Association for Information Systems
AIS Electronic Library (AISeL)

BLED 2007 Proceedings | BLED Proceedings

2007

Implementing Information Management Strategically: An Australian EDRMS Case Study

Linda Wilkins
University of South Australia, lindawilkins@gmail.com

Duncan Holt
City of Charles Sturt, dholt@charlessturt.sa.gov.au

Paula M. C. Swatman
University of South Australia, paula.swatman@unisa.edu.au

Elsie S. K. Chan
Australian Catholic University, elsie.chan@acu.edu.au

Follow this and additional works at: http://aisel.aisnet.org/bled2007

Recommended Citation
Wilkins, Linda; Holt, Duncan; Swatman, Paula M. C.; and Chan, Elsie S. K., "Implementing Information Management Strategically: An Australian EDRMS Case Study" (2007). *BLED 2007 Proceedings*. 45.
http://aisel.aisnet.org/bled2007/45

This material is brought to you by the BLED Proceedings at AIS Electronic Library (AISeL). It has been accepted for inclusion in BLED 2007 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

20th Bled eConference
eMergence:
Merging and Emerging Technologies, Processes, and Institutions
June 4 - 6, 2007; Bled, Slovenia

Implementing Information Management Strategically: an Australian EDRMS case study

Linda Wilkins
University of South Australia, Australia
lindawilkins@gmail.com

Duncan Holt
City of Charles Sturt, Australia
dholt@charlessturt.sa.gov.au

Paula M. C. Swatman
University of South Australia, Australia
paula.swatman@unisa.edu.au

Elsie S. K. Chan
Australian Catholic University, Australia
elsie.chan@acu.edu.au

Abstract
Organisations in both private and public sectors are increasingly becoming aware of the need to take a strategic approach to the management of corporate information and records. In this paper we present a case study of a successful Electronic Document and Records Management System (EDRMS) implementation within a major Australian capital city council. Guided by Ward and Peppard's strategic systems framework (2002), the case study highlights a set of strategies which were responsible for the successful outcome of the implementation – and shows just how crucial it is for any organisation to bring with it the people and the processes involved in the creation, management and maintenance of records and information, if a centralised approach is to work over the longer term.

Keywords: Change Management, Business Process Analysis, EDRMS, electronic records, Systems Integration, Work Flows

1 Project Background

A nightmare scenario for many organisations is out-of-control email, information scattered all over hard drives and servers, corporate amnesia, coupled with scarce resources and minimal management expertise. The challenge of managing electronic records involves multiple roles, organisational, technical and legal issues and ongoing exploration and investigation to achieve and share greater effectiveness and efficiency. These roles all have to come together in holistic solutions at the strategic, tactical and operational levels to avoid the nightmare scenario we have envisaged.

In the past few years there have been significant developments in components of e-records *infrastructure. A number of laws, policies, standards, practices, systems and technologies have been introduced to this end,* including (*inter alia*): the Sarbanes-Oxley Act, designed to diminish levels of corporate fraud and conflicts of interests, as well as to increase financial transparency and public confidence in business in the wake of several major corporate scandals (Plotnick, 2003); the US Patriot Act, which has provided US federal agencies with enormously extended powers for access to information and information sharing; Basel II ("International Convergence of Capital Measurement and Capital Standards, a Revised Framework"), which requires financial services institutions to identify/quantify their operational risks and show they have taken all necessary measures to reduce those risks (BIS, 2004); and IAS 2002-2005 where more than 90 countries agreed to require or accept International Financial Reporting Standards (IFRS) by 2005, thus further increasing demands on financial record-keeping and access (Tweedie, 2003).

Unfortunately, however, there is much less evidence of progress in *implementing* these developments (McDonald 2005, p3). This paper shows, by means of a case study of a major Australian capital city council, that a strategic approach to organisational information management is both possible and effective.

Australia has three tiers of government at federal, state and local levels. Local government – the third tier – consists of 629 Councils and 100 community governments. In the State of South Australia there are 68 councils employing some 10,000 people. The City of Charles Sturt (CCS)[1] is one of the largest of these councils, covering approximately 10% of metropolitan Adelaide, the state capital. CCS employs just over 400 full time equivalent staff in 10 business portfolios or departments including seven Records staff. Over 300,000 records are registered annually.

Community expectations of government agencies such as CCS have been rising sharply, with increasing public attention directed at performance and governance standards – standards which are ultimately based on documentation records. It was in this context that, in 2001, a new Information Systems (IS) manager was recruited from industry to make the Council 'more business-like'.

