

# C·A·U·L

COUNCIL OF

AUSTRALIAN UNIVERSITY LIBRARIANS

## Summary

The Council of Australian University Librarians (CAUL) is pleased to respond to your invitation to make a submission to the National Research Infrastructure Taskforce. CAUL's members are the directors of Australian university libraries. CAUL members are dedicated to improving access by staff and students to the scholarly information resources that are fundamental to the advancement of research and learning. CAUL cooperates with other national and international organisations interested in improving access to the research literature. Further details about CAUL and its activities may be found at our web site <http://www.caul.edu.au>.

Our submission will follow the issues identified in your invitation. It is based on the premise that research builds upon the foundations of existing knowledge, and that access to the records of that knowledge is essential to good research. Our submission highlights the potential of new technologies to enhance access to, and indeed the nature of, recorded knowledge. It also recognises the importance of collaboration by libraries and other sections within universities and nationally and internationally between universities and related organisations and institutions.

This submission was prepared on behalf of CAUL (Council of Australian University Librarians) by Madeleine McPherson (President)

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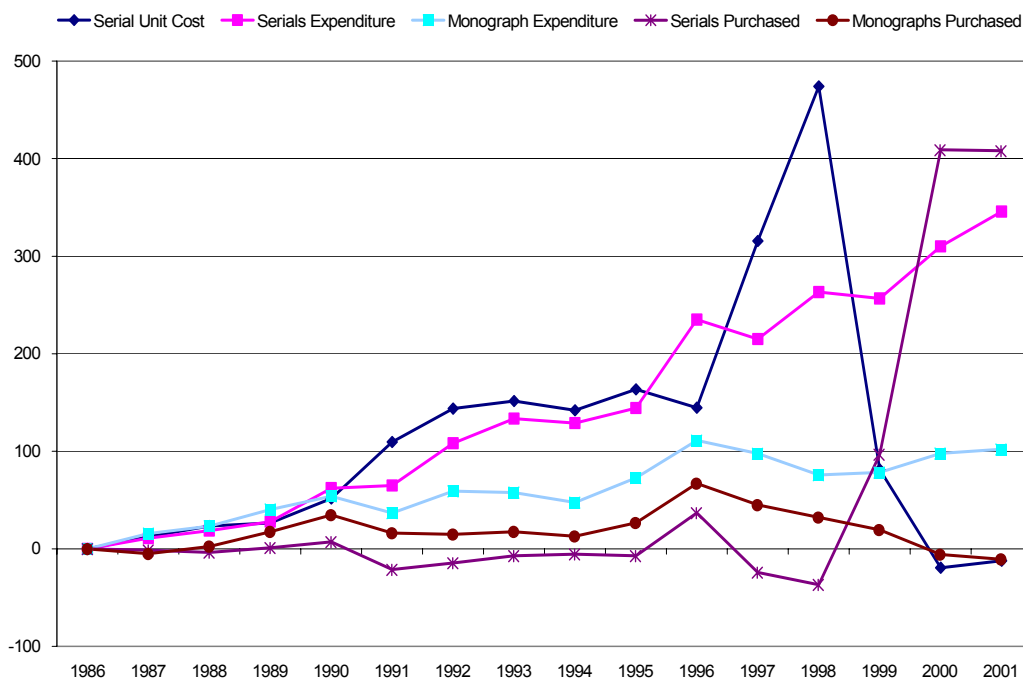
**Issue 1 - Australia's Future Research Infrastructure Needs – library strengths, weaknesses and opportunities**

**The affordability of resources**

Underpinning all research endeavour is the need for current and comprehensive access to information. In common with libraries elsewhere Australian university libraries have experienced a decline in purchasing power for well over a decade. In our case this has been exacerbated by falls in the A\$ over the period. More generally the causes are the increasing volume of publications being produced, which is the product of growing research activity, and the large increases in prices of the most prestigious titles emanating from commercial publishers. The net result is that Australian universities through their libraries now provide access to a much smaller proportion of the world's research publications than they once did (see Figure 1, below).

