DEVELOPING AN INFORMATION MANAGEMENT STRATEGY FOR MONASH UNIVERSITY

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ABSTRACT

This paper describes the process of developing an information management strategy for Monash University, and presents an overview of the end result. The paper begins with the inception of the information management activity at Monash University before moving on to issues of definition and scope. The paper then addresses the data-gathering methodologies (including an overseas study tour and a program of interviews) employed as part of creating the strategy. To give something of the flavour of the resulting strategy document, the paper presents the information management principles developed and lists the areas of the university addressed by the strategy. Three ways that Monash intends to use in turning its information management strategy into action are summarised. The paper concludes by listing some of the lessons learned in creating the Monash University Information Management Strategy. Many of these should be applicable to other universities.

1 INCEPTION

According to a recent research report from the Butler Group (Butler 2004), "94% of organisations view information as important to performance". Unfortunately, almost half those "have no clearly defined information strategy". Even worse, half of those **with** an information strategy are guilty of "failing to incorporate it into a larger organisational strategy". In other words, "94% of organisations are aware of the value of information, but just over 20% are creating an environment which would lead to the extraction of that value in a controlled manner" (Butler 2004).

There were a number of challenges facing Monash University as it tried to develop an information management strategy in pursuit of such an environment:

- Growth and complexity in the types and amounts of information.
- Increasing numbers of information islands.
- Lack of quality information for decision making.
- Convergence in technologies and content domains.

These challenges are, of course, not unique to Monash University.

It was against this background that concerns about information management issues came to the fore at the 2002 Monash University Information Technology Strategic Planning Retreat. A discussion about the (then) proposed Web Content Management system gradually developed into a realisation that the whole issue of information of all kinds at Monash University needed a new approach. Accordingly, some background work commenced in 2002 at a very low resourcing level. This work concentrated on initial investigation and preliminary discussions with stakeholders.

The first meeting of the project Steering Committee took place in May 2003. Because the project was at a formative stage, it was decided to involve all the key information stakeholders and a range of representative users. The initial membership (later augmented somewhat) was

- University Librarian
- Executive Director, ITS
- Head, Centre for Learning and Teaching Support
- Manager, Records and Archives

- Other senior managers
- Experts from the School of Information Management and Systems
- Associate Deans (Teaching) and (Learning)
- a Faculty Manager
- Project Manager (initially in addition to an operational management role, later seconded to work full time on information management).

2 AGREEMENT

The first task for the new steering committee was to agree on definitions, a vision and the scope of the undertaking.

2.1 DEFINITIONS

There are many different definitions of information. The project decided to use the expertise available within Monash University and draw on the theoretical work done in this area by the School of Information Management and Systems in the Faculty of Information Technology. As a consequence of this decision, the committee decided to adopt a definition of information as 'selectively encoded and communicated knowledge'. Knowledge in this context is defined broadly as 'something that is known.

This definition can operate at a range of levels or granularities. What is known can be something quite granular (a single fact or datum) or complex (the annual budget for Monash University). In other words, this approach re-defines a datum as a small item of knowledge. The implication of this definition is that knowledge should properly be viewed as something that is internal to an individual or a system. It is only when it is made available (encoded in some form) that it becomes information. Of course, the context in which this information is made available is also part of the communicative transaction (Kaufer and Carley 1993) and needs to be taken into account (see Figure 1).

