

# **"A Futuristic View of Knowledge and Information Management"**

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## **Abstract**

Knowledge Management and Information Management, often used synonymously, are concepts that librarians need to engage with in the future (if not already doing so). Definitions are explored and reasons why librarians must become engaged with the concepts are outlined. Librarians have a role within the organisation to demystify the concepts and to promote the benefits. Librarians and information professionals will have to envisage new ways of working, new organisational relationships, new services, and new professional roles, requiring the letting go of some much-loved 'traditional' frameworks. The future will include a blend of centralised services, such as enterprise content management systems and institutional repositories, customer relationship management systems, and enterprise-level federated search engines. The physical library will remain. The role of librarians in helping to organise and manage these services will continue, and spread beyond the library across the organisation. However, the concepts of the library catalogue, authority control, classification and standards will be challenged by the rapidly expanding use of social networking tools, such as blogs and wikis that will generate vast amounts of information that is not in the normal realm of the librarian. The creation of community repositories, and increased collaborative working and studying in an increasing 'always online' society, will generate information that librarians cannot always control or manage. Some of the information generated by citizens may challenge the notion of authoritative information. Librarians can play an important role in providing information literacy skills training so that readers can discriminate within a huge range of information resources.

## **Futuristic Caveats**

I have attempted in the past to identify trends that are impacting upon library services in the digital age<sup>1</sup>. This paper is more specific, in that it focuses on Knowledge Management and Information Management from the perspective of libraries, especially higher education libraries. It is not wise to try to predict the future too specifically, as we invariably make mistakes<sup>2</sup>. So the 'futuristic view' that is presented here is a timid projection to 2010. Another problem in trying to predict the future is the issue of 'whose future?' For some, what might be envisaged as a potential future direction or goal is already a reality. Therefore, some of the predictions in this paper may already be in place or becoming common practice in some organisations.

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<sup>1</sup> Susan McKnight, "The changing nature of academic libraries in the digital age", in Michael Beaudoin (ed), *Perspectives on Higher Education in the Digital Age*, Nova Science Publishers, 2006. pp.63-76.

<sup>2</sup> For Instance, Digital Equipment Corporation's Chairman, President and Founder, Ken Olsen's famous 1977 quote "There is no reason why anyone would want a computer in the home."

I am a great believer that we create our own future, so much of this paper will draw upon my own experience in managing large academic libraries and knowledge resource organisations, professional reading, and speaking with vendors and customers. Therefore, the predictions may have a chance of becoming a reality as I am actively working towards making many of these predictions, services, and trends a reality.

## Definitional Issues

A problem with Knowledge Management and Information Management is that there are so many different meanings, many overlapping. "Knowledge Management comprises a range of practices used by organisations to identify, create, represent, and distribute knowledge for reuse, awareness and learning."<sup>3</sup> "Information Management is characterized by the phrase 'Getting the *right information* to the right person at the right place at the right time'.<sup>4</sup> One distinction between the two terms is that Knowledge Management is about **people**, how they create, share and use information, whereas Information Management is often associated with the information technology **systems** that help to create, store and share information.

However, these definitional distinctions do not apply in practice with the terms Information Management and Knowledge Management being used interchangeably. For instance, in 2006, a survey I undertook of SCONUL (Society of College, National and University Libraries) members found that only twelve (12) UK universities had a Knowledge Management strategy (i.e. one that explicitly included information on change management and business practices associated with the 'human interface' in Knowledge Management). However, of those 12 universities, only two used the term Knowledge Management (University of Edinburgh and King's College, London). Five higher education institutions indicated that they were developing a Knowledge Management strategy and one said 'wish we had one'. A number of assumptions can be drawn from this research:

- Very few higher education institutions have a Knowledge Management strategy. Therefore, it is likely that, in the future, more will develop one as an increasingly complex information environment and information overload require more strategic approaches to managing knowledge and information.
- There is a reluctance to use the term 'Knowledge Management' given that less than 20% of those who had a strategy embracing the 'people dimensions' did call it such.
- Because of the confusion surrounding the difference between Knowledge Management and Information Management, there is a role for librarians and information professionals to help develop an institutional understanding of the importance of the 'human interface' of Knowledge Management and to not focus on the technical systems only. A strategic view to Knowledge Management is required, as organisations will be challenged to unlock the information and knowledge held in people's heads (tacit knowledge) to remain

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<sup>3</sup> [http://en.wikipedia.org/wiki/Knowledge\\_management](http://en.wikipedia.org/wiki/Knowledge_management)

<sup>4</sup> [http://en.wikipedia.org/wiki/Information\\_management](http://en.wikipedia.org/wiki/Information_management)

competitive. As such, it should not be seen as a bolt-on to a traditional Information Management strategy that deals with the technology only.