This phenomenon is well recognised and amply documented. It could be addressed conventionally by very substantially increasing library buying power. However as no library, even in the richest overseas university, has managed this it is a hopeless and even self-defeating strategy, given the evidence that commercial publishers will increase prices to whatever the market will bear. Note also that increases in budgets would have to be maintained as it is recurrent expenditure that secures access to the most recent research. Neither the present nor the projected bases of government recurrent funding suggest that any university is likely to be in a position to adopt this strategy, and governments have been unwilling in the past to make special purpose grants recurrent.

**Figure 1 Australian Research Libraries, 1986-2001 (% change)**



Source: CAUL Statistics ([www.caul.edu.au](http://www.caul.edu.au))

## CAUL Submission to National Research Infrastructure Taskforce

### Innovative technologies

The most positive characteristic of Australian universities and university libraries as far as research is concerned is that they are highly innovative, and are therefore well placed to take advantage of advances in technologies that have the potential to improve access to research literature. We are also collaborative, CAUL itself being an example of that, and supportive of any national strategies to improve access to resources.

There are two promising technologies that have already been identified for federal funding through the Systemic Infrastructure Initiative (SII). One is portal technology, delivering targeted resources to the researcher's desktop and helping them manage information overload. AARLIN <http://www.aarlin.edu.au>, a CAUL project, is an example. The other is institutional repositories, which will be discussed more fully in relation to Issue 3.

A further crucial problem for collaborative research work is the matter of access and authorisation management. A solution to the problem of multiple sign-ons to resources across a distributed environment has been difficult to develop. SII funding has been identified for this also. It is essential that resources continue to be devoted to this until a workable solution is found.<sup>1</sup>

### Skills

In terms of the skills needed to use and operate future research infrastructure, two aspects are having an effect on universities and university libraries. The first concerns the need for more highly skilled library staff to design, develop and maintain the kind of infrastructure described above. There is sufficient evidence of the resources required for example to develop and maintain intuitive portals for their operation to be a major concern for library planning.

If institutional repositories are to be developed as efficiently as possible they should draw on the expertise of librarians in description and discovery mechanisms, in data organisation, preservation and user support, and the management of large information assets. Librarians are already participating in such institutional projects, but the need to re-profile their staff to release the necessary resources limits their ability to do so. Books still need to be shelved, clients expect existing services to continue, so increasing the numbers of more highly paid staff is difficult.

The second pressure on libraries is the need to provide continual training and retraining of researchers in the use of relevant software. To take just one example, the popular bibliographic package EndNote, which assists researchers to keep track of their literature searching and write up their research, releases a new version every year. Many researchers rely so heavily on EndNote that libraries offer refresher training with each new release, as well as basic training for new postgraduate students.

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<sup>1</sup> For an example of an authentication project see WALUP (Western Australian Libraries Authentication Project) <http://john.curtin.edu.au/walap/>

## CAUL Submission to National Research Infrastructure Taskforce

### Issue 2 - The Commonwealth's Research Infrastructure Funding System: strengths and weaknesses in relation to information infrastructure

#### Funding mechanisms

Funding mechanisms to date have not always served information infrastructure well. In the absence of mechanisms for recurrent funding of national infrastructure such as national licences for research databases, submissions to funding bodies have had to be drafted to meet the discrete criteria for research projects or one-off purchases, often to the detriment of coherence. The issues of sustainability and interoperability were often ignored by funding bodies, with the result that a great deal of money has been spent on projects that delivered little or no long term benefit.

The Report of the SII Information Infrastructure Advisory Committee <http://www.dest.gov.au/highered/otherpub/heiiaac/report.pdf> provided a list of relevant projects to a total of \$32,430,601 funded over a decade by the ARC (\$19,660,500), the CDP (\$1,493,000), EIP (\$350,435), HEIP (\$7,611,475) and SII (\$3,611,475). Very few of these have delivered sustainable resources accessible to researchers nationally.

To some extent this failure is a result of the state of the technologies, particularly earlier in the nineties. Over time standards have become available whose purpose is sustainability and interoperability, but so far there is little evidence that the funding bodies are prepared to make adherence to such standards a condition for funding.

For example, the appendix to the 2001 RIEFP guidelines:

Appendix 2: Library and information infrastructure

Applications for library and information infrastructure must address the matters raised here in addition to the requirements specified in the body of these Guidelines.

One of the aims of the RIEF Scheme is to support research through development of the national library and information infrastructure. **Applications in this category must demonstrate that they will enhance specific high-quality research projects, and that they will benefit researchers and scholars nationally.** Applications must be collaborative in nature.