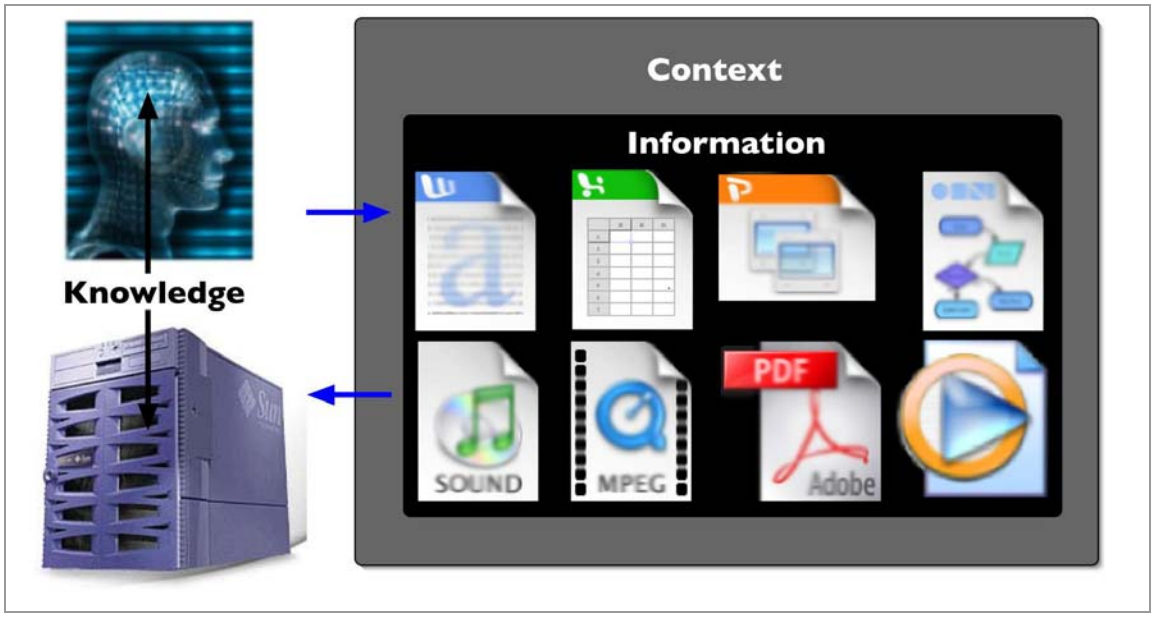

Figure 1: Knowledge becomes selectively encoded and communicated as information, and information is used to share and build further knowledge within an overall context

The steering committee also decided to situate the work of information management within a wider knowledge context by building on some of the ideas in the report developed by the Sixth Chief Knowledge Officers Summit (CKO Summit 2003). This report re-defines knowledge as expertise, information and ideas, and identifies a number of core knowledge activities to be pursued in each area. The project determined that the most pressing need was for better management of information. The tasks of improving expertise sharing and ideas generation are not as urgent and will be dealt with in later years.

2.2 VISION

Monash has the following as its statement of purpose:

> *Monash University seeks to improve the human condition by advancing and transmitting knowledge through research and education and by a commitment to social justice, human rights and a sustainable environment.* (Monash 2004).

The Information Management Strategy decided to take this statement and focus on how to support the notions of advancing knowledge through research, as well as transmitting that knowledge through education. The resulting Information Management Vision is

> *Managing information so that we can better create and share knowledge.*

2.3 SCOPE

Having defined information for the purposes of the project, the steering committee moved on to consider what was in-scope in terms of information management. In resolving this, the project drew upon the Information Continuum Model developed by the School of Information Management and Systems at Monash University (Schauder et. al. 2004). This model is grounded in a rich and multi-dimensional analysis of information and its context. The project took this model and contextualised it for the needs of Monash University, resulting in the following information dimensions (Figure 2):

- Realm
- Purpose
- Context
- Time
- Process
- Structure.

