
Taxonomy usage and skills by Australian information professionals

Matt Moore*

This article discusses the results of a recent survey on taxonomies in Australia conducted by Innotecture and Straits Knowledge. The survey investigated the use of taxonomies by Australian organisations and the taxonomy skills of Australian information professionals. The survey received 125 responses. The collected responses indicated a strong desire to employ taxonomies more effectively and a need to demonstrate the business value of taxonomy work to organisational decision-makers.

BACKGROUND TO THE SURVEY

Organising schemes are an essential part of managing information. Such schemes allow individuals and institutions to make sense of what they know and then find it. These schemes may take different forms, serve different purposes and be given different names such as thesauri, controlled vocabularies, ontologies, knowledge maps and folksonomies. In this article, these varying forms, purposes and names are gathered under one label: taxonomies.

Taxonomy development and application used to be an obscure domain of library science but that is changing. Internet-based movements such as the “Semantic Web” and an emerging corporate focus on a “Master Data Management” that includes both structured databases and unstructured documents are bringing taxonomies and related phenomena to the attention of business decision-makers. A number of professions now work with taxonomies, including librarians, information managers, records managers, indexers, knowledge managers, information architects and information technologists. This growing importance of taxonomies is evidenced by the publication of books,¹ the hosting of events such as the “Taxonomy Bootcamp” and the inclusion of taxonomy management features in software such as Microsoft SharePoint 2010.²

While surveys of the taxonomist profession have been carried out globally,³ little is known about the state of taxonomy use in Australia. In 2010, Innotecture and Straits Knowledge carried out a survey of Australian information professionals regarding the use of taxonomies in their organisations and their own skills in this area. The survey did have a commercial goal: to assess the readiness of the Australian market for taxonomy training. However, the survey results are of interest to the broader Australian information community. This article provides a summary of the results.

A simple survey instrument was constructed (see the questions listed in Appendix 1) hosted on SurveyMonkey (<http://www.surveymonkey.com>). The objective was to obtain a high response rate so a small number of questions were asked – 12 in total – to encourage more responses. After piloting the survey with a small number of test subjects, the survey was sent to the groups listed in Appendix 2. These groups were identified as having an interest in information management and organisation. The survey received 125 responses. As participation was voluntary, the results should be taken as indicative of broader issues rather than a statistically valid representation of the professional population.

* Matt Moore is a director of Innotecture, an occasional lecturer at University of Technology Sydney and chair of the New South Wales Knowledge Management Forum. He has spent over a decade working in knowledge and information management, learning and development and internal communications with organisations such as PwC, IBM, Oracle and the Australian Securities and Investment Commission (ASIC). He has just published his first book, *Performance Enhancing*.

¹ Lambe P, *Organizing Knowledge: Taxonomies, Knowledge and Organisational Effectiveness* (Chandos, 2007); Stewart D, *Building Enterprise Taxonomies*. (Mokita Press, 2010); Hedden H, *The Accidental Taxonomist* (Information Today Inc, 2010).

² Hedden H, “Tools for Taxonomies” (Paper presented at the Enterprise Search Summit, New York, 11 May 2010), <http://www.slideshare.net/Earley/tools-for-taxonomies> viewed 3 November 2010.

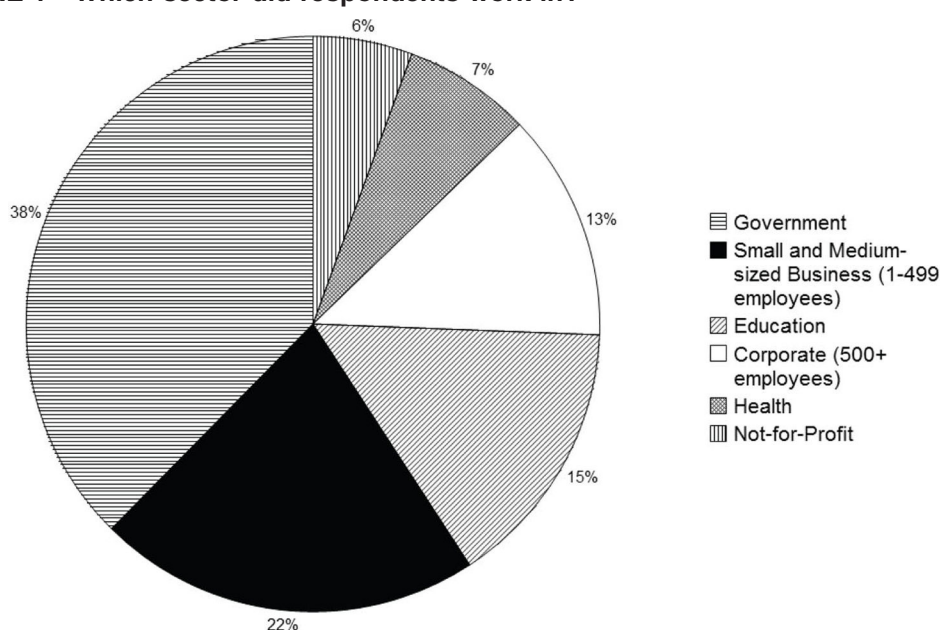
³ Hedden, n 1; Lambe P, “Taxonomists: Evolving or Extinct?” (Paper presented at the Taxonomy Bootcamp, San Jose, California, 19 November 2009).

