Creating a digital New Zealand: New Zealand's Digital Content Strategy, opportunities and challenges for the education and research sectors

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Abstract
The World Summit on the Information Society (WSIS) in Geneva 2000 http://www.itu.int/wsis/geneva/index.html and Tunis http://www.itu.int/wsis/tunis/index.html set 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 http://digitalstrategy.govt.nz. This was a far reaching all of country digital vision impacting on communities, business and local and central government throughout the country. The NZ Digital Strategy argued that there were three components that would define the digital environment. These are referred to as the 3 C’s framework these are connection, content and confidence http://www.digitalstrategy.govt.nz.

The focus of this paper is on digital content. In September 2007 New Zealand launched one of the cornerstones of the NZ Digital strategy the NZ Digital Content Strategy (NZDCS) http://www.digitalstrategy.govt.nz.

The NZDCS takes a strategic view of digital content and looks at how New Zealand has begun to connect content from repositories across the country including sound, vision and textual content as well as content created by individual citizens in the Web 2.0 environment. The discovery and explore experience connecting New Zealand content is called Digital New Zealand (DNZ). The NZDCS shows how New Zealand is moving from high-level strategy into practical solutions for creating accessing, protecting and preserving the digital assets of the nation. In essence DNZ is a celebration of New Zealand ideas, creativity and identity in an online environment. In the context of this conference the international influences and partnerships which have assisted in the development of the NDCS have been described particularly those relevant to education and research.

Māori welcome
E te iwi tena koutou ko huihui mai nei tenei ra. Tenei te mihi atu ki Ngati Whatua te iwi o tenei rohe. Nga mihi hoki ki nga manuhiri tuarangi, me ngd mata whaka. Ko Penny Carnaby taku ingoa no Te Puna Mātauranga o Aotearoa. Noreira te hunga iwi e tau nei. Tena koutou tena tatou katoa

(Greeting to the congregation/people who have gathered here today. Acknowledge the home people of this region. Greetings to our international visitors and all of the wakas of New Zealand. I am Penny Carnaby, National Library of New Zealand. Now, greetings to the people that are here today.)

Creating Digital New Zealand: from strategy to practical delivery
The World Summit on the Information Society (WSIS) in Geneva 2000 http://www.itu.int/wsis/Geneva/index.html and Tunis http://www.itu.int/wsis/tunis/index/html set 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 http://digitalstrategy.govt.nz. This was a far reaching all of country digital vision impacting on communities, business and local and central government throughout the country. The NZ Digital Strategy argued that there were three components that would define the digital environment. These are referred to as the 3 C’s framework these are connection, content and confidence http://www.digitalstrategy.govt.nz.
The focus of this paper is on digital content. In September 2007 New Zealand launched one of the cornerstones of the NZ Digital strategy the NZ Digital Content Strategy (NZDCS) http://www.digitalstrategy.govt.nz/.

The NZDCS takes a strategic view of digital content and looks at how New Zealand has begun to connect content from repositories across the country including sound, vision and textual content as well as content created by individual citizens in the Web 2.0 environment. The aim is to develop a profound knowledge infrastructure for New Zealand. The discovery and explore experience connecting New Zealand content is called Digital New Zealand (DNZ). The NZDCS shows how New Zealand is moving from high-level strategy into practical solutions for creating accessing, protecting and preserving the digital assets of the nation. In essence DNZ is a celebration of New Zealand ideas, creativity and identity in an online environment. In the context of this conference the international influences and partnerships which have assisted in the development of the NDCS have been described, particularly those relevant to education and research.

A Strategic View of Content: Understanding the New Zealand Digital Content Strategy

At times there are advantages of being a small country of just over 4 million people. With a population of this size, it is possible to develop connecting strategies which are truly national in their penetration and involvement. After the launch of New Zealand’s Digital Strategy (NZDS) in May 2005, The National Library of New Zealand, Te Puna Mātauranga o Aotearoa was asked to be the lead Government ministry in the development of New Zealand’s Digital Content Strategy (NZDCS). The NZDCS is a comprehensive approach which covers New Zealand businesses, communities, central and local government. There was extensive consultation on the draft strategy with New Zealand businesses, communities, and central and local government, which included the education and research sectors. There were some 11,000 downloads of the consultation documents, and hundreds of New Zealanders gave their input and advice.

