# **Exploring Library 3.0** and Beyond

2010-2011 Shared Leadership Program
State Library of Victoria
and Public Libraries Victoria Network

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# **Executive Summary**

This report provides a brief overview of technological changes that are likely to have an impact on public library services between 2011 and 2020, and which broadly fall under the definition of Library 3.0.

Library 3.0 refers to libraries using technologies such as the semantic web, cloud computing, mobile devices, and re-envisioning our use of established technologies such as federated search, to facilitate user-generated content and collaboration to promote and make library collections accessible. The end result of Library 3.0 is the expansion of the 'borderless library', where collections can be made readily available to library users regardless of their physical location. Library 3.0 is a virtual complement to physical public library spaces, and ideally will work seamlessly within established public library services and collections.

The potential impact of the National Broadband Network (NBN) is discussed, with reference to public libraries, as the authors of this report believe that the NBN is the platform that will enable better delivery of new applications and next generation technologies. The NBN will be of particular importance to regional areas where telecommunications are not as saturated as in city areas.

A summary of recommendations for short and longer term goals for public libraries implementing Library 3.0 has been provided at the beginning of the report, and recommendations for each section are also attached to their relevant topic.

## Recommendations

Short Term Recommendations (within five years)

- Library leaders to continue NBN advocacy for the public library sector
- Websites and OPACs our virtual branches need to be mobile device compliant and embracing user-generated content/capabilities
- Through PLVN, investigate collaborative purchasing options for ebooks and downloadable audio, to ensure equitable access across Victoria
- Libraries to keep up-to-date with emerging technologies; through PLVN Information services (incorporating Online Resources) Special Interest Group and other collaborations
- Develop partnerships with government and non-government agencies to implement best practice programs relevant to changing community technology needs
- Planned Professional Development Libraries to further develop Staff
   Training Strategies in order to meet anticipated demand by the community for
   assistance in accessing new technologies; include development of technology
   tool kits, web application programs such as 'Beyond 23 Things' and so on
- Use of QR codes to provide greater access to information services, aiding in promotion of electronic resources, services and programs
- Formation of a Digital Rights Management Lobby Group to aid in negotiating DRM terms for public libraries with publishers and ebook suppliers
- Public Libraries need to be aware that the nature of searching for information is changing, and investigate and implement federated searching options to the best of their abilities
- Further investigation of Print on Demand model options

Longer-term Recommendations (within five to ten years)

- Federated/Deep Web/Next Generation Searching capabilities; although this will be dependent on cost, thus a possible Consortia opportunity
- Consortia collaboration for e-resource purchasing such as ebooks and Next Generation Searching software (as mentioned above)
- Continue to explore and develop opportunities for partnerships with government and non-government agencies to deliver best practice programs, as this will allow for ongoing and newly-developing community needs to be met

## Introduction

Living in a state of technological flux and social change is nothing new to public library services. We have already seen our services and collections change dramatically with the rise of the internet and everything that it has brought with it, from the logistics of offering public internet access, to e-resources, Web 2.0 and the use of the semantic web.

Change is a constant part of being a librarian as we strive to be leaders, rather than followers, in providing access to and demonstrating the use of new technologies in our workplaces. The environment in which public librarians offer services has changed drastically, as much as the communities we serve.

Exploring Library 3.0 and Beyond has been developed to help bring together some information about technological changes that are likely to impact public libraries in the next decade. It serves as a starting point for further research and advocacy opportunities. The authors have chosen a specific list of research topics which we believe are among the most likely to be important issues in public library service provision between now and 2020.

Due in part to rapid changes in technologies and their enthusiastic uptake by many parts of the community, libraries are in a constant state of flux when it comes to engaging with and utilising new technologies in ways that are relevant to our users and our key goals as organisations. We cannot afford to lag behind, and barely keeping up is not a satisfactory outcome either. Rather, public libraries must be able to pay attention to upcoming trends enough that we appear to future-cast, taking in information about coming changes and sorting through the chaff of what is unlikely to come to fruition, or what is unlikely to be relevant to our goals and activities.

Web 3.0 has already integrated itself into our online lives, through new generation social media applications, the semantic web, and easier information finding and sharing. Library 3.0 is still under development, but public library services throughout the world are developing ways to integrate it into their services through methods such as RDA tags, metadata and other semantic web developments. The semantic web has changed the face of the internet, and will continue to change and develop the way libraries conduct their online business and deliver services such as OPACs and federated searching.