SURVEY RESULTS

Who were the respondents and where do they live?

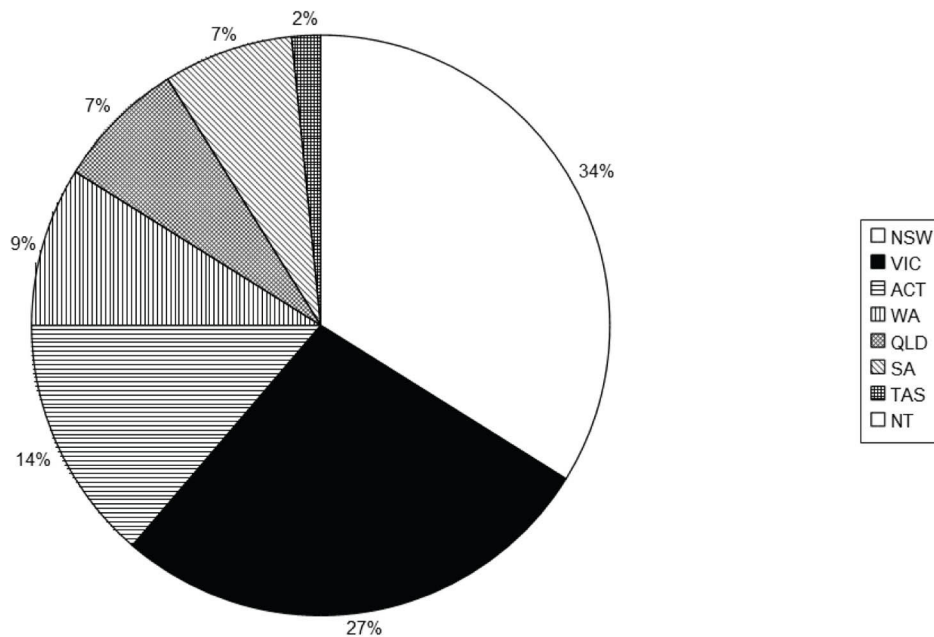
Respondents were first asked which sector they worked in. The categories offered were simple: government, health, education, not-for-profit, and the private sector, which was split into small and medium-sized businesses (SMBs) and larger businesses. Of the 125 responses received for this question, more than a third came from those working in government. This can be explained by the relatively large numbers of librarians and records managers who responded to the survey. A significant number of librarians work in the public sector, including the public library network. The public sector also has more stringent requirements for records management due to legislation. Many of the SMBs were consulting companies in the information management domain.

FIGURE 1 Which sector did respondents work in?



In some respects, the geographical location of the respondents was unsurprising.⁴ Of the 124 responses received for this question, for New South Wales, Victoria, Western Australia, South Australia and Tasmania, approximately one response per 200,000 inhabitants was received. Two areas were underrepresented: Queensland was under half the New South Wales count and no-one responded from the Northern Territory. The Australian Capital Territory provided approximately eight times the per capita responses one might expect. This reiterates the importance of taxonomies for the public sector.

⁴ Australian Bureau of Statistics, *3101.0 – Australian Demographic Statistics* (March 2010), <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3101.0> viewed 3 November 2010.

FIGURE 2 Which State or Territory did respondents come from?

