Meeting:	**113 National Libraries** with **ICABS** and **Information Technology**
Simultaneous Interpretation:	Yes

Theme: National libraries and resource discovery strategies – local, national and global

Outline of paper

In this presentation I will outline the strategic context in which the National Library of Australia plans its resource discovery strategy, and the assumptions and principles that underpin it. I will also outline the actions we are currently pursuing to implement our resource discovery strategy and explain how Libraries Australia (http://www.librariesaustralia.nla.gov.au/), our flagship resource discovery service, manifests the key aspects of our strategy, including supporting access to Australian resources in the local, national and international contexts.

Background

The National Library of Australia has a legislated mandate to build and maintain a national collection of library material, to make that collection available for use, and to provide bibliographic services to the Australian library community.

In carrying out these responsibilities, we collaborate with other collecting institutions to develop national research collections in a range of formats that document the history and culture of Australia, we catalogue our collections for access via online discovery services, digitise selected materials, provide onsite and online reference services, and have appropriate preservation programs in place to ensure ongoing access to the collections.

We also provide services to the Australian library community that support access to the distributed national collection and underpin resource sharing. Since 1981, the National Library has provided an online national union catalogue, now known as the Australian National Bibliographic Database (ANBD), which is an integral and important component of the national information infrastructure. The ANBD has been built up over many years through dedicated cooperation by Australian libraries and it is regarded as a national asset by the library and research sectors.

From 1981 to 1999, the service providing access to the national online database was known as the Australian Bibliographic Network (ABN) and from 1999 to 2005 as Kinetica. From 2005, following a major redevelopment of Kinetica, the service has been known as Libraries Australia. While the original online database service was conceived to support copy cataloguing and interlending of items between member libraries, Libraries Australia is being developed primarily a resource discovery service. I will return to Libraries Australia later.

The National Library has also developed a number of collaborative national resource discovery services which provide access to subject or format based collections. These are derived from and extend the Australian National Bibliographic Database (ANBD). They include:

- Picture Australia (http://www.pictureaustralia.org/index.html)
- Music Australia (http://www.musicaustralia.org/)
- PANDORA: Australia's web archive (http://pandora.nla.gov.au/index.html)
- the Register of Australian Archives and Manuscripts (http://www.nla.gov.au/raam/)
- Australia Dancing (http://www.australiadancing.org/)

Our approach with developing these services has involved collaboration with other cultural collections, the aggregation of metadata for central searching, linking to online content wherever it is located, and interoperability between related services. The main aim is to provide the user with unmediated access to collections at the national and local institutions levels.

Strategic context

The key strategic directions and desired outcomes for the Library across all areas of activity are outlined in our *Directions for 2006-2008* statement (http://www.nla.gov.au/library/directions.html). Our overarching objective for the period is "to enhance learning and knowledge creation by further simplifying and integrating services that allow our users to find and get material, and by establishing new ways of collecting, sharing, recording, disseminating and preserving knowledge".

Our main desired outcomes are:

- to ensure a significant record of Australia and Australians is collected and safeguarded;
- to meet the needs of our users for rapid and easy access to our collections and other resources;
- to demonstrate our prominence in Australia's cultural, intellectual and social life; and

- to ensure all Australians have access to vibrant and relevant information services.

The need to remain relevant in the rapidly changing, digital information world in which we now exist and to provide collections and services that meet the changing needs of users, underpin all the objectives in the *Directions* statement.

The main strategies we are pursuing to ensure our ongoing relevance are:

- to adopt new models for collecting materials in digital form;
- to meet the needs of our users for rapid and easy access to our collections and other resources;
- to participate in new online communities to enhance our visibility, reach new audiences, and encourage new uses of our collections; and
- to provide online services that support creation and dissemination of knowledge by our users and opportunities for sharing ideas online.

Resource discovery strategy

It is within this context that the National Library shapes its resource discovery and delivery strategy.

Assumptions

Some key assumptions influence our resource discovery strategy, as outlined below.

We will continue to build and maintain print collections for some years to come

In spite of the ongoing, rapid increase in the amount of information distributed in digital form, most national libraries around the world will continue for some years to build and maintain print collections as part of their documentary heritage responsibilities. They will continue to manage access to and delivery of content not freely available online, while at the same time participating in the online world.

There is an ongoing need for resource sharing and delivery services

Regardless of the increasing amount of information distributed online, many important research collections and materials in traditional formats will never become available in digital form. In addition, some researchers will continue to want access to the original copy of materials that have been digitised. There will therefore be a requirement for several years to come, for services that support requesting and delivery of physical items. However, the nature of these services and the standards that support them, need to undergo significant change to support seamless discovery and delivery workflows in a network environment.

