local space shortages, but also as a desirable means of reducing the high cost associated with indefinitely storing low use print material. For many libraries it is apparent that the long established but expensive practice of storing little-used materials "just-in-case" they are required is becoming unsustainable. The savings made by using remote storage more than compensates for the inconvenience incurred by some users as they wait to access stored items.

The pressure to minimise long-term storage costs has led libraries to embrace ways in which the expenses associated with remote storage can be further reduced. This has been achieved in two ways. Firstly, by the implementation of increasingly high-density

forms of storage; and secondly by libraries collaborating in order to share the costs associated with acquiring, managing and maintaining a storage facility. The result is a steady rise in the number of collaborative or federated facilities, sometimes referred to as print repositories.[2] The use of print repositories not only reduces the space and cost pressures associated long-term print storage, but it can also benefit users by optimising the efficiency of discovery and delivery of low use print material. This has led to the implementation of national print repositories in several European countries,[3] and to other countries implementing increasingly broadly-based regional repositories.

Despite the apparent benefits to be gained from federated print storage, there are, however, issues that to date have prevented this solution from being implemented in Australia. Some of these issues are related to the relationships between the nation's research libraries and their access to government funding for research infrastructure;[4] and perhaps others have more to do with pride in collection size and lingering competitiveness between institutions. There is also another set of issues, based around the uncertainty of the extent of the benefits that might be delivered by a broadly-based print repository. The purpose of this paper is to explore this latter issue—in particular, to attempt to calculate, in broad terms at least, the potential space savings that might be made if libraries were to implement a national print repository as a means of federating remote storage and maximising de-duplication between collections.

RECENT INTERNATIONAL STUDIES OF FEDERATED STORAGE

The rising interest in long-term print storage has been evidenced by a recent series of international reports on the issue. These reports have been unequivocal in their support of the concept of collaborative print storage.

In the United States Bernard Reilly undertook a 2003 study on behalf of the Council on Library and Information Resources. Reilly's account of the storage practices of US research libraries was placed in the context of international moves towards large-scale repositories, some of which were being implemented on a national basis. He reported the increased use of repositories in the US, noting the details of a number of examples that had developed on either a geographic (state) or shared interest (consortium) basis. Reilly noted that "the repositories were the response of governing authorities to a system-wide space crisis," [5] and concluded that:

> With the appropriate resources in place, one could imagine the major North American research libraries, regional repositories, and national-level repositories linked in a network that enables strategic management of the important primary resources for scholarship.[6]

In 2007 Lizanne Payne prepared a report commissioned by OCLC, *Library Print Facilities and the Future of Print Collections in North America*. Payne investigated the current print storage activities of North American academic libraries, reporting that there were some 68 high-density storage facilities (both independent and shared), housing in excess of 70 Million volumes. She believes that:

> . . .high-density library storage facilities have moved into the mainstream for collection management in academic libraries, and that this is the optimum time for the academic and library communities to leverage this collective capacity to develop a broader, system-wide approach to maintaining print collections across institutional boundaries.[7]

Payne's argument is built on the efficiencies in storage, discovery and delivery that are obtained from collaborative repositories, and she raises the question as to the appropriate scale of the "system-wide approach".

> Academic institutions and the libraries that serve them could provide lasting benefits to scholarship and economies to their institutions by proactively developing a network of print repositories on a regional, national, or even global scale.[8]

The Association of Research Libraries (ARL) has also sponsored recent US research with a view to reporting on the evolving space utilisation by member institutions. The data collected in the survey updates previous similar surveys conducted under the auspices of the ARL.[9] The most recent of these reports notes that, consistent with conclusions reached by other observers,[10] US research libraries are relying increasingly on remote and federated storage as a means of addressing space shortages.

> ARL member libraries' use of remote shelving facilities as a response to space needs has increased since 1998 and, judging from the responses to this survey, this trend will continue. Another upward trend is the use of shared facilities . . . [11]

A further North American survey of print repositories has been recently commissioned by the Canadian Association of Research Libraries Committee on Scholarly Communication. The survey described "the more prominent Canadian university library print repository initiatives".[12] These included eight single university repositories and four shared repositories. The report indicates a trend towards larger scale repositories. The two shared repositories established in the 1990s had two and three members, while

those being established at the time of the report consist of 20 (Ontario Council of University Libraries: Collaborative Collection Continuity Initiative) and 17 (Council of Atlantic University Libraries: Atlantic Regional Consortium for the Preservation of Scholarly Materials) members.