There is a considerable focus in this report on the National Broadband Network; the authors consider it a key component to the delivery of library services in the future. While several of the suspected major changes we have highlighted are already underway, they will be reliant on a more easily accessible and stronger national broadband connection than what is currently available. We consider library leaders and staff to be in a prime advocacy position for the National Broadband Network, and that we must be among the major lobbyists on behalf of the NBN project.

We are already seeing the results of increased broadband accessibility and increased dependence on electronic media formats in lieu of traditional, 'hard copy' media. REDgroup, the company that owns booksellers Borders and Angus & Robertson, and which recently went into voluntary administration, has blamed its plummeting sales in part on the rise of the e-book and other electronic formats. Online retail giant Amazon.com has reported that its ebook sales have overtaken its

printed book sales, and that their downloadable audio book sales now comprise a solid 20% of their sales.

Mobile web access is skyrocketing internationally; International Telecommunications Union statistics from 2010 reveal a mobile phone user base of 5.3 billion subscriptions, of which 940 million are 3G users. Use of mobile phones as a major or even primary source of internet capability is an established phenomenon spurred by the smart phone revolution and the availability of both 3G access and, in urban centres, wireless internet access. Mobile-enabled library users increasingly expect that library services will cater to this type of access, and library-related mobile phone applications are rising in popularity. Libraries will continue to need to review appropriate ways of adopting mobile technology, such as mobile-friendly websites, apps, and the use of QR codes to facilitate information searching and promotion of collections.

Library 3.0 and the technological changes that will follow it will be a vital and exciting part of how libraries develop and extend their formal and informal learning programs. They will allow us to improve our online resources, which will ensure that our services remain relevant to the communities we serve, and improve access to informal self-education and lifelong learning opportunities.

## **National Broadband Network and Victorian Public Libraries**

'The NBN is an Australian Government initiative which will deliver high-speed broadband to all Australians.'

The National Broadband Network (NBN) is one of the key infrastructure programs that will impact public libraries over the next decade, and will underpin all other technological developments to be discussed in this report. It will also have a substantial impact on the web-based services and e-resources that Victorian public libraries are already offering their patrons.

The federal government has key objectives for a new superfast network, which the NBN Co. (the company formed by the Federal Government to project manage the development and roll out of the NBN), are required to meet. According to OECD figures from 2009 Australia's broadband infrastructure is falling behind that of leaders like Japan and Singapore, as well as countries like Mexico and Thailand. The 'NBN will go a long way towards addressing these gaps.<sup>2</sup> First release NBN sites and trialling has commenced with initial availability to first release sites in late 2011, then more commercial availability from 2012 and onwards, with the expectation of full development across Australia by December 2020.3

As noted in the Public Libraries Victoria Network Strategic Plan 2009-2013 we are 'continually redefining our role in the digital age' 4 and aiming to 'identify technological innovations' for the benefit of communities served. To deliver best practice digital services to their communities, all public libraries across the country must be interconnected to either fibre to the premises ('FTTP') broadband services in urban and regional areas or next generation wireless and satellite technologies in remote parts of Australia.6

The Annual Survey of Public Library Services in Victoria 2008-2009 notes that even though hardware and internet connections have become more cost competitive over time, bookings and usage of computers, internet and email access in public libraries across Victoria has increased.<sup>7</sup> The Australian Library and Information Association (ALIA) Internet access in public libraries survey 2008 further highlights the increases in public computer and internet access and the implications public libraries have on community members accessing online information services outside of the home, work or school.8

Victorian Public Libraries need to ensure they are connected to the NBN as soon as viably possible to ensure continuous and equitable technology-based services to their communities.

At the CSIRO Broadband Summit in late 2010, Sue Hutley (Executive Director of ALIA) called on the Australian government and others present, including NBN Co, to

See < <a href="http://www.nbn.gov.au/content/what-national-broadband-network">http://www.nbn.gov.au/content/what-national-broadband-network</a>> accessed 13 November 2010

See <a href="http://www.nbn.gov.au/content/how-does-australia-compare">http://www.nbn.gov.au/content/how-does-australia-compare</a> > accessed January 2011 NBN Co. Corporate Plan 2011-2013 (17 Dec 2010) p. 22

Public Libraries Victoria Network Inc. Strategic Plan 2009-2013 August 2009 p. 3 Public Libraries Victoria Network Inc. Strategic Plan 2009-2013 August 2009 p. 11