Few users will start their search at the library catalogue and users will want unmediated access to resources

In order to expose our valuable library collections to potential users, it will be necessary to make the collections discoverable through search engines and popular

Internet search services, as few users will begin their search for resources in a library catalogue. Instead, most users will start with a broad search across large aggregations of data, narrowing down to wanted resources. A users capacity to discover wanted resources should not be limited by the characteristics of the resources (for example, its format, whether it is freely available, and whether it is still in copyright, etc) or the features of the delivery service used (for instance, whether it supports authentication, payment and delivery options). In order to support unmediated, easy and fast access to wanted resources, systems will need to be able to support a range of "getting" or delivery options.

Aggregation of data will become more common as a way of improving resource discovery

With the rapid increase in the sources of online metadata that are becoming available, it is becoming harder for users to find what they want. For instance, libraries are seeding search engines with the content of their catalogues, indexes and guides, and categories of research materials such as journal articles are being digitised on a large scale by a range of providers around the world. The number of target services needed for comprehensive coverage of related material is expanding. Metasearching multiple targets often results in duplication of search results and functionality inherent in individual target services is lost. Against this scenario, union catalogues will increase in importance as a primary means of online access to resources in library collections as they have already aggregated holdings. Also, federated services will become more common as a way of bringing related material together, rationalising existing services and providing searching across large bodies of consolidated data to provide more comprehensive coverage.

Principles

The following principles support these assumptions and inform the Library's policy and development activities relating to resource discovery and delivery.

- Services should unite the functions of the traditional library and those of digital library services to enable discovery and delivery of resources regardless of format.

- Resources should be described once in ways that enable re-use of the resulting metadata in a range of local and federated contexts – for instance, the integrated online catalogue, the national union catalogue, local and aggregated subject specific services.

- The Australian National Bibliographic Database (ANBD) will be developed as the main search target for the Library's own collections – metadata used to deliver other subject specific services will be derived from the ANBD.

- Users should be able to discover the Library's resources in a range of contexts and to facilitate this we should integrate our resources with other online search services.

- Content and metadata should be "citeable" in ways that are unique, persistent and resolvable.

- Discovery in local and federated contexts should be supported in ways that enable delivery even when conditions are imposed on access or manual processes are involved (support for end- to- end processes).

Resource discovery: broad strategy

While enhancements to our discovery services in recent years have improved the user experience quite significantly, there are still obstacles to overcome. The main focus of our strategy over the next couple of years will be to further simplify our services and the systems that support them, and to integrate our resources with other online information discovery services. In particular, we intend to:

- enhance our record import and export services to enable us to take our unique data to other online services and to support the collaborative development of trusted aggregations of both metadata and full text indexes;
- make these aggregations available through standard protocols for re-use by other players;
- continue enhancing our own web based services to ensure they deliver a recognisable and competitive product, are easy to use and meet user needs - for instance, the services should include relevance ranking, clustering and contextualisation of result sets, and allow user collaboration in the development and interpretation of content; and
- ensure a seamless workflow between discovery and delivery and implement new models of unmediated delivery.

Action plan

Activities that are currently underway or planned that build on developments to date and which will take us closer to reaching our objective of making it easy for users to find and get resources, are outlined below.

Speed up cataloguing and digitisation of the collections

We estimate that around 87 per cent of our collections are catalogued at some level in our online catalogue and it is a priority to catalogue the remainder as quickly as we can in order to improve knowledge of and access to our collections. To expedite the process, we are taking various semi-automated approaches to creating minimum level MARC records for some categories of material and exploring ways of reducing the cost of subject analysis. We are also scaling up our digitisation program to digitise a greater range of materials and to provide access to full-text content, beginning with Australian capital city newspapers published between 1803 and 1954.

Replace the OPAC with Libraries Australia Search

With the launch in 2006 of the Libraries Australia free search service, known Libraries Australia Search, it became feasible for us to consider overcoming the limitations of our OPAC by replacing it with Libraries Australia Search. The

limitations relate largely to search and display functionality and are the same as those that have led many commentators in recent times to doubt the future viability of the online library catalogue. Advantages to replacing the OPAC with Libraries Australia Search which were identified during a recent feasibility study, include the wider pool of library resources that users would have access to, the superior functionality of Libraries Australia Search, the support for integrated searching across a range of other discovery services and the fact that users could still limit their search to our own collection if they wanted to. However, before we replace the OPAC, we need better interfaces to our ILMS to support access from Libraries Australia Search to detailed holdings records. Also, we would like simpler, more seamless processes for requesting resources from our collections. These issues are largely standards based and we are currently working through relevant standards bodies to address them.