In the UK, the Higher Education/ British Library Task Force commissioned a 2001 report on future storage options. The report noted the "powerful theoretical arguments for the development of collaborative storage facilities over the last decade along with a strong and developing practice toward the end of the last decade".[13] CHEMS Consulting subsequently undertook a 2005 survey on behalf of the Consortium of Research Libraries in the British Isles (CURL) and the British Library. The responding libraries consisted of 38 higher education libraries and four large municipal libraries. Extrapolating from responses received from the higher education libraries, the CHEMS report calculated that the total sector would suffer a storage shortfall of up to 455 linear kilometres by 2015, and that the capital cost of providing space to meet this shortfall would be 103 million pounds.[14]

In response to this impending crisis CHEMS Consulting recommended a model for a national collaborative storage strategy, which is now being adopted in stages. The creation of the "UK Research Reserve" is based on the existing lending collections of the British Library supported by a group of six academic research libraries. Phase 1 of the project (running from January 2007 to June 2008) has focused on journals. The projected Phase 2 will invite the participation of other research libraries and possibly expand the scheme to include monographs.[15] The intention is to ensure the preservation of a designated number of copies in the Reserve, and thereby encourage substantial

freeing up of space as libraries de-duplicate, confident that items will be retained in perpetuity and can be borrowed as required.

The issue of federated storage is also being canvassed in Asia, with recent research from South Korea recommending that "a model for a national collaborative repository should be adopted" in that country. Hee-Yoon Yoon and Sun-Kyung Oh suggest that this repository should encompass all library types, and that the major unresolved question is "whether this role should be given to regional representative libraries or if a separate national collaborative repository is required".[16]

The issue of print storage, including the prospect of creating collaborative repositories, has been debated in Australia over the past decade.[17] The Council of Australian University Librarians (CAUL) in particular has considered the matter, and their deliberations included convening a National Cooperative Store Workshop in 1999.[18] The matter was actively before CAUL until 2004, when the momentum dissipated amidst internal disagreements and pessimism regarding the prospect of government funding. The matter of Australian print storage has, however, continued to receive attention from outside CAUL.[19]

AUSTRALIAN COLLECTION OVERLAP STUDIES

If Australian research libraries are to support the creation of a national print repository it would be with a view to achieving savings in the cost of long-term storage of print material, and in producing benefits to researchers by creating efficiencies in the digital discovery and delivery of print items.

Calculations regarding the extent of the space savings that might be made with regard to long-term storage depend on two factors. Firstly, the space saved by implementing state-of-the art high-density storage systems; and secondly, the potential to de-duplicate collections and permanently dispose of material. In both regards the calculations are difficult and necessarily require a degree of informed guesswork. Estimates must often be made by relying on incomplete data and on various suppositions regarding local demand (i.e. can a library afford to surrender a locally held copy). The problem of making accurate assessments has been experienced elsewhere. The Higher Education/ British Library Task Force report had acknowledged that although it appears to be "intuitively true" that national or regional repositories will reduce storage costs, it is nonetheless "difficult to uncover any cost/benefit analyses of cooperative or collaborative storage".[20] The CHEMS report made a similar point, noting that the creation of a national repository was being recommended despite there being "no available evidence of the amount of de-duplication and space saving that could be achieved".[21]

The data that can provide relevant evidence regarding the potential for de-duplication and deposit (and thereby possible space saving) is that which measures collection overlap. There have been two major overlap studies undertaken in Australia in recent years that provide useful background data regarding duplication of monographs.

In 2002 the National Library of Australia (NLA) was commissioned by the Department of Education, Science and Training (DEST) to conduct a survey of collection overlap between Australian university libraries. The compilation of the overlap data was said to be important as part of the information gathering that could "assist decision-making in a

range of areas including co-operative storage ventures".[22] The survey included both monographs and serials, with the NBD records and holdings statements again serving as the data source. The account of the research warned, however, that "Data quality is an issue which needs to be noted",[23] largely due to the duplication of records and the incompleteness of the holdings data.