NBN Co. Corporate Plan 2011-2013 (17 Dec 2010) p. 12 <sup>7</sup> Dept. of Planning and Community Development (2010) Annual Survey of Public Library Services in Victoria 2008-2009 <a href="http://www.dpcd.vic.gov.au/localgovernment/publications-and-research/libraries">http://www.dpcd.vic.gov.au/localgovernment/publications-and-research/libraries</a> accessed 9 January 2011

Public Libraries provide vital infrastructure for Australia's digital future http://www.alia.org.au/media.room/2009.02.27.html, accessed 8 January 2011

ensure that libraries are swiftly connected to the NBN and that they receive appropriate funding to enable them to deal with 'the digital deluge and to fund digitisation projects to create that quality content that Australians (and the world) can access'9. The delivery of digital services, including virtual library branches, social media, digitised content and next generation applications through the NBN will continue to enable access to resources for formal and informal learning goals and expectations of our communities.

Public libraries will continue to strategically assess and implement emerging technologies in order to service patrons accessing digital resources. The roll out of the NBN infrastructure could create a further technological divide in our communities, and in turn limit access to information and resources; particularly likely to be affected are people from low socioeconomic backgrounds such as the unemployed, the elderly, people with disabilities, newly arrived migrants and refugees. Undoubtedly, not all Victorians will be able to afford or feel confident in accessing new technology; the public library network is in a unique position to aid in bridging this gap by providing opportunities for communities to access different technologies, ensuring disadvantaged members of the Victorian community are not left behind as digital citizens.<sup>10</sup>

Sue Hutley confirmed in her presentation at the CSIRO Broadband Summit that Australian public libraries are being called on more and more to supply internet access and training particularly to those who are either unable to afford broadband or who do not have access to a computer. She also noted that 'what we don't want to see is our community accepting broadband access to the home without any understanding of what they will require to use the internet and broadband.' She sees the role of libraries as providing information to assist people in making decisions about how they can gain access to the NBN, as well as educating them to access new technologies.

The main limiting factor in the early years of the NBN is expected to be the availability of applications that require high bandwidth. Without these applications, consumers have limited reasons for migrating to the speeds offered by the NBN, and price becomes the main factor in driving consumer choices. Libraries have already begun to play a role in this area through the development of digitisation projects which provide wider access to unique historical content such as picture libraries, digitised newspapers and genealogical information.

ALIA states that the NBN strategy needs to recognise the demand and growing expectations of the community and the need 'for library staff to assist in using these resources – everything from government information to everyday living skills'. Sue Hutley has also asked how the government and industry intend to work together 'to promote the benefits of the digital economy.' Furthermore, the *Public Libraries Victoria Network Strategic Plan 2009-2013* highlights the importance of improving connections and partnerships with government and non-government [agencies]' 16

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Hutley, Sue. Where's the strategy? Incite, volume 32, issue 1. Jan/Feb 2011

Hutley, Sue. Where's the strategy? Incite, volume 32, issue 1. Jan/Feb 2011
Australian library association asks where is the digital strategy?

http://www.alia.org.au/media.room/2010.11.16.html, accessed January 2011 NBN Co. Corporate Plan 2011-2013 (17 Dec 2010) p. 39

ALIA National Broadband Strategy <a href="http://www.alia.org.au/advocacy/broadband.html">http://www.alia.org.au/advocacy/broadband.html</a> accessed December 2010

Hutley, Sue. Where's the strategy? Incite, volume 32, issue 1. Jan/Feb 2011p

Public Libraries Victoria Network Inc. Strategic Plan 2009-2013 August 2009 p. 4

As Sue Hutley further remarks, 'internationally we can look to the plans and strategies of others, learn from them and create an even more productive strategy. 17 For example the Nebraska Library Commission (United States) in conjunction with the Supreme Court has recently received a \$3.6 million grant to act as "one stop shops for those who need court services." As part of the plan libraries will receive 600 computers, equipment and broadband access. This partnership will provide people who have limited or no access to technology with the means to tap into library resources and utilise e-government and legal information, with the intent of making participation in the legal system a more democratic process.