Respondents were also asked to provide their job titles – the results of which are listed in Appendix 3 and grouped roughly by domain. In some cases where the title was ambiguous, eg director, a guess as to the professional domain was made based on various factors. All of the domains overlap to some extent, eg records manager/librarian; IT and knowledge manager. The largest group of respondents were identified as librarians (22%), followed by records managers (15%) and consultants (11%).

What does “taxonomy” mean to respondents?

Taxonomy is a term often used to describe many different descriptive phenomena. Rather than offering a specific definition, respondents were asked what the term meant to them. Not surprisingly, a wide range of replies were received – from “[a] semantic network of terms that represent concepts, showing unique meaning of terms, and linking like terms to show their network (term) relationships. A taxonomy provides a unique term for each concept to provide consistency of classification and terminology for the content being described. This provides both ‘a place for everything and everything in its place’ which ensure for consistent and accurate order and retrieval” to “Structured language” (sic). While nearly all of the answers referred to language in some way, there were some common attributes of a taxonomy that emerged:

- a taxonomy classifies and categorises (60% of answers);
- it involves a hierarchical ordering of terms (21%); and
- terms are part of a controlled vocabulary (19%).

Of the responses received, 22% of respondents did not explicitly refer to these attributes, 57% mentioned one, 19% mentioned two and only two respondents mentioned all three.

A significant proportion of respondents talked about the purpose of a taxonomy in informational terms (27%): assisting browsing, search and retrieval, and making sense of the information that organisation holds. What was missing from any of the responses was an explicit reference to the broader business purposes of taxonomies – ie do they exist to save the employee time, generate higher customer satisfaction etc. This omission has important consequences as discussed later.

The use of taxonomies by organisations

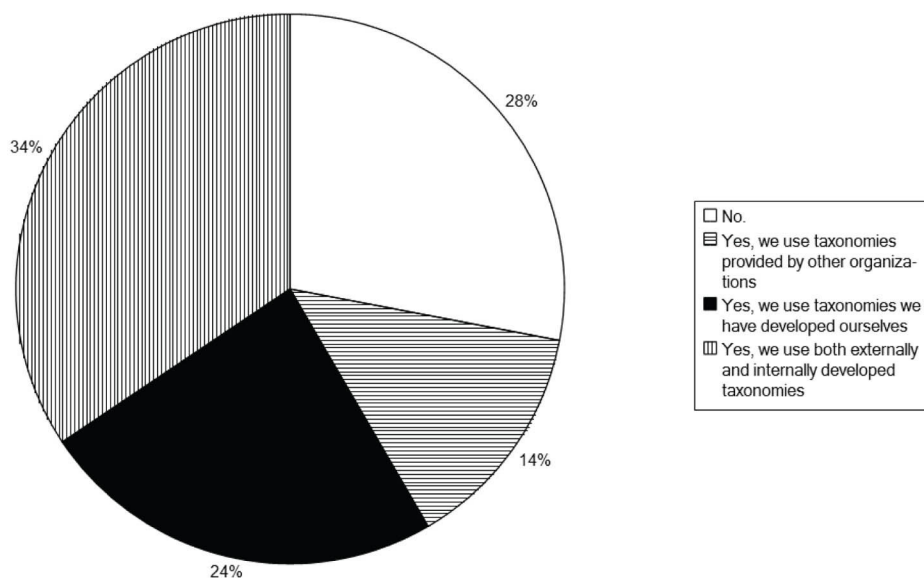
The next set of questions asked respondents to comment on the use of taxonomies within their organisations. Of the 125 responses received for these questions:

- 72% of respondents stated that their organisations used taxonomies in some way;
- 58% of respondents used taxonomies developed by their own organisations; and
- 14% of respondents only used taxonomies provided by other organisations.

Table 1 provides a list of the externally produced taxonomies mentioned by respondents. The most mentioned example is the famous Dewey Decimal Classification (DDC) scheme, which is unsurprising given the large number of responses from librarians (Library of Congress Subject Headings came fourth). The second most used was Keyword AAA, a thesaurus originally developed by the State Records Authority of New South Wales, and now managed by the National Archives of Australia.⁵ Keyword AAA is relevant to public sector records managers. Australian Government Locator Service (AGLS) came third in terms of respondent mentions.⁶ AGLS is an Australian Standard for the use of descriptive metadata applied to online resources by Australian government bodies.

It should be noted that the top three schemes are quite different from each other in origin, form and purpose. DDC was developed to aid the browsing of printed materials and is grandiose in scope (Dewey intended to classify the whole of human knowledge). Keyword AAA is a thesaurus specially designed for public sector records management. AGLS is less a classification system itself than a framework for the construction of classification systems for the online domain.