Generally the strategy was well received. However, as with any high-level aspirational government document of this nature, many citizens will be cynical or disconnected until there are tangible, practical benefits. An important feature of the NZDCS is the practical nature of the Strategy. It combines a high-level government strategy policy document with practical delivery this fits well with the kaupapa (Māori for agenda) of this conference, which suggests practical outcomes based on sound strategy.
Creating a *Digital New Zealand* – What should you notice about the NZDCS?

While the NZDCS can be accessed online at [http://www.digitalstrategy.govt.nz](http://www.digitalstrategy.govt.nz) there are two theoretical models worth mentioning in relation to research and education interests.

The most significant feature of the strategy is the holistic view it takes of content. It is a strategy which not only covers content creation and access, but it is also a strategy for the protection and preservation of New Zealand's digital content assets. A five element framework figure has been developed to describe areas we think need to be considered when thinking about digital content. It has proven to be a very useful strategic framework for viewing content. 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

![Figure 2: Creation of the public digital space NZDCS](image)

To fully understand New Zealand's approach to digital content there is a second theoretical view which is important to appreciate. While Figure 2 describes the content value chain from content creation to protection and preservation of content Figure 3 describes the digital space as we see it.
Again a comprehensive view has been taken of the digital space in NZDCS. The Strategy encompassed both formal and informal content. Research Libraries will be more familiar with formal content which is typically content which is seen to be authoritative and trustworthy. It includes content such as peer-reviewed journals, official information, scientific and social research, archives and heritage collections. Less well recognised in some strategies is informal or anarchic content. Typical examples may include blogs, wikis, social networks, news media tagging in the Web 2.0 environment. The NZDCS sees value in both formal and informal content. Importantly the NZDCS also traverses private and public content assets, acknowledging the need to protect some content assets, as well as championing the public digital space.

Understanding the five elements (Figure 2) and the digital space frameworks (Figure 3) will assist an appreciation of the purpose of some of the budgetary decisions which have been made by the New Zealand Government to support the creation, discovery, protection and preservation of New Zealand’s digital content.

SECTION 2

Creating Digital New Zealand from Strategy to practical delivery

New Zealand’s Digital Content Strategy places a high value on practical delivery and considerable amounts of public funds have been invested in the practical delivery of the Strategy. We are passionate as a country in getting New Zealand ideas, innovation, creativity, identity and heritage accessible online – not only to benefit New Zealanders but to push New
Zealand ideas into global market places and to ensure that our unique culture, particularly our indigenous culture, is protected and understood internationally.

The vision is to both foster the creation of New Zealand content and then to develop discovery mechanisms which draw this content together into accessible digital spaces. By the end of 2008 the National Library will lead the development of an exemplar experience which will begin to connect content from communities, research institutions, government, businesses in both the private and civic space. We will call this experience Digital New Zealand (DNZ).

A uniquely New Zealand metaphor has been used to assist the understanding of what DNZ will deliver. In the indigenous language of New Zealand, te reo Māori, a kete is a woven basket usually made of flax. Ketes, or baskets of knowledge, feature in Māori story telling. So we talk about “connecting the ketes” or connecting baskets of knowledge from all parts of New Zealand society. The DNZ project will connect digital repositories (ketes) from across New Zealand communities, government, research, educators, businesses, and from individual citizens in the Web 2.0 environment.

To illustrate this, examples which are relevant to the education and research sectors have been developed and, because of the international audience attending the IATUL conference, where relevant, international collaborations have been acknowledged which have assisted the development of DNZ. Importantly it will be shown how the practical delivery of the strategy draws on the theoretical framework. Video clips have from content contributors been used to illustrate the approach we are taking to digital content in New Zealand.

Protecting and preserving content
Like all jurisdictions New Zealand has well-developed views about protecting intellectual property, copyright and patents. This can be regarded as the formal, heavy-handed end of how we protect New Zealand ideas and intellectual property. Less well developed is how the interests of individual content creators is protected generally. We need to respect the rights of content creators’ (individuals and collectives) to protect their content if they choose to do so. In September 2007 New Zealand launched the Aotearoa Creative Commons licence http://www.creativecommons.org.nz. It is referenced from the international Creative Commons licences which has good uptake in many parts of the world. We are indebted to the international community for this leadership of the Creative Commons concept, especially in New Zealand’s case, to the UK whose licences which we have adopted. There are some developments in New Zealand which may contribute to the international community. We are currently exploring a Creative Commons licence for indigenous knowledge systems with appropriate iwi (tribal) protection of Mātauranga (Māori knowledge systems). The New Zealand Aotearoa Creative Commons licence will be especially important to individual content creators.

