8-2002

A Case for Implementing an Electronic Document Managament System (EDMS)

Scott D. Seiler
University of Massachusetts Boston

A CASE FOR IMPLEMENTING AN ELECTRONIC DOCUMENT MANAGEMENT SYSTEM (EDMS)

A Synthesis Project Presented

by

SCOTT D.SEILER

Submitted to the Office of Graduate Studies, University of Massachusetts, Boston, in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

August 2002

Critical and Creative Thinking Program

A CASE FOR IMPLEMENTING AN ELECTRONIC DOCUMENT MANAGEMENT SYSTEM (EDMS)

A Synthesis Project Presented

by

SCOTT D.SEILER

Approved as to style and content by:

[redacted]
Peter Taylor, Associate Professor
Chairperson of Committee

[redacted]
Nina Greenwald, Visiting Professor
Member

[redacted]
Peter Taylor, Faculty Advisor
Critical and Creative Thinking Program

ABSTRACT

A CASE FOR IMPLEMENTING AN
ELECTRONIC DOCUMENT MANAGEMENT SYSTEM – EDMS

August 2002

Scott D. Seiler, B.A., Illinois State University
M.A., University of Massachusetts - Boston

Directed by Professor Peter Taylor

We live in a world where documentation and record keeping are considered not only necessary but also essential. This documentation produces and unprecedented amount of paperwork. Keeping track of this volume of paper is a task of monumental proportions. Faced with this task, I sought to sell the idea of an Electronic Document Management System (EDMS) to the senior staff of the governmental agency that employs me. Participation in the Creative Critical Thinking Program at the University of Massachusetts-Boston, has afforded me the opportunity to formulate an implementation scheme to accomplish this.

Included in my synthesis project are the documented advantages and disadvantages of using an EDMS. These findings consist of explanations of what has been done in the agency so far and how further development would help the agency in the future. EDMS can enhance the agency's ability to achieve greater value in its business practices and processes. A review of case studies provides comparative insight into possible problems that could and are encountered in implementation of an EDMS within an organization. Problems such as staff fear of the unknown and resistance to change group process along with communication breakdown. This is where CCT processes of problem solving using dialogue, group communication enhancement

/involvement, and other thinking skills come into play. I identify the key components I would employ to change the existing work culture, set up training programs and enhance the aspects of team effort that will contribute to my successful implementation plan.

This synthesis has provided an opportunity for me to form a collective documented approach with accumulated knowledge and schema for a successful implementation plan. This paper concludes with my reflective perspective on lessons learned, new problems identified, hopes for future development and personal educational aspirations.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

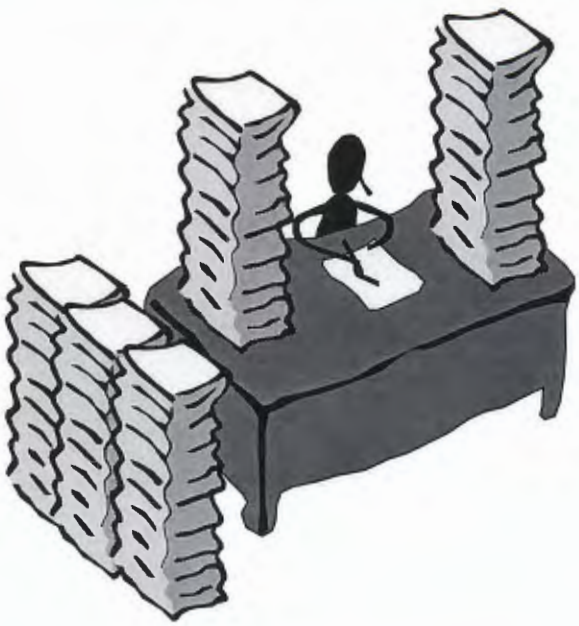
While writing this paper, I am currently employed as a records manager for a State agency. A year ago I became interested in my agency switching over to an Electronic Document Management System (EDMS). I set out to "sell" my supervisors of the benefits of such a system. I developed a presentation that identifies the problems our agency faces in records management and shows how they could be reduced through EDMS (chapter 1). To show that the benefits are not simply hypothetical or hype, I researched similar situations where an EDMS is operating successfully (chapter 2). To implement an EDMS it is necessary, however, not simply to convince policy-makers that such a system could operate over successfully, but to train staff to learn a new system and change over to it. Such training must attend to the resistance that many people have to change (chapter 3).

At the time I began to prepare the training component of my case, the government supplied funding to institute a statewide eGov project. My department has not been included in the planning of this project, which eliminates the obvious forum I had hoped for my three-component case for EDMS. Nevertheless, I completed the case, intending it to serve as a resource for others who find themselves in the situation I was in a year ago and, as well, to allow me to reflect on the critical and creative thinking tools I would bring to any future organizational changes I wanted to promote (chapter 4).

CHAPTER 2

STREAMLINING OUR BUSINESS PROCESS

In our everyday work environment, new technology is becoming the cornerstone in improving our business processes, which has increased our ability to communicate and conduct business electronically over our networks. These technological changes have a substantial impact on our everyday work processes (Center for Technology in Government, 2001). If your office is anything like mine, it is full of papers, notes, articles, magazines, books, folders, binders and countless other things that are cluttering up our space. ***(See picture 1).***



Picture 1

Even after you straighten up, it is only a short time until your back where you started. Electronic Document Management System (EDMS) is one technology I have researched to help alleviate the clutter and to help modernize our work processes.

EDMS

An EDMS is a solution that allows users to create or capture information from many sources such as: paper, facsimile, email, the Inter and Intranet.

> "Captured documents are then stored digitally, simplifying search and retrieval and allowing the information to be retrieved by common applications and integrated into other documents." (Fisher, 2000, p.58).

