

The Monash University Information Management Strategy: From Development to Implementation

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Abstract:

This paper describes the process of developing an information management strategy for Monash University, presents an overview of the resulting strategy and describes the process of implementation that has been devised and is being followed. The strategy will be progressively implemented over the next 3-5 years as part of ongoing operational activity and new development projects. An internal communication plan for the strategy has been developed and will be rolled out in 2005/6. Implementing the strategy has already been accepted as one of the five key priorities for Monash University in 2006. A number of projects will also be funded in 2006 that directly flow from the work of the Information Management Steering Committee.

1. Making a start

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 developed into a recognition 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 was

- Executive Director, ITS (chair)
- University Librarian
- Director, Centre for Learning and Teaching Support
- Manager, Records and Archives
- Other senior managers
- Experts in information management and metadata 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. Getting agreement

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

2.1. Information

There are many different definitions of information. After a number of entertaining but ultimately fruitless discussions about the nature 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 Fig. 1).

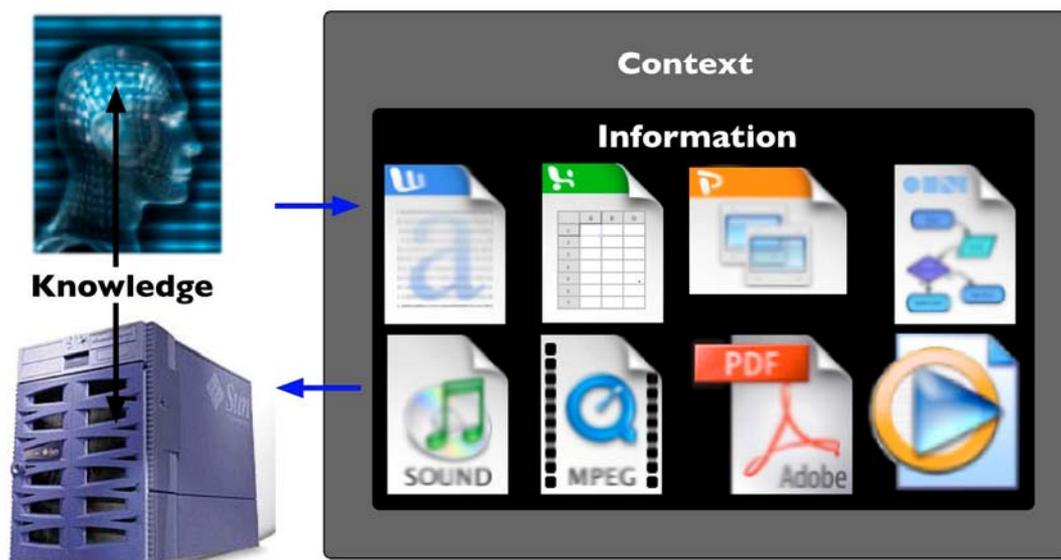


Figure 1: Knowledge becomes selectively encoded and communicated as information, and information is used to share and build further knowledge within an overall context

2.2. Vision

Monash has the following as its overall statement of purpose:

Monash University seeks to improve the human condition by advancing knowledge and fostering creativity. It does so through research and education and a commitment to social justice, human rights and a sustainable environment. Monash (2005), p. 2

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.

As with all visions, the challenge will be to turn it into reality and to measure progress. Later sections of this paper will deal with this.

2.3. Scope

Having defined information for the purposes of the project, the steering committee moved on to consider what should be in-scope in terms of information management. In resolving this, the project drew upon the Information Continuum Model also 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.

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 (maximising opportunity)
- Information for Accountability (minimising risk)
- Information for Enjoyment (maximising enjoyment)

Context governs the requirement to follow standards at different levels of the organisation:

- 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.

Any one piece of information will have values for each of these dimensions. For instance, a strategy document might be relevant to the research and research management realm, be created for the purpose of awareness, be compliant with corporate standards, intended for use in the future, and organised in a retrieval system as a piece of unstructured information.

3. Investigating the problem

Having defined the scope, the project needed to decide how to proceed. A number of potential candidate methodologies (Canadian Archives 2003, NSW OICT 2003) were considered and dismissed as either not being relevant to a university setting, not taking a sufficiently holistic approach or not leading to clear outcomes. The project decided instead to investigate what had been done at other universities, complemented by a programme of semi-structured data collection interviews within Monash University.

3.1. External research

A study tour of selected US and UK sites 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.

3.2. Internal research

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 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.