*All applications submitted for library and information infrastructure should demonstrate the following.*

- 1 How the infrastructure enhances the ability of Australian researchers to access or use information resources effectively and efficiently.
- 2 That the project **will not duplicate existing library and information infrastructure**, but **will link to existing infrastructure** in Australia and overseas.
- 3 The capacity for future development and enhancements.
- 4 **Sustainable outcomes.**
- 5 Understanding, and application, of current developments in the information sciences, **including international standards and protocols**, systems and software to further library and information network **inter-operability.**

## CAUL Submission to National Research Infrastructure Taskforce

All applications submitted for library and information infrastructure should address one or more of the following elements of the **national library and information infrastructure**.

- 1 The development of improvements in access to information resources which can be made available **nationally**. This may include:
  - the development of services that provide access to integrated print and electronic information resources; and/or
  - improvements in the level and quality of access through the development of significant new directory, cataloguing or indexing services.
- 2 The testing, development and implementation of innovative and **sustainable** models which will lead to improved access to distributed information and research library resources.
- 3 The purchase or development of information resources of national significance, whether in electronic form or otherwise, which **can be made available nationally**. This will include:
  - the development of information resources to meet Australian research priorities; and/or
  - proposals to meet or provide resources that will fill significant gaps in the research resources available to the nation.

(Emphasis added)

The ARC appointed a library advisory group for this funding, including the CAUL President and representatives of the National and CSIRO libraries, but the group's experience was that much of their advice was not taken up. Some typical comments from members of that advisory group included:

“The library advisory body has never been given the responsibility to shape and manage a strategic framework for research library infrastructure or rank all projects (from these grants) in funding priority.”

“A large number of digitisation projects that give no recognition to the role of other players in making this information available...Similarly one has to question the number of database projects. Given our own experience with sustaining and the use of small Australian databases one has to both question the priority and sustainability of these projects if funded.”

“The projects put forward for funding this year as in previous years clearly reflect a purely submission based approach which does not reflect any strategic emphasis on Australian research priorities...”

“Many of the projects would appear to have no medium term sustainable future after the ARC funds finish and no business case has been put forward to address this in a way that is both realistic and achievable.”

“It would appear that many of these projects (driven solely from the faculties) have no connection or involvement with their own library or existing research library infrastructure, and if funded many would duplicate and undermine this existing infrastructure.”

## **CAUL Submission to National Research Infrastructure Taskforce**

CAUL appreciates that the latest ARC round does emphasise adherence to open standards whenever possible, but we draw on our experience above to demonstrate that similar guidelines have not always been effective in influencing decisions in the past. We also recognise the more strategic approach being taken in proposals for the SII funds. Nevertheless we cannot emphasise too strongly the importance in future for any research funding body to demand adherence to recognised open standards for any information infrastructure funding, and to ensure that decisions about grants are made with the benefit of informed advice about such standards. Without this there is no chance that project funds will contribute to lasting national good.

One further phenomenon deserves comment and that is the relation between commonwealth base funding to universities as influenced by the research index, and academic publishing. There is evidence, particularly from the UK, that the linking of funding to publications encourages increased publication. This is hardly surprising. However to the extent that this adds to the information explosion and the inability of library budgets to keep up, it is presumably an unintended consequence. To the extent that those publications are expected to be in prestigious journals it increases the power of commercial publishers and compounds the problem. It also ensures that the outcomes of publicly funded research are locked away, available only to those researchers whose institutions can maintain expensive subscriptions.

Concerns about sustainability and accessibility also exist in respect of non-bibliographic resources like datasets. In many cases research funding has included the cost of purchasing data on a commercial basis. No attempt has been made to ensure that this data is available to any users other than the research team, or that it does not duplicate already existing resources. Particularly egregious examples occurred with the purchase of ABS datasets, in some cases the same data being bought more than once by the same institution. Fortunately an agreement between the AVCC and ABS has overcome this problem, but concern remains about other datasets. In some cases the data may be purchased under licence, in others it may be developed as part of the research project. In either it would be highly desirable that the conditions of the grant required the data to become part of the national resource, with appropriate access provisions and identified responsibility for ongoing maintenance.