The use of an EDMS is worthwhile and would enable our department to streamline our operations and share information among our employees and customers. Needless to say, the case for an EDMS can be very persuasive. Possible cost savings alone from utilizing an EDMS can make it very difficult not to have. One of the key areas affected by an EDMS is the Records Management Department (RMD).

Records Management Department (RMD)

In my current position, I direct the RMD for a large state agency. The RMD provides the support and direction for all issues and concerns pertaining to the management of our documents/records. We set the policy surrounding each document, from how it is created, stored and maintained and all relating issues to its final disposition. The RMD is constantly striving to help streamline the department's goals and processes pertaining to all records. A record is defined by the International Standards Organization - ISO as,

> "Documents created, received, and maintained as evidence and information by an agency, organization, or person, in pursuance of legal obligations or in the transaction of business." (Hounsome. 2001, p.7).

The trend in the field of Records Management - RM has gone from the paper environment to a more efficient and ever changing electronic environment, however, currently we are still mired in the former.

> "Electronic document management is catching on: Some 70% of office documents last year existed solely in the digital format compared with a mere 10% a decade ago." (Gustke, 2001, p.88).

But in the public sector, it is estimated that over 90% of our business information are still paper-based (Fisher, 2000). Additionally, to stop any misconceptions, I am not saying we are going to have a "paper-less" office, but rather a "less-paper" office. I enough of a realist to understand that paper is here to stay. The more we include new technology into our workplace, the more we create a need for more paper documents (Frame, 1997).

> "While we have been occupied with plans for managing a paperless environment, the use of paper has not declined as once so confidently forecast. Paper usage is rising, not declining, and the use of paper in the office work increases even faster with the addition of each new high-tech office machine." (Kreger, 1999. p.38, 40).

According to studies, since introducing email, paper consumption has increased paper printing by 40% (Hemphill, 2001). So where do we go from here? I believe with coordination between departments, a good business case can be put together. But one must take into consideration what Greenwald & Levin (2000) say about creativity, which is "Creativity is about good thinking, rather than quick thinking" (p.81). So to have a creative and successful system, we must not rush the planning and implementation of this process.

Managing Our Documents

Managing paper documents is a problem in its own, for it is difficult to share, expensive to store, and frustrating to retrieve them (Isaacs, 2000). My department's document intake is growing at an alarming pace. To illustrate this, we receive in just one bureau, approximately 15" – 36" a day of new documents in each of our four regional offices. That is approximately 10 feet of new documents that we receive daily throughout the agency that must be retained onsite for

review purposes. "Research shows that 80% of the information we keep, we never use." (Hemphill, 2001, p.37).

Most of this information must legally be maintained due to State and Federal regulations; therefore maintaining our documents has become a major concern. Presently, our storage systems are becoming inadequate and we are starting to quickly run out of space. In fact, one of our offices ran out of storage space last year and had to build a new storage system in the basement garage ***(See picture 2)***.

Picture 2

So to retrieve a needed document, staff has to go into the non-climate-controlled garage. Under these conditions, our documents will deteriorate quicker and will become less manageable. Additionally, though for not a long period, staff has to work and retrieve documents in fluctuating temperatures, which could range between 35 to 85 degrees, depending on the time of the year.

Most of the documents we maintain throughout the department are stored in large mobile filing systems, basic file cabinets, or storage boxes ***(See picture 3).***

Picture 3

Our department currently has approximately 272,000 sq.ft. of office space throughout the state, for which we are paying approximately $7,127,000 in rent. Using a conservative estimate, 25% or 68,000 sq.ft. of our rental space is being used to house our documents, a cost of approximately $1,781,750 a year just to house our documents, which is quite expensive. Additionally, the physical employee management of these documents creates other complications that result in even greater costs. For example, in just trying to retrieve a document, how many times has this happen to you?

- You've tried looking for a document and couldn't find it?
- You've gone to the filing system and come to realize that someone else has checked it out or has misfiled it?
- You've located the file, but someone has stolen or damaged the needed document.
- Your document is stored off-site at the State Record Center and you have had to wait for it to be sent back to our department.
- You've come to realize that the document that you are looking for is hidden in a pile of unorganized or mislabeled boxes ***(See picture 4)***?

Picture 4

More than likely, most if not all of these situations have happened to you. It is estimated that, "the average worker office worker spends 30% of the workday looking for documents." (Fisher, 2000, p.58). In fact, in my role as Records Manager, I spend the majority of my time trying to help locate documents for employees. I feel that our current system of managing our documents is inefficient and outdated. Employees need to spend their time conducting meaningful business tasks, and not wasting time with trying to locate certain documents. A change of our business process and culture needs to occur to bring our department into the 21st Century. An Electronic Document Management System – EDMS is just what I propose that could take us there. Implementing an EDMS would result in numerous advantages and savings to our department, along with having to tackle some obstacles.

EDMS Advantages

There are numerous advantages in utilizing an EDMS, such as improved management and security of the documents.

Improved Management

One of the biggest advantages is improved management of the documents. Currently when a document comes in, staff has to record receipt of it, label it for shelving, and then file it. Each time a document is needed again, the file must go through this entire process. When we store a document on the shelf, we are limited in labeling options. Using an EDMS will improve our manageability of these documents by providing endless ways to index them. By having multiple index entries for a document, a person could retrieve a document via a computer by cross-referencing it in many different ways. Using the electronic format, you could also search for other like or relating documents on your subject. Retrieval time for these documents will be in seconds, versus minutes, hours, days or weeks. No more walking and searching for a document that is not there. With an EDMS, the document will always be there. When you locate your document, you can fax, print or email the electronic document if so desired. Using an EDMS workflow, you can also have multiple accesses to the documents, so there will no longer be a lost or out of file document. You and an endless amount of others can view and access the document at same time. Additionally, to save paper, you can share a document electronically. So no more printing multiple copies to distribute, for you can just send the needed document to all the appropriate parties. You would drastically reduce or stop excess photo coping of a needed document. One of the key benefits in utilizing an EDMS is its workflow system.