The report itself concentrates more on describing the levels of unique holdings than on the degree of overlap, and the evaluation of the data is presented on a state-by-state rather than a national basis. Therefore, despite the conclusion that "there is a high degree of uniqueness among collections of academic institutions",[24] there is no attempt to establish a yardstick as to what constitutes "high" or "low" with regard to the number of unique holdings. As is often the case with overlap studies the results are open to differing interpretations, and in this case another reading of the data reveals the extent of the overlap. For example, although the report reveals there were 6,675,693 monograph titles that were unique *within a state*, there were also 5,272,884 holdings that were duplicates *within a state*.[25] This number of duplicates would inevitably be significantly greater if calculated nationally, and it is apparent that as demand declines for many titles as they age the scope for de-duplication will be considerable.

A second major DEST supported study with an overlap component was also undertaken in 2002 and 2003. This was the Australian Research Libraries Collection Analysis Project (ARLCAP), which analysed the collections of the "Group of Eight" libraries (serving Australia's most established and research intensive universities) and the NLA, focussing on collections from the humanities and social sciences. In a survey of 412,120 monograph records that were within the subject scope of the ARLCAP study and had

holdings for at least one of the participating libraries, it was found that 158,412 (38.4%) were uniquely held (80,565 by the NLA and 77,847 by the combined university libraries). For these records there were, however, some 791,827 duplicates held by the nine libraries, with an average of 3.003 holdings per record.[26]

Consideration was given in the ARLCAP report to various future cooperative scenarios for building national research infrastructure, including storage of legacy print collections. The two key scenarios were based on the "Nationalist approach", which "has as its main objective to make Australia as independent as it can be in its research information provision";[27] and the "Internationalist approach", which is "dominated by the notion that overseas . . . collections are, and always will be, much greater than Australian collections, and that the number of items that are unique in Australia is so low that the most cost-effective strategy is to rely entirely on providing access to these collections rather than replicate them in Australia".[28] The report found that an implication of choosing the nationalist approach would be that:

> Storage facilities should be established to ensure that now and in the future no titles held in Australia should be discarded. These facilities might involve existing infrastructure or might involve the creation of new ones.[29]

The ARLCAP report also concluded that:

> There is no evidence from the study that widespread relocations of stock between libraries or to a shared storage facility, other than the transfer of stock to the National Library, would be a cost-effective enhancement of the research infrastructure.[30]

On the basis of the data presented in the report it is not possible to see the *evidence* or justification for this conclusion, as the study made no attempt to establish what might be meant by "cost-effective" in this context. There is no assessment of the cost associated with long-term duplicated storage of low use material, or of the effectiveness of discovery and delivery of such material in a widely distributed system.

A further conclusion from the ARLCAP study was more sustainable; that is, that "Any national storage facility cannot sensibly be restricted to the higher education sector".[31] This is an acknowledgment of the critical role played by the collections of the NLA (the survey found their collections were 56.4% unique for monographs), but also of the potentially important roles to be played by other non-university research libraries.

STUDY OF CARM MEMBER OVERLAP

The aim of the present research is to undertake estimates of the amount of space that might *potentially* be "saved" if Australian research libraries committed to a fully implemented national print repository. "Fully implemented" in this context refers to a repository in which;

- ownership of deposited material is transferred to the repository;
- the repository commits to the permanent retention of deposited material;
- access to stored material is guaranteed and supported by state-of-the art discovery and delivery systems.

These features are necessary in order to achieve optimum storage densities and to encourage participating libraries to de-duplicate their local collections.

Neither of the two major Australian shared storage facilities has yet met these conditions in full. The first of these repositories—established in 1984—is the

Universities' Research Repository South Australia (URRSA), which serves a consortium consisting of the University of Adelaide, Flinders University and the University of South Australia. URRSA simply stores material on behalf of participating libraries.[32] There is no transfer of ownership or attempt to de-duplicate the store, and no onus on participating libraries to retain material indefinitely or to support access with high-end technologies.