Two further findings can be drawn by the research undertaken with the SCOUNL members.

- Some higher education institutions had Knowledge Management strategies, according to their web site, but when the library director was approached, the reality was that the strategy was no more than an interesting document that has not been embraced by the organisation. This was also found to be true at, at least, one university in Australia. Therefore, librarians could/should take an active role in drafting, consultation, revision and implementation of any Knowledge Management strategy in their organisation so that it becomes more than a set of words but a living strategy, regularly reviewed and updated as a result of the implementation process and changes in the environment. Clearly, librarians do not have a monopoly on Knowledge Management strategies, but they do have professional skills, and experience in developing customer-focused services for information delivery, so ought to be able to bring this expertise to the fore with regard to Knowledge Management.
- Background research on Information Management and Knowledge Management in UK universities, before the survey, identified that at least one library used the term 'Information Management' to describe what I would call a 'library information resources' policy (covering books, serials and multimedia resources). Therefore, the term Information Management cannot be assumed to relate only to an Information Technology systems strategy. This further confuses the definition issues!

The definition used by Nottingham Trent University's Information Management Strategy states that 'Information Management describes the means by which an organisation effectively plans, collects, organises, uses, controls, disseminates and disposes of its information, and through which it ensures that the value of information is identified and exploited to the fullest extent'. While it does not explicitly state the 'human interface', the implications of its stated Principles and priority actions suggest that this strategy is a Knowledge Management Strategy and not just about IT systems.

Rather than try to make a clear delineation between the two concepts, I shall refer to both Knowledge Management and Information Management. When I specifically refer to Knowledge Management I am being mindful of the 'human interface' and the need to deal with tacit knowledge. I have also steered clear of the distinction between data, information, knowledge and wisdom!

## **Why we should become involved**

Regardless of whether an organisation calls its strategy Knowledge Management or Information Management, library and information professionals have a significant role and expertise in managing vast amounts of information, of enhancing information resource discovery, ensuring quality control, providing information management and information literacy skills training, and connecting people with the resources they require. Therefore, the future of Knowledge Management and Information Management should be something that librarians embrace.

There are additional, compelling reasons why librarians and information professionals should become involved in Knowledge Management and Information Management. As already mentioned, information overload is a fact of life.

“Information networks straddle the world. Nothing remains concealed. But the sheer volume of information dissolves the information. We are unable to take it all in.” (Gunther Grass, Nobel Laureate)<sup>5</sup>

This statement eloquently describes the problem facing most of the population, in both their working and social life. In a recent *CILIP Gazette*, the profession was challenged by the 1<sup>st</sup> page headline “Are you heading for information disaster?”<sup>6</sup> In this popular, rather than scholarly, magazine, a heading such as this should impact on a wide professional audience. The article describes a European survey of IT professionals that found information overload was described as the biggest information management problem facing organisations, and that 41% of organisations surveyed did not have an Information Management/Knowledge Management strategy. This statistic, while alarming, is nowhere as concerning as the very low 20% of UK higher education institutions with one, as indicated by the SCONUL survey undertaken.<sup>7</sup>

Another reason we should become more engaged in a debate on developing and implementing Knowledge Management and Information Management strategies, as opposed to managing ‘library information resources’, is to help citizens participate in society. Although the majority of my examples are drawn from the university sector, the importance of linking people with information when required is a duty of all libraries, regardless of sector.

“Not having the information you need when you need it leaves you wanting. Not knowing where to look for information leaves you powerless. In a society where information is king, none of us can afford that”. (Lois Horowitz)<sup>8</sup>

There are many other drivers for Knowledge Management and Information Management in our society today that warrant our professional attention. Information is becoming more diverse. Publishers used to create information for consumers. The technologies that enable communication and collaboration now associated with Web 2.0<sup>9</sup> and Library 2.0<sup>10</sup> enable individuals to create information, to share information and re-purpose information in ways previously unimagined.

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<sup>5</sup> <http://www.brainyquote.com/quotes/quotes/g/gunthergra153165.html> (accessed 19 May 2007)

<sup>6</sup> Tim Buckley Owen, “Are you heading for information disaster?” in *CILIP Gazette*, 17-30 November 2006. p.1.

<sup>7</sup> It is important to note that the survey I conducted was ‘informal’, in that there was no compulsion to respond so the actual number of institutions with Knowledge Management strategies may be higher.