> "Workflow can eliminate any dead time a document spends in transit between workers. It can also let people review a document in parallel instead of serially, which saves time in the sign-off process. Coupled with a repository, workflow can provide a full audit history, including review comments. Workflow systems might also notify workers when a new version of a document becomes available." (Boyle, 1997, p.77).

By organizing documents in an EDMS, you will also add to the productivity of your department. When our documents are in a clutter and/or disorganized, sometimes our decisions are postponed (Hemphill, 2001). It is hard to make a rational and fair decision when we might not have all of the information needed to form a valued judgment.

Document Security

Utilizing an EDMS could also help manage the security of these documents. It would allow for better maintenance and control over the document information than the paper documents and also controls what people have access to (Mullich, 1997). In an EDMS, you can set the security levels for each user. If you have some confidential material, you can block certain staff or the public from viewing it, yet still allow those appropriate to access the document. While the staff and public utilize a user-friendly EDMS, theft, misplacement or damage to these documents will all but stop. It is also estimated that 15-20% of our documents are misplaced as we shuffle them in and out of the file cabinets and from desk to desk (Fisher, 2000). Additionally, the Association of Information and Image Management – AIIM, reported that 8% of our documents are lost forever. So every time we lose or misplace a document, productivity will start to dwindle (Isaacs, 2000). Most of the theft or damage occurs during the public reviewal of these documents. Certain people during the reviewal process may steal a document because they might not want to pay for copying costs or they may not want others to

see the information that might pertain to their business. Damage comes to these documents by the large amount of handling that occurs during the review process.

EDMS Savings

A tremendous amount of savings could be involved with acquiring an EDMS, particularly in use of staff maintenance of the files, the public's time and money, cost of office space, and in the overall paper usage.

Staff Maintenance

The largest savings would come by the way of reduced staff maintenance of these documents.

> "According to studies, 10-35% of staff time is spent locating, copying, waiting for, re-filing, finding files—or locating missing documents within a file. EDM can help drastically reduce these paper-handling times, making your organization more efficient and helping you to provide better member service." (American Society of Association Executives, 2000. P.126).

We are constantly managing documents for Freedom of Information Act (FOIA) requests. The public is requesting file reviews daily at all of our locations. Our staff has to field the requests, retrieve the requested documents, watch the public during their file review, make requested copies and then re-file the documents. Utilizing an EDMS would drastically reduce the staff time in managing these documents for the public.

The Public's Time and Money

There are also tremendous benefits for the public. Instead of a law firm sending and paying a law clerk to retrieve these documents, they could just request a document and have it sent electronically to them by email, burning/copying it down to a compact disc (CD), or by just reviewing the documents over the web. This system could save the public a large of amount in

time and copying fees. An example of savings accrued by the public, would be from one of the people I interviewed regarding their EDMS. She had a law firm client who had to pay an associate to come into their department to retrieve a copy of a large 60,000-page document. And while a document was being copied, others were unable to review it. Essentially, that document was out of the office more then it was in. The department would charge $0.05 a page to copy, plus $25 an hour for their staff time. The charge just from the department was $5,000, plus the salary of time charged by the law firm's associate. Once they implemented their EDMS, they were able to send them by mail, the 60,000-page document on CD and only charge them a $100. That is a savings of over $5,000 for them.

Floor Space

Another savings would come by freeing up floor space. Ricoh, a company in the EDMS industry, states, that "storing a document digitally costs 10 percent of what you'll pay to maintain a paper version." (Isaacs, 2000, p.104). By storing our documents in an EDMS, we would vastly free up floor space, thus allowing for larger offices, or lower rent for smaller offices. There would also be a tremendous reduction in the use of file cabinets and onsite storage.

As mentioned earlier, floor space is extremely limited and valuable. All of our offices are at their maximum for office space and are quickly running out of space for storage. Last year, our parent agency had to occupy some of our cubicles for their staff during their department's renovation period. Because we were limited on room, we had to utilize some of our conference rooms for positioning staff. By freeing up floor space, we would be able to create more cubicles to meet any demand for additional spacing needs. Historically, due to state agencies typically being understaffed, we normally have a tremendous backlog of filing. That is

why any open cubicles located throughout the department are filled with boxes of documents. Most of these documents are waiting to be filed or transferred to the State Record Center (SRC) for off-site storage. As a state agency, the Commonwealth of Massachusetts provides additional, low cost, private and secure storage for some of our documents. But for some time now, and with no relief in sight, there has been a shortage of space at the SRC, which is resulting in a backlog of our documents from being shipped to them. This backlog has created a large amount of documents to be stored in their boxes in our hallways and empty cubicles. These boxes are an obvious eyesore and could be considered a borderline fire hazard. Since these documents are just out in the open, the security of these documents could be at risk. If we wanted to store our boxes at another location such as Iron Mountain, which is the largest document storage facility in the USA, the price for storage would be 15 times higher then what we already pay. With an EDMS, these documents would be able to be recalled immediately with no delay, no storage costs would be incurred and our hallways and empty cubicles would be free of boxes in waiting.

Paper Reduction

Another key factor, particularly for our agency, is that putting these documents on to a disc is more environmentally friendly, which in turn helps prevent a tremendous amount paper from being wasted.

