

GOING GLOBAL – DIGITAL CONVERGENCE ACROSS NATIONAL LIBRARIES AND THE GLOBAL RESEARCH COMMUNITY

**A New Zealand perspective by Penny Carnaby
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to the 2009 Annual RLG Partnership Meeting
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Māori welcome

Kōkiri, kōkiri, kōkiri!	The message from the people
Whakarongo ake au ki ngā reo o te motu	Clearly asks us
E karanga mai ana	To open our doors
Huakina mai ngā tatau o tō whare	So that we may work together
Kia Mahi Tahī tatou, kia inu ai mātou	And share the information
I Te Puna Mātauranga o Aotearoa	Held in Te Puna Mātauranga o Aotearoa

Introduction

The digital paradigm is redefining the world of national libraries, of research institutions. It is a new frontier and like all frontiers brings tremendous opportunities and even greater challenges. What is striking is the opportunity for all our organisations to build new connections and networks, reach new audiences and give real meaning to information democracy at a global level.

How we do that is not always easy and it takes courage and leadership to effectively cross boundaries and collaborate in the true sense of the word. However, there are some truly inspirational contributions, which we should celebrate and certainly understand more.

Today, I am going to provide a helicopter view of how the digital paradigm has directed the National Library of New Zealand, and how it has assisted us in building nation-wide frameworks to support our wider research, culture and heritage and public library sectors. In this context, New Zealand is a small enough country to provide a good incubator for testing some of the new generation thinking in the digital space, which can then be applied globally.

While the paper draws on themes that are generally true for all national libraries, New Zealand examples, in this instance, are used.

Before I start, it is useful to provide background on the role, purpose and function of National Libraries generally, as this gives a very clear understanding of why the National Library of New Zealand has played such a proactive role in the development of New Zealand's thinking in the digital environment. The National Library of New Zealand is a government department with its own minister and policy unit.

While national libraries around the world may share much in common with regards to their roles, like all national libraries we also have our idiosyncrasies, based on our unique culture and social and economic development.

Additionally, a timely question many of us face today is the impact of the digital environment on our role. How is it impacting on what we do, on the services we provide, and is it creating a fundamental shift in the role of national libraries globally? While I will focus on the role for a New Zealand national library, conversations I have had with my colleagues around the world highlight that this is a very topical and timely discussion.

For the New Zealand National Library then, our purpose is: “to enrich the cultural and economic life of New Zealand and its interchanges with other nations,”¹ and to further the work of other libraries. Taking this down one level there are three key areas of influence as follows:

- As the **engine room of the knowledge economy** - connecting knowledge systems of a country, sharing resources locally, nationally and internationally. Also, working collaboratively with other related institutions and sectors to share and broaden access to knowledge and building a strong national/international knowledge infrastructure.
- As the **nation’s heritage research library** - celebrating and showcasing the documentary record of a country for research purposes and to connect people from all walks of life with the story of their nation. This is done in close collaboration with other GLAMS (Galleries, Libraries, Archives and Museums Sectors) and large research libraries.
- To support **learning and literacy** - ensuring our education and learning services are focused on achieving 21st century literacies, particularly for our young people. Fostering the importance and joy of reading is fundamental to the civic life of every young New Zealander that underpins these elements, particularly in relation to the support of global research networks.

Building a strong knowledge infrastructure

National libraries can be viewed as the engine room of the knowledge economy, connecting the libraries of the country, sharing resources locally, nationally and even internationally.

For example, the National Library of New Zealand develops and supports bibliographic structures and infrastructure that connect libraries around the country. An example is the National Library’s [Te Puna services](#) (Te Puna is a Māori word which translates as Wellspring), which is a suite of subscription-based tools that give New Zealand libraries the best possible access to items and information about items published in New Zealand and worldwide.

Our access to worldwide records has been greatly enhanced with the signing of a contract with OCLC in 2007, which means New Zealand libraries now have the potential to connect with 57,000 libraries around the world. Imagine the citizens of a community with a small library in an isolated part of the west coast of New Zealand accessing this expanse of knowledge through their public library.