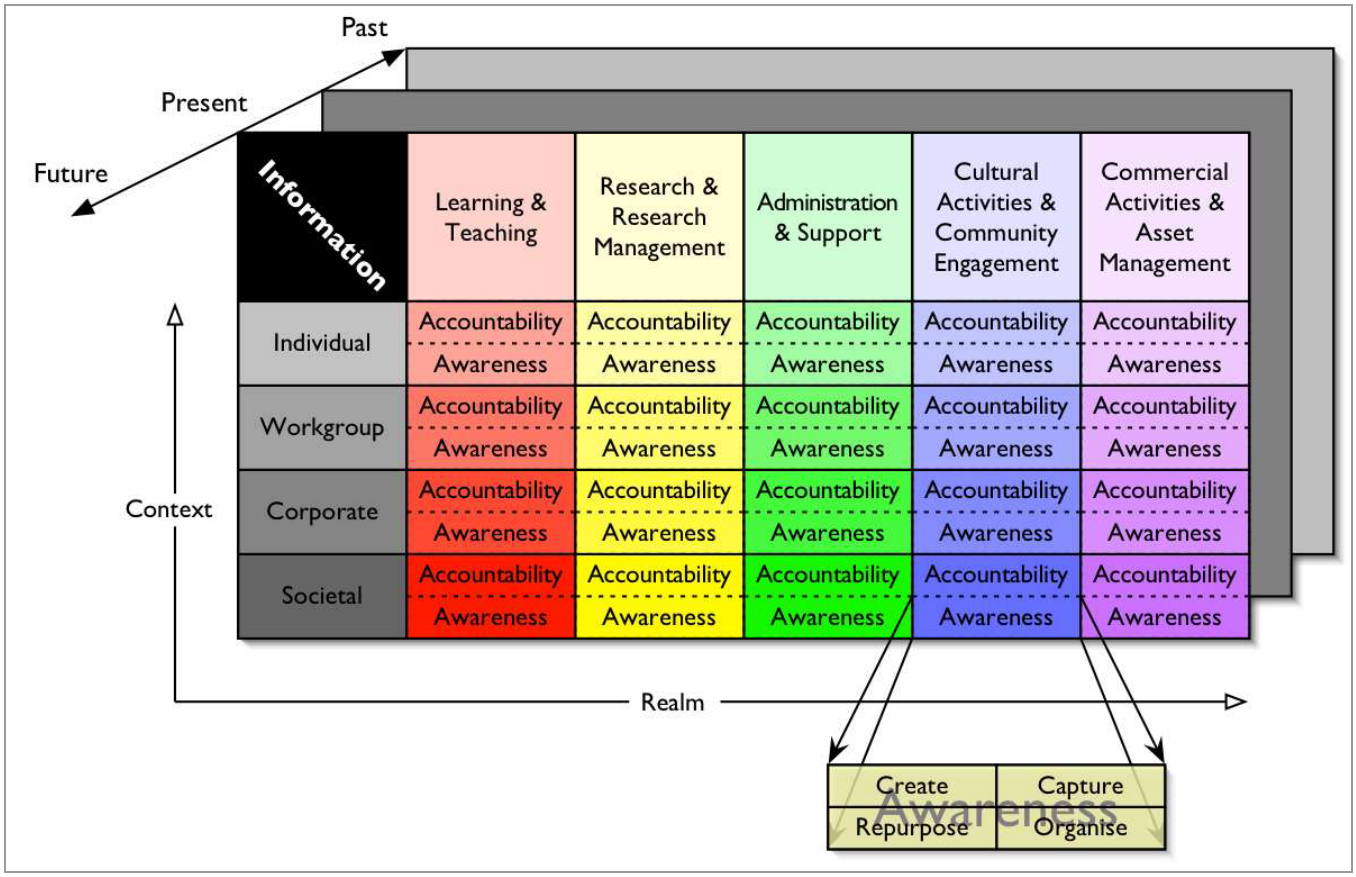

Figure 2: Monash University Information Management Scope

Realm is the area of university activity:

- Research and Research Management.
- Learning and Teaching.
- Administration and Support.
- Cultural Activities and Community Engagement.
- Commercial Activities and Asset Management.

Purpose is the purpose for which Monash University needs to manage information:

- Information for Awareness (maximizing opportunity).
- Information for Accountability (minimizing risk).
- Information for Enjoyment (maximizing enjoyment) – not shown in Figure 2 for clarity.

Context governs the requirement to follow standards:

- Individual.
- Workgroup.
- Corporate.
- Societal.

Time is a continuum from Past through Present to Future.

Process is reminiscent of, but not equivalent to, the information lifecycle:

- Create the original piece of knowledge.
- Capture that knowledge as information.
- Organise the information in some sort of retrieval system.
- Repurpose the information for another purpose.
- Commercial Activities and Asset Management.

Structure is a continuum from unstructured to structured – not shown in Figure 2 for clarity.

2.4 METHODOLODY

Having defined the scope, the project needed to decide how to proceed. A number of potential candidates (Canadian Archives 2003, NSW OICT 2003) were considered and dismissed as not being relevant to a university setting, not taking a sufficiently holistic approach or not leading to clear outcomes. After some discussion, the project decided to pursue an dual path: external investigation based on learning from other universities and internal investigation based on a programme of semi-structured data collection interviews.