> "Converting paper documents to searchable digital formats can reduce printing and mailing costs and can make information more accessible to decision makers throughout the business." (Heck, 2000, p.59).

Obstacles and Drawbacks to an EDMS

Even though implementing an EDMS could resolve a lot of current issues, there are some obstacles that might need to be addressed such as funding and laws. There will also be a disruption in the everyday work process and reporting structure during implementation.

Funds

Implementing an EDMS could cost anywhere from a $100,000 to $5,000,000. Due to the current budget crunch, lack of funds is the first and most obvious obstacle. But funding an EDMS, we will incur savings derived from the previously mentioned discussion, such as staff maintenance of files, floor space, and the physical management of the documents. The productivity of staff will also increase, thus creating more tasks being undertaken and completed. When Chronimed, a maker of medical supplies, changed over to an EDMS to deal with their overwhelming amount of paper insurance forms, their IT department determined that the company's labor was reduced by 76%. This reduction gave their employees an additional 3,000 hours per year to spend on more productive efforts (Mullich, 1997).

Possible Funds Solution

Even though our project has been funded, one could follow these steps. I would propose a project team be established to create a Recovery on Investment (ROI) brief in which their findings would be submitted to senior staff for their review and possible acceptance. If approved, the funding for an EDMS could be put into the next year's budget proposal. An EDMS would also qualify for e-Government money. Given that, our department could be a good candidate for funding due to the fact that an EDMS is e-Gov and would be beneficial to the public. Some laws need to be considered also. The Freedom of Information Act (FOIA)

requires that we make available upon request to the public all records that are not deemed confidential. Currently, our offices are swamped with requests. An EDMS could relieve the majority of the surrounding issues pertaining to the FOI requests. Requests could be received and answered via the Internet. More requests could be fielded due to the freed up time granted to the staff by the reduction of hard copy document maintenance.

Retention Policies and Legality of Electronic Documents

If we were to acquire an EDMS, we would still have to have guidelines in place to manage the handling and destruction of our documents. As a state agency, state laws and guidelines govern us during the creation, maintenance and destruction of all documents. The State's Records Conservation Board (RCB), must approve all destruction of state documents. Electronic documents must be managed and controlled by the same procedures and guidelines that reside for visible media (Strong, 1999, p.18) & (Stephens & Wallace, 2000, p.42). If there are no policies or procedures in place for the electronic documents, we could possibly lose some documents (Haynes, 2001).

> "Without appropriate retention schedules, many of these records are kept beyond their usefulness to an agency. Agencies are in possession of redundant or dated information which takes up computer storage space." (Fletcher, 1990. p.27).

So to avoid any pitfalls, we must maintain our electronic documents in the same fashion as our visible media.

The National Archives and Records Administration (NARA), is the agency that sets policies pertaining to all aspects of managing documents on the Federal side. The Commonwealth of Massachusetts Archives usually follows NARA guidelines as well. In the past, NARA only acknowledged eye-readable documents, i.e., hard copy paper, microfilm or microfiche as official records. But due to the overwhelming need and desire for electronic

documents, the United States Archivist, John W. Carlin, acknowledges and states that "Electronic records are here to stay; they are the present and the future." (Dorobek, 1998, p.8). This endorsement will help set the tone for Federal and State agencies to utilize the electronic media. If there is still some uncertainty over the longevity and validity of the electronic media, having a microfilm backup is an option. Without a lot of cost or time, there is equipment that will microfilm at the same time as scan our documents into the EDMS. There is also equipment that can take our documents that are stored in the EDMS and download them to microfilm. If there is a large concern about having an eye-readable document for legal purposes, microfilming can be the solution. To support my argument and to show that an EDMS can be successful, I researched some systems that have already been implemented.

CHAPTER 3

CASE STUDIES

With all the issues surrounding the management of our paper documents, an EDMS could be our solution. It is not just a futuristic fairy tale, for it can and is happening as we speak all around us.

Michigan State Department

An excellent example of how an EDMS is being used is at our sister agency in Michigan that I studied. While talking to a company that specializes in document management, I inquired if they had conducted business with any other state institutions. They mention that they had implemented an EDMS in a similar agency in the state of Michigan. Since some state agencies are reluctant to spend money on a new business methodology, I figured that if I could document industry success stories, the odds of selling my idea would increase.

After getting the contact information for the department in Michigan, I wanted to research and learn from all the negatives and positives aspects of their implementation. They implemented their EDMS in 1995 because they were having difficulty managing all their FOI requests. They initially had one large project that was over 60,000 pages of documents which people, internal and external to the agency, were constantly requesting. When they would have a request come in for a copy of the document, it would be out of circulation for awhile during the copying time. They realized that they could not continue to meet the demand of the reviewers anymore, so they looked into an EDMS. Due to the demand for their documents, funding was allocated for this project because it was easily justifiable.

Getting Started

This agency created a project team, which consisted of a Records Manager, IT Manager and the area supervisor. The team looked into several fact-finding systems by having demos created for them.

Security of System

Initially the team's main concerns were the creditability of the system and the accuracy and duplication of documents that might be stored in the system. They then came to learn that the technology enables them to ward against any duplicates of documents and allows for only a designated few to have control over the new documents, thus controlling the creditability and accuracy of them. They were also concerned about the security of the documents within the system and that they could be lost or prematurely deleted. That issue was put to rest after learning that with an EDMS, security can be higher than with paper documents. They are able to give their staff and the public different security levels for addressing their documents. For example, they could have three different levels of granting access to their documents. The public may be granted only access to certain non-confidential documents, while most internal staff is granted access to most of their documents, and only a few appropriate people are granted access to all the documents, including the confidential ones.