¹ "National Library of New Zealand Act (Te Puna Mātauranga o Aotearoa) 2003." [National Library of New Zealand](#). 26 March 2009. p. 5. <<http://www.natlib.govt.nz/catalogues/library-documents/nlnz-act-03>>

This is nothing new because we have been active in building knowledge infrastructures and resource sharing for over seventy years. Geographically, New Zealand is a small and isolated country and this reality has been instrumental in creating a nation that constantly seeks to connect more effectively with the wider world. Our size and limited resources have also created a willingness to seek shared opportunities, and this has become more ingrained with the current difficult economic environment.

Heritage research library

A second theme is the connection with our nation's heritage, as the heritage research library celebrating and showcasing the documentary record of a country for research purposes and to connect people from all walks of life with the story of their nation, its cultures and heritage.

National Libraries, particularly the larger more established libraries such as the Library of Congress, and the British Library are at their core research libraries and are internationally known and respected for their comprehensive research capability.

Increasingly, research libraries are redefining their role in light of new digital technologies, which are transforming the "ways in which information is created, disseminated, stored and accessed."² A key challenge for all research libraries is how we can harness the potential of the digital world so that we can continue to ensure world-class scholarship, creativity and business innovation.

A clear way forward, and one that is increasingly obvious to us all, is the need for strong partnerships and collaboration to build a strong global research infrastructure. I note that a report by the Association of Research Libraries investigating research libraries' roles in digital repository services stressed as one of its key findings an action for research libraries to "build a range of new kinds of partnership and alliances, both within institutions and between institutions."³

For New Zealand, taking a more collaborative approach has clear benefits, including the ability to more clearly focus our limited resources on local, New Zealand-specific material rather than having to replicate work already being done or held in other institutions, whilst still ensuring our clients have access to the full range of information they need, whenever and wherever they need it. This approach has even more appeal as we all feel the impact of the global economic downturn.

Learning & literacy

The third and final theme is around national libraries' contribution to education and life-long learning. Most national libraries are active in the education space, and the National Library of New Zealand is no exception. This is based on the principle of improving literacy and fostering the joy of reading as fundamental to functioning successfully in the digital environment.

² "Redefining the British Library's role in the research information cycle" in REDEFINING THE LIBRARY: The British Library's strategy 2005 – 2008. The British Library. 26 March 2009. p. 6. <http://www.bl.uk/aboutus/foi/pubsch/strategy_0508.pdf>.

³ "The Research Library's Role in Digital Repository Services. Final Report of the Association of Research Libraries (ARL) Digital Repository Issues Task Force." Association of Research Libraries. 26 March 2009. p. 39. <<http://www.arl.org/bm~doc/repository-services-report.pdf>>.

Supporting policy framework

In recent discussions with my colleagues from [CDNL](#) (Conference of Directors of National Libraries) we all agreed that having a robust policy framework is key to a clearly articulated and understood role and definition. These discussions also highlighted that New Zealand's supporting policy framework is recognised as 'best of breed' internationally.

This framework has always been our reference point when considering strategy and direction, and when debating and discussing the role and place of a national library with our wide range of stakeholders. As a reflection, it would be difficult to determine how successful we would have been without it. Importantly, the New Zealand approach has been to take an all-of-country approach across business, communities and government.

So what is core to New Zealand's national library policy framework? Some farsighted thinking over ten years ago saw New Zealand's national library legislation introduce legal deposit into the digital domain. The [National Library of NZ Act](#) in 2003 made New Zealand one of the first countries internationally to legislate for the requirement of bringing legal deposit into an electronic or digital domain. This gave the National Library the mandate to collect and preserve New Zealand born-digital publications and all activity in New Zealand - blogs, wikis, anything publicly accessible on the web.

It essentially ensured that securing digital capability was firmly established in the organisation's mindset. While today digital memory is high on all national library agendas, this policy change was seen as a radical policy shift, not just in New Zealand but globally.

Preservation and Protection – National Digital Heritage Archive

As a result of modernising the National Library of New Zealand Act, the Government in 2004 granted the National Library NZ\$24m to build a trusted, curated digital repository for the long-term protection and preservation of New Zealand's digital assets.

This ensured we would meet our obligations under legal deposit to collect and preserve New Zealand's digital assets including the harvest of the .NZ domain. We began to look at what activity on the web needed to be ingested into the archive and which would tell the story of New Zealand life over time, including sound, moving image, geospatial and textual memory.