Move all our discovery services to a Service Oriented Architecture (SOA)

Over the last decade, the National Library of Australia has developed a significant digital library capability in the form of systems and services which need to be maintained and supported. The maintenance resources involved hinder us from bringing new services online and improving the user experience with existing services, so from early 2008 we will be moving to a new Service Oriented Architecture (SOA) framework for developing our digital library services. Benefits of this approach are that it uses a common shared technical infrastructure that is supported by an overarching, single-business approach. All our digital library services will be regarded as a single business with a single data corpus that can be deployed in different contexts. Services developed once can be reused in a range of applications and enhancements to services are immediately available to all applications using the service. This approach should deliver more cost-efficient and effective development of our information technology infrastructure over time.

Develop new services within the framework of the Service Oriented Architecture (SOA)

During 2007-2008, the Library will be developing two new services within the framework of the SOA approach. The first one supports our new Australian newspaper digitisation program that commenced in March this year and aims to provide a search and delivery system for the full-text content, due for release in late 2007. This application will be the first to include user annotation services, which will then be applied to other existing services such as Picture Australia. The second new service is People Australia which aims to cluster biographical entries for people and organisations and to link them to related resources. This service is based on a database with records contributed from a variety of sources including for instance, the Australian Name Authority File and the Australian Dictionary of Biography Online (http://www.adb.online.anu.edu.au/adbonline.htm). Matching entries will be collocated rather than merged, with local identifiers for each contributed record and a national identifier for the collocated cluster, which will be available through search engines. The first release of People Australia is due in early 2008.

Collaborate with other sectors

Traditionally the Library's business partners have been other libraries, booksellers and publishers and metadata aggregators and document providers. In recent years we have increasingly engaged with other collecting agencies, search engines and online bookshops as a means of making the national collection more discoverable and accessible. In an increasingly digital world, we are finding new partners in unexpected places and new uses for our data. For instance, we have an arrangement with *flickr*, the online photo sharing service, to harvest metadata for Australian images for adding to our PictureAustralia service and we are currently working with Google to make our Libraries Australia records available through their services.

We are also working with content providers to increase the appeal of our own services and collections. For instance, in order to make Music Australia more appealing to a wider audience, the Library has negotiated a deal with a commercial online music marketing company, Destra Media. Music Australia provides access to a rich store of information on Australian music and musicians, including music scores, sound recordings, websites and a range of other music-related material held by a large number of Australia's cultural institutions. The deal provides access to online tracks of contemporary, in-copyright sound recordings and it has increased substantially the amount of online content in Music Australia that is directly available to the user. Users can hear free 30 second samples and, if they wish to purchase the track, navigate from the metadata record to a full digital download service.

Federate searching across the cultural sector

In order to make it easier for users to find and get cultural heritage items regardless of the location of the resources, the Library has initiated a project to provide federated searching of the collections of Australian libraries and other cultural institutions. A distributed search model, using the Open Search protocol, is being used to target metadata aggregations and individual institutions' systems. It conducts a simple key word search across designated targets and presents results arranged by institution or service. So far, the project involves Libraries Australia Search, Picture Australia, the Powerhouse Museum and the Collections Australia Network (CAN), which aggregates metadata for small and medium sized museums and archives. There are plans to include other major Australian museums and archives such as the National Film and Sound Archive.

Enhance discovery services with improved search capabilities

The development of new search technologies has opened up opportunities for libraries to expose their collections in new ways. However, searching across large aggregations of records such as union catalogues needs to be made simpler and more appealing for users in order for libraries to take advantage of these opportunities. To this end, in 2006 the National Library of Australia implemented relevance ranking in Libraries Australia Search and we are currently working on a prototype that will include the clustering of search results, suggestions to users for better searches, and recommendations from users. (The prototype is available at http://www.ll01.nla.gov.au.) Consistent with the single business approach, these

improvements will also be made available in our other resource discovery services, once implemented in Libraries Australia Search.

Libraries Australia

Libraries Australia is the National Library's flagship service and a manifestation of our access strategy. It provides aggregation of metadata, integration of traditional and digital resources, federated searching across a range of targets, unmediated access by users to a number of delivery options, enables access via multiple pathways, and supports discovery in a range of local, national and international contexts.