<sup>8</sup> <http://www.answers.com/topic/horowitz-lois> (accessed 19 May 2007)

<sup>9</sup> Web 2.0 enables collaboration and sharing between users, and as such is not just about technologies but about how people interact in the medium of the World Wide Web. See [http://en.wikipedia.org/wiki/Web\\_2](http://en.wikipedia.org/wiki/Web_2) (accessed 19 May 2007)

Library and information professionals have long been associated with authoritative and quality assured information resources. The information literacy programs conducted by librarians seek to highlight the difference between informal opinion and evaluation from authoritative, objective information. This role for librarians becomes even more important in the future, with the petabytes of words on web sites around the world, in blogs and in published (including self published) works.

However, our notion of 'trusted information' is being challenged by the rapid development of community repositories and folksonomies being created on the Web. Penny Carnaby's "National framework supporting local creation: New Zealand's institutional repository story"<sup>11</sup> describes, in the context of the New Zealand Government policy to establish a national digital heritage archive, how citizens are being encouraged to contribute their personal histories, reflections and perceptions in a community repository. During the conference question time, a librarian in the audience at the IFLA presentation queried the quality of this repository, because of the citizen contributions. Carnaby's answer was challenging. She stated that librarians would have to rethink how they made accessible and delivered information in the future. With Web 2.0, the concept of informal content (text, photographs, individual's cam-captured material, wikis, blogs, chat, emails, etc – basically people's lives on the web) joins formal content (usually managed by museums, libraries, archives and government departments) and business content (data, products, applications, creative content that is used or created for commercial gain and business efficiency). Who were we to judge whether a citizen's perception of an historical event was valid? Clearly to do so would be construed as censorship, not quality control. Information Literacy training will have to encompass all three dimensions on information/knowledge content. Library resource discovery services will have to embrace all these content types; to exclude any category will disadvantage the library's customer.

In addition to information overload, helping citizens to access information they require for their democratic purposes, and government strategies that require greater professional involvement in managing and sharing information (for example, in addition to the New Zealand Digital Heritage Archive<sup>12</sup>: national digital theses

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<sup>10</sup> The term "Library 2.0" was first coined by Michael Casey on his blog [LibraryCrunch](http://www.librarycrunch.com/) as a direct spin-off of the terms Business 2.0 and Web 2.0. Casey suggested that libraries, especially public libraries, are at a crossroads where many of the elements of Web 2.0 have applicable value within the library community, both in technology-driven services and in non-technology based services. In particular, he described the need for libraries to adopt a strategy for constant change while promoting a participatory role for library users. [http://en.wikipedia.org/wiki/Library\\_2.0](http://en.wikipedia.org/wiki/Library_2.0) (accessed 19 May 2007)

<sup>11</sup> <http://www.ifla.org/IV/ifla72/papers/151-Carnaby-en.pdf> (Accessed 19 May 2007)

<sup>12</sup> <http://www.natlib.govt.nz/about-this-site/glossary/ndha> (Accessed 19 May 2007)

collections<sup>13</sup>; and systems to share digital learning objects<sup>14</sup>), there are additional drivers of eLearning and business efficiency.

eLearning developments across the globe have meant that library and information services, especially those in higher education institutions, must make access to all services available online. Life-long learners and traditional students are no longer bound by time and place; they wish to learn 24 x 7, at their own pace, and from anywhere in the world. The next challenge in the eLearning arena is to imbed many of the 'traditional' library services and resources into virtual learning environments/learning management systems so that students have easy access to library-type information resources from within their personal learning space. Some of these developments are already happening, but there is still much to do, especially in encouraging partnerships between library and learning and teaching system vendors, to facilitate interoperability between these systems. The integration of all systems in a university to create an effective virtual campus will be required, necessitating a dialogue and the fostering of relationships and partnerships well beyond the library building.

Some libraries, especially in the corporate sector, have long been responsible for records management and archives within their institution. The increasingly complex knowledge/information environment requires greater integration of these information and data sources with other information repositories so as to improve efficiency and effectiveness in decision-making across an organisation. What role is there for the librarian? Human resource systems, student records systems, finance systems, for example, have been interfaced with library systems for a long time. However, these interfaces are more at the system level, taking pre-defined data elements into another system or looking up these data elements. For information to support business operations there is a growing need for standards to be adopted across a range of data elements. This is not limited to metadata to describe correspondence, research papers and the like, but standards (and authority control) to make sure that the multiplicity of local databases throughout an organisation use common terms to describe the same data element (for example: rooms and physical places described with a common definition to enable security access and timetabling of spaces). Who in an organisation understands authority control and cataloguing standards if it is not the librarian? Without these conventions being established, followed and maintained, businesses will not be efficient in this increasingly competitive world. People need to be able to *easily* interrogate all data sources relevant to their information need.

## **Creating the Future**

We create our own future, so if we are to take a leading role in the future of Knowledge Management and Information Management in our own organisations, where do we start?