The loss of part of our digital memory, our data and information is of course completely unacceptable and it is redefining the thinking of our profession. We managed information through the ages, protecting and preserving knowledge to ensure there will be access and therefore creation of new knowledge. This doesn't change in the digital environment, although of course there are many professional challenges for us as we seek to press 'save' (in perpetuity) rather than simply delete.

In understanding the enormity of the challenge, we recognised we could not develop a digital archive on our own.

To build the [National Digital Heritage Archive](#) we needed to partner with experienced software and hardware developers. As you can appreciate while the idea is simple, like many simple ideas, it is hugely complex. Our partners were [Ex-Libris](#) and [Sun Microsystems](#) who were our software and hardware partners. Sun Microsystems has recently published a white paper - [Case Study: Digital Preservation at the National Library of New Zealand: Preservation: A Forward-Looking Mission](#) - on the information architecture reference site using the NDHA. The digital preservation system is now marketed as [Rosetta](#) by Ex Libris, and therefore available to the wider global community which is fantastic.

It was launched in February 2009 by the Minister Responsible for the National Library, [Hon. Dr Richard Worth](#) and is the first fully contained commercial solution to the protection and preservation of digital heritage. It was very much a collaborative effort with international partners and is a tangible demonstration of how a private and public partnership can successfully deliver an innovative solution. And the project was delivered to time and slightly under budget!

It was very important from the outset that we also involved both the international and New Zealand stakeholders in how we ultimately shaped the NDHA. This included the Peer Review Group whose mandate was to guide the partnership and the resulting creation of a commercially viable solution, and included highly respected institutions such as the British Library, Cornell University Library, the Getty Research Institute, National Library of China and Yale University to name a few.

The NDHA is highly intuitive; essentially the Archive is warned when something is going out of date, and integrates the tools and services required to migrate from one generation to the next, thus ensuring that a digital object created in 2008 - perhaps a born-digital cartoon from one of our eminent cartoonists - will be exactly the same in 50 years time. This is a real breakthrough.

What I want to do now is outline how the National Library of New Zealand is resolving issues around data curation and preservation, and data information reuse - which is critical to research libraries of all kinds. But first it's important to set the scene and strategy.

Setting the strategy

The World Summit on the Information Society in [Geneva](#) 2003 and [Tunis](#) 2005 were crucial in setting the agenda for the development of e-strategies in a number of countries.

Drawing from the strategic vision and inspiration of WSIS, New Zealand launched its own [Digital Strategy](#) in May 2005. This was a far-reaching, all-of-country digital vision impacting on communities, business, and local and central government throughout the country.

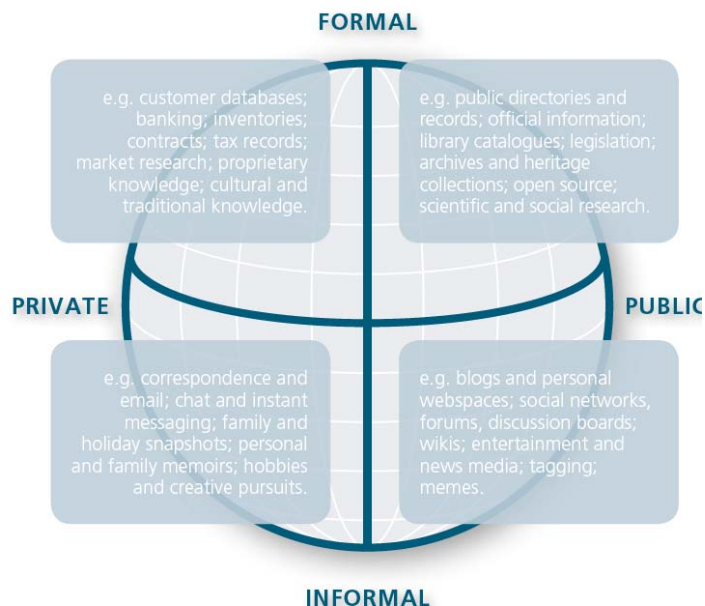


Figure 1: Digital Content Strategy - The Digital Space, p.12

From the Digital Strategy, New Zealand moved to digital content, launching the [New Zealand Digital Content Strategy \(NZDCS\)](#) in 2007. The NZDCS is significant in that it does not discriminate between digital content created in the authoritative formal space and content which is community generated by an individual or group of citizens. “This strategy is about making New Zealand visible and relevant in a connected digital world, and ensuring that we are innovative, informed and capable as a nation in creating our digital future and telling our stories to each other and the world.”⁴

Another aspect of the Strategy, which is worth noting, is the end-to-end view it takes of a digital object, from creation through to discovery and access through to protection and preservation of that asset.