The second—and most high profile—Australian repository, is the CARM (CAVAL Archives and Research Materials Centre) Store, managed by CAVAL Collaborative Solutions. CAVAL is a not-for-profit consortium, owned by 12 Australian universities, providing services to the Australian library sector (chiefly, but not wholly, within the state of Victoria). CARM is located in outer-Melbourne on land owned by La Trobe University, and has been providing storage services to member libraries since 1997. CARM has a capacity of approximately one million volumes, with approval having recently been given for expansion that will double the current space. CARM is closer than URSSA to the fully implemented repository model in that libraries may choose to cede ownership to the "CARM Collection" in its role as a last copy repository. As at April 2008 the CARM Collection included 246,391 non-serial titles, and approximately 300,000 volumes of serials. The facility is, however, also used for print storage by libraries leasing space for the purpose and retaining ownership of the stored material. The decision by libraries to retain ownership of stored material is likely to be based on;

- the belief that items may at some future time be reincorporated with the main collection if priorities change or more space becomes available;
- institutional accounting practices which prevent the transfer of ownership;
- a competitive desire to retain a high count of "owned" titles and volumes.

With the CARM Store providing the only facility for transferred ownership, it was therefore decided to attempt to estimate the space that member libraries could save if they were to cede ownership of low use books to CARM as a precursor to de-duplication. Books were chosen as the focus of the study for several reasons. Firstly, the task of estimating the space implications of book duplication is more achievable than with journals where the amount of space consumed by titles cannot be estimated on the basis of holdings records only. And secondly, the rapidly expanding availability of journal backsets in secure digital form means that the "International approach" is less contentious for this material. The decline of the scholarly journal in print form is irreversible, and the technologies of article discovery and delivery have to a large extent already been "internationalised". The situation with books and other monographs is far less clear. After a period of decline in the 1990s the rate of acquisition of print books by Australia's academic libraries has recovered to near record highs, and this trend appears likely to continue.[33]

In was therefore decided to undertake a study of monographs that met the following criteria:

- Dewey class no in the 600s;
- published prior to 1990;
- owned by one or more of the CARM member libraries.

The Dewey 600s—which include technology, medicine, engineering, agriculture, management, and building and construction—were chosen as it was known that the largest of the CARM member libraries (La Trobe, Melbourne and Monash) have substantial holding in these subjects. As the purpose of the study was to assess the

potential for de-duplication it was also believed that these subject areas included material that would date more rapidly than some others and would therefore be available to be relegated to storage or withdrawn from collections. It is also the case that the nature of the subjects included in the 600s would invariably mean that many items would be published overseas and therefore not include a high percentage of material for which the NLA and state libraries had responsibility for ensuring permanent retention (as might, for example, the 800s or 900s). It is not suggested that results from a study based on the 600s would *necessarily* be duplicated in other classes.

The overlap study was undertaken for two categories of material. Firstly, for records that included a holding for the CARM Collection. That is, a copy of the item has already been ceded to the CARM Collection for permanent retention. Secondly, for records held by at least one member library but for which there is no current holding in the CARM collection.

The data was provided by the National Library of Australia and based on a search of the *Libraries Australia* database undertaken in April 2007. *Libraries Australia* is the most comprehensive data source available but, as previous studies have found, it is prone to some degree of error. The principle causes of error are; duplication of records for the same item; incomplete holdings; and failure by libraries to amend records to reflect the current status of an item.

Overlap for items included in the CARM Collection

The CARM Collection consists of items for which ownership has been transferred from a member library to CARM. The collection has been de-duplicated, so that only one copy of any item is retained. The overlap for items amongst member libraries was firstly calculated for items held in the CARM Collection, with a Dewey 600 class number and pre-1990 publication. There are currently 22,408 titles in the CARM Collection matching these criteria.

Table 1: Duplication of CARM Collection monographs

No. records	No. holdings	%
7,954	CARM only	35.50
5,209	CARM + 1	23.25
3,527	+ 2	15.74
2,436	+ 3	10.87
1,550	+ 4	6.92
898	+ 5	4.01
504	+ 6	2.25
217	+ 7	0.97
79	+ 8	0.35
30	+ 9	0.13
3	+ 10	0.01
1	+ 11	0.00
22,408	**58,157**	

The 22,408 records have an average of 2.6 holdings per record, and the total number of duplicate holdings held by CARM member libraries is 35,749.