FIGURE 3 Does your organisation use taxonomies in the management of its information?



⁵ National Archives of Australia, *Introduction to Keyword AAA* (Version 1, 2007), <http://www.naa.gov.au/records-management/create-capture-describe/describe/kaaa/index.aspx> viewed 3 November 2010.

⁶ National Archives of Australia, *AGLS Metadata Standard* (AS 5044-2010), <http://www.agls.gov.au> viewed 3 November 2010.

TABLE 1 Externally produced taxonomies mentioned by respondents

Taxonomy	No of responses
Dewey	12
Keyword AAA	11
AGLS	6
LCSH	4
MeSH	4
SCIS	3
AFDA	2
IPTC	2
NSW Keyword for Councils	2
ScOT	2
Health Thesaurus	2
ANZSRC	1
AOD Thesaurus	1
APAIS	1
APT	1
Curtin Common Vocabulary	1
Energistics	1
PPDM	1
RA	1
UNSPSC	1
VOCED	1
Legal and business thesaurus by Enterprise Information Management	1
Sports Discus	1
Total	62

The use of taxonomy software

More than two-thirds (or 69%) of the 121 respondents to the question on specialist taxonomy software stated that they do not use any such software. Of the 31% respondents who stated that they use specialist software, the software products they mentioned fell into three broad categories:

- Thesaurus management: a.k.a. (Synercon), MultiTES (Multisystems) and 1-2-1/Term Tree (ACS). Of the responses received, 42% of tools mentioned fell into this category.
- Content management: TRIM (HP), Drupal (open source), SharePoint (Microsoft). This type of tool was nominated by 36% of the respondents to the question.
- Library management: CS-TextWorks (Maxus), FIRST Software Solutions.

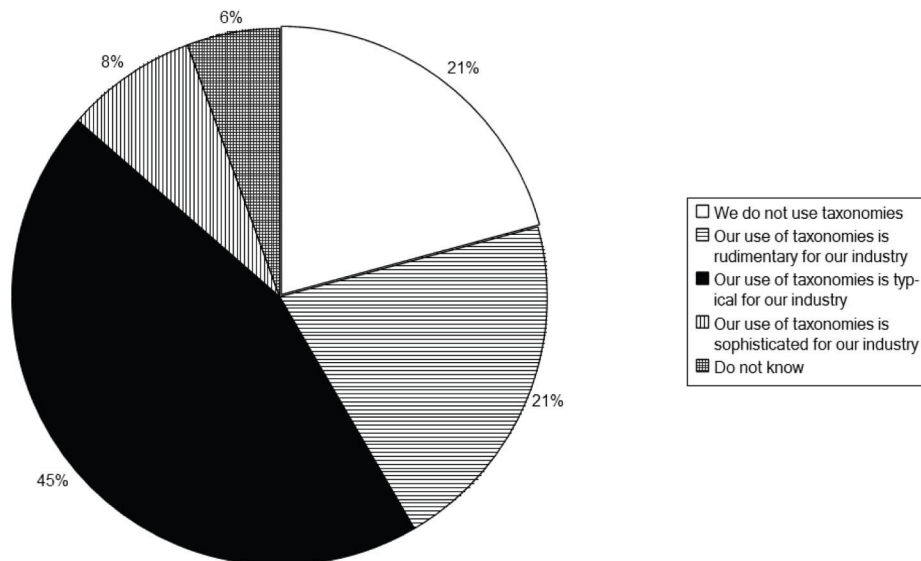
Technologies with text mining and auto-classification capabilities are generally not used (with the exception of PoolParty).