[1] The City of Charles Sturt is an inner city council located immediately to the west of Adelaide's CBD and can be found on the Web at http://www.charlessturt.sa.gov.au/

1.1 Paper to Digital – The Issues

Requirements Creation for an e-records solution may begin with establishing organisational expectations from EDRMS uptake (Ellis 2005, p.164). At CCS, the process of replacing the Council's paper records system began in 2002 with a series of staff workshops, designed to examine the issues involved in moving from paper to electronic documentation.

Discussions in these workshops revealed concerns about a number of inter-related issues concerning storage and tracking of documents: acknowledging document receipt led to bulky files; paper files also meant recurring problems with tracking documents for case reviews and searches; case reviews required location and retrieval of items in chronological order of documentation; CCS covered 16 different locations but the paper records system was based on a centralised model, so that timeliness could not be guaranteed in searches. These efficiency gaps meant that staff could not always ensure that all information was at hand. Service standards were hard to meet and threatened to become a public relations issue.

The paper records system limited the ability of staff to track and share documentation; and the speed at which information could travel through the organisation. Increasing use and volume of email correspondence only added to these problems, as did the electronic records created by the online systems already in place in Finance and Land & Property.

The workshop findings effectively validated what management already knew: continuing with a centralised paper system was not a practical option. Council needed a secure file transfer system which could also provide remote online access (Baldwin 2006). Only an Electronic Document and Records Management System (EDRMS) could resolve these issues. The preparation of a *Records Management Strategic Directions* document following the staff workshops ensured that a Records Strategy was in place before the project got underway. The decision was then made to proceed with procuring an EDRMS.

1.2 Choosing an EDRMS: Establishing the CCS Selection Team

This case study reviews two discrete projects undertaken at the City of Charles Sturt (CCS): the initial process for the *selection* of an EDRMS; and the *implementation* of the selected EDRMS.

The selection project established a project team and charged this group with the responsibility for choosing a product for CCS's new EDRMS. A significant milestone for the selection project was the creation of a one-page document: the *Records System Replacement Project*. The scope of the project was 'to replace the records section of the GEAC TCS and other localised manual and indexed systems used for the same purpose[2]'. The initial document set out six objectives:

[2] The software company, GEAC, provided the TCS computer system to support council business operations. Part of the TCS system was an electronic records index system for paper based records.

- Replacement of the system within a set budget limit
- Set time frame for implementing the replacement system
- Work process and efficiency gains
- Minimised need for new or different hardware and operating systems within the organisation
- Minimised changeover effects on running the business
- Ensuring the new system was implemented consistently with the Records Management Strategy.

The Selection Team first met in early September 2002. By November, the team had prepared a proposal for the EDRMS update. In June 2003, following the outcome of the tender process, the Council granted final approval for the project.

1.3 The Information Management Strategic Plan

The Information Management Strategic (IMS) Plan set time-frames and horizons for required projects - and the budgets for these projects - over a ten year period. Account life cycles for major initial investments, such as corporate applications and upgrades for servers, had to be taken into account. The IMS Plan - which dealt with the technological side of the project - combined with the staff workshops on records strategy meant that CCS now had documented IT strategies for all its records management needs. Council had effectively integrated information use within the organisation's value-adding processes (Ward and Peppard, 2002 p.25).

2 Selecting an EDRMS

Once the team structure and the project timetable had been established, fundamental project requirements, including the size and costing of the project, had to be established. The Selection Team now prepared a separate Budget Proposal for the overall budgeting process, including: the capital, the business benefits; and the required budget. Around 25% of the proposed budget was allocated to each of the following project components:

- Vendor and software
- Training
- Analysis of business processes
- Integration between systems

By late 2003, the team had established a requirements matrix. The resulting desktop evaluation was used to assess each tender against a standardised scoring system. In October 2002 the request for tender was advertised. Ultimately, five providers offered system integration solutions of interest to CCS.

Customer service, ethical standpoint and willingness to get involved represented key criteria for the selection process: '(An EDRMS) is not a commodity, like a car. What you are reliant on is, when difficulties strike - and they will strike - it's how you come up with the solution. That is the most critical thing' the IS

Manager emphasised. In June 2003, after Council had given approval to proceed, contracts for the purchase decision were signed with Tower Software, an Australian-owned multi-national based in Canberra. Tower's TRIM Context would replace the old paper based system[3].