Overlap for items not included in the CARM Collection

The overlap for items (Dewey 600s, pre-1990 publication) was also calculated for items not held in the CARM Collection, but owned by one or more member libraries.

Table 2: Duplication of non-CARM Collection monographs

No. records	No. holdings	%
139,638	1	62.26
38,911	2	17.35
19,681	3	8.77
11,453	4	5.11
6,679	5	2.98
3,938	6	1.76
2,134	7	0.95
1,053	8	0.47
510	9	0.23
231	10	0.10
59	11	0.03
1	12	0.00
224,288	**410,261**	

The 224,288 records have an average of 1.83 holdings per record, and the total number of duplicate holdings is 185,973.

In total there are 246,696 records with the Dewey class 600; published before 1990, and owned by CARM or a CARM member library. This "system" of libraries is recorded as having 221,722 duplicates for these titles.

These figures do not of course allow a precise calculation of the amount of space that could be saved in practice. They do, however, help establish the extent of the *potential* saving under different scenarios. For example, in the extreme case, member libraries could as a matter of policy choose to deposit one copy of each title in the study sample (Dewey 600s, pre-1990 publication) with the CARM Collection and divest all duplicate copies. This would add 224,288 titles to the CARM Collection, while leading to a reduction of 446,010 (35,749 + 410,261) titles shelved by the member libraries. Table 3 calculates the *approximate* amount of shelving that could be retrieved by such a strategy.

Calculating space required for library storage is a task bedevilled by numerous variables,[34]and there are a number of recommended formulae. The following calculations are based on 1.2 volumes per title (record), shelved at 30 volumes per linear metre.[35]

Tab. 3: Potential reduction in shelving: CARM members

No. items	No. volumes	Shelving (linear metres)
446,010	535,212	17,840

The projected possible "saving" is therefore nearly 18 kilometres of shelving.

The other important figure to be calculated from this data relates to the floorspace needed to accommodate this shelving. A recent estimate is that conventional library storage houses 145 volumes per square metre, as compared to high-density repository storage of 373 volumes per square metre.[36] Based on these figures, the saving in library floorspace would amount to some 3691m^2, which could be replaced by 1434m^2 of repository floorspace. This already substantial saving is magnified by the significantly higher cost—estimated at "a factor of five or six times"—of building and maintaining conventional library space as opposed to repository space.[37]

If this result was repeated across all ten Dewey class divisions then the total savings would be of the order of 178 kilometres of shelving, requiring 36,910m^2 of floorspace. There are reasons why it is unsafe to extrapolate this result to other class divisions—difference in the volume of publication; high likelihood of differing patterns of duplication—but it is clear that the *potential* for space saving is significant.

It is also not suggested that these projected "savings" in terms of shelving and floorspace are immediately achievable. The defining characteristic of research libraries is the depth and richness of their content, and individual libraries will rightly strive to retain research quality print collections. It is the case, however, that an increasing number of Australian academic libraries have reached a "steady state" in terms of

collection size and are looking to store or dispose of older monographs in order to manage their local space problem.[38] This response is likely to be ongoing, and will be achieve the best outcomes—in terms of space savings for libraries and continued access for researchers—if it is managed and collaborative.

"Three library" study

Three libraries were selected for a closer study of overlap between a subset of the CAVAL member libraries, in order to further investigate the impact of a system-wide repository on a local user group. La Trobe, Melbourne and Monash were chosen on the basis that they represented the three largest of the Melbourne-based libraries, and all three were known to have good-to-strong holdings in the 600s. Again this data covers the Dewey 600s, with publication prior to 1990.

Table 4: Unique holdings

La Trobe	10,092	9.7%
Melbourne	24,170	23.3%
Monash	7,907	7.6%
	42,169	**40.6%**

Table 5: Held by two libraries

La Trobe & Melbourne	18,605	18.0%
La Trobe & Monash	15,864	15.3%

Melbourne & Monash	18,328	17.7%
	52,797	**51.0%**

Table 6: Held by three libraries

La Trobe, Melbourne & Monash	**8,669**	**8.4%**

There is a total of 103,635 records for the three libraries, with 70,135 duplicate holdings, for an average of 1.68 holdings per record.