There are increasing calls for the outcomes of publicly funded research to be publicly available. These calls are often linked to the establishment of institutional repositories. Such repositories could also solve the problem of orphan datasets referred to above. We will discuss this movement further in the next section.

### **National Site Licences**

National or state licences for access to major bibliographic databases are an attractive option for alleviating the crisis in library purchasing power. There are a number of international examples of successful initiatives on these lines. In Australia NP(R)F funding in the early nineties allowed Australian university libraries to venture into joint purchasing of datasets. Currently there are a number of examples of such licences:

- in Queensland the Department of Primary Industry has a licence for Ebsco databases accessible to private citizens (not to institutions).
- the federal Department of Health provides the Cochrane Library through their web site, and a number of state libraries have negotiated licences for public library patrons throughout their state.

## CAUL Submission to National Research Infrastructure Taskforce

Unfortunately the maintenance of such schemes relies on recurrent central funding and that has not been forthcoming in Australia since the end of the NP(R)F money. Once central funding dries up, libraries are obliged to make their purchasing decisions on the basis of local priorities, and national schemes fragment into smaller coalitions.

CAUL has since the NP(R)F funding negotiated deals with vendors on a consortium basis. In 2002 such cooperative purchasing resulted in savings of US\$2.5m compared with list prices, for a total cost in salary and overheads in the CAUL office of A\$70,000. A national scheme which ensured access to researchers at all universities would facilitate cooperative activity, but would depend on recurrent funds being identified.

### Issue 3 - The Acquisition, Development and Operation of Research Infrastructure

#### The promise of repositories

The previous section has described problems with the RIEF program and the acquisition and development of major research infrastructure. However the program has had its successes, of which the most outstanding and promising as a future model is the Australian Digital Theses Program (ADT) <http://adt.caul.edu.au>. It is worth describing this program, because the technology it uses is a particular example of a concept that holds great promise for the development of affordable, sustainable and accessible research information resources in the future.

ADT is one example of a national approach to the provision of access to research dissertations. There are a growing number of such projects internationally. A current major US initiative is the development of a Networked Digital Library of Theses and Dissertations (NDLTD). The project which is led by the Virginia Polytechnic Institute and State University involves a growing number of US universities, University Microfilms International and industry partners. As a result of this work, standards for creation, deposit, conversion, storage, archiving and printing have already been established.

There are currently 22 Australian universities participating in ADT, and CAUL has received expressions of interest from the New Zealand universities. A brief description of the concept follows.

University libraries mount a digitised copy of a Doctoral or Masters dissertation on their local servers, and provide standard metadata (resource descriptors including an abstract). A server at the University of NSW harvests the exposed metadata into a central database, which is then searchable from anywhere via the Internet. A link takes a searcher from the central database to the locally-mounted copy, which may or may not be available in full-text depending on the policies of the local institution.

ADT originally adopted the Virginia Polytechnic software, and currently has a submission for SII funding to upgrade to conform with the standards that have been developed by the Open Archive Initiative (OAI) <http://www.openarchives.org/>. The OAI was largely driven by the desire to provide alternative approaches to academic publishing. This initiative is allied with the development of the concept of institutional repositories <http://www.arl.org/newsletr/226/index.html>. This promising technology has been identified for SII funding.

## CAUL Submission to National Research Infrastructure Taskforce

In the interests of brevity we will go no further into the details of the technologies involved. However it is worth examining the benefits such technologies promise for the research enterprise:

- rapid access to information resources for all researchers
- greater visibility of research on an institutional and national level
- increase in impact and velocity of research
- alternative, more affordable archives of research literature
- the potential to develop new forms of recorded knowledge, including non-print formats and the linking of descriptive text with data sets and other media
- the potential to develop value-added services on a disciplinary basis to the distributed archives of resources, similar to indexes, abstracts and current awareness services, with instant connectivity to the full resource
- the potential for sustainability, including continuity through technological change, provided universities and other institutions accept the curatorial and preservation responsibilities for their own intellectual assets
- greater assurance of preservation from the ease of low-cost duplication in distributed archives, as envisaged in the LOCKSS project <http://lockss.stanford.edu/>

The development of repositories to their potential for better access to library-type information resources (chiefly the published academic literature) will depend not just on project funding but also on a willingness by researchers to populate them with resources sufficient to achieve a critical mass. The greater the depth of resources they offer, the more their value will be recognised, the greater is the motivation to develop value-added services and the more they will become part of researchers' work practices.

