

Taking care of business: reframing national collaboration in the digital age

ABSTRACT (as submitted in May 2016)

Introduction

The National Library of Australia leads the library sector through providing national collaborative services such as Libraries Australia and Trove, and by collecting and preserving print and online legal deposit material on behalf of the nation for long-term access. In partnership with others, the Library has also digitised an unprecedented quantity of historical newspapers, transforming the way historical enquiry can be undertaken. The success of these activities and the rapidly changing nature of the economic, social and technological context in which we operate has triggered the need for the Library to re-examine its national leadership role and the unique value it can deliver, the long-term sustainability of these services for the nation, especially as new legal deposit legislation will expand legal deposit collecting to all digital and online material, and the potential for increased collaboration within particular sectors and with the wider community.

Method

Between November 2015 and June 2016 the National Library embarked on a project to review existing digital services and collaborations, re-examine the value propositions offered by the Library and develop new coherent business and governance models for its digital business. A web-based literature review completed in March 2016 revealed that despite some significant work overseas, there was very little evidence that similar

research and business thinking has been undertaken in Australia. In April 2016, Deloitte Australia was engaged to assist with developing a framework under which to establish business and governance models that will guide the long-term development paths for the Library's digital services.

Results

New business and governance models were developed under the collaborative framework established by this project. The models allow for co-investment from various partners to ensure the sustainability and impact of the Library's future metadata and digital content sharing services that will benefit all. The paper will describe in detail the thinking behind these models and the work the Library has done in working with its stakeholders in implementing his large-scale cultural change.

Conclusion

With the support of National and State Libraries Australasia (NSLA), the National Library has developed new digital business models from which to nurture a new phase of close collaboration with the cultural sector. This collaboration aims at delivering value to all partners by sharing services and technical infrastructure. In this current era of digital publishing and technology-driven disruption, closer collaboration leveraging the capacities of all partners will ensure long-term sustainability of national services.

Relevance to the conference theme of Data | Information | Knowledge

This paper describes the strategic re-thinking of the nature of the leadership role of the National Library and the value a close national collaboration with the library and cultural sector will bring to all parties and the community.

PAPER

Australians live in a highly connected society. We are surrounded by online content and many of us own more than one mobile device. According to a report by Deloitte entitled *Mobile Consumer Survey 2015 – the Australian Cut*, 79% of Australians under age 55 own a smartphone and 59% of Australian households have access to a tablet.¹ We are addicted to using our devices, with 80% of the population saying they can't last an hour after waking without checking their phone and most people saying they consult their phone about 30 times a day. For people under the age of 25, this nearly doubles to 56 times a day.

This proliferation of online content and ubiquity of mobile devices presents both challenges and opportunities to libraries. Libraries hold rich collections, but much of this content is hidden to the online world. Libraries employ many strategies to counter the traditional view that they are merely warehouses full of books. Cultural and research institutions are actively digitising items and building online repositories to ensure their extensive collections are as accessible as possible to potential users. This online presence helps expose the depth and breadth of collections and lure new audiences to this rich content. To remain relevant, libraries must continually reinvent themselves and find ways to keep pace with this seismic shift in how people seek and use information.

Leadership and Collaboration

Librarians have long recognised that we achieve more by working together than is possible individually. The National Libraries of Australia and New Zealand and the libraries of all Australian states and territories have been working together in a formal

There are no sources in the current document.¹Drumm, J & Johnston, S 2015, *Mobile Consumer Survey 2015 – The Australian Cut*. Available from: <http://landing.deloitte.com.au/rs/761-IBL-328/images/deloitte-au-tmt-mobile-consumer-survey-2015-291015.pdf>

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collaboration since 1973 and the Council of Australian University Librarians (CAUL) was established in 1965. One of the most significant early achievements of cross-institutional cooperation was the establishment of the Australian Bibliographic Network (ABN) in 1981². This original union catalogue has had many iterations over the years and now encompasses the aggregated bibliographic and holdings data of the 1100 libraries who participate in Libraries Australia. The Australian National Bibliographic Database (ANBD) that is the backbone of Libraries Australia is the key mechanism through which libraries of all types share metadata and arrange interlibrary loans.