3 Implementation: Project Start Up & Structure

'On Monday 8th March 2004, TRIM becomes the City of Charles Sturt's one and only records management system. All records relating to business activities must be stored in TRIM'

(Email from Project Manager to business unit managers, 4th March 2004)

Teams were now set up with scheduled meeting dates and allocated tasks. The EDRMS Project Manager would report formally to the Executive Group every two months for the duration of the project. The three-member *Project Group* met every three weeks. The five-member *Implementation Team* were the people 'on the ground' responsible for making sure that things were happening. The twenty-member *Advisory and Consultancy (A&C) Group* would meet every three weeks over the course of the project; and were responsible for ensuring transfer of information and full consultation between the project team and all staff within their business areas.

The Advisory and Consultative (A&C) Group was set up with one user representative from each section of the business. Each representative had issues from their own core business unit to address. The A&C portfolio representatives acted as conduits for information and consultation throughout the project: 'We were there to consult with them, we were there to relay information back to them and for them to take it back to their teams and we were there to get information from them. We were influenced by their needs – we were there to service their needs' explained Duncan Holt, IS Manager.

4 Project Communication

'*Local government (is) a fragmented business. It's not like your typical manufacturing business with a single line of business with peripheral systems. Councils will have multiple (8-10) core lines of business. It's just not possible to have one person from the business give a meaningful answer to the question: how is this going to work for you?*' EDRMS Project Manager CCS, June 2006.

Staff resistance, marginal support and failure to view records management as critical to the business are barriers to e-records implementations frequently cited in the literature (Ryan 2005; Laeven, p.133; Appendix). The EDRMS project team was keenly aware that communication about the project needed planning. 'We wanted their buy-in' the Project Manager recalled. In September 2003, the team

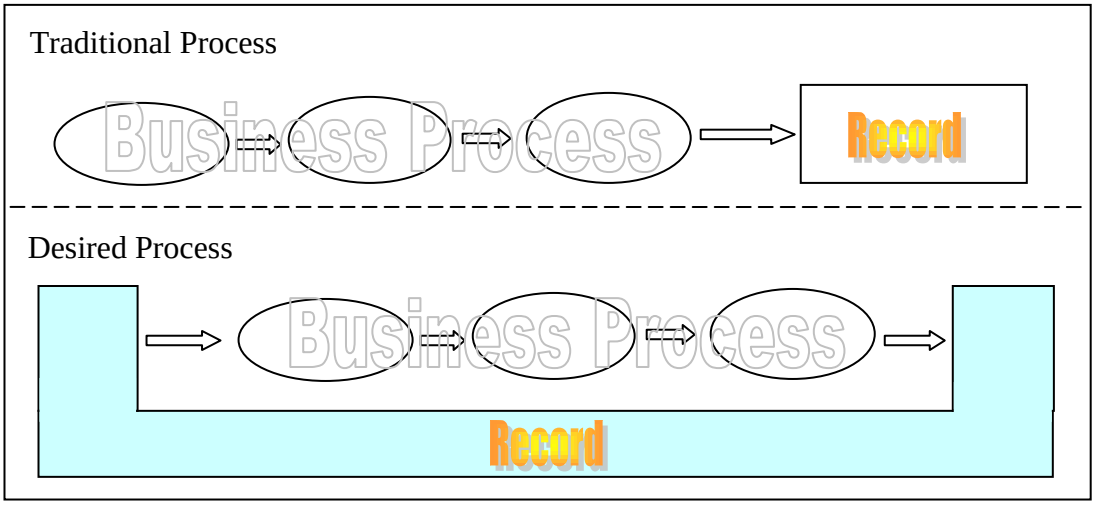
[3] Tower Software defines TRIM as 'a fully integrated EDRM solution, incorporating Physical Records Management – Documents Management – Email and Electronic document control – Scanned Images – Electronic Faxes – Digital Photos – Workflow and delivery of Web site content'

prepared a new Electronic Records Management System Communication Plan. The communication strategy was now formally integrated into the project plan.

Discussions with Council staff at this time revealed that the legal definition of a record[4] was poorly understood and needed simplification and clarification. All staff members with computer access had to be made aware that the definition of a record included anything containing a record of a business transaction. A record could thus include SMS, voice recordings; and digital photos. Apart from ensuring a common understanding of a record, the implementation team decided that understanding of the *concept* of a record also needed to be reviewed.