4. Developing the strategy

Once all this material had been collected, the task of creating the strategy began. This took the form of a series of progressively more refined 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 comprehensive document is available online (Information Management Steering Committee, 2005).

4.1. Principles

In undertaking its work of developing the Monash Information Management Strategy, the project was informed by a set of ten Monash Information Management Principles. In the strategy document, each principle has a number of implications arising from it as a way of ensuring that the principles turn into actions.

1. Corporate Importance: Information is a strategic resource, and will be managed appropriately. In general, university-wide information will be centrally managed. Information needs and how information is managed should be identified as an integral part of strategic and project planning. An appropriate governance framework and adequate resourcing should be established to ensure this occurs.

2. 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. Each core source should have an identified custodian, an

identified access community and an identified set of maintenance responsibilities. 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.

3. 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.

4. 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).

5. Staff and student involvement: The process of developing and implementing the information management strategy and its accompanying policies should be as open, transparent and inclusive as possible. 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.

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

7. Statutory requirements: Information must be managed in accordance with external statutory and regulatory requirements. Information must be stored in such a way as to allow a timely response to freedom of information 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.

8. 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.

9. 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.

10. Information management principles determine IT principles: The information management principles in this strategy should be used to derive a set of IT principles. These IT principles will support and enable the implementation of the information management principles, as well as determine the deployment of IT systems.

4.2. 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 involved. It rapidly became clear that a large number of information management elements were relevant across realms.

These common elements are treated separately (effectively as an overarching realm). Each realm then deals with the realm-specific information management issues arising from the data collection interviews.

Each area is treated in the same way. The nature of the area is first described in a background section. Next, the key issues are discussed in an analysis section. Finally, a series of recommended actions is listed. For further details, please consult Information Management Steering Committee (2005).

The Common Elements identified are information stewardship, storage and archiving, information access, the role of paper, document management, records management, email management, web organisation, 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 are 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 are 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 are 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 are commercialisation management, patents management and systems integration.

5. Implementing the strategy

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, as discussed above
- 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

So what will Monash University be doing to ensure that this Information Management Strategy doesn't just become shelfware?

5.1. Implementation foci

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 organisation works with information needs to operate on five 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. Monash University has identified implementing the Information Management Strategy as one of its five key priorities for 2006. Elements of the strategy will also be embedded into the redevelopment now under way of the Learning and Teaching Plan, and the Research and Research Management Plan. The metrics to assess the success of this embedding will be one of the items receiving attention from the Information Management Steering Committee in 2006.

Governance

Implementing change across a large devolved organisation will require careful governance. This will include identifying the right players to own particular aspects of the change, as well as involving all the key stakeholders. If we can choose the right stakeholders, then they will be able to take ownership for information management activities in their area, and for the success of those activities. One early success in this area has been enlisting the support of the Deputy Vice-Chancellor (Research) for a range of information management activities in the research realm, including better research reporting, improved support for research staff through a web portal, and research collaboration solutions.

People

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

- explaining the rationale for it (so that they are brought along)
- involving them 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 “How-To” guides. Note that Tools is deliberately placed last in this list of interventions. This reflects the importance of not over-emphasising technology aspects to the exclusion of working with people and rethinking the processes.

5.2. Implementation themes

The process of writing the strategy revealed four overarching themes. These themes will be used to structure the process of implementing the strategy.

Theme 1: Working with information efficiently and effectively

Definition	This activity theme seeks to assist staff and students to improve their ability in working with information. Particular sub-themes are staff development, classification, document and records management, and search and discovery.
Strategy	The Information Management Strategy identifies a number of strategic actions needed to improve this aspect of information management. In fact, improving this area was the original driver for the creation of the strategy.
Governance	Work in this area will be lead by Records and Archives.
People	Activities for 2005 include developing an information management coaching program, and starting to develop a series of information management “How-To” Guides. In 2006, we are also going to provide information management training for new and existing staff.
Processes	As part of the information management coaching program, the coaches will be reviewing all aspects of information use, and making recommendations on process improvement. As part of the

	DART project (http://dart.edu.au) we also plan to embed information managers in research teams to assist researchers with their information management needs and processes.
Technology	Planned projects for 2006–2008 include implementing an electronic document and records management system, improving information filing record-keeping and discovery systems.