[Video Clip: Daryl Strype of Indymedia – Creative Commons]

Initially the most likely users of Creative Commons licences will be individual New Zealand citizens and communities. The NZDCS has a strategic framework of ensuring that community created content is readily accessible online. In the 2007/08 budget, the New Zealand Government funded the rollout of the Aotearoa Peoples Network (APN) http://www.peoplesnetworknz.org.nz based on the UK’s Peoples Network. In the first instance the APN is being developed in rural communities. We are seeing community networks and community repositories (ketes) developed at a rapid pace. Community ketes are a mechanism for unleashing community story, both as part of New Zealand’s social history and sense of national identity. In 2006/07 the Government contributed upwards of NZ$24m to foster community/private partnership projects across the country http://www.digitalstrategy.govt.nz/Funding/The-Community-Partnership-Fund. Kete Horowhenua http://horowhenua.kete.net.nz is the signature Kete project. The APN draws on this project to facilitate the development of open source, open standards, community repositories across the country. This has the potential to provide an important content feed of community content into the DNZ project.
The Kete Project Horowhenua – part of the Community Partnership Fund, and winner of the LIANZA 3M Award for Innovation in New Zealand Libraries 2007.

Preserving New Zealand’s Digital Memory – the National Digital Heritage Archive (NDHA)


It is not enough to merely protect the content creator’s content, it is important also to preserve content in perpetuity so that it can be reused, repurposed, shared and re-engaged with for the development of how ideas and knowledge creation. Here NZDCS is ahead of the game, it is important to appreciate that it is not only a strategy for content creation but also a strategy for the protection and preservation of New Zealand’s digital assets. This is a very important part of the NZDCS and will be a crucial component of creating a scalable, sustainable, shareable knowledge framework for New Zealand. The preservation of New Zealand’s digital assets is an issue of sustainability. In preservation terms, the mechanisms for archiving digital objects does distinguish the kind of digital content being presented whether it is e.g. broadcasting (sound/vision), geospacial objects or the mass digitisation objects from the heritage sectors. In response to the modernisation of the National Library of New Zealand Act 2003, which brought legal deposit into an electronic domain, the New Zealand Government allocated NZ$24m to build a National Digital Heritage Archive (NDHA) for the preservation of New Zealand’s digital memory in perpetuity. This includes digital publishing, sound, moving image, broadcasting, blogs, wikis and web 2.0 content, anything digital with New Zealand content. There has, as we all know, been extensive research and analysis in the international archives and library communities on the complex issue of digital preservation. The NDHA Project is the signature project of the National Library of New Zealand Te Puna Mātauranga o Aotearoa, and it is one of the fundamental building blocks of the NZDCS mentioned in Figure 2. Digital preservation will be part of the DNZ concept and it is the most complex of the digital repositories (ketes).

Digital preservation is an international issue and we are indebted to the international peer reference group who have assisted us with the NDHA project.

Figure 4: NDHA International peer reference group

To deliver the NDHA we have needed to develop international software and hardware partners as it is too complex and expensive for us to deliver it on our own. Sun Microsystems are the hardware partner and Ex Libris Group are the software developers. Sun Microsystems declared the NDHA a Sun Centre of Excellence status in 2006. This was the first organisation in New Zealand and the first National Library in the world to be accorded this
status. Importantly this status gives the NLNZ access to the research and development capability of Sun Microsystem, which is very important to the project.

The Ex Libris Group will be known to many of IATUL colleagues.

[Video Clip: Matti Shen Tov CEO Ex Libris Group talks about the NDHA programme]

Research Repositories
Potentially one of the most important content feeds into DNZ will be the fast growing research repositories from New Zealand Universities and Polytechnics and Crown Research Institutes. In November 2007, New Zealand's publicly funded research output went live through the Kiwi Research Information Service (KRIS) [http://www.nzresearch.org.nz].