The New Zealand Digital Strategy outlined three components that would define the digital environment. These are referred to as the 3 C’s framework and are **connection**, **content** and **confidence** <http://www.digitalstrategy.govt.nz>. More recently, the Government refreshed this strategy, named Digital Strategy 2.0, adding a fourth C ‘colloborate’ which was endorsed by the newly elected National Government.

The National Library of New Zealand worked on the assumption that ubiquitous broadband rollout was fundamental and we could not really leverage real change without it. So we focussed on content, confidence and collaboration.

⁴ "Creating A Digital New Zealand: New Zealand’s Digital Content Strategy." [National Library of New Zealand](#). August 2007. p. 5. 26 March 2009. <http://www.digitalstrategy.govt.nz/upload/Main%20Sections/Content/NATLIBDigitalContentStrategy.pdf>.

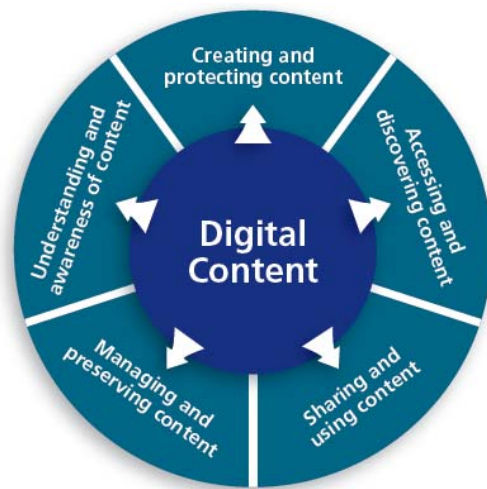


Figure 2: Digital Content Strategy – Five-Element Framework, p. 7

This model traverses new ground in that it puts an equal weighting on creation (of the idea) through to protection and preservation (looking after the idea). The five elements are:

1. **Understanding and awareness** of content
2. **Creating and protecting** content
3. **Access and discovering** content
4. **Sharing and using**
5. **Managing and preserving** content

Essentially this is how national libraries and research libraries of all kinds are organising their thinking and, importantly, it ensures that digital preservation is firmly on the agenda. It shows that new investment is needed, not only in the generation of new content, but also in the preservation of the digital asset. This is done for social, economic and cultural reasons so we can look back on New Zealand society in 50 or 100 years time and understand more about New Zealand intellectual and social activity on the web in 2009.

Additionally, given the current global economic crisis, it simply does not make sense to invest in content creation while failing to protect or preserve this content so it can be re-used, re-purposed for new research, thought generation or business opportunities.

In the formal, authoritative arena of content creation there is good progress internationally, particularly in relation to research data. There is a great deal of research being applied to the re-use and re-purposing of research data sets. Arguably, research funding could stretch much further if data could be re-used to support new research.

In New Zealand the [Education Sector ICCT Standing Committee](#) was established in September 2003 to drive and oversee a more collaborative and joined-up approach to education and research sectors in New Zealand. One of the priorities for the Standing Committee has been to develop an ICT Strategic Framework for Education, focused on ICT investment. The intention is to build ICT interoperability and we have worked closely with colleagues in the [Joint Information Systems Committee \(JISC\)](#) in the UK; [SURF](#) in Holland and the [Department of Innovation, Industry, Science and Research](#) in Australia on sharing standards and interoperability frameworks.

We also share interests in, for example, the areas of repositories and digital rights, and managing research data (including open access), data curation and data re-use. Data curation is central to the NDHA, which will be leveraged from the framework more locally to ensure that data is managed and protected in a more joined-up way across the country.

This is a great example of how collaboration can extend well beyond national boundaries and benefit national institutions globally. For after all, loss of research data has international implications and today's digital tools mean we have the means to prevent this loss.