Libraries Australia was launched in November 2005, following the redevelopment of its predecessor, Kinetica. The service comprises four modules that support searching (Libraries Australia Search), cataloguing, administration and document delivery. Since January 2006 when Libraries Australia Search was launched, anyone with an Internet connection can search the service free of charge. A subscription service is also available to Australian libraries and their patrons which provides additional services such as advanced search functionality, access to MARC records for copy cataloguing, and personalisation features.

Our ongoing challenge with Libraries Australia is to make it as easy to use as popular services such as Amazon and Google. We therefore need to make searching easy and intuitive and offer new ways of browsing large result sets. We also need to make the "getting" options easy and seamless. Use figures since the free search system was released to the public in January 2006 provide some evidence that we are moving in the right direction, with a higher than estimated increase in searches.

Searching

Libraries Australia is searched using a Google-like search box and the subscription service provides an advanced search on a choice of indexes. The simple and advanced interfaces include limits enabling the user to restrict searches to resources in various formats; for instance, newspapers, theses, pictures, music, online, government, and Australian. Users can search millions of resources in a range of formats held by libraries and cultural institutions around Australia and the world. For instance, either separately or combined, they can search:

- The Australian National Bibliographic Database (ANBD), which supports Libraries Australia. (The ANBD describes over 42 million items held by around 800 Australian libraries from all sectors (national, state, university, public, research, government and special. Many of the resources described are rare and unique.)
- PictureAustralia, which provides access to around 1.2 million Australia related images from Australian and some overseas cultural agencies;
- Many international library catalogues including those from the British Library, Library of Congress, and the national libraries of Singapore and new Zealand; and
- Australian journal articles through a commercial indexing and full text service.

Delivery

Libraries Australia is pivotal to the Library's strategic objective of making it easy for people to find and get the resources they want. It breaks down the barriers to access by providing users with options for obtaining resources. For instance, some resources are available online, or they can be obtained from the user's local library or another library via inter-library loan, or the user can purchase a copy from an online bookshop or through the National Library's Copies Direct service.

Taking Libraries Australia to the users

A central prong of our access strategy involves taking the Libraries Australia database to users rather than expecting them to come directly to the service. This strategy recognises that the number of people who start their search at a library catalogue is diminishing, and that search behaviour now commonly entails starting with a broad search of the Internet and then drilling down to more detailed information through browsing of many different resources.

To increase the prominence and visibility of the very important library collections available through Libraries Australia, we are taking a number of approaches that take advantage of opportunities provided by new search technologies and partnerships. For instance, we have,

- added an entry in Wikipedia about the service;
- made available a Libraries Australia search box for use by local systems;
- made the service (and all our federated search services) accessible to third party systems through the Z39.50 protocol;
- made the database records available to major search engines for indexing (see below); and
- negotiated an agreement with OCLC that provides, among other things, for Libraries Australia records with Australian library holdings to be made available in Worldcat and for exposure of those records in search engines through the Open WorldCat program and on the web through Worldcat.org.

Relationship with Google

Our relationships with Google and OCLC are key to making our national library collections visible in the international context.

We have been working with Google for some months now to expose the bibliographic records from Libraries Australia to the various Google services. To date, about 1.2 million records have been matched to records in Google Scholar and relevant records have been added to Google Book Search. This provides a new discovery pathway for users of these services who can link directly from Google results to records in Libraries Australia. Our records are also now starting to appear in the main google.com service and Google have advised us that all records will be accessible by the middle of 2007.

In parallel with making our union catalogue records available to Google, we are also seeking to make our Australian collections highly visible and easily discoverable

through search engines by seeding them with biographical entries that allow users to navigate to linked resources.

Future directions

To ensure *Libraries Australia* remains competitive and effective as a search and delivery system, ongoing improvement will be required. Some enhancements identified for the near future are outlined below.

- Make the "getting" functionality more seamless – currently too many "click throughs" are required to move from Libraries Australia Search to the local catalogue. "Deep linking" is required so users can link through to items in local library catalogues to see detailed holdings and to items available from online booksellers without having to redo their search.

- Improve access to online full-text resources by including links to digitised books from sites like Project Gutenberg, the Million Book Project, Google Book Search and the Open Content Alliance.

- Improve search functionality, including result clustering based on concepts from FRBR and structured metadata in MARC records, to allow users to browse related information in result sets (e.g., by subjects, authors, dates, genres)

- Integrate directory services offered by the Library with Libraries Australia and implementation of support for distributed authentication and authorisation schemes such as Shibboleth.

- Extend federated searching via Libraries Australia to other information targets outside the library and cultural sectors - for instance, statistical data provided through national aggregation services.

- Provide a new federated search service for Australian journals that improves access to Australian journal article metadata and full-text.