Creating a union catalogue that reflects the breadth of collecting across the Australian library community is not the only achievement of collaboration. Another initiative that has grown and evolved over many years is the Australian Newspaper Plan (ANPlan)³. ANPlan began in 1992 as an initiative of National and State Libraries Australasia (NSLA) with the broad objective of coordinating the collection and preservation of the country's newspapers to reduce duplication, make best use of limited resources and secure long-term access. At that time, microfilm was the format of choice to capture and preserve newspapers in a stable and long-lasting medium. In 2007, attention shifted to digitisation as a way of preserving content and promoting access. The years of collaborative investment to build a comprehensive microfilm collection provided the solid foundation from which the National Library of Australia launched the Australian digitised newspapers beta site in 2008. This service, which invited users to correct transcription inaccuracies generated by the Optical Character Recognition (OCR) software, soon became an indispensable resource for academics, genealogists and

² *Libraries Australia: Australian libraries working together: Our History*. Available from: <http://www.nla.gov.au/librariesaustralia/about/history/>. [21 November 2016]

³ Gatenby, P 2008, *The Australian Newspaper Plan (ANPLAN)*. Available from: <https://www.nla.gov.au/content/the-australian-newspaper-plan-anplan>. [21 November 2016]

anyone with an interest in Australian culture and social history. This extensive digitised newspaper content is a major reason Trove now attracts 57,000 visits a day.

The PANDORA web archive was another forward-looking initiative with a long history of collaboration⁴. Led by the National Library of Australia, PANDORA was established twenty years ago in recognition of the value and importance of capturing and archiving major Australian websites and online publications for posterity. Since its inception, the National Library and several other partners have actively contributed to PANDORA by curating and collecting web content. PANDORA is now a mature archive that in August 2004 was placed on the Australian Register of 'Memory of the World' in recognition of the important role it plays in capturing and preserving Australia's documentary history.

By the mid 2000's, the collaborative effort of Australian libraries had built several distinct national databases of aggregated content. These services encompassed digitised newspapers, pictures, sound recordings and music; the bibliographic data held in library catalogues, manuscripts and archive collections; and content held in Australian university and research repositories. Although still dominated by libraries, some aggregations like Picture Australia now included holdings of other cultural institutions, galleries and museums. By 2006 "it was evident that this multiplicity of discovery services was not providing the best possible service for the user, and was hindering the [National] Library's ability to maintain and improve the underlying software".⁵ At that stage the Library began an in-house development project to bring its services under a single discovery layer.

Birth of Trove

⁴ PANDORA: *Australia's Web Archive History and Achievements*. Available from: <http://pandora.nla.gov.au/historyachievements.html>. [21 November 2016]

⁵ Cathro, W & Collier, S. 2009, *Developing Trove; The Policy and Technical Challenges*. Available from: <http://www.nla.gov.au/content/developing-trove-the-policy-and-technical-challenges>. [21 November 2016]

When Trove was launched in 2008, it was conceived as a single portal to the digitised content and metadata held in separate Australian discovery services, all developed and maintained by the National Library of Australia. The new portal enabled users and researchers to locate content held in:

- Libraries Australia (public access version)
- Picture Australia
- Music Australia
- Australia Dancing
- Register of Australian Archives and Manuscripts
- PANDORA web archive
- ARROW research repositories discovery service⁶
- Australian Newspapers service.

Eight years later, Trove has evolved to become an entity greater than the sum of its parts. It is now a comprehensive digital ecosystem that offers digital humanities scholars a significant data corpus for analysis and developers an opportunity to enhance and manipulate content through its Application Programming Interface (API). As former Manager of Trove, Tim Sherratt, states “portals are for visiting, platforms are for building on.”⁷ The success of the Trove platform has made it synonymous with libraries in the public imagination. Trove has become the flagship for Australian collections, a trustworthy and reliable gateway to the country’s documentary heritage. Its size and scale has established it as an essential component in the Australian research

⁶ The ARROW (Australian Research Repositories Online to the World) was a consortium project led by Monash University to establish institutional repositories and resource discovery mechanisms. It was funded by the Australian Commonwealth Department of Education, Science and Training under the Research Information Infrastructure Framework for Australian Higher Education. See <http://arrow.edu.au/> for more information.

⁷ Sherratt, S. 2013, *From Portals to Platforms: Building New Frameworks for User Engagement*. Available from: <http://www.nla.gov.au/our-publications/staff-papers/from-portal-to-platform>. [21 November 2016]

infrastructure and given unprecedented national exposure to the collections and digitised content held in libraries across the country.