Traditionally the business process creates information which is not treated as a record until the main business processes are complete, but records must be registered, categorised, available; and treated as records from the instant of their creation (Figure 1). Prior to the introduction of TRIM there was a widespread view amongst CCS staff that a record was the final 'thing' that ended up in the file. If the EDRMS were to be fully implemented, the mind set that records are created, used and then sent to the Records Department for archiving had to change. Registration had to be made part of creating a record. This new paradigm, illustrated in Figure 1, for record creation and use moves the business to its logical state – prevented by the previously limited application of technology.

Figure 1: The Concept of an Electronic Record



The project team was aware that, unless the EDRMS was fully and formally integrated into business processes, no one would use the system. The team therefore decided to institute an analysis of all Council business processes which touched Records. Business process analysis would serve to assist the integration process and also help to identify 'showcase' projects for each area, which would illustrate the benefits of uptake and thus accelerate adoption and compliance. Undertaking analysis of well over 100 business processes required the

[4] The National Archives of Australia (2004) defines a record as 'information in any format created, received and maintained as evidence and information by an organisation' (see also Johnston and Bowen 2005 p135: AS ISO 15489 Part 1, Clause 3.15)

involvement of many additional staff, but accelerated the integration of records with each team's activities. It also ensured that significant communication about the project took place not only *within* but *across* teams. Simultaneously, management was given the opportunity to remind Council staff that, where there was a choice, workflows should be created in the way that best suited customers.

5 Records Design Strategy

The design of the record types was a balance between: mandatory metadata required by statute; information required to enable integration to other line of business applications; and brevity to make it manageable for those using the system. From the very beginning, the overall architecture of the EDRMS envisaged linking it to all other systems, to avoid short-term decisions driven by individual needs. It would have been easy to satisfy staff by having no mandatory metadata, but then compliance to records standards and linking to other systems could never be achieved. The final design resulted in four record types[5] and five 'container' or folder types[6] – each with no more than eight pieces of core metadata.

In August 2003, following the record type and container design, a draft list of containers for the storage of records was created in consultation with the various business areas. This list was distributed to, and revised in conjunction with, business units in an iterative process.

5.1 Documenting Business Process Workflows

Once information was placed into the EDRMS, a key benefit was swift, effective routing of that information to the right person at the right time. With local government operating 8-10 core business lines with many crossover points, this was both essential and an "easy win" for delivery to staff. The process used to deliver this result is the workflow engine of an EDRMS, set up with well designed business process workflows.

5.2 The Importance of Identifying Business Processes

Business process classification can provide guidance and direction to EDRMS implementations as well as increasing expected benefits to any organisation regardless of its size. The documentation of business process workflows at CCS began by identifying each business process which used or created a record. An early iteration of this process found 191 business processes. Each process was then fully documented in an iterative process with business units, and ranked for its suitability for conversion to electronic work flows on TRIM. Ranking was undertaken according to the suitability of workflows to the TRIM system; and by the priority the relevant business unit assigned to it. Although feasibility of conversion to TRIM was ultimately a project team decision, there was

[5] The four record types included administration, property, street and infringements

[6] The five containers were business, employee, development application, insurance claim and workers' compensation

considerable consultation with staff prior to the final choice. Interest in specific processes for conversion within individual business units was recorded and ranked. The consultation process eventually became a valuable resource assisting management in selecting 'champions' to promote uptake within a number of CCS business units.

Workflows were selected on a balance of suitability and interest from the business unit. The project team would deliver one of its own 'showcase' business process for the business unit to raise interest in the system. While some additional record registration work was required to operate the new system, the intent was to deliver workflow processes which more than compensated for this work by assisting in daily activities. At start-up, 15 of the 191 processes identified as candidates for conversion were already implemented.

6 Integration

'A records system is an octopus - tentacles everywhere.'

IS Manager, City of Charles Sturt, 30th June, 2006

Existing literature on EDRMS implementations indicates that poor integration is a major barrier to effective electronic records (ERPWG 2005). A records system is similar to email, in that both are utility services in daily use by all staff. Due to the combination of systems in use, integration becomes a customised expert exercise and is very hard to outsource. Integration needs to be done *during* implementation and when all new information systems are considered into the future (Ryan 2005, p.55). No records department can by itself undertake integration of a records system to all other line-of-business applications. An implementation team must therefore consider EDRMS links at both the *process* and *system* design stage. The team must include senior IT and organisational business analysts.