Stakeholder and Concerns

After learning about what technology can do to address these concerns, they were secure in their decision to implement an EDMS. They took into consideration all of their stakeholders opinions and backgrounds. Their main stakeholders were the public and their staff. They wanted to create a system that was easy to use and that was user-friendly, otherwise no one

would use it. Even people who did not have computer training or experience found this system easy to use and now they are not reluctant or hesitant to use it. Initially, some of their staff wasn't happy to use it, for it created more work to index the documents to go into the system. But after they realized how quickly they could retrieve a document, which was almost immediately, they were thrilled with it. Before, during and after implementing the EDMS, their project team met with staff to address questions and concerns that would come up. There was never one person who made a decision, for it was a team effort. They realized that everyone looks at things differently and needs something different from it. They wanted to include in their discussions all the people who were affected by the new system and to be sure that everyone was on the same page.

EDMS Up and Running

After implementation, everyone in the office was personally trained and then a manual was created. The original manual that came from the manufacturer did not really work. It was too confusing and staff could not relate to it. So they devised a new manual that a child could use. It included pictures that would show what things should and shouldn't look like. So after staff was trained, they could refer back to this manual for a quick reference or refresher course. Now FOI requests are simple. They have computers set up in their file review rooms and the public can easily access any of their information. Instead of staff having to field a file and make copies, the public can now just print off whatever is needed directly from the computer. This also saves on the cost related to the maintenance of the copy machines. They are also able to electronically send requests back to the requester via email or the Internet. This has allowed staff to have more free time to perform other tasks.

Implementation Obstacles

Implementing their system did not come without some trouble and issues they had to address. The company they used did not seem to give them all the support that they feel that they needed. They felt like they were a test market for this company. They recommend to really shop around and to look for the support that would be offered from that company. They would also recommend that having the technical staff on board who have some background in the field, instead of listening only to the vendor. They love their system and it has saved them a lot of time managing the documents and has freed up a lot of needed storage space on the floors. When they have a FOI request, they no longer have to take apart the file and chance theft, damage or misplacement of them. But what they are very happy with is that they can immediately find what they are looking for and all relating documents.

Louisiana State Department

Through industry networking meetings, I was able to find out about another sister agency in Louisiana that undertook a similar project. They had over 25 million documents in their agency, and misplaced documents plagued them during demands for public records requiring almost immediate response. Their agency was organized along media lines and each operated as a "silo" unto itself with little cross-fertilization of ideas. Early in their administration they laid out a plan to streamline the department, which resulted in several initiatives. These initiatives included: a Business Processing Reengineering Project, and an Information Technology (IT) Strategic Plan. The IT Plan included a vision statement which included document imaging, electronic commerce, integrated data management system, new laboratory information management systems, and enhanced geographical information systems. They determined that

they lacked the in-house expertise to develop, implement and operate the document management system. Therefore they outsourced their project. They developed a Request-For-Proposal-RFP and evaluated four proposals that included the following requirements:

> **An inventory of all filerooms, **Development of a common indexing scheme for all documents, **Consolidation of all files, **A plan for backfile conversion to electronic media, **Electronic Document Management System, **Establishment of an Incoming Document Processing Center, **Workflow routing of electronic documents, **Facilities management of the entire operation for a period of three years.

Their EDMS is linked tightly to their data management system, allowing all data to be instantly available on the desktops. The Governor has been supportive of all technology initiatives by departments to streamline operations and support one stop shopping and better customer service. Their system is a major improvement on their customer service and reaction from their personnel has been positive.

California State Department

In Orange County, CA, multiple departments utilize an EDMS. In the past, when someone in the county wanted a document to verify an item during a budget review, they would have to put a request in for the document. Then someone would have to go to the library services and pull and copy the file. Several days could pass before the documentation would be received. Now it is received almost immediately. Due to the efficiency of the system, financial discrepancies were quickly identified, so they had to hire a large amount of auditors to investigate them. The following is what they have done:

> "Orange County has dispensed with its hardcopy storage, placing everything online. More than 2,000 users from among 28 semi-autonomous agencies spread throughout the county can compare accounts payable records to budget reports

> online. When checking a budget report, managers simply double-click on a line to review all supporting documentation. Thus, managers can now easily inspect dozens of items, even if their curiosity is only slightly aroused." (Government Technology, 2001, p.3).

According to David Sundstrom, Orange County's Auditor-Comptroller,

> "This not only brings about increased economy, efficiency and effectiveness of the process, it also gives the county enhanced control and accountability. With everybody having access to these documents, the likelihood of a transaction being wrongly charged is almost impossible." (Government Technology, 2001).

They believe that they have saved in just one year by stopping the printing of their financial reports and microfiche, approximately $325,000. Sundstrom also believes that they will save over a million dollars annually for all that is included such as storage and retrieval costs along with costs associated with the document distributions.

Canadian Cattle Brokerage Firm

The Cattle brokerage Global Livestock Network in Canada has in its main goal to coordinate cattle purchases in a timely and accurate manner. They implemented an EDMS that enabled them to go from 5 hours to inventory 100 heads of cattle at each farm to only 30 minutes to enter their data on-site. Their EDMS has cut their workload by more than half (Williamson, 1996).

Texas Bank

In Plains National Bank in Texas, implementation of their EDMS encountered some resistance from senior staff. They did not want to let go of their hard copies. But once they experienced the benefits of that the technology had to offer, they had a major change in attitude and support (Villarreal, 1998). They believed that the money saved was only a fraction of the

value of the system. They go on to say that it is virtually impossible to calculate all the management time saved.

CHAPTER 4

KEY COMPONENTS FOR SUCCESS

So far, the benefits of an EDMS sound pretty good. But changing the workplace culture inevitably doesn't come without some sort of resistance. We have to try to understand and prepare for this possibility.