Collecting on a grand scale - legal deposit of electronic publications

In February 2016, the federal government passed an amendment to the *Copyright Act 1968 (Cth)* that empowers the National Library of Australia to acquire born-digital publications. This significant legislative change asserts the Library's right - and obligation - to capture, preserve and make accessible the country's intellectual and creative output, regardless of format. Some other Australian jurisdictions have received a similar mandate to collect, preserve and provide access to this rich and diverse array of digital material. This legislative framework raises Australian library collecting – and user expectations - to a new level. It redefines the boundaries of Australian library collections to encompass:

- thousands of individual electronic documents deposited by small publishers
- thousands of items acquired through bulk ingest processes from large commercial publishers
- millions of historical websites captured through the whole domain '.au' harvest

In their 2015-2017 Strategic Plan, National and State Libraries Australasia identifies “policy, business and governance planning for a collaborative approach to legal deposit of digital materials” as a key priority. The scale of collecting, the robust infrastructure required and the efficiencies to be gained for both libraries and publishers all point towards a collaborative approach. NSLA members have embraced this by establishing the National Digital Deposit Network (NDDN) steering group to explore what would be required to build a technical and governance framework capable of supporting a national digital collection.

As the Trove ecosystem grew, so did the National Library's investment in the infrastructure needed to support large-scale collecting. However, no single library can develop the scale of infrastructure required to support a national electronic legal deposit system as depositing Australia's digital output in library collections takes hold across the country. It requires a collaborative approach that shares the risk, responsibility and benefits with partner libraries across the country.

Convergence and dependence on technical infrastructure

The development of the NDDN holds the potential to become the next phase of Australian library innovation and the years of investment in infrastructure by the National Library of Australia makes it possible. The National Library offers a robust digital environment that can ensure the security and preservation of data and offers comprehensive end-user access systems. In anticipation of e-deposit, the Library also developed an end-to-end digital deposit workflow. Trove is now the lynchpin of Australian digital collecting and it is becoming increasingly difficult, if not impossible, to isolate the individual components of this sophisticated digital ecosystem. There are no commercial equivalents for this 'whole of life' approach to managing Australia's digital publications and this complex infrastructure operates on an unparalleled scale in Australian libraries. It supports:

- access to 500 million resources
- 250,000 searches every weekday on average
- 225,000 per day on weekends
- 57,000 users a day
- approximately 30 million web server requests per day

Although comprised of several different services under a single discovery service layer, the underpinning IT infrastructure is now inextricably linked. Each service operates in an interconnected digital ecosystem of supporting hardware and software comprised of:

- 2.2 petabytes of digital content including 3 terabytes of full-text
- four tiers of network storage with an ultra-high speed Solid State Device (SSD) to enable fast access to Solr indexes

Trove is the fourth most visited Australian government website⁸ and provides a high level of data integrity, confidentiality and availability. The infrastructure required to collect and preserve digital publications, as well as digitise and deliver analogue content, is costly to create and maintain. However, today's digital citizens assume publicly funded libraries will meet this expectation. Building on Trove's mature, well-tested and secure infrastructure to meet the needs of a national e-deposit system is the next logical step.

Political and fiscal realities

The changing economic climate and resource constraints facing libraries makes collaboration even more critical and sharpens the need to identify efficiencies.

Australia's libraries and cultural institutions are operating in an environment that favours small government. Federal funding has declined significantly in real terms over the last ten years even as responsibilities and public expectations of the depth and breadth of library collecting have expanded. The cumulative effect of a contracting budget at the National Library threatens the future viability and sustainability of Trove if the service is unable to attract additional investment. A cross-sectoral approach is essential for the service to continue to succeed.

⁸ As of April 2016

At the same time, the Australian government is conducting a review of research infrastructure. According to its terms of reference⁹, the National Research Infrastructure Roadmap will “identify Australia’s national research infrastructure needs to underpin future research and innovation capability” and “consider where Australia already has world-class research infrastructure capability and identify existing and emerging areas for future strategic development or prioritised investment”. The National Library of Australia, National and State Libraries Australasia and the Australian Library and Information Association have all responded to the call for submissions to the Roadmap’s Capability Issues Paper and asserted the value of Trove in Australia’s research landscape. An Exposure Draft summarising the outcomes of the consultation process is expected to be released before Christmas 2016.

The stagnation and deterioration of Trove would be detrimental to the entire Australian library community. When Trove won the ‘Excellence in eGovernment’ award in 2011, it was considered an exemplar of digital innovation. In the public eye, Trove is now arguably the biggest and most popular ‘brand’ in the entire library sector. It is therefore in our collective interest to ensure that Trove remains viable and continues to evolve. Pooling resources to achieve this not only makes economic sense, but will enable libraries to create impact and value on a scale not possible individually.