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<sup>13</sup> A list of many national digital theses projects is found at: <http://www.library.unsw.edu.au/thesis/adt-ADT/info/thesite1.html> (Accessed 19 May 2007)

<sup>14</sup> See: JORUM (UK) <http://www.jorum.ac.uk/> (Accessed 19 May 2007); EDNA (Australia) <http://www.edna.edu.au/edna/go> (Accessed 19 May 2007)

The main challenge is to engage all individuals in the discussion about Information Management and Knowledge Management, and help them to understand what the benefits will be for them. They are the ones who may have to change business practices (like ceasing to maintain a separate, but duplicate and now out-of-date version of a database) when there is to be one trusted source of that particular data.

Establishing principles that will guide the Information Management and Knowledge Management strategies are crucial. These provide the checklist against which decisions can be made about future policies, practices and systems. Embedding these principles within the organisation is critical if there is to be a clear understanding about the value of information and the value of sharing knowledge across the organisation. Including Information Management and Knowledge Management Principles in induction for new staff (so that they are made aware of the principles and the implications for these in their work), performance development and review (requiring objectives and targets that demonstrate alignment with the Information Management and Knowledge Management strategies and principles; codifying at least one or two pieces of knowledge that may not be known by other employees), and in job descriptions (explicitly setting out expectations regarding Information Management and Knowledge Management) are ways of achieving this. Undertaking Exit Interviews is another way of gathering the tacit knowledge of departing employees, not just the reasons for their resignation.

Organisations are encouraged to take a long term view to Information Management and Knowledge Management and to identify the major information and knowledge obstacles faced by staff now, and to plan for the elimination of these over time. If there are 'low hanging fruit' that will deliver quick wins once Information Management and Knowledge Management strategies are adopted, then these should be tackled immediately.

An audit of all the information and knowledge systems in an organisation may be an action that can help identify the urgent need for Information Management and Knowledge Management strategies (identifying the multiplicity of data sources held in filing cabinets, insecure laptops, hard disks that are not regularly backed-up, in the heads of key staff approaching retirement etc). The audit can also be a tool for identifying priorities for attention in the Information Management and Knowledge Management strategies.

## **The Future – 2010**

Before I go any further, I want to stress that I do see an ongoing future for our physical (and virtual) libraries. There will be physical collections for the foreseeable future. Not everything is going to be digital and we will have to continue managing a hybrid information environment.

I have already predicted an increased prevalence of Knowledge Management and Information Management strategies in the future. What follows is my guesstimate of what the professional future may be like, albeit not that far into the future.

### *Decision Support Systems*

Knowledge Management and Information Management Strategies will result in the convergence of a number of data sources, as stated before. There will be more Executive (or Management) Information Systems and these will form a strategic part of an organisation's formal decision-making. Simple, graphical dashboards that

indicate the 'health' of an organisation, based on pre-defined key performance indicators, will be available on managers' desktops. Real-time financial, human resource, competitive intelligence and other strategic data will be analysed and delivered in a manner that is easily understood.

#### *Content Management*

There will be an increasing prevalence of different content management systems within organisations. The library online catalogue and library-related digital repositories of research publications, licensed image collections, digital copies of past examination papers, digital reading list resources and the like will be increasingly complemented by web content management systems, searchable repositories of digital learning objects and curriculum resources, in-house manuals, and other institutional intellectual property in content management systems.

#### *Federated Searching*

Institutional data in content management systems (whether statistical, correspondence, records of student enrolments, web pages, research publications and in-house reports) will be searched by federated search engines that can retrieve information from metadata and full-text. Already we are familiar with federated searching of library's information resources. In 2010, perhaps not all these data sources will be accessible as described, but progress will be made on using library-type federated concepts/systems (such as Ex Libris' MetaLib<sup>15</sup> and SFX<sup>16</sup>) that enable a single search to retrieve documents from a variety of data sources and to link these to local holdings.

The Ex Libris stable of products has been expanded with the product Primo®. The following quote from the company's product overview is very pertinent to this discussion about what our library customers are, and will be increasingly, expecting:

"Today's library users seeking scholarly knowledge resources have more options than ever before. Libraries that don't meet user expectations for speed, ease of use, and relevance of the discovery experience risk being relegated to a secondary role.

With Primo®, libraries can once again assume a leadership position in setting discovery and delivery standards. Primo unlocks library potential by providing users with a universal solution for the discovery and delivery of print and digital information sources regardless of format and location."<sup>17</sup>

The pricing of this type of product points towards its use not just in the library, but across the organisation. If this is the case, library directors will have to sell the concept of an enterprise (as opposed to a library) federated search capability and develop partnerships beyond the library. However, the prospect of a 'library application' being able to search and deliver across disparate organisational databases to deliver business critical information is very exciting.