Another challenge, particularly for scholars, is the increasing democratisation emerging in terms of knowledge. What is undeniable is that "the wide application of digital technologies to scholarly communications has disrupted the model of academic library service that has been in place for the past century",⁵ creating opportunities "for new forms of research and scholarship",⁶ which will require new forms of infrastructure to ensure the availability of digital content

The "publish or perish" imperative for scholars in the print world, to a degree, still underpins the focus of scholarly communication. However, where we publish and how we publish, are very different indeed. New Zealand has made modest progress in this area with the National Library of New Zealand harvesting the metadata from all New Zealand university research repositories in a service called KRIS (Kiwi Research Information Service). KRIS is provided and administered by the National Library of New Zealand through nzresearch.org.nz, a site where research document metadata from around New Zealand has been collected.

The significance of KRIS and content clusters like this become apparent when you see it in a national context.

What we are trying to do is surface uniquely New Zealand content in novel and different ways. "New Zealand content now" has been the mantra for the GLAMS (Galleries, Libraries, Archives and Museums Sectors) for some time, and initiatives like KRIS bring this mantra to life.

Partnering with the Libraries of New Zealand

Under the National Library of New Zealand Act, we are charged with "furthering the work of other libraries" and increasingly we do this by partnering with the libraries of New Zealand to deliver national services which benefit all New Zealand libraries without intruding in any way between a library and the communities they serve.

For over 70 years the National Library of New Zealand has worked in partnership with the libraries of New Zealand to develop a comprehensive bibliographic network, which connects the holdings of the libraries of New Zealand.

⁵ Ronald L. Larsen. "On the threshold of cyberscholarship." *JEP: The Journal of Electronic Publishing* 11. 1 (2008). 26 March 2009. <<http://quod.lib.umich.edu/cgi/t/text/text-idx?c=jep;cc=jep;q1=3336451.0011.1%2A;rgn=main;view=text;idno=3336451.0011.102>>.

⁶ Ronald L. Larsen. "On the threshold of cyberscholarship." *JEP: The Journal of Electronic Publishing* 11. 1 (2008). 26 March 2009. <<http://quod.lib.umich.edu/cgi/t/text/text-idx?c=jep;cc=jep;q1=3336451.0011.1%2A;rgn=main;view=text;idno=3336451.0011.102>>.

We are in a sense the knowledge engine room providing national frameworks where all can benefit. What we are trying to do is connect New Zealand content, both formal and informal, so that it can be accessed, re-used and re-purposed to stimulate new ideas and knowledge creation.

Connecting knowledge

In New Zealand the term “kete” is Māori for “basket” so our strategy is to connect the ketes of New Zealand knowledge. It refers to the growing number of institutional, research and community repositories, which are emerging across our country and how these will impact on new generation learning environments.

While KRIS harvests metadata from the developing research repositories, the formal authoritative data, we are also interested in the informal community-generated content. The National Library of New Zealand runs a managed network for most of New Zealand’s rural and provincial public libraries under a service call the [Aotearoa People’s Network](#). Each of the member libraries has emerging community repositories or ketes where wonderful stories important to communities are developed. These open source repositories are truly amazing and this year we will roll out 10 ketes to local iwi, or Māori tribes, so indigenous knowledge systems are recognised as well.

Our strategy is to cluster content feeds like KRIS and the Aotearoa People’s Network ketes and have uber metadata-harvesting strategies across National Library of New Zealand content from businesses, government and community and expose them in a discovery environment where individuals can create their own individualised environment using Web 2.0 tools.

This concept is called [Digital New Zealand](#), an open source, open standards concept, which has delivered 750,000 digital objects in just a few months across 30+ content feeds, enabling access to New Zealand content that has never been surfaced before. It is worth spending a little bit of time on Digital New Zealand (DNZ) because what I like about it is that it has not been expensive to develop, yet is incredibly successful. Basically every school, every New Zealander, every library, every museum could put a Digital New Zealand widget on their screen and bring it into their own creative spaces.

Importantly, content from Digital New Zealand can be ingested into the NDHA for long term preservation if the content creator so chooses, which brings us back to the key point around a full value chain.