CCS had set aside a project budget of $150,000 for the TRIM integration process. A number of issues had to be considered in preparing for systems integration. Initially, line-of-business applications had to be identified for integration with the TRIM system. Business priorities also had to be identified, established and ranked. Then responsibility for ensuring integration with the line-of-business applications had to be assigned.

Points of contact between TRIM and existing information systems were discovered in consultation with staff in September and October 2003. The list of TRIM contact points was enhanced by integration discussions with Portfolio Managers and with Advisory and Consultancy Group representatives and then developed into a ranked list of suitable and desirable integration points (Figure 2).

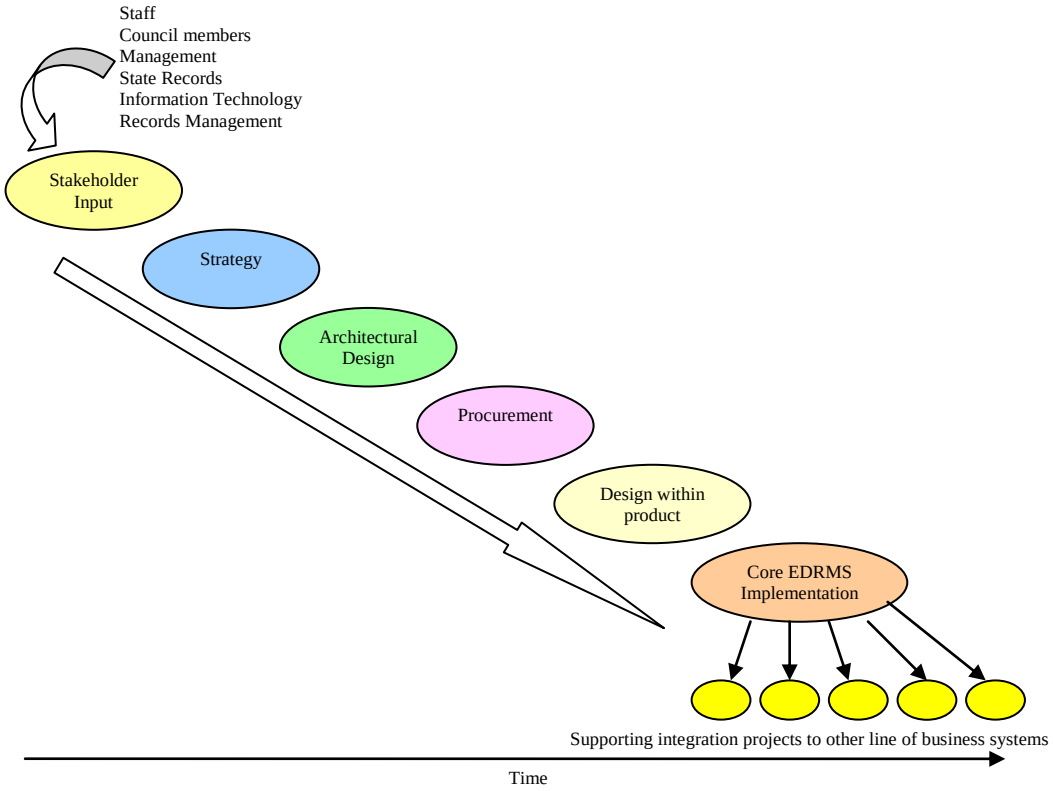


Figure 2: Project Process over Time

Moving from paper to TRIM required a number of technology decisions. Containers for Records had to be included in the EDRMS. Finding and choosing the containers required fine-tuning. In August 2003, consultants were engaged to assist in designing the container structures by interviewing all business units. Although time-consuming, staff consultation regarding the types of files being used for classification purposes was important to enable the creation of a draft list of containers and the record types they would hold. The draft list was distributed to, and revised in conjunction with, business units in an iterative process.

The success of systems integration at CCS has been a notable feature of the EDRMS implementation, with enquiries from local government authorities as far afield as New Zealand. The strong and continuing relationship between CCS and Tower Software has enabled the company to strengthen TRIM features to their mutual benefit. For example, the Document Assembly process within TRIM, a close integration with Microsoft Word, is now widely used for all internal forms and document templates.