#### *Customer Relationship Management*

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<sup>15</sup> <http://www.exlibrisgroup.com/metalib.htm> (Accessed 19 May 2007)

<sup>16</sup> <http://www.exlibrisgroup.com/sfx.htm> (Accessed 19 May 2007)

<sup>17</sup> <http://www.exlibrisgroup.com/primo.htm> (Accessed 19 May 2007)

In our increasingly competitive environment, all organisations are seeking to maximise customer retention and to acquire new customers. Using a university example, the ability to understand who is seeking information about courses, from where they are enquiring, what they looked at on the web site and how long they stayed, whether they attended Open Days and similar events, and whether the inquiry was turned into an enrolment or not, provides very strategic information. By 2010, I foresee an increased use of Customer Relationship Management (CRM) systems to deliver this type of intelligence.

Even in the library environment, many libraries have been using virtual reference services, building up a history of questions asked and caller information. It is possible that this service could be integrated with the IT Help Desks and the institutional CRM to provide a complete picture of customers. Clearly, information privacy and data protection come to mind in this scenario, but safeguards can be put in place to minimise risk of inappropriate use of data in the CRM. The potential benefits to delivering customer-focused services, based on previous individual interactions, are a great marketing capability.

#### *Personalised Experiences*

The information age is characterised by one-on-one marketing and mass customisation and this will become increasingly important by 2010. Following on from the CRM prediction, the use of portals, linked to user authentication and privilege status, will enable the delivery of personalised views of information and access to bespoke services, relevant to the individual's needs. The virtual learning environment will embrace these providing personalised learning pathways depending on the knowledge of the learner. Remedial learning resources or interventions will be provided for the learner who needs additional help, while at the same time an accelerated learning path can be provided for the advanced student.

#### *Reality No Longer Real*

In 2000, Jason Frand described ten characteristics of the 'Information Age Mindset' in relation to students.<sup>18</sup> His characteristics are as valid today as they were in 2000. However, while some of the issues raised in his paper have been largely resolved, these have now been overtaken by other challenges for information and knowledge workers. I particularly like his characteristic: 'Reality No Long Real'. This concept is alive and well in 2007 and will be even more so in 2010, when Second Life<sup>19</sup> and Turning the Pages™<sup>20</sup> are considered as examples of where we are today. Many organisations today, even universities and libraries, are buying islands in Second

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<sup>18</sup> Jason Frand, "The information mindset: changes in students and the impacts for higher education" in *Educause Review*, September/October 2000. pp.14-24. <http://www.educause.edu/apps/er/erm00/articles005/erm0051.pdf> (Accessed 19 May 2007)

<sup>19</sup> Second Life is a 3D online digital world imagined, created and owned by its residents. See: <http://secondlife.com/> (Accessed 19 May 2007)

<sup>20</sup> This British Library service enables the viewer to 'leaf through our great books and magnify the detail', being a digital representation of the original manuscripts and books. The technology enables the viewer to literally 'turn the pages' of the document being viewed, just like viewing the original document. See: <http://www.bl.uk/onlinegallery/ttp/ttpbooks.html>

Life, enabling imaginative uses of this 3D space to enhance education and marketing.<sup>21</sup> The future would see a greater increase in the use of such services.

#### *Intranets, Blogs, Wikis and Expert Systems*

Intranets are common today, if not ubiquitous, in organisations, including libraries. The capacity to create online environments that facilitate collaboration and sharing of information has been greatly advanced by the use of blogs and wikis, in addition to using intranets. As already mentioned, Web 2.0 is about social networking and collaboration and the related tools are "turning the web from a one-way, publisher-to-reader medium to a bi-directional environment where user-contributed content and user-user interaction are key".<sup>22</sup> An excellent example of facilitating collaborative networking is the wiki for the JISC National eBooks Observatory Project<sup>23</sup>, for which I am the vice-chair. As it is a closed wiki, for members of the project team only, I cannot provide an example. However, it enables all project team members to add, edit and comment on information contained in the wiki. The major benefit is that it provides a secure environment for participants who are not within the same organisation, thus overcoming the problems of providing access to shared drives and the like that are often used within organisations for collaborative working. I foresee increased use of this form of collaboration.

I predict that by 2010 blogs will not be as popular in an organisational environment as they are currently. In the space of a few months I have set up two blogs, tried and failed to remove one of these as I had transferred the information to another service provider, and have since neglected to post messages for some time.<sup>24</sup> There are many orphan blogs in cyberspace! The blog, in reality, is a new name for a personal journal, and I suspect that not many of these make riveting reading. Of course, there are the exceptions, in both the printed and virtual medium. In an educational sense, the use of ePortfolios<sup>25</sup> will continue to increase in popularity, especially if government policies require students to maintain an ePortfolio throughout their formal learning years.