A new approach – Digital Business

The National Library initiated a Digital Business project in November 2015 to bring this vision of deeper collaboration to fruition. The primary purpose was to review existing business models, investigate alternative models and consider new ways of structuring

⁹ 2016 Roadmap Expert Working Group Terms of Reference. Available from: <https://docs.education.gov.au/documents/2016-roadmap-expert-working-group-terms-reference> [21 November 2016]

collaborative relationships to provide a solid basis for the future development of the interdependent services that underpin Trove. With infrastructure central to the NDDN, the National Library plans to develop a more inclusive governance model and a co-investment strategy that enables all members to both contribute to and benefit from our shared investment.

Methodology

In the first half of 2016, the Library conducted a literature review, looked at comparator international aggregation services and sought external advice on the development of fit for purpose business and governance models.

Literature review

The literature review revealed that all digital services around the world are grappling with reduced budgets and an imperative to demonstrate that cultural information can be delivered through ever more efficient means. Results indicate research on digital business models is concentrated in the Western hemisphere, chiefly the USA and UK, with the exception of a few European scholarly organisations and cultural institutions. The review unearthed no Australian scholarship in this area, positioning the National Library's Digital Business project as leading the field.

Designing business models is not a stand-alone process. It is embedded in a larger strategy that begins with an organisation's strategic vision and considers the full range of costs and activities needed to keep the service 'vibrant'.

The literature emphasised that ascertaining the perceived value of the service and maintaining that value into the future is a key factor in devising a suitable business model. A digital mandate may encompass many activities that are unfunded such as

long term retention of sustainable digital resources, enhanced access and increased engagement with information, libraries and their communities.

Thus three themes emerge in the literature: identifying value, sustainability and support.

Simon Tanner, from the Department of Digital Humanities at Kings College London, believes that the rising cost of infrastructure, ownership and digital preservation is the single biggest threat to the future economic sustainability of digital libraries and services¹⁰. He argues that effectively measuring impact, or value, can enhance strategic planning and evidence-based decision-making. A viable model needs to address the value that the resource offers to stakeholders and users – how they use it, why they want to use it – and whether that value is sufficient that users will pay.

In the US, Ithaka S+R have published extensively on the ways libraries, publishers and scholarly societies are transitioning to the technological and economic context of the 21st century¹¹. They conduct surveys and phased studies, often in collaboration with other major research organisations such as JSTOR, Association of Research Libraries (ARL) and Strategic Content Alliance, that focus on meta-analyses and comparisons of digital services from different organisations. Overall, Ithaka S+R research suggests a sustainable service covers its operating costs through a combination of revenue sources and cost-management strategies, but must also continue to enhance its value through ongoing development based on user needs.

¹⁰ Tanner, S 2016, *Using impact as a strategic tool for developing the Digital Library via the Balanced Value Impact Model*. Available from: <https://kclpure.kcl.ac.uk/portal/en/publications/using-impact-as-a-strategic-tool-for-developing-the-digital-library-via-the-balanced-value-impact-model%2887284b44-cbca-4636-9626-ad90e10b0e5d%29.html> [28 January 2016]

¹¹ *Ithaka S+R Publications*. Available from: <http://www.sr.ithaka.org/publications/> [21 November 2016]

Comparator services

In addition to the literature review, the National Library examined a number of comparable international digital services. Of particular interest were Europeana, Digital Public Library of America (DPLA) and DigitalNZ. Like Trove, these services aggregate metadata from multiple contributors through a single discovery portal and enable developers to access resources using an Application Programming Interface (API). However, none of these services also includes the comprehensive full-text and digitised content that Trove offers. As both an aggregator and content provider, Trove is unique in the world, making it a challenge to compare governance models and fee structures with other services.

Europeana is currently undergoing a fundamental shift. During its development phase, its primary funding source was the European Union. Europeana is now moving to a distributed network of partner libraries with a complex governance model operating across four levels.

DPLA is a tax exempt non-profit entity, developed and maintained through a combination of federal government grants and philanthropic support. It is governed by a Board of technical experts.

DigitalNZ operates in the context that is most similar to Trove. Funded by the National Library of New Zealand, DigitalNZ is governed by a relatively small non-representational

Advisory Board chaired by the National Library's CEO. The service focuses on keeping costs as low as possible and can be sized according to available resources.

These entities, all with very similar purposes, are products of how they were initially conceived and funded. Each arose in a different social and policy context and each has a unique governance model. Trove evolved in Australia as a result of strong leadership, a shared vision and years of library collaboration. It emerged despite receiving no additional government or philanthropic funding.

Deloitte Australia consultancy

To help inform the review of the long-term sustainability of its digital services, the National Library engaged Deloitte in March 2016. The intention was to seek expert advice on developing a coherent and fit for purpose business and governance model that would also maximise partner certainty about expectations and relationships.