Locally, the Australian Government made a formal declaration of 'open government' in July 2010. 19 "The Australian Government, including cultural and collecting agencies, will now need to demonstrate and report on their commitment to 'open government' based on a culture of engagement, built on better access to and use of government held information, and sustained by the innovative use of technology."20 The Victorian State Government have already strongly indentified and developed digital policy and communication methods, as defined in the Government 2.0 Action Plan 'The application of the underlying principles and approaches of Web 2.0 are redefining how people communicate and are transforming the web into a platform of participation and co-production.'21

As noted in government protocols for social media engagement, 'The Australian Government is widely promoting social media as a tool to open its decision-making to the community and support robust, inclusive policy conversations and sustainable policy development.'22 Timely online access to public policy fora will enable communities to contribute and participate in policy development; public libraries offer an avenue for public debate through egovernment social media portals. The authors believe that as well as using social media to encourage open government, the Federal government especially will lead the way in developing and using higher bandwidth applications to drive the adoption of the NBN infrastructure. Free service points such as public libraries and other hot spots will assist in delivering these applications to communities.

There has been much debate circulating in the media and in political circles about the cost and usefulness of the NBN, and the implications of Telstra's pending 4G wireless technology upgrade in city business districts. The recent Greenhill Caliburn Review of NBN Co Limited's Corporate Plan does note "Trends towards 'mobile centric' broadband networks could also have significant long-term implications for the NBN Co's fibre offerings..." <sup>23</sup> However the Review also highlights that "Given the rapidly changing nature of the Internet, new emerging technologies and disruptive 'over-the-top' services/applications, the Commonwealth's regulatory regime may also need to evolve over time to ensure the success of NBN Co and its ability to meet policy objectives."<sup>24</sup> This limitation in the NBN strategy is recognised by the authors,

Hutley, Sue. Where's the strategy? Incite, volume 32, issue 1. Jan/Feb 2011

Multi-Million Dollar Grant will upgrade Nebraska Libraries Computers, http://www.101now.com/home/headlines/114514499.html accessed January 2011

See http://www.finance.gov.au/e-government/strategy-and-governance/gov2/declaration-of-opengovernment.html, accessed January 2011

Protocols for Social Media Participation in Commonwealth Cultural Institutions; An investigation of issues relevant to establishing social media or Web 2.0 guidelines within Commonwealth cultural agencies 2010 p. 4 See <a href="http://www.egov.vic.gov.au/victorian-government-resources/government-2-0-action-government-2-0-ac

plan/government-2-0-action-plan-victoria.html> accessed 9 January 2011

Protocols for Social Media Participation in Commonwealth Cultural Institutions; An investigation of issues relevant to establishing social media or Web 2.0 guidelines within Commonwealth cultural agencies Draft report prepared as part of the Cultural Management Development Program (CMDP) 2010 p. 10

Greenhill Caliburn Review of NBN Co Limited's Corporate Plan February 2011 p. 4

Greenhill Caliburn Review of NBN Co Limited's Corporate Plan February 2011 p. 6

vet we believe that with the progression of technology and the influence of recent natural disasters across the country, the Federal Government may well need to further assess diversity of broadband delivery. Already more than one service delivery method is planned to ensure regional and rural Australia gain quality broadband access; as it is, these locations may well need to sacrifice speed to achieve consistency of service.

Ultimately, the authors believe the NBN has been created to provide competition for the benefit of Australian communities. Competition Local Governments should tap into for the benefit of their communities, along with Public Library managers lobbying for the best internet service delivery method for public libraries.

There are avenues such as the Local Government and NBN Summit in Sydney on the 4th May 2011, which will provide councillors, council information technology professionals and library managers with the opportunity to access the 'latest information on how Australia's local governments need to respond to the roll-out of the National Broadband Network.'25

In order to continue to bridge the digital divide and remain at the forefront of best practice public library service, Victorian Public Libraries need to ensure that their local government bodies are aware of the importance of making timely decisions about future internet service delivery.

#### Recommendations:

- Library leaders to continue NBN advocacy for the public library sector
- Develop partnerships with government and non-government agencies to implement best practice programs relevant to changing community technology needs

See <a href="http://www.halledit.com.au/lgnbn2011">http://www.halledit.com.au/lgnbn2011</a> accessed 4 February 2011

# **User-generated content**

The semantic web, or Web 3.0, has already had a real and lasting effect on the way that people use many internet services. The term 'semantic web' refers to the world of linked data. Semantic web technologies enable people to create data stores. Services such as eGov, and Facebook's connectivity with other websites, mean users are coming to expect different, more integrated experiences. Web 3.0 will increase the ease of conducting information searches by making more data machine-readable, which greatly decreases search times. Through Web 3.0 applications, the use of the internet will become more pervasive in the regular, day-to-day activities of the population.