> "Lack of user resistance greatly increases project success. User resistance can be born from inadequate training, lack of communication, which may foster suspicion or alienation, ingrained habits or a culture of control where the users have no say in their work." (NYS OFT, 2001. Sec 6.3).

To be successful in implementing an EDMS, I believe we have to take into consideration three key elements: dealing with the culture change, the creation of a training program, and teamwork among staff and different departments. By addressing these three elements and by having good open dialogue, you should be heading in the right direction. Additionally, the HR department should lead in helping promote and provoke the thinking and learning or culture change by conducting a *needs assessment* on all three of these components (Sherriton & Stern, 1997). They should analyze and evaluate where you were, where you are, and where you what you want to accomplish.

Changing an Existing Work Culture

It is normally thought of as difficult to change existing work culture, for people have the tendency to fear change. "70% of all change programs fail due to employee resistance" (JPC Training & Consulting LLC). To help address this change, we need to educate staff in seeing change in a positive light. We need to articulate out the benefits ahead of time that could result from the change. To make a successful change in our work culture and environment, we have to

know how to acknowledge and manage the change. When the workplace changes its business processes and introduces new technology to the equation, culture changes usually will occur (NYS OFT, 2001). As leaders, our positive attitudes help employees do the same.

> "In order to successfully implement most major organizational changes, everyone in the organization must leave behind the old ways of thinking about the business and advance to a new (and often fundamentally different) perspective." (Hauserman, 1999, p.28).

We need to help individuals view the change as an opportunity rather than a threat and to help them see that the value and advantages in the change will ultimately benefit themselves too (Hausermann, 1999). Implementing an EDMS not only changes the work culture, but it changes our business processes as well. This is where understanding a HR change management plan can help in the transition (DEP EGI, 2001). We need to build our case why we want change and what results could be. As Tom Werner (2001) stated in his web article *Change Management and E-Learning*, "Cultures don't change when everyone is forced to do something at the same time. Cultures change when pockets of people find success and the word spreads."

It is also believed that employee productivity, commitment and loyalty is all based around their relationship they have with their peers and supervisors (In Brown, Hopkins, 2001). Maintaining an increased and sustained line of communication, will help address resistance to change (McNamara 1999). Employees have to be able to state their concerns without fear of being singled out. This can possibly be accomplished by empowering employees by involving them in the decision making process.

Our workforce has also changed over the years. "In 2000, the fastest-growing segment of the working population was workers 55-64, while the number of workers ages 16-24 is dropping." (Bolch, 2000, p.76). Since our older population was not raised in the computer generation, they have a tendency to fear technological changes even more so than culture change.

In fact, according to the American Society for Training and Development, 50% of employees do not know how to use a computer (Allerton, 2000). This is why we need to be sure that all users are properly trained.

Training

With the addition of possible culture change, a good training program is needed to help offset and minimize negative effects of culture change. Additionally, training employees can help create a more productive work environment. A better-trained employee will be more efficient and effective in their everyday tasks. They will also be less intimated when taking on new tasks. They will then feel better about himself or herself as an employee and will be happier. Happier employees will then create a more enjoyable and productive work environment. "Both training and implementation are tied to a long-term, even perpetual process of incremental improvement." (Hawk, 1993, p.38).

Educating and developing employees will allow them to be prepared for their current and future job, which will allow the individual and the organization to grow (Nadler, 1988). Unfortunately,

> "training still remains an afterthought when it comes to many solutions deployments. That goes for both training intended to help the actual use of the software as well as technical education for the customer's on-site support and development staff." (Clancy, 2001).

There are several methods that could be used to incorporate training in the department. The two most popular methods are the older and traditional classroom training, and the newer e-Learning (Electronic-Learning). I believe both of these have their audiences and advantages and disadvantages. The most popular of the training methods is the traditional classroom, which is a face to face instructor-led setting.

> "In fact, according to the 2000 'State of the Industry' report by the American Society of Training and Development, a whopping 78 percent of companies still rely on instructor-led classroom training." (Caudron, 2000, p.34).

Another survey conducted by Computer Weekly magazine in 2001 found that 92% were still using instructor-led training (Woolnough, 2002). Classroom training gives you the face-to-face experience with a trainer who is there to guide you through your learning experience. Though e-Learning is gaining popularity, instructor-led training allows for students to share idea's with one another and to have that face-to-face with the instructor (Woolnough, 2002). In 2001, the American Society for Training and Development conducted a study on preferred learning methods, and found that 62% still prefer instructor-led training to e-Learning (Abernathy, 2001).

For specific training, which a company has no internal knowledge of, outsourcing your training is an option. This is where a vendor will come in and conduct your training. This is usually more expensive and might not be as productive as an internal person conducting a training session. In a larger agency or company, it is more cost effective if you have an internal person conduct the training. They are usually more knowledgeable and have a better understanding of the internal system at hand. Their training could then be tailored and geared to the specific issues (Woolnough, 2002).

The second option for training is e-Learning, otherwise known as online training. Here staff would be able to be trained via their computer. They learn by themselves online or by attending a live virtual classroom at a schedule time. During these scheduled sessions, students are able to interact with one another in real time (Mitchell, 2001). Even though in 1999 only 2% of training was web-based and only $1.14 billion out of $63 billion spent on training was over the web (Allerton, 2000), e-Learning is quickly gaining popularity, and could be an option that could led to success. From a logistical aspect, all of our offices have an Intranet which is linked

to a central network, which would provide the environment for which e-Learning can exist. Utilizing this type of training could prove be cost efficient. For instance, my agency alone has 6 regional offices and a main headquarters in Boston. When regional staff has to come into Boston for training, it can get quite expensive. There is gas, parking, wear and tear on the vehicles, and travel time. If the training would go out to them, there would be less of the same but more training sessions. Additionally, training schedules are usually created weeks and months in advance. By then, some employees might have other commitments and would be unable to attend.