6.1 Documenting Business Process Workflows

The most successful implementations have been those electronic records management applications where the systems have been mapped to one or multiple business processes and are consequently workflow driven (McDonald 2005, p.15). At CCS the workflow development process was designed to develop the EDRMS as a system people *wanted* - not just one they *must* use. The documentation of business process workflows at CCS began by identifying each business unit and

process. An early iteration of this process found some 191 business processes. Each process was then ranked for its suitability for conversion to electronic work flows on TRIM. Ranking was undertaken according to the suitability of workflows to the TRIM system and by the priority assigned to it by the relevant business unit. Each of the documented workflows was developed over multiple iterations. Whilst feasibility of conversion to TRIM was ultimately an executive decision, there was considerable consultation with staff prior to the final decisions. Interest in specific processes for conversion within individual business units was recorded and ranked. The consultation process eventually became a valuable resource assisting management in selecting 'champions' to promote uptake within a number of CCS business units.

Identifying those business processes which were the most suitable and feasible for TRIM was the first priority for selection. There had to be significant staff support behind the decision. The implementation team was also looking for one 'showcase' project from each of the business units to show the benefits of and increase compliance with the EDRMS. Some 10-15 of the 191 processes identified as candidates for conversion were implemented at start-up.

7 Records Registration and Testing

Whilst the *organisational* benefits of implementing an electronic records management system were clearly understood, many staff members initially perceived the change as a personal problem. Duncan Holt, the IS Manager, was well aware of the typical adoption curve for innovations (Rogers 1995): 'The early stage of an implementation will show *innovators* up and running and saying: Wow what can it do for me next? The *early adopters* will be saying this is OK don't mind it; and *late adopters* - you knock those over in first 3-6 months of operation - will begrudgingly decide the organisation has made this decision they think it is a bit silly (grumble, grumble) and move on. You've got to bring them along and keep showing them benefits'.

Uptake across CCS business units needed to be monitored so managers were aware of the number of records being registered in TRIM over a set period of time (see Figure 3 below).

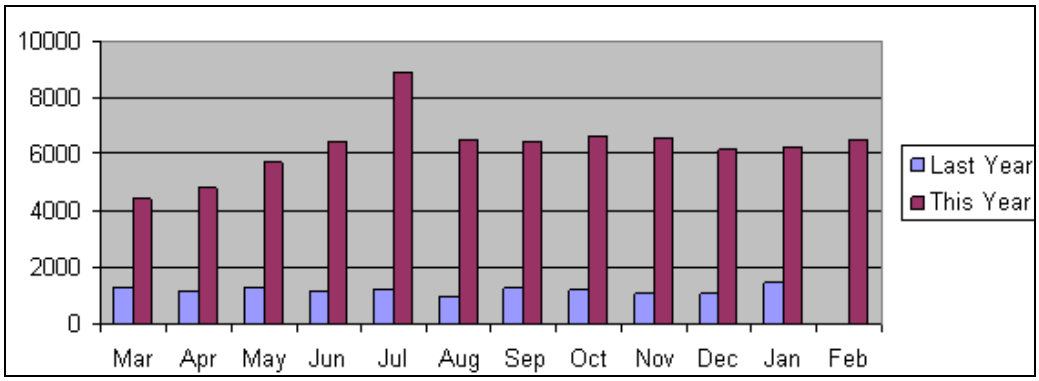


Figure 3: Year on Year Registrations 2006 - 2007

Dealing with the laggards in an organisational implementation is always problematic. Eventually the question becomes whether employees are doing their job or not. Business unit managers must then decide what enforcement processes are required, if any, for full adoption to take place.

8 Training

'Running training for over 300 staff is an enormous task and expense'

Project Manager to business process managers, Feb 2004

How an EDRMS is delivered is critical to exploiting its potential. The managers were keenly aware that real value adding would only come about if CCS instituted a single shared Records repository – an outcome that required full adoption.

All staff members with a computer sign in were booked in with acceptances sought from every staff member. Ten staff members were trained each day over a 7.5 week period. On 'turn on' day 'floorwalkers' were used as an additional resource to help staff members with any problems over the initial six weeks changeover period. By 2006 the training process had been further customized to meet CCS requirements.

Eventually business units developed their own TRIM induction procedures. Records processing staff at all levels of the organisation now appreciate the benefits of the implementation for finding, searching and viewing documents. Familiarity with the EDRMS increased staff confidence in using electronic records systems and other software – skills that are increasingly valued in the job market.