Part of the strength of the semantic web for public libraries is that it allows library users to become resources themselves, and to make contributions towards managing information in a straightforward way, such as uncontrolled vocabularies that make search functions and information organisation seem more instinctive. This has been one of the successes of Google, and is something that information management professionals have started to pay heed to.

The use of social media in public libraries incorporating user-generated content (UGC) is not a new concept. Many public library staff took part in Helene Blower's '23 Things' program. Social media "uses web-based technologies to turn communication into interactive dialogue" A library OPAC/website was previously a one-on-one experience, but can now be a "many to many" interaction<sup>27</sup>.

Public libraries should embrace UGC as a way of positioning themselves as an online community space. There is evidence of this trend developing on library websites, such as Yarra Plenty Regional Library's website, which is powered through Bibliocommons. It is also developing through library management systems, such as Civica's Sorcer, and via add-on products such as LibraryThing and ChiliFresh, available via Civica and SirsiDynix respectively.

There is a great deal of potential to increase the usage of social media technology. Blogging, Facebook and now microblogging through Twitter have grown exponentially over the past two years; this technology will continue to grow, with the increase in 3G enabled phones and access to the internet becoming almost universal within Australia. A 2010 Nielsen survey found that internet users spend around 22% of their time on social networks or blogs<sup>28</sup>. Users are already generating their own content – so why not direct more of this traffic to libraries?

There are many advantages of user generated content. The technology is usually cheap; it can be included as an add-on in many LMS and will probably become an automatic inclusion within ten years. A benefit of UGC is that it is an easy way for library users to have their say on a topic and to have an online presence in their local community. Many users are passionate about books and reading, but may lack the time or willingness to join a book group. UGC is an easy (and anonymous) way to contribute. Social media also provides an online community that extends beyond the physical space of the library.

http://en.wikipedia.org/wiki/Social\_media\_Accessed 23/1/11.

http://www.librarybytes.com/uploaded\_images/scary-764016.JPG Accessed 23/1/11.

http://blog.nielsen.com/nielsenwire/global/social-media-accounts-for-22-percent-of-time-online/ Accessed 23/1/11.

UGC is also a way for people to have ownership of their library – by allowing them to take the time to write content, as they would with other social media tools such as Twitter.

A drawback of UGC is that it may require more staff time to moderate. Moderation is essential to ensure that the library's presence is dynamic, through regular updates and comments or questions are responded to. Staff will also need training in how to use applications, and also, possibly, broader IT skills for troubleshooting situations.

There should also be clear boundaries between what is library content and what is user-generated – this will assist users in identifying qualified sources of information. However, there is an opportunity for libraries to develop their borrower's information literacy skills both in assisting them to add content but also in helping them decide which online sources to use.

Public libraries should examine new ways to interact with their users through the use of programs that allow for user-generated content. This is an opportunity for libraries to develop more of an online presence and become more integrated with the semantic web.

#### Recommendation:

 Planned Professional Development – Libraries to further develop Staff Training Strategies in order to meet anticipated demand by the community for assistance in accessing new technologies; include development of technology tool kits, web application programs such as 'Beyond 23 Things' and so on

# **Federated Search and Beyond**

Online searching is the primary means by which people access our collections and find the resources that they seek. Beyond the library, searching is now a part of everyday life as people spend increasing amounts of time online and use mobile devices to connect with people and information. As Tony Russell-Rose notes: "When most people talk about search, they typically envisage a web page with a search box and a results list. But search is increasingly becoming a[n] ubiquitous part of our daily lives, helping us make sense of the world around us. Search is the means by which we are able to cope with our overflowing email inboxes, to generate insights from masses of corporate data, and to discover new restaurants in an unfamiliar city armed only with a smartphone and an Internet connection. Search will be everywhere, but invisible, contextualised, and personalised."<sup>29</sup>

So what is the public library's role in this new era of search? Public libraries have been discussing using Federated Search for many years. Federated Search can help users search over a wider range of resources instantly, and helps users take greater advantage of online resources offered by public libraries; many users don't go beyond the catalogue. Many online databases need different logins, look vastly different and search and display results in different ways. It would be easier for users to have all the search results displayed in one place and in one way, much as a Google search does. This would mean faster search results for users, and a better range of resources used, as often the online resources libraries subscribe to are top peer-reviewed journals. As the use of e-books and downloadable audio increases, it will also assist in finding these resources.