With e-Learning, staff can train in their own time by computer at home or at work and can learn at their own time and rate. This can reduce unused employee time that could be spent conducting more productive tasks. This is also important is the staff member that is being trained needs to provide coverage for their area of work. This helps eliminate finding the needed coverage for the trainee (Franklin, 2002). To be effective in typical classroom training, only approximately 15 students should be in a classroom. But with e-Learning, the technology allows for a more broad range of people to share the experience at the same time (Aldrich, 2001). But on the flip-side, Aldrich suggests: "The interactivity between students is where change happens" (p.58). This is where the face to face interaction needs to occur between the student and the facilitator.

Not including startup costs, it is estimated that utilizing e-Learning instead of instructor-led classroom training can reduce costs around 50% (Gilhooly, 2001). A lot of time and effort usually go into developing a training manual, while it is usually quicker and cheaper just to update the e-Learning software (Woolnough, 2002). If the training is a basic or general topic, e-Learning maybe the way to go. But not all training can come right out of a box.

> "Typically, off-the-shelf training programs don't meet the unique cultural and behavioral requirements of large-scale changes in an organization's work environment." (Rubin & Inguagiato, 1991. P.57).

Due to this fact, it usually more expensive to acquire e-Learning software that has been specifically created for you, instead of utilizing instructor-led training (Bolan, 2001). There is also software could be bought to help monitor employees progress during training (Frook, 2001). In my belief, this is not a good idea, because I believe employees would be afraid of their learning experience being rated. As I have learned from a Cognitive Psychology class, when people know they are being watched or graded on some level, they have a tendency to do poorer then if they were learning without "Big-Brother" (Matlin, 2002).

No matter which training is used, technical training must be geared towards the appropriate staff that would utilize the technology in a sufficient amount of time shortly thereafter. Otherwise, the knowledge learned by staff trained two months before, may not be recalled and utilized properly.

Since implementing an EDMS system is a major undertaking of the business environment, resistance is inevitable. The law of organizational physics states that change does not occur without slowdown and friction (Hawk, 1993). But this change can possibly be cured. Training staff in segments instead of one long session can help them retain their newly acquired knowledge and can possibly relieve their fear of being intimidated. Additionally, relating the training to the staff on a personal level can also help smooth the way. For example, at a Washington-based legal firm, the trainers of a new system had the senior level lawyers bring their current work in progress to the training sessions. By working with and scanning familiar documents, the lawyers felt more comfortable with the new system (Hawk, 1993). According to the Pennsylvania DEP, after the initial training sessions, each section of the offices should have a

trained and knowledgeable EDMS liaison to field staff questions pertaining to the new system. Having someone close and familiar to the staff will help relieve any fear or anxiety that might come with the change in culture.

Recently during a similar project, a department within the Commonwealth of Pennsylvania stressed the importance of training by stating the following:

> "Training and education also support the change management process by helping DEP staff and the regulated community understand the value of EDMS tools and technologies. These activities promote awareness of EDMS technologies and help alleviate the fear of change and technology.
>
> Training prepares DEP staff to recognize the benefits of EDMS technologies. It ensures that existing staff has the necessary skills to utilize EDMS technologies from the onset. In addition to identifying skill requirements in advance, training and education provide DEP staff with the opportunity to upgrade their current skills." (DEP Electronic Government Initiative, 2001).

Providing continual training and education may not be the end all in combating the fear of change, but it is processes that will surly help in addressing the concern.

No matter how technically oriented and quick people may be, using a new system can be intimidating. For example, a San Francisco-based consultant firm once went into a company after an EDMS was implemented and found staff confused and bewildered by the technology. They found that some staff felt alienated due to the new technology and also due to them not having worked on a computer in years. So they believe that training needs to be geared to the appropriate people and at the appropriate time (Hawk, 1993). Once they have the training, there should not be a large gap of time from when they actually get to use what they just learned. It is also helpful if the examples in the training sessions are geared around specific type of work that the staff is or will be working with. This way the staff grows better accustomed to the technology involved. Wetherall who is a manager at of Connecticut Mutual, states the following regarding her implementation of an EDMS:

> "If I could have done something differently, I would have been more sensitive to managing the changing environment. We went from paper to paperless in a few months. People were shocked." (Hawk, 1993. p.42).

Following her training, they expect productivity to be at 75% until they get used to the new system. Then after a month or so, productivity should rise 35% from pre-EDMS, which is a substantial increase.

Either training method will need to be evaluated for each type of course and skill that is being taught. As with state agencies and other companies all around, when budget cuts occur, training is usually first to come under attack (Woolnough, 2002). So we need to find common ground to provide training to our staff, which in return will benefit all of the parties. If staff are trained well, they will feel confident in their work ability, which in turn will make them more productive and reduce overall employee turnover (Brown, 2001). Roisin Woolnough in his article *99% favour classroom learning* (2002, p.2001), cites an executive at a training company as stating, "The student is more likely to be effective in a time perspective in a controlled environment."

By providing training to employees, we are showing our commitment to them; that we are competitive; and that we look for advancement from within the company by training them to be the best they can be for themselves and for the agency (Major, 2002).

Team Effort

Internal coordination pertaining to different department concerns and issues surrounding staff training also needs to be taken into account to have a successful EDMS. In some occasions, certain groups or departments have a tendency to want to be control in all aspects of a project. For the most part, that usually results in a failed or unsuccessful project. So we need to address internal organizational relationships. Each of us might come from a different angle or

perceptive. If we do not try to see where one another is coming from, errors in judgment could occur, which could cause stressful situations, mistrust and resistance while working on a project. We need to get everyone on the same page and working for the long-term vision.