Theme 2: Using the web to deliver information and services

Definition	This activity theme seeks to build on the existing progress Monash has made in web technologies. Particular sub-themes are the roles of the public web, intranet technologies and solutions, and web content management.
Strategy	The Information Management Strategy identified the need for an overarching web strategy, encompassing the issues of ownership, governance, and the relative roles for the university's internet, extranet and intranet web sites. An initial version of the web strategy was released for public comment in late 2005. The strategy will be progressively implemented over the course of 2006 and 2007.
Governance	The governance in this area will be one of the recommendations arising from the web strategy.
People	As part of the intranet rollout (see below), staff will be consulted about their information needs, and also empowered to take ownership of particular areas of web content.
Processes	The move to take greater advantage of web technologies will be used as the opportunity to examine existing information flows and access mechanisms.
Technology	<p>2005 projects include implementing a new web search engine, completing the development of the prospective students website, and continuing the rollout of the web content management system.</p> <p>Planned activities for 2006–2008 include developing an intranet to support a range of different staff roles and communities, implementing new portal technologies to improve the ability to deliver information and services, and building on the new portal to provide access to particular frequently-used functions in SAP and Callista via the web.</p>

Theme 3: Providing high quality management information

Definition	This activity theme seeks to provide managers with the information they need to make effective decisions. Particular sub-themes are integration across applications, business intelligence/reporting, and data quality.
Strategy	Another of the consequential strategies identified in the Information Management Strategy is one for business intelligence/management information. This strategy will be developed during 2006, at the same time as the rollout of an initial service offering around consolidated course reporting and KPIs.
Governance	Governance in this area will be co-ordinated between University Planning & Statistics and Information Technology Services.
People	Senior stakeholders across the university will be consulted about their reporting requirements as part of the implementations foreshadowed below.
Processes	The main process activities here revolve around the need to improve the quality of the information in the various information systems, as well as ensuring that this data can be sensibly matched across systems.
Technology	Projects for 2005 include enhancing TARDIS (an integrated reporting application across all areas of research performance). Planned activities for 2006–2008 include improving the ability to integrate information across applications and developing a range of improved reporting and business intelligence offerings.

Theme 4: Supporting collaborative activity

Definition	Collaboration is fundamental to everything that universities (and many other organisations) do. This activity theme seeks to enable greater collaboration and improve existing collaborative practices. The sub-themes here are a planned new collaboration offering and its relationship with other information management services.
Strategy	A longer-term activity will be the creation of a collaboration strategy.
Governance	Governance in this area will be reviewed as part of the rollout of the new Workgroup Collaboration offering.
People	As part of the preparation of a Request for Proposal (RFP) for a new collaboration environment, there has been a detailed process of requirements gathering across the university. The implementation of this new offering over the next two years will impact on every staff

	member and student at the university. It is therefore critical to ensure that it meets their needs and is rolled out with the right mix of training.
Processes	The main process activities here relate to changing the way people collaborate to use the capabilities of the new system.
Technology	Activities under way for 2005 include a thorough review of workgroup collaboration services with recommendations for implementation in 2006. Planned activities for 2006–2008 include implementing the recommended workgroup collaboration solution, integrating this with the planned electronic document and records management offering, and investigating new and emerging collaboration technologies that might be applicable for parts of Monash.

As well as the four implementation themes, it will be necessary to undertake infrastructure work which will support all of the four themes. An example of such infrastructure work is the 2006 project to introduce an application integration broker to facilitate integration of information across disparate systems.

5.3. Implementation matrix

As well as these four implementation themes, it will be necessary to also look at information management from the perspective of the different realms of the university. This indicates the need for a matrix structure of implementation realm together with implementation theme. The table below shows implementation theme mapped against the three main university realms. Each intersect shows an improvement that is proposed for delivery during 2006 and 2007.

	Research & Research Management	Learning & Teaching	Admin & Support
Working with information efficiently and effectively	Improved management of research datasets	New system to manage production of online and print handbook content based on content management	Revitalised policy bank
Using the web to deliver information and services	New researchers portal	Proposed teacher's intranet	Proposed staff intranet
Providing high quality management information	Integrated research analysis and reporting system (TARDIS)	TARDIS-like system for teaching indicators	University KPIs and AUQA reporting
Supporting collaborative activity	Research collaboration spaces	Small group online learning spaces	Collaborative development of policy

6. 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 2006 appear promising. There is support for the strategy at the most senior levels of the university, and an active programme of work across the four activity themes. While the complexity of the challenge should not be under-estimated, it is now possible to see what we want to do, and how to do it. Ultimately, the success of this approach will be measured by whether the participants in the process feel as if their daily tasks of working with information are worthwhile, and by whether the stakeholders feel that co-ordinated information management delivers value.

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'. The Monash University Information Management Strategy 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.

7. 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. The author would also like to thank the anonymous reviewers for their insightful comments and questions. This paper has been improved as a result.

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