2.4.1 UK AND US STUDY TOUR

This was partially funded by the Council of Australian University Directors of Information Technology (CAUDIT) under their 2003 Travel Bursary programme. The methodology used was that developed for the research described in Treloar (1998). This involved first doing a detailed survey of the field based on available sources looking for sites that had tried to develop an information (management) strategy. These sources were typically publicly available web-pages, but also included conference papers and journal articles.

Based on this, four universities were identified in the UK (Open University, Coventry University, Glamorgan University and London Metropolitan University) who had taken part in information strategy work funded by the Joint Information Systems Committee (JISC) in the late 1990s. Following advice from Gartner, five universities were identified in the US (UCLA, Indiana University, Ohio State University, University of Delaware and Loyola College Maryland).

At each site interviews were performed with a range of candidates as a semi-structured elicitation of information, coupled with exploration of topics of mutual interest. The report of the study tour is available online (Treloar 2004). In general, and as suspected prior to the study tour, in terms of

Information (Management) Strategy activity, the UK appeared to be well ahead of the US. The US sites were undertaking a wide range of innovative activities, but these were not part of a formal information management strategy. In many ways, in the area of information management strategy the US sites visited were not as advanced as the UK in 1994 when the JISC initiated its information strategy activity. Within the UK there were two universities that had done a particularly good job on their information (management) strategies. Coventry University had by far the best planned and presented information strategy. Glamorgan University had taken the conventional notion of an Information Management strategy and turned it around by focusing on information needs as a way of turning strategy into action (see section 4.3 below).

2.4.2 INTERNAL INTERVIEWS

Over the course of 2004, in excess of 35 extended interviews were conducted with staff at Monash University to contextualise the material sourced externally. The first round of interviews was conducted with all the Deputy Vice-Chancellors, most of their personal assistants, most of the Divisional Directors, all the Information Management Steering Committee members, an assortment of Faculty Managers, a small number of academics, and a number of support staff in particular areas. This initially 'top-heavy' data collection will need to continue over the next year with a wider sample to ensure that the information needs of all Monash University staff and students are taken into account. In particular, the information management needs of level A, B and C academics, HEW 4, 5, 6, and 7 general staff, and undergraduate and postgraduate students, need to be assessed.

These interviews sought to elicit responses about perceived information pain points. They also validated findings from previous interviews. The results of this process were then analysed for recurring themes. One such theme that emerged early on from interviews with senior management was the high level of importance and emphasis they placed on the university's application systems and databases, and the inadequacy of some of the management information they received from these systems. Accordingly, the scope of the project was expanded to include structured content and the information that was derived from it.

3 DEVELOPMENT

Once all this material had been collected, the task of creating the strategy began. This took the form of a series of versions of a single document that integrated the underlying theory, the results of the investigation phase, an analysis of the picture at Monash University, a list of recommendations, and a range of approaches for turning strategy into action. The final document is over 110 pages long, and so only the information management principles and an overview of the analysis it can be presented in this conference paper.

3.1 PRINCIPLES

These were devised to try and capture the philosophy behind the strategy. In order to avoid the perception that this was just a series of parenthood statements, each principle has up to a page of consequential implications for how Monash University manages information.

Corporate Importance

Information is a strategic university-wide resource, and will be managed appropriately. Information requirements (needs and management) should be identified as a standard part of strategic and project planning. An appropriate governance framework should be put in place to ensure that we do the things we need to do with respect to information.

Information Sources

University-created information may be made available from a core source or a derived source. The core source for any item of university-created information must be identifiable and accessible. Any derived sources of information must be identified as such. In general, changes should only be made to the core source.

Where possible different manifestations of information expressions should be derived from a single source. As with core and derived sources, changes should ideally be made to this single source and the derived manifestations should be automatically re-generated.

User-Centredness
Information systems and services should be designed (or re-designed) to operate in a way that is user- and task-centred. This should inform all aspects of system or service design.

Availability
Information should ideally be accessible (subject to security and acceptable use guidelines) to:

- anybody who needs it
- at anytime
- anywhere
- and anyhow (i.e. on any device)

in order to ensure that it delivers the greatest value to the university

Staff and student development
The university needs to provide an adequate, relevant and ongoing development programme to enable staff and students to create, access, manage and disseminate information resources effectively.