#### *Infrastructure*

One thing seems certain: organisational IT departments will have vast storage capabilities to cater for the huge amounts of digital content. Storage area networks or other mass storage systems will be the norm. Whether we see IT departments

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<sup>21</sup> A list of universities, colleges and schools in Second Life is available at: [http://www.simteach.com/wiki/index.php?title=Institutions\\_and\\_Organizations\\_in\\_S\\_L#UNIVERSITIES.2C\\_COLLEGES\\_.26\\_SCHOOLS](http://www.simteach.com/wiki/index.php?title=Institutions_and_Organizations_in_S_L#UNIVERSITIES.2C_COLLEGES_.26_SCHOOLS) (Accessed 19 May 2007)

<sup>22</sup> Chris Adie. "Collaborative tools, Web 2.0" in *Edinburgh BITs*, V.17(1) September 2006. p.2. [http://www.ucs.ed.ac.uk/bits/2006/september\\_2006/bits.pdf](http://www.ucs.ed.ac.uk/bits/2006/september_2006/bits.pdf) (Accessed 19 May 2007)

<sup>23</sup> <http://www.jiscebooksproject.org/> (Accessed 20 May 2007)

<sup>24</sup> DLKR's Thoughts at: <http://suemcknight.wordpress.com/> and the orphan blog: <http://dlkrsthoughts.blogspot.com/index.html> (Accessed 20 May 2007)

<sup>25</sup> A definition is available at: <http://en.wikipedia.org/wiki/EPortfolio> (Accessed 20 May 2007)

requiring diskless workstations to ensure back-up of valuable intellectual property we create every day in our work remains to be seen.

Constant connectivity will be the norm, with digital natives (the term used by Marc Prensky to describe students in 2001<sup>26</sup>) demanding that we leverage their investment in portable devices such as mobile phones, MP3 players, and Personal Digital Assistants (PDAs) when we deliver our educational and information services. Libraries, for instance, instead of sending reminder notices via email can send text messages with the same information to a customer's mobile phone. Personalised student calendars on their PDA will synchronise with the class timetable information and assessment reminders provided through the virtual learning environment.

## **Library Futures – 2010**

I have already mentioned some characteristics of the future for libraries and librarians: the increasing importance of information skills training; building new networks and partnerships with colleagues across an organisation; using the cataloguing skills we have with standards and metadata to facilitate searching of other forms of information not normally held in a library. Supporting my assertions is Paul Anderson:

“Libraries have skilled staff with professional expertise that can be leveraged to rise to the challenge of Web 2.0, not only in collection and preservation, but also in user-centred services. They are also the guardians of a long tradition of a public service ethic which will increasingly be needed to deal with the privacy and legal issues raised by Web 2.0. Library staff should be encouraged to think and act pro-actively about how they can bring this to bear on the development of new, library and information service-based technologies. Should libraries take a lead in the introduction of such technologies into the learning and academic workplace, driving the collaboration between academics, administrators and central information services?”<sup>27</sup>

My answer, of course, is ‘Yes’ to Anderson’s question. The need to manage legal and privacy issues is very important. In educational institutions, in particular, managing copyright licenses and maintaining records of copying undertaken according to these licences requires a centralised approach and libraries are best placed to take control.

### *Vale the Catalogue*

The advent of new applications, such as Primo®, may spell the end of the library management system as we know it today. The future of the Online Public Access Catalogue (OPAC) must be limited, as an artifact that served libraries well when

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<sup>26</sup> Marc Prensky, “Listen to the natives”, in *Educational Leadership*, V.63(4) December 2005/January 2006. pp8-13  
[http://www.ascd.org/authors/ed\\_lead/el200512\\_prensky.html](http://www.ascd.org/authors/ed_lead/el200512_prensky.html) (Accessed 19 May 2007)

<sup>27</sup> Paul Anderson, *What is Web 2.0? Ideas, technologies and implications for education*, p.53. <http://www.jisc.ac.uk/media/documents/techwatch/tsw0701.pdf> (Accessed 19 May 2007)

catalogues, in the main, described what was physically held in the library. The future 'catalogue' looks more like Amazon, enabling readers to add comments to catalogue records, in addition to including thumbnail images of book jackets etc that we have become used to with enhanced catalogue records. Federated searching will go beyond what we know today, linking readers to resources held within the library, hosted within the institution, external resources licensed for remote access, and will provide "situation-specific delivery options that the user can act on".<sup>28</sup> Already through the 'Get It' plug-in developed by the Rethinking Resource Sharing Forum<sup>29</sup> and the manifesto it has developed, we can imagine a resource discovery system much like Google with a delivery option included, making it possible for an individual to request: a loan, borrow and buy, copy to print, copy to digital, or outright purchase of an item of interest. Our customer's expectations have moved from 'discover, locate, request and deliver' to 'find and get' and our systems must develop to accommodate this, and quickly or our customers will find another service provider who will.