TABLE 2 Taxonomy software mentioned by respondents

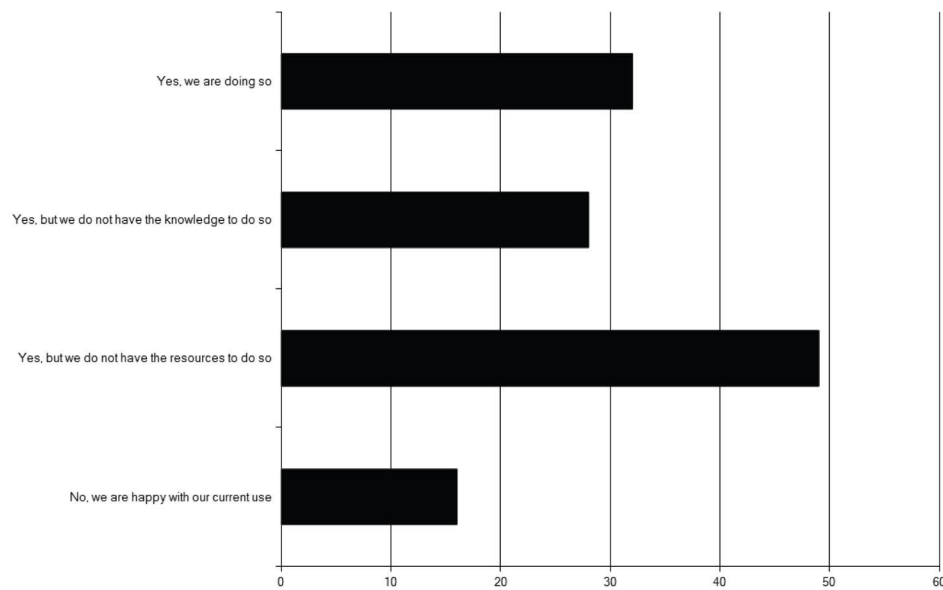
Software	Count
a.k.a	8
TRIM	4
MultiTES	3
FIRST	3
ACS 121	2
Drupal Taxonomy	2
SharePoint	2
CS-TextWorks	1
DotNetNuke	1
DSpace	1
Edocs	1
Ex Libris	1
Excel	1
Millennium Library Mgt System	1
Objective	1
PoolParty	1
Sirsi-Dynix	1
Term Tree	1
Aims Library Management Software SCIS	1
SWI-Prolog	1
Total	37

Improving the use of taxonomies in organisations

The next two questions attempted to explore the maturity of taxonomy use within Australian organisations. First, respondents were asked to subjectively rate their organisation's use of taxonomies, and whether they wished to improve this use or not. A significant number of the 125 responses for these questions noted that their organisations were "typical" for their industry in terms of taxonomy use. About a fifth thought that they were rudimentary whereas 8% thought that they were sophisticated users.

FIGURE 4 How would you rate the use of taxonomies by your organisation?

The next question asked respondents whether they wished to improve their organisation's use of taxonomies. Only 13% of respondents were happy with their organisation's current use of taxonomies, whereas 26% were making improvements. Nearly two-thirds of respondents wanted to improve taxonomy use but either lacked the resources or knowledge to do so.

FIGURE 5 Do you wish to improve your use of taxonomies?

The latter question provoked comments such as:

- “No, there is no business driver to do so.”
- “Yes, but the management don’t understand taxonomy and can’t communicate it well, so it is enforced and used badly by most.”
- “Yes, but there is little understanding of what it is at middle management level and therefore no commitment.”

Taxonomy skills and training

Finally, the survey asked respondents to identify whether they would be interested in taxonomy training and which topics they would like training in. Nearly two-thirds (or 64%) of respondents indicated that they would be interested in training, while 36% were not interested.

The responses received for each topic were weighted (“Most useful” was given three points, “Second most useful” two points and “Third most useful” one point). These results were then added up to give a final figure. The most popular topics were practical, business-oriented ones such as “Planning a taxonomy project” and “Creating a business case for taxonomies”.

TABLE 3 If you are interested in taxonomy training, pick the three topics that would be most useful to your work

Answer options	Most useful	Second most useful	Third most useful	Weighted total
Planning a taxonomy project	16	11	13	83
Creating a business case for taxonomies	17	8	9	76
Using facet analysis for taxonomy design	12	11	6	64
Managing folksonomies	6	8	10	44
Developing an ontology	5	6	7	34
Using SharePoint to manage a taxonomy	6	4	6	32
Using specialist taxonomy software	5	6	5	32
Selecting and applying an existing taxonomy	0	8	11	27
Using tests such as card sorting for taxonomy evaluation	0	7	2	16
Selecting and applying an existing ontology	0	1	5	7

DISCUSSION OF SURVEY RESULTS

The “taxonomy” domain is not a unified one. Those with a stake in taxonomy work come from many backgrounds and professions (including libraries, records management, information architecture, information technology and knowledge management). Only one respondent had a specialist job description relating to taxonomies/metadata. There are opportunities for each of these professions to leverage the experience of the others, particularly the tools they have developed to organise information, and to discuss concerns and problems. There is also the opportunity for confusion. The general principles of information management can be applied to, say, physical records and websites – but the details will differ significantly for each.