Productivity and efficiency
Information, and the way it is managed, should contribute to the productivity of members of the Monash University community.

Information ethics
Personal information must be managed in accordance with relevant privacy legislation.
Information must be stored in such a way as to allow a timely response to FOI and local requests, as well as legally-mandated controlled discovery.
Information arising from research involving human subjects must be dealt with in accordance with the Human Ethics Committee requirements.

Trustworthy information and systems
Information provided by Monash University should be, and be perceived to be, trustworthy (that is, relevant, accurate and timely) to the maximum extent possible. Where the information is sourced from outside Monash University (as with, for example, library holdings), all reasonable care should be taken to ensure its trustworthiness.

Any activity that creates, modifies or transmits critical university information should be trustworthy. This means that it should be:

- logged (to ensure an audit trail)
- non-repudiable (to ensure that the creator/changer can not later deny their action, and that there is proof that the action took place).
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Retention and disposal
Essential information must be retained while required and then appropriately disposed of. While it is retained, it must be managed in such a way as to be recoverable in the event of loss on a timescale consistent with university requirements.

3.2 ANALYSIS BY REALMS

Following the principles, the bulk of the strategy consists of an analysis of the information management landscape of Monash University. Originally this was going to be broken down by the realm of the university (see section 2.3 above) involved. It rapidly became clear that a large number of information management elements were relevant across realms. These common elements were treated separately (effectively as an overarching realm). For each realm, the information management areas arising from the data collection interviews were broken out separately. Each area was treated in the same way. The nature of the area was first described in a background section. Next, the key issues were discussed in an analysis section. Finally a series of recommended actions were listed.

The Common Elements identified were information stewardship, storage and archiving, information access, the role of paper, document management, records management, email management, web organization, web content management, file sharing, collaboration support, application integration, integrated reporting, metadata, campus aspects, local databases, the information portal, and information skills.

The information management areas for Learning and Teaching were student management, learning management, learning content management, timetable management, lectures online, unit evaluation, course and unit information, and a course and unit report card.

The information management areas for Research and Research Management were e-research, grant attraction and management, research matchmaking, research publication and visibility, research management, management information, research publications reporting, ethics applications, postgraduate management and project-based research.

The information management areas for Support and Administration were financial information, benchmarking, committee support, business intelligence, student recruitment, load planning, and fund raising and development.

The information management areas for Commercial Activities and Asset Management were commercialization management, patents management and systems integration.
The comprehensive nature of this list of areas in turn drove the size of the final document.

4 IMPLEMENTATION

One of the challenges for any strategy activity is how to take the strategy and turn it into action. Making this transition is particularly difficult in an area like Information Management for the following reasons:

- The area itself is new and evolving;
    - and so there are few models of good practice to draw upon.
- The changes envisaged will potentially touch every aspect of the work lives of the Monash University community;
    - and so the implementation of the strategy needs to maximise its impact on efficiency and effectiveness while minimising its impact on the stress levels of Monash University staff and students, and on the funding required to deliver.
- The areas potentially affected are all inter-related;
    - and so implementation of the strategy has to find a way to avoid trying to tackle everything at once.

Despite all this, the whole point of developing the strategy was to make a difference. There is little point in spending time working on a strategy if it is ultimately not going to have an impact. One of the most exciting things about the INTSIA methodology that the study tour learned about in the UK (see section 4.3 below) was that informants reported that it really did make such a difference.

In seeking to make a difference, the strategy intends to use a number of different tools including Intervention Dimensions (see 4.1 below), and Strategic Embedding (see 4.2 below) over the course of 2005.

4.1 INTERVENTION DIMENSIONS

The most critical point to make about any information management implementation plan is that the major focus should not be the technology. In fact, the technology should be viewed as one of the less important components. The reason for this is that any successful intervention to change how an organization works with information needs to operate on four levels simultaneously (this typology for intervention draws on the research in CKO Summit (2003) but also extends it).

Strategy
For an intervention to be sustainable, it needs to be reflected in university strategy. This might well include both the Information Management strategy as well as relevant strategy in one of Monash University's key areas (such as the Learning and Teaching Plan, or the Research Management Plan).