The critical issue here is the ownership of intellectual property. As long as researchers sign away copyright in their publications to commercial publishers the potential for repositories and open archives will not be met. Many commercial publishers now permit the deposit of articles accepted for publication in local repositories, either as a pre-print or post-print <http://www.lboro.ac.uk/departments/ls/disresearch/romeo/Romeo%20Publisher%20Policies.htm>. However the reluctance of researchers to challenge the established power of publishers is strong and understandable, publication being the key to reputation and career success.

An increasing number of voices are now suggesting that more than persuasion will be needed to break this Gordian knot, and that only when researchers are obliged as a condition of their grant to make a copy of each article publicly accessible in an open archive will repositories build to critical mass. There are three motivations for this suggestion. One is to develop an affordable alternative to the commercially published literature that has caused such problems for library budgets. Another is the view that the results of publicly funded research should be publicly available, as a matter of principle. The third recognises the potential of open archives to increase the competitiveness of a nation's research effort by increasing its visibility internationally.<sup>2</sup>

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<sup>2</sup> Stephen Harnad is one of the earliest and most prolific of champions of open archiving. A recent co-authored article also presents the 'national interest' view of accessibility <http://www.ariadne.ac.uk/issue35/harnad/>. In the Netherlands an initiative of the Dutch government is establishing repositories in universities to make their research results accessible, in the interests of national competitiveness [http://www.surf.nl/en/download/Paper\\_EUNIS\\_2003.pdf](http://www.surf.nl/en/download/Paper_EUNIS_2003.pdf). In the United States Rep Martin Sabo has introduced H.R. 2613 the Public Access to Science Act, intended to ensure that publications resulting from publicly funded research are placed in the public domain.

## **CAUL Submission to National Research Infrastructure Taskforce**

The SII program has recognised repositories as a promising technology for improving national information infrastructure. However without the cooperation of other funding bodies, particularly in regard to conditions about the assignment of copyright, their development will be limited. Note that this technology would eliminate some of the barriers to cooperative endeavour between universities, and with industry, caused by the licence restrictions of the vendors of commercial products, provided there is sufficient take-up worldwide. Consider also that while the development of such repositories will require significant investment, their on-going maintenance should become a responsibility of universities and other institutions. This will make its own demands, including on-going investment in hardware, software and networks and the need for specialist skills, but the advantages both to the universities and the nation are manifest.

### **Issue 4 - Processes for Domestic Research Infrastructure Collaboration and Access**

Most of the comments CAUL would wish to make in relation to the issue of collaboration have been touched on previously. The greatest barrier to collaboration affecting libraries is caused by restrictive licences for information products, whether from commercial vendors or government instrumentalities such as the Australian Bureau of Statistics. Essentially these licences limit access to the products to members of the purchasing institutions, defined in universities as staff and students. This inhibits collaboration between universities and between them and other researchers in industry or elsewhere. Only national site licences, or the freeing up of copyright, seem to provide a solution to the problem. We have referred to the difficulty of sustaining national site licences without special recurrent funding. CAUL also accepts that commercial vendors have a legitimate business interest in restricting access to their assets. CAUL members respect copyright restrictions, whether imposed by licence or statutory law. It is in the light of this reality that we find the promise of open archives attractive.

CAUL collaborates with other university bodies supporting research, particularly the Council of Australian University Directors of Information Technology (CAUDIT) and CSIRO libraries. A full list of relationships may be found in the CAUL Report <http://www.caul.edu.au/caul-doc/CAULreport2001.pdf>

### **Issue 5 - Processes for International Collaboration and Access**

CAUL maintains links with a number of international organisations, and particularly with our sister body in New Zealand, the Council of New Zealand University Librarians. CAUL is a member of a number of international organisations whose purposes are similar to our own, as detailed in the CAUL Report.

### **Conclusion**

CAUL appreciates this opportunity to contribute to the work of your Taskforce. Support for research and researchers is one of the most important tasks for university libraries. Having said this, the distinction between research and teaching and learning is not as sharply drawn as it appears perhaps to governments or funding bodies or the researchers themselves. Many of the initiatives taken within libraries in the name of research contribute also to the broader mission of higher education in Australia.