Deloitte's efforts focused on engaging with stakeholders, conducting a cost and accounting analysis and assessing the governance and structure of the National Library's existing national services. Using the National Library's literature review and comparator analysis as a source of best practice within the Galleries/Libraries/Archives/Museums (GLAM) sector, Deloitte combined it with a detailed analysis of relatively equivalent business models from other sectors.

Deloitte engaged with key stakeholders both within the National Library and externally, to discuss the Library's digital service offerings, test assumptions and tease out issues. They spoke with Chief Executive Officers of most NSLA libraries as well as representatives from other major organisations in the library and research sector

including Council of Australian University Librarians (CAUL), Museums Australia, the Federation of Australian Historical Societies, and the Academy of the Humanities.

A number of key themes emerged across both the internal National Library workshops and external stakeholder discussions. Within the National Library, a chief concern was the ongoing financial sustainability of services. External stakeholders put more emphasis on obtaining greater input and influence on future directions and achieving a clear sense of return on investment. Deloitte concluded that any new business model for digital services would need to satisfy these two key stakeholder concerns.

The report suggested several business model improvements including bundling services under a membership model, establishing a National Digital Services Committee to oversee future developments and innovation and quarantining funds to develop new functionality. The report also recommended the National Library clearly articulate the value of the services on offer and conduct a review of IT infrastructure costs to ensure both accuracy and transparency.¹²

Next Steps

The result of the first stage of the Digital Business project confirms a high level of alignment between the strategic aims of the National Library and its major stakeholders. Under Strategic Priority 3 of the 2016-2020 Corporate Plan, the National Library aspires to “create value for library services and their patrons—across all jurisdictions, regions and sectors—by managing the research infrastructure that underpins access to the nation’s library collections.”¹³ In a similar vein, the 2015-2017 Strategic Plan for NSLA

¹² The Deloitte consultants indicated that the National Library may be understating its technical infrastructure costs and advised a review of its costing methodology.

¹³ *National Library of Australia Corporate Plan 2016-2020: Strategic Priority 3: Lead, partner, connect and excel.* Available from: <http://www.nla.gov.au/corporate-documents/corporate-plan-2016-2020-strategic-priority-3> [21 November 2016]

states that ‘collaboration is the key to developing effective digital infrastructure to enable collection and management of digital objects over the long term.’¹⁴ The Council of Australian University Librarians lists the ““exposure of digitised special collections in Australian university libraries” as a strategic direction and articulates their intention to “build and maintain relationships with other peer groups in the library and information science sector, nationally and internationally”¹⁵.

In this context, the National Library established a two-person project team in October 2016 to begin Stage 2 of the Digital Business Project. Over the next nine months, the team will continue to consult with stakeholders and develop a membership agreement and governance model that builds on the findings and recommendations of the Deloitte consultancy. The new model will strengthen the influence of contributing partners, provide a formal mechanism for member input into future development planning and better guarantee the long-term viability of our shared investment. The agreement will clearly articulate the full range of services on offer and provide greater transparency around the costs of the essential infrastructure on which the entire digital ecosystem relies.

Conclusion

Australian libraries are well placed to meet the demands and opportunities of the digital age. The magnitude of the change represented by the introduction of electronic legal deposit offers a rare opportunity to shape the future of our sector. Libraries are on the

¹⁴*National and State Libraries Australasia Leading Collaboration Strategy 1: Shared solutions*. Available from: <http://www.nsla.org.au/leading-collaboration-shared-solutions> [21 November 2016]

¹⁵*Council of Australian University Librarians Strategic Directions 2014-2016*. Available from: [http://www.caul.edu.au/content/upload/files/caul-doc\\$/strategicdirections2014.docx](http://www.caul.edu.au/content/upload/files/caul-doc$/strategicdirections2014.docx) [21 November 2016]

culmination of a fundamental shift towards capturing, preserving and making accessible the country's digital output on a significant scale. Adopting an overarching business model that acknowledges the increasing convergence of technical infrastructure and capitalises on the efficiencies to be gained by adopting a national approach will position libraries well in an increasingly digital environment.

The timing is right to build on our long history of collaboration, raise it to a new level and embrace the potential of e-deposit. The Australian government is poised to invest in research infrastructure through the National Research Infrastructure Roadmap.

International comparators such as Europeana and the Digital Public Library of America are all adopting a more cohesive, sustainable and collaborative strategy. Australian libraries recognise that managing the scale of online content generated by today's society requires a collaborative approach, co-investment, a shared infrastructure and management coordination. By working together we can ensure that government and Australian society consider libraries an essential element in the country's digital identity. We are getting ready.

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