At present, federated searching is not widespread amongst public libraries. This is partly due to this functionality not being enabled in older LMS software, but also because for some external applications, the cost is prohibitive. It is anticipated that as demand for Federated Search functionality increases, these costs will come down. Another solution to this problem may be found in open source software, such as Library Find<sup>30</sup>, which is federated search software developed by librarians. As the cost comes down and the technology improves, more public libraries will want to move toward federated search.

The way people search for information is changing also, with greater emphasis being placed on natural language processing and "implicit use of what users do with search results to infer their interests" such as 'you might like…' suggestions.

Public libraries need to move toward Federated Search to come in line with what people are doing on the web now. Marshall Breeding points out that "nobody has to go to a bibliographic instruction class to use Amazon" and this neatly describes the problems that libraries are facing at present. People are so used to searching with Google, which offers quick results, predictive text and suggestions, that this type of searching has become the benchmark. While libraries are not Google, and should not replicate their methods exactly, there are clear benefits to library users in libraries providing an easier, one-stop federated search across all our collections. Access to our collections should not require users to know the finer details of Boolean searching or LCSH subject headings! This more democratic approach to information searching means that library resources are more accessible to a wider range of

http://isquared.wordpress.com/2010/11/29/the-changing-face-of-search/ Accessed 17/3/11.

http://www.libraryfind.org/about Accessed 24/1/11

http://federatedsearchblog.com/ Accessed 22/1/11.

http://www.davidleeking.com/?s=federated+search Accessed 23/1/11.

people. As more users log into library websites using mobiles and/or mobile devices, it also makes more sense to have a quick and easy search facility. Federated search is an important step for libraries to take to improve access to their collections. In the future, search will look different, it will display results differently and

collections. In the future, search will look different, it will display results differently and people will use those results in new ways. Libraries can help be a part of this process by re-examining the way our users search our collections and how they use these search results, then, most importantly, use this information to lobby for changes in library management systems.

#### Recommendations:

- Public Libraries need to be aware that the nature of searching for information is changing, and investigate and implement federated searching options to the best of their abilities
- Federated/Deep Web/Next Generation Searching capabilities; although this will be dependent on cost, thus a possible Consortia opportunity
- Consortia collaboration for e-resource purchasing such as ebooks and Next Generation Searching software (as mentioned above)

# Mobile library catalogues

The use of mobile phones and mobile applications has increased dramatically over the past 10 years. In Australia, of all mobile phone owners, 36% own Smartphones, which is expected to grow to half of all mobile phones in the next 12 months<sup>33</sup>. Pew Research Centre found that the mobile device will be the primary connection tool to the internet for most people in the world in 2020<sup>34</sup>. This is an area of information access that public libraries need to support and engage in more fully.

At present, not many public libraries in Victoria offer mobile-friendly versions of their websites and LMS, although Casey Cardinia Library Corporation offers the Bookmyne iPhone app. The app provides standard search functions as well as barcode scanning capability, a social recommendation engine and New York Times best seller list cross-referencing<sup>35</sup>. The technology is more widespread overseas, particularly in university libraries, which are catering to a more tech-savvy and mobile-saturated audience.<sup>36</sup>

This technology is only fairly recent, so there will be some debate as to the best way to proceed: design/function versus content. There is also debate as to whether libraries require their own individual apps, or should just proceed with mobile-friendly web pages and OPACs<sup>37</sup>.

Important design points to consider include clear layout, simple search functionality and large text, which does not require the user to zoom in to be readable<sup>38</sup>. Another useful function is to limit search results to items that are currently available, especially as the user may be on their way to the library or within the building at the time of their search.<sup>39</sup> Users can also text themselves the details of an item, rather than printing or writing down the details<sup>40</sup>. These are just a few of the examples that this technology presents, but already the mobile phone is being used as an OPAC, to locate items on the shelves and to manage citations!

All libraries should cater to users who access their library through their phones or other mobile devices. Developing an app is not necessary in most cases; rather, making the website/catalogue clear and easy to move around should suffice. There is great potential for expansion of this technology in public libraries in Australia. More people are using mobile phones and devices as tools for tasks for which they previously may have used a laptop or desktop computer. This includes accessing information through their local public library. It is important for public libraries to be aware of this trend and make changes to their web presence to meet this transformation in library user practice.

#### Recommendation:

 Websites and OPACs – our virtual branches – need to be mobile device compliant and embracing user-generated content/capabilities

http://www.telstra.com.au/abouttelstra/download/document/telstra-smartphone-fact-sheet.pdf Accessed 19/2/11.

http://www.pewinternet.org/Reports/2008/The-Future-of-the-Internet-III.aspx Accessed 20/3/11.

http://www.sirsidynix.com/products/bookmyne Accessed 22/1/11.