Taxonomies are not being used to their full potential by organisations. Respondents strongly indicated that their organisations should be improving their taxonomy use. Australian organisations are perhaps two to three years behind their United States or European counterparts. The skills requested cover the basic practicalities of taxonomy work. Technology solutions and advanced topics, such as ontologies or folksonomies, are of less importance.

A key reason for this lack of use seems to be that the business value of taxonomy work is poorly articulated. Respondents indicated that resources were lacking for taxonomy improvement projects. Given the current strength of the Australian economy and the comments from respondents, managers do not see the value that taxonomy work can bring to an organisation and the information professions lack the means to demonstrate that value. No respondents described taxonomies in terms of their

ultimate business impact. Respondents seem to be aware of this deficit as they identified a lack of management attention as an issue, and they also requested training around business case development.

A significant number of the respondents came from the public sector. The public sector has played a critical role in Australia's informational life. For much of the 20th century, public libraries have traditionally provided access to information resources (along with educational and entertainment opportunities) for the population. Government agencies have been subject to stricter information management regulation than the private sector. Hence they have been heavily involved in standards creation.

Nevertheless, respondents from the public sector still faced similar challenges to their private sector colleagues in demonstrating the importance of taxonomies to core organisational goals. There is an opportunity for the public sector to take broader leadership in this area. It remains to be seen whether public sector workers have the inclination, mandate or abilities to do so.

While respondents did not identify ontologies or folksonomies as core topics for training, developments in these areas will capture the attention of decision-makers. Over the last decade, the Semantic Web has moved from the speeches of internet visionaries to a growing information network.⁷ Meanwhile, the enterprise information technology crowd are beginning to seriously implement Master Data Management.⁸ Ultimately, an understanding of the basics of taxonomy work is necessary to underpin these more adventurous strategies. If information professionals do not master these basics then they risk spending the future left out in the cold.

Based on the survey, Innotecture and Straits Knowledge will be running a taxonomy training workshop in Sydney in March 2011.⁹ They are also hoping to conduct further research into the application of taxonomy techniques in Australia. For more information, to provide feedback or pass on ideas, see Innotecture's website (<http://www.innotecture.com.au>) and Straits Knowledge's website (<http://www.straitsknowledge.com/index>).

APPENDIX 1: SURVEY QUESTIONS

1. What sector do you work in?
 - Government
 - Corporate (500+ employees)
 - Small and medium-sized business (1-499 employees)
 - Not-for-profit
 - Health
 - Education
 - Other (please specify)
2. Which state or territory are you based in?
 - ACT
 - NSW
 - NT
 - QLD
 - SA
 - TAS
 - VIC
 - WA
3. What role do you have in your organisation?

⁷ Anderson J and Rainie L, *The Fate of the Semantic Web* (Pew Research Center, 2010), <http://www.pewinternet.org/Reports/2010/Semantic-Web.aspx> viewed 3 November 2010.

⁸ Karel R, "Introducing the MDM Market's Newest 800lb Gorilla: Informatica Acquires Siperian!", *Forrester Blogs* (28 January 2010), http://www.blogs.forrester.com/business_process/2010/01/introducing-the-mdm-markets-newest-800lb-gorilla-informatica-acquires-siperian.html viewed 3 November 2010; Blechar M, "Master Data Management Summit Debrief: What's on Everyone's Minds?", *Gartner Blog Network* (28 April 2010), http://www.blogs.gartner.com/michael_blechar/2010/04/28/master-data-management-summit-debrief-whats-on-everyones-minds viewed 3 November 2010.

⁹ Innotecture, *Taxonomy Australia Workshop* (2010) <http://www.innotecture.com.au/taxonomy> viewed 3 November 2010.