The fourth C in the New Zealand Digital Strategy 2.0 is collaboration and the libraries of New Zealand have become very sophisticated in playing this card. In the last 5 years we have entered into several partnering agreements including:

- [EPIC](#) (Electronic periodicals in collaboration) is a consortium of over 180 New Zealand libraries. Through EPIC, New Zealanders can access thousands of full text electronic resources.
- [Any Questions](#) - 150 of New Zealand’s best reference librarians are accessible to school students through public libraries.
- [Many Answers](#) (a joint Ministry of Education and National Library of New Zealand initiative) delivers real time, up-to-date information online for school students.
- [KRIS](#) - (Kiwi Research Information Service).

- [Matapihi](#) is an online window into places, events and people of Aotearoa New Zealand. It includes access to 175,000 pictures, objects, sounds, movies and texts and is a collaborative effort amongst the New Zealand GLAMS sector.

This national connecting strategy is boosted globally through our partnership arrangement with OCLC. Our National Union catalogue is in OCLC World Cat and each New Zealand library, as members of the collective, can provide public access to World Cat and to 57,000 of the world's great libraries if they choose to do so.

Summary

This paper has described how the libraries of New Zealand are building a profound knowledge network in New Zealand, which sees New Zealand content as central. The National Library of New Zealand Act 2003, New Zealand's Digital Strategy 2.0 and the New Zealand Digital Content Strategy have provided the policy framework from which the National Library of New Zealand has developed strategies for leveraging; from the life cycle of a digital object, from creation, discovery, through to long-term protection and preservation. This is both for cultural and social reasons as well as economic benefit through data re-use strategies.

At the heart of this development has been collaboration across public/private sectors and the formal and informal knowledge system for the purpose of creating and discovering New Zealand's digital assets.

We are all linked by a desire to harness the digital potential and maximise the opportunities it provides, which is ever important in these very challenging economic times.

Clearly, access to digital infrastructure is a key factor in supporting innovation in New Zealand. It gives us a powerful advantage, not just in our economic success but also in how we shape our identity on the global stage.

But this is only a start. There are many unanswered questions, and equally new opportunities for research libraries internationally.

Some of the future issues on national library strategic agendas globally are probably very similar to research libraries.

The IFLA conference in 2008 in Quebec City, Canada, was a 'one show pony' topic with digital preservation (or digital curation which now seems to be winning the semantics war) on everyone's agenda. However, the debate is still largely about identifying how hard it is and what the problems are, rather than delivering solutions. The National Library of New Zealand / Ex Libris / Sun Microsystems partnership global launch of Rosetta in New Zealand in February this year was a great celebration for us. So what are the next steps? There are so many policy issues now to sort through: (also view the "[The Delete Generation](#)" by Penny Carnaby)

- What digital objects do we preserve in perpetuity?
- Is an archives digit, moving image digit, or a sound digit the same in preservation terms? How much money are we going to spend resolving the same issues?
- Is citizen-created content trash? And authoritative, scholarly publishing worthy in preservation terms?

- What are the ethical issues around digital preservation, for example, porn sites' material that is offensive to us on moral, religious or ethical grounds? Are they still valid in terms of understanding our social history in 100 years time?

Once we start to solve some of these issues, curation of massive publicly-funded data sets for preservation and re-use presents another tranch of technical, digital rights and contextual issues. At the Educause Australasia conference in Perth, Australia in May this year, research data and what to do with this was the focus of the conference. Again, there are no easy answers. Research libraries of all kinds are playing a strong leadership role in managing research repositories. The open access movement is well established; however, there are some very difficult issues around data curation, which are less well advanced.

National libraries are increasingly harvesting metadata from multi-layered distributed repositories from community, government and private sector in their countries, and from development search engines or widgets such as "Digital New Zealand". This world is very connected, highly collaborative and old boundaries which delineate occupations, or geographical place are largely removed. Libraries have always been great collaborators and it is truly amazing to see rich knowledge networks connect up a country small or large to global networks which were unimaginable ten or even five years ago.

Clearly the sector will never run out of challenges as new technology is developed and boundaries are extended. For national libraries and research institutions though one message is very clear. A global research community is a reality in this connected world – our roles today are to facilitate those connections, and build a new world that has no geographical or occupational boundaries, but has as its fundamental principle universal access to content, now and forever.

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