These figures indicate the extent of duplication of low use material (see lending data reported below) between libraries located within the same metropolitan area and teaching in the same broad areas.[39] Nearly 60% of titles are held in two or more copies, and over 40% of shelf space is consumed by duplicate holdings. It is again possible to calculate the effect of the extreme case (depositing single copies with the CARM Collection and removing duplicates) by which the libraries would divest 173,770 titles.

Table 7: Potential reduction in shelving

No. titles	No. volumes	Shelving (linear metres)
173,770	208,524	6,951

In this case the number of volumes would require approximately 1,438m^2 of library floorspace, or 559m^2 in a repository.

Local demand (lending) for Dewey 600s, pre-1990

In order to understand the impact on local users of such a response it is necessary to attempt to assess the local demand for this material. To measure the local demand for items that might potentially be deposited or discarded, lending figures for the full year 2007 were obtained from La Trobe, Melbourne and Monash. These figures were again for the Dewey 600s, both for pre-1990 publications, and for publications from 1990 and after.[40]

Table 8: Lending, Dewey 600s, pre-1990 monographs

	Items	No. items loaned (% of items)	No. loans (% of loans)
La Trobe	106,987	11,597 (10.8)	16,961 (14.2)
Melbourne	86,937		21,897 (11.6)
Monash	117,826	13,980 (11.9)	19,979 (8.9)
	311,750		**58,837 (11.05)**

Table 9: Lending, Dewey 600s, 1990+ monographs

	Items	No. items loaned (% of items)	No. loans (% of loans)
La Trobe	85,647	29,951 (35.0)	102,443 (85.8)
Melbourne	71,869		167,295 (88.4)
Monash	116,018	65,822 (56.7)	204,049 (91.1)
	273,534		**473,787 (88.95)**

As would be expected these figures indicate a significant decline in demand for “older” material. Across the three universities 88.95% of the borrowing is accounted for by the

material published in 1990 or later, and only 11.05% by the material published earlier. For the two libraries for which a figure is available, only just over 10% of individual items published prior to 1990 were borrowed within the 12 months.

These results indicate that it is likely that for each of the universities a significant amount of the pre-1990 material will not be borrowed, even over an extended period. It is also likely that even this current modest level of borrowing of pre-1990 publications will decline further as the material continues to date.

There is, nonetheless, residual demand for older material, although it is unclear if this demand is item specific, or if borrowers are simply selecting "something" that appears to be on topic and are perhaps unaware of the year of publication of their chosen text. And if demand is item specific, it is unclear if this needs to be met immediately or if users would be prepared to wait a short period for delivery from a repository source. These matters would require further investigation before a more sophisticated assessment could be made of the likely impact of transferring older material to a repository collection such as CARM.

DISCUSSION AND CONCLUSION

The research reported in this paper is indicative only, and needs to be read in the context of other available evidence. As discussed, the primary data source, *Libraries Australia*, although the best available, is by no means completely accurate. There have also been some decisions made in gathering the data—for example, the choice of the Dewey 600s, and the selection of 1990 as a "cut off" date—which mean that the outcomes would vary if other parameters were substituted. Nevertheless, the results of the study are

defensible in terms of the goal of producing evidence that could inform decisions regarding the establishment of a national print repository.

What the data in this paper indicates is that there is considerable scope for a reduction in local, duplicated, high-cost storage. It is apparent that the scope for space savings for individual libraries is important, and that when extrapolated across a system these savings are potentially substantial. In the short term this can produce a benefit by releasing space currently used for print storage for other uses, but over the longer term it translates into a real financial saving for institutions as they defer the need for new or expanded buildings and reduce their outlay on print storage.

The extent to which Australian academic libraries are already (and increasingly) relying upon withdrawal of non-serial material to manage space problems has recently been reported.[41] While this withdrawal is necessary for local collection management, it is proceeding with little consideration for developing the form of print storage that is necessary to either reduce the cost burden on research institutions, or to optimise the discovery and delivery of this material for the benefit of the country's research community. Currently the management of Australia's legacy print collections is proceeding in something of a policy vacuum, with responses that are local and expedient rather than system-wide and sustainable.