All records have now been on the TRIM system since 8th March 2004. Staff members understand the system and are not concerned if a disaster occurs. There are still issues with low levels of compliance in areas such as email, where decisions to 'TRIM' (add to records) and the time required entering each item becomes factors. In practice, the introduction of an EDRMS has not reduced the work load for Council staff: 'TRIM has actually created more work and in different places. This is because CCS used to only register 10-15% of its records. There was always going to be a big workload increase just to meet minimum legislative standards that were previously ignored or overlooked in the paper system' the IS Manager explained.

9 Going Live

On 8th March 2004 the EDRMS went live. The cut over schedule, a critical part of the implementation, included a checklist, a comprehensive plan and a back-up plan. Prior to shutting down the old system, data was extracted, migrated and tested. TRIM uptake could be measured by the number of staff registrations, so the implementation team kept a close watch on these statistics. In the first month there was an immediate jump in record registration with numbers moving steadily

upwards from July to December 2004: '(Staff) got more and more used to it as more and more business processes went on. By January 2005 we were running at easily 10 to 15 times the number of registrations we had with the manual system. That gives a stark indication of the difference' said Duncan Holt, the IS Manager.

10 Post Implementation Review

TOWER Software conducted the Post Implementation Review of their TRIM Context Database setup at City of Charles Sturt between 26th and 27th May 2004. The focus of the report was on lessons learned from the implementation. Some respondents concluded that problems with TRIM Context software during the implementation may have been due to too limited user acceptance testing. Others stated that the tight project time-frame may not have allowed sufficient time for integration development work and subsequent testing. Some dissatisfaction was expressed regarding turnaround time and conversion checking. Another issue raised in the review – that of insufficient TRIM product skills being made available locally at the time of the implementation – has since been remedied by TOWER software.

Positive aspects of the implementation highlighted in the Review were: meeting the Go Live date, the high quality of training for TRIM Context, excellent change management and enhancement of the TRIM Context Workflow module through CCS suggestions.

11 Project Outcomes and Conclusions

'The adoption and organisation of an EDRMS is I believe a minimum five year process'

Duncan Holt, IS Manager, 29th June, 2006

The introduction of an EDRMS differs from almost all other types of implementation, where there is a clear end point. An EDRMS requires major cultural change in an organisation and thus does not fit into such a simple schema. Change can only be integrated progressively, according to organisational readiness and must be managed accordingly (McLeod & Hare 2005, p.189).

Although careful planning was vital to the CCS project, not all the transformative effects of the EDRMS implementation were anticipated. For example, the discovery that staff needed further assistance with the definition and concept of a record in the electronic system meant that training time had to be significantly extended. The impact on the professional image of records management was also unanticipated. For records staff the implementation of an EDRMS has effectively raised the bar both for required capabilities and training in assigning work flows. CCS staff members trained in EDRMS usage are now keenly sought by other councils.

The EDRMS replaced a paper based system which represented a mainstay of day to day operations over many years. For many employees the fact that the change

in work processes is permanent and ongoing is difficult. Council's IS manager was aware of the implications: 'So you can't say hey it's implemented, let's go back to business as normal. You have changed the definition of business as normal. Now you have a new baseline for business as normal and people will struggle with it and will struggle with it for a long time.' For any organisation in the public or private sector, new systems integration ultimately means finding ways to maintain the impetus for cultural change (Gregory 2005; Laeven 2005; Maguire 2005; Kotter and Cohen 2002).

The success of the e-Records implementation at CCS can be measured in a number of ways. Senior executive support, especially that of the CEO, played a vital role. Staff members referred to the culture of open communication at CCS as: 'streets ahead of the norm in local government', supportive of staff involvement and risk-taking. Other factors that appeared to play a part in the success of the implementation were: clear understanding by key players of the project benefits, their energy in pursuing outcomes, the emphasis on consultation from the earliest days of the project and the pressure for uptake from fellow employees.

Products developed from TRIM Context (such as the Q Processor and eNTYRE) represent staff seeking better ways of doing things once the EDRMS was bedded down. Sold to other councils as enhancements, these products not only provide funds for Council but raise the profile of the City of Charles Sturt across the community. Funds raised from sale of enhancements to TRIM Context are used to continue software development. Overall it appears that the combination of an EDRMS with 'hooks', the partnership between Records and IT management; and good business analysis has allowed CCS to realise ongoing benefits from the implementation. The implementation has enabled the organisation to develop, produce, market and deliver new and enhanced products and services based on the information management system recommended by Ward and Peppard (2002 p.25).