<sup>(</sup>See <a href="http://www.libsuccess.org/index.php?title=M-Libraries#Mobile">http://www.libsuccess.org/index.php?title=M-Libraries#Mobile</a> interfaces .28and.2For OPACS.29 for a comprehensive list of libraries with mobile interfaces and/or OPACs).

http://kraftylibrarian.com/?p=349 Accessed 22/1/11.

http://userslib.com/2008/09/03/mobile-library-catalogs/ Accessed 22/1/11.

lbid.

See <a href="http://www.ryerson.ca/library/index.html">http://www.ryerson.ca/library/index.html</a> for an example of this functionality.

## **Downloadables**

Approximately 8% of Australians own an iPad, and 35% own a Smartphone.<sup>41</sup> Devices are becoming multi use: Smartphone and iPads are becoming ereaders, GPS units, cameras, and information storage units as well as communication devices. Interactive electronic books aimed at early readers are available on hand held games consoles such as the Nintendo DS platforms.<sup>42</sup>

Worldwide consumer behaviour suggests downloadable books are becoming as popular, or more so, than print versions, although any prediction that downloadables will completely replace the print copies does not seem likely. They will exist, and are existing, side by side. Since the beginning of 2011, the online book store Amazon has sold 115 eBooks for every 100 paperbacks worldwide and the trend is going up, as for hardbacks the difference is currently three to one, three eBooks for every hardback – and that's only Amazon<sup>43</sup>.

Australian public libraries cannot afford to ignore these trends. We can expect the demand for the instant supply of content and information to impact on our collections and loans. Libraries need to find ways they can make downloadable formats easily available to our customers.

Libraries must consider many things when introducing downloadable material to their collections, not the least of which is the current shortage of Australian online content and digital rights management challenges. Publishers, authors and book sellers are sorting their way through the questions of ISBNs for eBooks, meta data, territorial rights, orphan works and rights standards.<sup>44</sup>

Libraries also need to strategise how they manage things like publishers introducing non-library-friendly policies, such as HarperCollins eBooks being only available from libraries for twenty-six loans. Libraries seem to be talking amongst themselves but rarely getting a mention in discussions outside their own profession. We need to perhaps consider ways to collectively lobby for improvements in digital rights access for public library subscribers.

However we manage it, the demand for downloads is getting higher. Borders and Angus & Robertson have paid a high price for moving too slowly into online supply, and their parent company. REDgroup, is now in the hands of administrators.<sup>45</sup>

The question for libraries and downloadable content is not will we take the plunge but when do we take the plunge. Too soon and we face the uncertainties of digital rights management and the lack of interoperability; too late and we risk losing relevancy with our customers.

#### Recommendations:

<sup>41</sup> http://au.nielsen.com/site/documents/AustralianOnlineConsumersReportMediaRelease.pdf accessed March 2011

<sup>42</sup> http://www.dailymail.co.uk/sciencetech/article-1232672/Nintendo-DS-launches-eReader-children.html http://www.smartcompany.com.au/information-technology/20110309-8-of-australians-now-own-tablets-new-nielsen-figures-claim.html

<sup>44</sup> http://go-to-hellman.blogspot.com/2010/05/bookexpo-digital-book-2010-and-ebook.html

<sup>45</sup> http://www.smartcompany.com.au/retail/20110217-borders-australia-and-angus-robertson-chains-collapse.html

- Through PLVN, iinvestigate collaborative purchasing options for ebooks and downloadable audio, to ensure equitable access across Victoria
- Formation of a Digital Rights Management Lobby Group to aid in negotiating DRM terms for public libraries with publishers and ebook suppliers

#### **Print on Demand**

Print on Demand (POD) technology has been available for many years, traditionally through TAFE and university book shops. The existing model of POD requires an end user requesting the product with a delivery time reduced to hours rather than days or weeks. The POD product is almost entirely indistinguishable from its more traditionally produced counterpart.

The POD model is diversifying to include projects for out-of-print, rare, precious and inaccessible products. One such project is the joint partnership between Microsoft, Amazon and the British Library. As noted by Chief Executive of the British Library, Dame Lynne Brindley, "the British Library's deal with Amazon to make literary gems available through print-on-demand and the Kindle ebook reader is a landmark agreement in more ways than one. Unlocking 65,000 titles of 19<sup>th</sup> century materials for new generations to discover, the deal also shows how innovative public sector institutions can keep moving ahead, even in a touch economic climate."