New Zealand's research repositories are based on OAI compliant standards. New Zealand's Ministry of Education has joined with Department of Education, Employment and Workplace Relations (DEST) [http://www.dest.gov.au] in Australia (prior to the 2007 elections), Joint Information Systems Committee (JISC) [http://jisc.ac.uk] in the UK, and SURF [http://surf.nl/enPages/home/aspx] in the Netherlands to develop the E Framework. This alliance has influenced funding and development paths for research repositories in these countries. Research repositories in UK, Australia, Netherlands and New Zealand have tended to adopt the same open, interoperable standards. The KRIS service is chaired by Ainslie Dewe, University Librarian and Director of Knowledge Management, Auckland University of Technology with representatives from The Council of New Zealand University Librarians (CONZUL), Vice-Chancellor’s Committee (NZVCC), The Institutes of Technology and Polytechnics of New Zealand (ITPNZ) [http://www.itpnz.ac.nz], Ministry of Science Research and Technology (MORST), the Ministry of Education and the National Library of New Zealand. The National Library provides a metadata harvesting service for KRIS.

[Video Clip: David MacKay Vice Chancellor Victoria University Wellington]

Telling New Zealand Stories – collaboration between the heritage sectors
Like many countries, New Zealand is wanting to liberate legacy content (mostly from print sources) into an online environment, particularly content relating to the stories of New Zealand. One of the most successful sector collaborations in recent times has been across the GLAMS sectors (Galleries, Libraries, Archives and Museums sector). The signature project of the GLAMS sector in New Zealand is Matapihi (which translate to window in the Maori language) [http://www.matapihi.org.nz]. Matapihi draws together images from institutions across the GLAMS sectors. The National Library of New Zealand harvests the metadata on behalf of Matapihi participants and DNZ. Governance of the collaboration is through an elected Board called the National Digital Forum (NDF) [http://ndf.natlib.govt.nz].

[Video Clip: Dr Seddon Bennington Chief Executive of our National Museum, Te Papa Tongarewa, Museum of New Zealand]

Community repositories
The final exemplar relevant to Libraries are the increasing number of community repositories emerging across the country. In the 2007/08 budget, the Government granted funds to begin the development of the Aotearoa People’s Network (APN) based on the People’s Network in the UK. The APN in New Zealand will work closely with Local Government New Zealand (LGNZ) to grow the capability of New Zealand’s Public Libraries particularly in rural areas where clear disadvantage compared with the high-speed networks of the city is apparent. Community repositories will be part of the information architecture of the APN and there are some wonderful examples of citizens created content emerging through these open source open standards repositories. The National Library will also have the metadata from these repositories and push rich community content into the DNZ environment should the content creators wish to do so. This Web 2.0 approach to content creation is an example of informal content (figure 3).
Concluding Comments - Connecting the Kete’s

New Zealand's Digital Strategy is now beginning to deliver practical outcomes particularly in relation to content. The NZDCS takes a high level view from content creation through to the discovery, protection and preservation of these digital assets.

Clusters of rich content are now becoming more accessible from broadcasting, education, science, health, government, research heritage and community contributors. Based on a common interoperability standards framework the next stage of NCDCS will be a draw together content from authoritative formal sources such as institutional repositories in the research sector as well as informal content e.g. content in the Web 2.0 environment such as the emerging community repositories which are part of the APN. By the end of 2008 the DNZ exemplar will go live which will harvest meta data from a variety of content feeds across New Zealand. These will comprise research, educational and community repositories, a variety of digitisation projects, moving image, sound and broadcasting. This will create a profound interconnected experience of New Zealand content, ideas and creativity on line. Importantly where the content creator so chooses this content will be protected through Aotearoa Creative Comments Licences and preserved in perpetuity in the NDHA so that this content can be looked after for future generations to enjoy and explore or reused repurposed for the creation of new thought and argument.

DNZ will be the beginning of a joined up digital space of New Zealand content connecting the world to New Zealand’s ideas, identity and culture and connecting New Zealand to the global marketplaces and knowledge networks. The New Zealand Digital Strategy is an example of how small countries can think strategically about the digital environment. The aspirations of the WSIS have been delivered through the New Zealand Digital Strategy 2005 and especially the New Zealand’s Digital Content Strategy 2007. DNZ is a practical action orientated response from central and local government, businesses and communities moving from a high level strategy to a practical joined up delivery.

Noreira tena koutou, tena tatou katoa
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Joint Information Systems Committee  
http://www.jisc.ac.uk

Kete Horowhenua  
http://horowhenua.kete.net.nz

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http://www.nzresearch.org.nz

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