Evidently, there is no ready-made generic blueprint or 'magic bullet' for a successful EDRMS implementation (McLeod & Hare 2005, p.191; Johnston & Bowen 2005). What a case study such as this *can* offer, is practice that is transferable. The description of transferable practices presented in this paper, highlights a set of strategies underpinning the successful outcome of an EDRMS implementation. A key feature of this implementation was a set of well documented IT strategies for Records management put in place *before* the project got underway. Subsequently, a communications strategy was developed and integrated into the project plan to avert potential staff resistance, particularly during training. The strategy of identifying a 'showcase' business process from each unit for possible implementation served to raise and maintain interest in the system whilst the documentation of business process workflows was designed to develop the EDRMS as a system that people wanted not just one they must use.

References

Baldwin, M.,(2006): Remotely Safeguarding the Enterprise http://www.infosectoday.com/Articles/Safeguarding.htm

BIS (2004) 'Implementation of Basel II: Practical Considerations', Bank for International Settlements (Basel Committee on Banking Supervision) White Paper, July 2004, Available online: http://www.bis.org/publ/bcbs109.pdf

Electronic Records Policy Working Group (ERPWG) (2005): Survey http://mybestdocs.com/barry-r-UserAccessSurvey-051130.html retrieved Sept 22 2006

Ellis, J. (2005): Implementing A Solution For Electronic Recordkeeping In The Public Sector Chapter 11 pp. 163-186 in Hare C and McLeod J "Managing Electronic Records" Facet Publishing, UK.

Gregory, K. (2005): Implementing an electronic records management system: a public sector case, Study Records Management Journal, Vol. 15, Issue 2.

Johnston, G. P., Bowen, D. V. (2005): The Benefits Of Electronic Records Management Systems: A General Review of Published and Some Unpublished Cases, Audata Ltd, Ashford, UK Records Management Journal, Vol.. 15, No. 3, pp. 131-140.

Kotter, J. P., Cohen, D. S. (2002): The Heart of Change: Real-Life Stories of How People Change Their Organizations Boston MA, Harvard Business School Press.

Laeven, T. (2005): Competencies – the asset that counts most: on developing human talents as a prerequisite for successful EDRM changes, Chapter 9, pp. 129 -148 in Hare C and McLeod J "Managing Electronic Records", Facet Publishing UK.

Maguire, R. (2005): Lessons learned from implementing an electronic records management system, Records Management Journal, Vol. 15, No. 3, pp. 150-157, Emerald Group Publishing Limited

McDonald, J. (2005): The Wild Frontier Ten Years On, Chapter One in McLeod J and Hare J editors Managing Electronic Records, Facet Publishing, UK.

McLeod, J., Hare, C. (2005): "Managing Electronic Records," Facet Publishing.

Plotnick, J. (2003) 'Corporate Governance – the Impact on your IT Staff', Eiseman, Levine, Lehrhaupt & Kakoyiannis White Paper, Available online: http://www.kvsinc.com/_filelib/FileCabinet/PDFs/white%20papers/KVS%20WP%20Plotkin%20Corporate%20Governance.pdf

(The) National Archives (2004), "Briefing notes on how The National Archives put in place an electronic records management system (ERMS)", available at: www.nationalarchives.gov.uk/about/operate/pdf/erms.pdf

Rogers, E. (1995): "Diffusion of Innovation," The Free Press, New York.

Ryan, D. (2005): The Future Of Managing Electronic Records, Records Management Journal, Vol. 15 , No. 3, pp. 128-130.

Tweedie, D. (2003) 'IAS: the view from the top', AccountancyAge.com, September 3, Available online: http://www.accountancyage.com/Features/1134718

Ward, J., Peppard, J., (2002) "Strategic Planning for Information Systems," Wiley, 3rd edition.

Appendix

Barriers to Effective Electronic Records:

A major survey undertaken by the Electronic Records Policy Working Group (ERPWG) identified some barriers to effective Electronic Records:

Barriers to Effective Electronic Records
Records and information not managed as agency business assets
Records management not viewed as critical to agency mission or incorporate into automated business processes in a timely manner
Marginal support for records management and IT disciplines
Poor integration of records management and IT disciplines
Need for greater and more effective leadership and clear records management guidance
Need to integrate recordkeeping into enterprise architecture
Standards to include recordkeeping compliance in audits and inspector general reports

Reference: Electronic Records Policy Working Group (ERPWG 2005).