This is at a time when managers of Australia's research infrastructure are promoting the use of collaborative, cross-institutional management of the nation's research assets. As the National Collaborative Research Infrastructure Strategy Committee recently concluded, "Major infrastructure should be developed on a collaborative, national, non-

exclusive basis".[42] The drivers in the implementation of research infrastructure are both cost and benefit, with national collaboration seen as favourable to both sides of the equation. The challenge for the Australian library sector is to ensure that national initiatives are not confined to e-research infrastructure only, and that they continue to promote the national importance and research value of legacy print collections.

As indicated in the introductory sections of this paper federated repositories based on ceded ownership are increasingly being used internationally as the preferred means of managing the long-term storage of print journals and monographs. Despite the ongoing development of the CARM Collection, Australia is beginning to look out-of-step with countries that are more actively developing print repository collections and services. The explanation for this might be found in the ARLCAP Report and its dual scenarios of the "nationalist approach" and the "internationalist approach". It may be that Australia's academic libraries, having failed to build an independent research capacity or to reach agreement on a national approach to print storage, have *de facto* accepted that their future lies in adopting the internationalist approach. Since the ARLCAP Report was concluded, the advent of mass digitisation programs for print monographs (notably—but not only—Google Print), may have given further impetus to the internationalist approach; perhaps convincing those in doubt that digital technologies will render the e-book as ubiquitous as the e-journal.

If it is the case that Australia's research libraries have decided to adopt the Internationalist approach, then this should be made clear to the relevant research bodies and government departments. If, however, its is believed to be in the national interest that Australia's research infrastructure should be as autonomous as possible, then legacy

book collections should be stored as cost-effectively, securely, and accessibly as possible. This will be achieved when there is; minimisation of local and system-wide costs associated with long-term storage; certainty about the retention of individual titles; and state-of-the-art support for digital discovery and delivery of legacy print collections. These outcomes will be best achieved in a collaborative storage environment built around a fully implemented national print repository.

NOTES

1. David Block, "Remote Storage in Research Libraries," *Library Resources and Technical Services* 44, no. 4 (2000): 184-189.

2. A "store" can be differentiated from a "repository". In a shared store libraries retain ownership of items, in a "repository" ownership is ceded to the consortium or other body that owns and/or manages the facility.

3. Johan Henden, "The Norwegian Repository Library," *Library Management* 26, no. 1/2 (2005): 73-78; Pentii Vattulainen, "National Repository Initiatives in Europe," *Library Collections, Acquisitions, & Technical Services* 28, no. 2 (2004): 39-50.

4. Paul Genoni, "Towards a National Print Repository for Australia: Where from and Where to?" *Australian Academic & Research Libraries* 38, no. 2 (2007): 84-98.

5. Bernard F. Reilly, *Developing Print Repositories: Models for Shared Preservation and Access* (Washington, DC: Council on Library and Information Resources, 2003): 6. Available at http://www.clir.org/pubs/reports/pub117/pub117.pdf. [Accessed 12 August 2008].

6. Ibid. 40.

7. Lizanne Payne, *Library Storage Facilities and the Future of Print Collections in North America* (Dublin, Oh: OCLC, 2007): 5. Available at

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39. The figure of 40.6% unique holdings can be compared to the result achieved by three North American universities (Duke, North Carolina State University and the University of North Carolina) that comprise the Triangle Research Libraries Network (TRLN). A 2006 study of overlap between the libraries (across all classifications) found that 70% of holdings were unique (Triangle Research Libraries Network 2006). This "better" result for the TRLN is the outcome of a long established program of cooperative collecting. The results of the TRLN study are reported in, Triangle Research Libraries Network, OCLC Collection Analysis Task Group, *Report to the Committee on Information Resources (CIR)* 2006. Available at http://www.trln.org/TaskGroups/CollectionAnalysis/TRLN_CollAnalysis_June2Report.pdf. [Accessed 11 August 2008].

40. As the lending data is derived from local systems, the same source has been used for the number of items available for loan. For all three libraries this exceeds the number of items listed in *Libraries Australia* and used elsewhere in this paper. The explanation for this discrepancy appears to be that whereas the *Libraries Australia* data

has been limited to books (and is thereby suitable for calculating space savings), the local systems include books and other non-serial items.

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