People
Any intervention also needs to operate at the level of people. This will probably involve:

- explaining the rationale for it (so that they are brought along)
- involving them deeply in its implementation (so that it meets their needs and they feel a sense of ownership)
- providing training and follow-up (so that it becomes part of their work practices and embedded in the life of Monash University)

Processes
Intervening in how people work with information is an opportunity to ask a series of questions. Why do we need to collect this? Why do we do it this way? Are there other things we can use this information for? The opportunity should always be taken to rethink what the organisation is doing, why it is doing it and how it can be done better. Otherwise, it is possible to end up with new information systems that echo the worst aspects of what they replaced without taking advantage of what the new might make possible.

Tools
Lastly, one needs to intervene on the tools dimension. This does not just include information technology. It can also include policies, guidelines and instruments like organizational ontologies. Note that Tools is deliberately placed last in this list of interventions. If the other dimensions are not adequately dealt with, any intervention on the Tools dimension alone (as sometimes happens) is almost certainly doomed to failure.

All of these interventions will themselves require careful Change Management, which is a topic in its own right.

4.2 STRATEGIC EMBEDDING

One of the ways to ensure the implementation of parts of the information management strategy is to embed them into the existing planning cycles of the university. Part of the implementation plan for 2005 is to work with the Deputy Vice-Chancellors responsible for Learning and Teaching (DVC – Academic), Research and Research Management (DVC – Research) and Administration, Support and Commercialisation (DVC – Resources) to prioritise the recommended information management activities in each of their portfolios. The relevant sections of the complete Information Management Strategy can also be adapted for inclusion in the next versions of the Learning and Teaching, Research, and Support Services plans.

4.3 INFORMATION NEEDS TURN STRATEGY INTO ACTION

One of the universities visited on the UK Study Tour (see section 2.4.1) was Glamorgan University in South Wales. They had tried to develop a conventional information management strategy following the JISC guidelines but had failed. In examining the reasons for this failure, Glamorgan University recognized the danger of concentrating on current information issues (a tactical focus) instead of focusing on the long-term information needs of their user community (a strategic focus). They also determined that for most users their information needs are primary, and that the activity of the university should therefore focus on determining how best to meet those needs. Implementation of information systems and resolution of technology issues would then flow out of this process. An analysis of their Information Management Strategy activity over a period of two years indicated that it was during the translation of the strategy into concrete actions during the implementation phase that the strategy tended to run into difficulties.

After significant development work, they therefore developed a simple six-step framework called by them the Information Strategy Process Framework. This was designed to translate university-wide strategic aims into concrete actions through:

- "Defining information requirements that are needed to meet key strategic goals and objectives
- Defining the information and performance indicators needed to assess the progress of the strategic goals
- Collating information on current performance and national comparators
- Translating this information into specific action points and milestones both for the University as a whole and individual departments." (Glamorgan 2000).

The framework addresses specific corporate and faculty/departmental objectives in terms of:

1. **Information requirements:** what is needed to achieve and monitor progress towards the strategic goal.
2. **Current information provision:** what is currently available, including both internal and external provision.
3. **Perceived gaps between information requirements and provision:** gap analysis between key requirements and current provision.
4. **Identification of potential solutions:** What information/information processes or systems are needed to meet and monitor key university goals and objectives.
5. **Specific action points/targets:** development of series of specific action points or information targets.

This approach has been adapted by Monash University and renamed Information Needs Turn Strategy Into Action (INTSIA). It is intended that use of this approach will be a required part of all new projects with an information management focus.

4.4 FURTHER WORK

The creation of the Information Management Strategy has also identified the need for significant extra work in particular areas. These are so large that they will each need their own consequential strategies. They include:

- a comprehensive Web Strategy, dealing with information architecture, delineation of extranet vs. intranet, support for web development, and web standards,
- a Collaboration Support Strategy, which will need to manage the overlap between collaboration support systems and existing infrastructure for messaging, scheduling and document storage, and
- a Document Management Strategy.

The first two of these will be priorities for 2005.

5 CONCLUSION

The development of the Information Management Strategy for Monash University has been a success, so far. The reason for this qualification is because (as discussed above) creating a strategy is not the same as turning it into action. However, the plans for 2005 appear promising.