Should this type of service become common place, it would seem likely that the backend systems in the traditional integrated library management system (acquisitions, cataloguing, and circulation) will be decoupled. Thus 'vare the catalogue'!

Cataloguers, on the other hand, I predict will have a busy future, using their professional skills to managing non-library-type information resources, especially those housed in institutional repositories and content management systems. With the advent of the Semantic Web<sup>30</sup>, perhaps metadata will become less important, but someone has to be concerned with authority control for precision recall.

#### *Reference and enquiry services*

Virtual Reference Services, facilitating the creation of Frequently Asked Questions (FAQs), knowledge gained from retiring or leaving library staff at exit interviews and other sources on knowledge gathering, perhaps through the performance review process, will inform expert systems that are accessible online 24 x 7 to library staff and customers.

Information kiosks, available on all floors of a library, will take the place of satellite physical reference desks, or reference desks at small campuses that do not warrant the presence of full-time librarians during all opening hours. These kiosks will enable access to FAQs, chat with a librarian, and online help in context of searches. To date, there has not been a huge uptake in 'follow-the-sun' reference services, where library callers speak with a librarian who may be in another country/time zone to provide 24 x 7 reference support. I do not foresee an increase in popularity of this type of service over the next three years.

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<sup>28</sup> <http://www.exlibrisgroup.com/primo.htm> (Accessed 19 May 2007)

<sup>29</sup> <http://www.rethinkingresourcesharing.org/> and <http://www.rethinkingresourcesharing.org/getit.html> (Accessed 19 May 2007)

<sup>30</sup> See definition at: [http://en.wikipedia.org/wiki/Semantic\\_Web](http://en.wikipedia.org/wiki/Semantic_Web) (Accessed 20 May 2007)

### *Information Literacy*

The Overview to the Australian and New Zealand Information Literacy Framework: Principles, standards and practice, although written in 2004, highlights the importance of information literacy:

“Individuals are faced with diverse information choices in their studies, in the workplace, and in their lives. Information is available through community resources, special interest organisations, manufacturers and service providers, media, libraries, and the internet. Increasingly, information comes unfiltered. This raises questions about authenticity, validity, and reliability. In addition, information is available through multiple media, including graphical, aural, and textual. These pose special challenges in evaluating, understanding and using information in an ethical and legal manner. The uncertain quality and expanding quantity of information also pose large challenges for society. Sheer abundance of information and technology will not in itself create more informed citizens *without* a complementary understanding and capacity to use information effectively.”<sup>31</sup>

The information environment is even more complex now, so the effort that librarians make in developing information-literate citizens is even more important. Hopefully, by 2010, in universities at least, developing skills in information literacy will be imbedded into the curriculum, taking it from a non-compulsory addition to lectures to a mandatory and in-context part of a student’s learning.

Dealing with plagiarism is an increasing need in educational institutions and information literacy skills development has to take on this issue as well as teaching how and when to cite references appropriately. This will work best if done in collaboration with academic staff who can reinforce expectations in the classroom (real or virtual). And this brings me to my final set of predictions for the future 2010: the library and information professional.

### *Librarian 2.0*

It is going to be so important that librarian and information professionals have excellent communication and networking skills as they will need to engage with a wider community in the increasingly complex information and knowledge environment. Relationship building for new partnerships, both within and externally to the organisation, will be vital.

The need to manage upwards will be an important skill as senior management may feel uncomfortable and unwilling to accept new services, such as those offered by Web 2.0 technologies, because of the risks associated with the innovative but uncontrollable environment. Do not underestimate an organisation’s concern for maintaining brand image.<sup>32</sup>

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<sup>31</sup> Alan Bundy, Australian and New Zealand Information Literacy Framework: principles, standards and practice, 2<sup>nd</sup> ed. p.7 <http://www.caul.edu.au/info-literacy/InfoLiteracyFramework.pdf> (Accessed 19 May 2007)

<sup>32</sup> For instance, see Phil Baty and Tony Tysome, “Staff see red over online policing”, Times Higher Education, 18 May 2007.

We will have to practice effective Knowledge Management skills in the way we manage our own knowledge and information base, for instance using intranets, procedure manuals, operational plans and other communication tools to manage knowledge. The standards of our own knowledge and information management (email, word processing documents, procedure manuals, policies and procedures, etc) may have to rise if we are to have credibility in the wider organisation.