4. Please tell us briefly what you understand a taxonomy to be.
5. Does your organisation use taxonomies in the management of its information?
 - No
 - Yes, we use taxonomies provided by other organisations
 - Yes, we use taxonomies we have developed ourselves
 - Yes, we use both externally and internally developed taxonomies
6. If you currently use taxonomies, which do you use?
7. Do you currently use any specialist software for taxonomy management?
 - No
 - Yes

If yes, what software do you use?
8. How would you rate the use of taxonomies by your organisation?
 - We do not use taxonomies
 - Our use of taxonomies is rudimentary for our industry
 - Our use of taxonomies is typical for our industry
 - Our use of taxonomies is sophisticated for our industry
 - Do not know
9. Do you wish to improve your use of taxonomies?
 - No, we are happy with our current use
 - Yes, but we do not have the resources to do so
 - Yes, but we do not have the knowledge to do so
 - Yes, we are doing so
 - Other (please specify)
10. Would you be interested in taxonomy training?
 - Yes
 - No
11. If you are interested in taxonomy training, pick the three topics that would be most useful to your work.
 - Understanding the different forms and functions of taxonomies
 - Planning a taxonomy project
 - Using facet analysis for taxonomy design
 - Using tests such as card sorting for taxonomy evaluation
 - Creating a business case for taxonomies
 - Selecting and applying an existing taxonomy
 - Using SharePoint to manage a taxonomy
 - Using specialist taxonomy software
 - Managing folksonomies
 - Developing an ontology
 - Selecting and applying an existing ontology

If there is a topic that is not mentioned here that should be, please let us know what it is.
12. Tell us your email address

APPENDIX 2: ORGANISATIONS ASSISTING IN DATA COLLECTION

- Australian Library and Information Association (ALIA)
- Institute for Information Management (IIM)
- Records Management Association of Australia (RMAA)
- Special Libraries Association – Australia and New Zealand (SLA-CANZ)
- actKM
- New South Wales Knowledge Management Forum (NSW KM Forum)
- Queensland KM (QKM)
- Adelaide KM
- Knowledge Management Leadership Forum (KMLF)
- Taxocop email list
- UX Australia

- Western Australian Knowledge and Information Management Forum (WAKIF)
- Gov 2.0 email list
- Sydney Information Architecture Peers
- Information Architecture Institute
- Australian SharePoint User Groups

APPENDIX 3: ROLES LISTED BY SURVEY RESPONDENTS

Taxonomy-related

- Metadata specialist

Library-related

- Cataloguer
- Collection management and IT
- Coordinator music collections
- Coordinator, cataloguing
- Education officer
- Information specialist/Librarian
- Librarian (x8)
- Librarian and information resources manager
- Library manager (x3)
- Library officer (reserve/repository)
- Library services
- Library systems support officer
- Library technician
- Records manager/Librarian
- Resource centre manager (including library manager)
- Staff development
- Support for image library, digital repository and low-level ILMS support
- Team leader/Librarian
- Head of library and information services

Records-related

- Administration including record-keeping
- Agriculture, fisheries and forestry
- Archives strategy
- Archivist
- eDRMS administrator/trainer and archivist
- Information/records management
- Manager records
- Records coordinator
- Records manager (x2)
- Records officer (x4)
- Records services team leader
- Senior project officer (setting policy and standards in New South Wales government)
- Senior records officer
- Support consultant
- TRIM administrator

Information management-related

- Information management coordinator
- Information manager (x2)
- Information management business analyst
- Information officer
- Information, records and data manager

- IM coordinator
- Information specialist
- Information management/web
- Manager information management unit
- Information solutions manager

Knowledge management-related

- Head of knowledge
- KM
- Knowledge manager
- Knowledge management lead
- Director knowledge management
- KM advisor and provider of systems
- IT and knowledge manager
- Senior knowledge management coordinator
- Knowledge advisor
- Support manager

Information technology-related

- IT manager (x2)
- IT project manager
- System admin for eReference
- Systems administrator
- Web administrator (x2)
- Web systems and database developer
- SharePoint administrator

Consulting-related

- Market research, client support and software/KM development
- Business consultant (EDRMS)
- Consultant (x3)
- Director (x2)
- IM consultant
- CEO
- Strategic problem solver
- Owner/consultant
- Senior consultant
- Owner (self-employed)
- Business owner

Information architecture-related

- Team leader
- Director of UX
- IA (x2)
- Lead experience designer
- UX designer
- Experience architect
- Design manager
- Director
- Online strategy
- Online communications advisor
- Design

Researcher-related

- Director
- Research fellow
- Research associate
- Academic
- Manager

Other

- Manager learning and development
- Acting business manager
- Managing editor
- Sales
- Manager TAFE performance and accountability
- Senior manager, people, learning, communication
- Procurement
- Worker
- Manager
- Project manager (x2)
- Product manager