The process of developing the strategy has provided a number of instructive lessons:

- The process of developing the strategy was in and of itself one of the outcomes, in that key stakeholders around the university have been meeting regularly, talking about common issues and developing a shared language, understanding and commitment.
- Someone needs to kick things off, but not necessarily to own the activity. In case of Monash University, the initiating area was Information Technology Services, but it could have been any one of a number of other areas. As discussed in section 4.1, the technology dimension is by no means the most important.

- All those involved need to recognise that information management is bigger than any one portfolio. At Monash University, we were particularly fortunate in that this agreement developed very quickly.

- Cross-sectoral activity like this is highly dependent on the quality of the personal relationships between those involved. Again, this was something that Monash was able to build on.

- Don't underestimate the time required. The Monash University activity commenced in May 2002 (admittedly at a very low level) and will have been underway properly for nearly two years by the time of the Educause Australasia 2005 Conference.

- Senior management support is not necessarily required at start of exercise, contrary to Project Management 101, but will definitely be required at the end to make things happen. The project steering committee have all been very careful to keep their respective Deputy Vice-Chancellors informed of what they have been doing with information management, and there is now (at the time of writing this paper – November 2004) a strong level of interest in the final document. Fortunately, there is also something substantial to show them.

As with many such endeavours, the journey is a large part of the reward. It has certainly been a rewarding experience so far, and the implementation plans for 2005 and beyond should ensure that it continues to be challenging and interesting into the future.

Monash University, like all universities, is an institution whose lifeblood is information and whose wellbeing depends on healthy information flows. All areas in the university rely on quality information (that is both accurate and reliable, and has integrity) to make good decisions and to ensure they do not need to 'reinvent the wheel'. Information management provides a framework that will support the creation or acquisition of such information and a methodology that will manage this information to improve the effectiveness of the organisation.

6 ACKNOWLEDGEMENTS

The author would like to acknowledge the hard work and intellectual input of all the members of the Monash University Information Management Steering Committee. The resulting strategy document is very much a product of the entire committee, and a tribute to the collaborative spirit in which they have approached the task.

7 REFERENCES

Butler Group (2004). *Value of IT Governance*. Report available to subscribers at http://www.butlergroup.com/research/DocView.asp?ID={7B140FEE-BE51-4B6F-8A61-9BEBCF42ED6F}.

Canadian Archives (2003). *Canadian Government Information Management Capacity Check Tool and Methodology*. Available online at http://www.archives.ca/06/docs/imjan03_eng.pdf.

CKO Summit (2003). *The Knowledge Proposition: Expertise, Information, Ideas*. Available online at http://www.tfpl.com/resources/cko_summit_download.cfm.

Glamorgan University (2000). *Case Study on the development of an Information Strategy based on the JISC Guidelines into a practical tool for the support of the University of Glamorgan Strategic Planning Process*. Available online at http://www.jisc.ac.uk/uploaded_documents/tbcsglam_fin.pdf.

Kaufer, D. S. and Carley, K. M. (1993). *Communication at a Distance: the influence of print on sociocultural organization and change*. Lawrence Erlbaum Associates, Hillsdale, New Jersey.

Monash University (2004). *Excellence and Diversity: Strategic Framework 2004-2008*. Available on Monash intranet only.

NSW Office of Information and Communications Technology (2003). *Information Management Framework Guideline*. Available online at http://www.oit.nsw.gov.au/Guidelines/4.3.14.d-IM-Framework.asp.

Schauder, D., Stillman, L., & Johanson, G. (2004). Sustaining and transforming a community network. The Information Continuum Model and the Case of VICNET. Paper presented at *CIRN 2004: Sustainability and Community Technology*, Monash University, Prato, Tuscany, Italy. Available online at http://www.ciresearch.net/conferences/viewabstract.php?id=68&cf=4.

Treloar, A. (1998). Technology as Agent for Transformation: Five Case Studies of University Libraries as Facilitators for Electronic Scholarly Publishing. *Proceedings of VALA '98*, Melbourne. Available online at http://andrew.treloar.net/research/publications/VALA98/index.shtml.

Treloar, A. (2004). *Developing an Information Management Strategy for an Australian University: Learning from UK and US Experiences*. A Report prepared for the Council of Australian University Directors of Information Technology. Available online at http://www.caudit.edu.au/caudit/awards/2003/03traveltreloar.html.