Librarians will need confidence in their ability to work with different professionals, whether IT specialists, academics, researchers, administrators, or executives. How to gain this confidence is the challenge. Library and Information Science courses are already jam packed and it will be difficult to add further subjects or disciplines to the curriculum. In the short term, librarians will need to take responsibility for their own learning (supported of course by management) and upgrade their own skills in areas such as business and management, including project management, communication, teaching skills (such as Postgraduate Certificate in Higher Education programs), developments in IT and Knowledge Management.

The ability to draft and influence organisational policy will be a big advantage as the complex information environment will necessitate constant review of existing policies and development of new policies in areas such as online bullying, online privacy, acceptable use guidelines, accessibility and equality requirements.

We will also need to keep ourselves informed of the constantly changing opportunities that avail us with developments in Knowledge Management and Information Management. Not only do we need to understand the possibilities, we need to create a trusting environment where our staff can try new technologies and services, and capitalize on the innovative future that is available before us.

## **Conclusion**

Paul Miller calls Library 2.0 the 'challenge of disruptive innovation'.<sup>33</sup> Perhaps the challenge for library and information professionals with regard to Knowledge Management and Information Management is the 'challenge to speak simply and demonstrate how'. The term "Knowledge" can cause eyes to glaze over and result in people disengaging with the conversation. I suspect that is why the term is not widely used in higher education<sup>34</sup>. We have to use the KISS (Keep It Simple, Stupid) principle to gain attention, and then show how, with quick wins and demonstrable examples of efficiency and effectiveness, Knowledge Management and Information Management can improve services to internal and external customers.

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<sup>33</sup> Paul Miller, Library 2.0: The challenge of disruptive innovation, A Talis white paper, Version 1.0, February 2006, [http://www.talis.com/resources/documents/447\\_Library\\_2\\_prf1.pdf](http://www.talis.com/resources/documents/447_Library_2_prf1.pdf) (Accessed 20 May 2007)

<sup>34</sup> The exception in higher education is the use of 'knowledge transfer' as a concept. "The main business of higher education is to teach students and to create new knowledge through research. However, if this knowledge and learning is to be useful it has to be applied to the areas of life where it can make a difference. This is knowledge transfer." <http://www.universities-scotland.ac.uk/Facts%20and%20Figures/knowledge.pdf> (Accessed 20 May 2007)

The terms 'knowledge economy' or 'information society' are commonly used synonymously, as are Knowledge Management and Information Management. Helen Hayes, in her paper "The role of libraries in the knowledge economy"<sup>35</sup> in 2004 challenged librarians to engage in the knowledge economy, citing: globalization; technological advances; and the importance of knowledge/information for the economy as drivers. She further cited four barriers to effective use of knowledge: content overload; impeded (technical) connectivity; lack of competence in evaluating and using information; and lack of willingness to collaborate. In 2007, the drivers remain the same. However, the barriers are being broken down. Technological barriers to connectivity are greatly reduced; and with Web 2.0 the notion of collaboration and sharing is alive and well, if mainly in a social context; and content management and federated searching are becoming items on the agenda of most organisational IT departments and libraries. There is more to do in bringing the notion of collaboration and sharing into the workplace; and the issues of information literacy/competencies remain a challenge. Librarians will have to make sure that they are included on the content management discussions within their organisation.

The current focus on Web 2.0 and Library 2.0 demonstrates the importance of individual expectations. Libraries have 'long tails'.<sup>36</sup> There are many information resources that we manage now that are in low demand. We have to make these more accessible to the individual for which it is just the right piece of information. We will have to use Knowledge Management and Information Management techniques to make hidden data sources available. If we are to maximise value to customers, we will have to **ASK** them what they want. We cannot assume that we know and understand their expectations and needs. However, this is the topic of other papers.<sup>37</sup>

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<sup>35</sup> Helen Hayes, "The role of libraries in the knowledge economy", in Serials, V.17(3) November 2004. pp. 231-238.

<sup>36</sup> Chris Anderson, "The Long Tail" Wired, Oct. 2004  
<http://web.archive.org/web/20041127085645/http://www.wired.com/wired/archive/12.10/tail.html> (Accessed 20 May 2007)

<sup>37</sup> See: Susan McKnight, "Customer Value Research", in Trine Kolderup Flaten (ed) Management, marketing and promotion of library services based on statistics, analyses and evaluation, K.G. Saur, IFLA Publications 120/121, Munchen. pp206-216 or Susan McKnight, "Involving the customer in library planning and decision making" in Peter Brophy, Jenny Craven and Margaret Markland (eds) Libraries without Walls 6: evaluating the distributed delivery of library services, Facet Publishing, London pp.4-14.