We are seeing similar developments, on smaller scales, Australia-wide. Digitisation projects of newspapers, local history materials and special collections currently in progress in national and state libraries across Australia are open to POD possibilities.

Furthermore, self-published authors and independent ebook publishers are increasingly likely to work with or offer a POD model. In light of these developments, public libraries surely have an obligation to support and make accessible the changing nature of published works.

The greatest challenge for public libraries will be to determine the type of model for POD delivery, and subsequent collection management of this material.

#### Recommendation:

• Further investigation of Print on Demand model options

http://pressandpolicy.bl.uk/Press-Releases/Re-Kindle-your-love-of-forgotten-19th-century-classics-281.aspx. Accessed 11 March 2011

#### **QR Codes**

How can we make ourselves relevant to the community who expects instant access to all items from newspapers to technical manuals from picture books to popular titles? We need to consider what else is out there.

Sometimes it's the little extra things on the market that have a large impact. QR codes, or quick response codes, might just be that little thing. Although they have been around for years, with the increased ownership of Smartphone they seem set to become commonly used for all sorts of reasons.

QR codes have been designed to be read quickly from a mobile phone and given that 35% of Australians now own Smartphone, <sup>47</sup> QR codes can be used to public libraries' advantage. The Codes can store and digitally present data including geographical locations, URL links and text; simply accessed by taking a photo.

Potentially, QR codes can be used to give direction to where items are on the shelf and if necessary, used on the shelves themselves if the physical item is out - our customers could scan the code and reserve the item via the catalogue, or download the item immediately in the form of an eBook.<sup>48</sup>

Currently, the main use of QR codes in libraries around the world is through the promotion of resources, services and programs; for example displayed via posters and other signage, which is often posted in areas accessible after library opening hours, to allow users to seek information during those times.

QR codes can also connect us to the semantic web and into the Cloud.

#### Recommendation:

 Libraries using QR codes to provide greater access to information services and cross-promote electronic resources

http://www.libsuccess.org/index.php?title=QR Codes

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http://au.nielsen.com/site/documents/AustralianOnlineConsumersReportMediaRelease.pdf Accessed March

## **Cloud Computing**

Cloud computing has been in operation since the 1960s, but it was not until the mid-1990s that business operations began using it in conjunction with networks and the fledgling internet. By the late 1990s, networking technologies improved for the ASP (Application Service Provider) model to become commercially viable. 49 Under all these monikers, the operations of cloud computing have been the same.

Cloud computing relies on a large number of computing devices working together. It is location and device independent; you don't have to download your work onto your PC or device; it can be stored and worked on remotely. It is interoperability, and it is user choice.<sup>50</sup>

"The term 'cloud computing' has at its core a single element:computing services are delivered over the internet on demand, from a remote location, rather than residing on one's own desktop, laptop, mobile device, or even on an organisation's servers. For an organisation, this would mean that, for a set or variable, usage-based fee—or even possibly for free—it would contract with a provider to deliver applications, computing power, and storage via the web." <sup>51</sup>

The advantages of Cloud computing for libraries is the possible reduction in the cost of computing and the ease of connectivity between library services encouraging greater collaboration as well as unlimited storage capacity.

The move to cloud computing relies on improved internet speed and connectivity as well a changes to government regulation, the introduction of the National Broadband Network is one element needed to move towards more reliable cloud computing.<sup>52</sup>

http://cloudinnovation.com.au/docs/ATSE cloud-computing.pdf

http://www.servermotion.com/blog/2010/07/history-of-cloud-computing-yesterday-today-and-tomorrow/ Accessed 26 March 2011

http://cloudinnovation.com.au/docs/ATSE\_cloud-computing.pdf

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## Conclusion

Library 3.0 paves the way for public libraries to offer access to relevant and engaging services and collections that will meet and, hopefully, exceed the expectations and needs of our users in the coming years. Library managers and librarians must engage with technological advances and be unafraid to try new ways of doing what we do in the new electronic frontier.

As this report and its recommendations have outlined, collaboration may well become a key method by which we are able to meet the demands of engaging with new technologies, and lobbying for key changes to major information access issues such as digital rights management and equitable access.

Victorian public libraries, situated as they are as key services to our communities, are poised to be in a prime position to lead and engage with technological changes that will ensure relevant, socially aware and equitable services for all Victorians for years to come.

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