> "To be successful, you need the support, input, vision, and involvement of those affected—especially those at the top of the organization." (Rubin & Inguagiato, 1991, p.57).

If each party takes equal ownership into this project, it should result in a successful endeavor. Typically, staff will follow the behavior of their leaders (Rubin & Inguagiato, 1991). This is why it is so important senior managers to set a good example to follow.

When establishing the team, we need to make sure we have all the key players involved. We need representatives from all the departments that are going to be affected by the change in the system. A few key principles that we should take into consideration when putting together a group to analyze the big picture is a follows:

> "Involve the widest possible spectrum of people…Recognize that many small changes are often necessary before larger changes can take place. Do not rush to implementation. Work continually to institutionalize the changes made…Honor individual differences among teachers" (Paul, 1993, p.405).

Having a successful team takes work, for it doesn't happen over night. We have to remember,

> "Teamwork doesn't just happen by decree. It takes a carefully designed process in which members can learn to visualize their goals, prioritize issues, define roles and develop communication skills." (Amadei & Wade, 1996, p.91).

The Records Management Department needs collaboration with the Information Technology (IT) Department, but not as a subset, but as a client of the ITD. Since an EDMS and e-Learning have a such a tremendous impact on the network, the IT department needs to be involved from the beginning (Allerton 2000, Gilhooly 2001, Woolnough, 2002). We must also have our business requirements set in order to drive the technology (Hounsome, 2001). Technology cannot drive or influence us; rather our business requirements must do this. We

must first decide on our business methodology and what we want our business plan to be. Deciding on the technology should be the last thing we should do. In selecting a vendor, we should pick someone with the best methodology and not just someone who knows a lot about the industry (Attinger, 1993). As mentioned, it might not be that difficult to study up on the facts of an industry, but to understand a good methodology is crucial.

> "The single biggest reason why projects fail is because of a shortage of integrators and consultants with appropriate skills. Suppliers generally have good technical skills, but managing the softer aspects of a project such as cultural change is where issues can arise." (Vernon, 1997, p.55).

> "The work environment must encourage change, new ideas and risk taking. People need to feel free to contribute ideas and work with others to structure a new process. Partnerships between program managers and technical staff are essential to address business process improvements and implementing the technology solutions together." (NYS OFT 2001, Section: Executive Track).

But we must have a team effort in implementing such a system. This environment must have an open line of communication and dialogue. We must look into what we are trying to solve as a team to be efficient. As once learned in a creativity class, Ray Kroc, the founder of McDonald's once said, "Often, it's not the person who invents the better mousetrap, but the person who has the vision to set that mousetrap where all the critters are." (Davids, 1999).

For us to learn and be successful as a team, our vision has to be a unified one. In an interview with Ron Zemke, Peter Senge states, "the fundamental learning unit in any organization is a team, not an individual." (Zemke, 1999, p.42).

In his paper on Effective Teamwork, Allyn Bradford (1999) views are similar to those of Senge when he concludes:

> "Individuals are most effective when they do not work alone but with others on a team. With the support of management and by working cooperatively, effective teams can readily help individuals adapt to new situations, solve intricate

> problems, multiply their resources and create constructive change in the workplace." (Bradford, 1999, p.6).

As Senge believes, embedded in working teams is not the individual's organizational knowledge, but the team's (Zemke,1999). To successfully implement an EDMS, the surrounding work group dynamics must revolve around and promote a team atmosphere. A successful team will not revolve around a few individuals, but all the individuals as a whole.

The teams could also go into their subgroup meetings and utilize Edward De Bono's "Six Thinking Hats" methodology. This allows groups to think more efficiently together (Bono, 1999). Sylvie Labelle (1996) summarizes Bono's Hat theory, by believing that the hats encourage staff performance and allow them to contribute no matter what their underlining stance may be. She goes on to say that the "hat is a direction to think rather than a label for thinking" (1996). Here, staff would put on the imaginary hats and only think in the way that the hat signifies. De Bono (1999) defines the six hats as follows: "1) White Hat – White is neutral and objective. The white hat is concerned with objective facts and figures. 2) Red Hat – Red suggests anger (seeing red), rage and emotions. The red hat gives the emotional view. 3) Black Hat – Black is somber and serious. The black hat is cautious and careful. It points out the weakness in an idea. 4) Yellow Hat – Yellow is sunny and positive. The yellow hat is optimistic and covers hope and positive thinking. 5) Green Hat – Green is grass, vegetation, and abundant, fertile growth. The green hat indicates creativity and new ideas. 6) Blue Hat – Blue is cool, and it is also the color of the sky, which is above everything else. The blue hat is concerned with control, the organization of the thinking process, and the use of the other hats" (p.13-14). To allow this system to work, each team member must leave previous assumptions and beliefs aside and allow the direction of the hat to take over. This could allow for genuine creative and critical thinking to take place.

To help address culture change in the workplace, Kurt Lewin, a founding father in the field of communications, introduced the systematic strategy of the "Force-Field Analytic Problem Solving Model" (Gottfredson, 2001). At the heart of this model, "Change in an organization is influenced by two opposing forces: One that drives for change and one that resists" (Byvelds and Newman, 1992). Change will usually occur when one of these forces becomes stronger than the other. To successfully implement an EDMS and to address change, I would propose utilizing Lewin's Force-Field Model. Five key steps that are involved in this model are as follows (Gottfredson, 2001): 1) Identify the problem, i.e. what is happening now and what could happen. 2) Identify key obstacles and define the objective. 3) Identify resources by thinking of what issues are contributing to the problem. 4) Develop a strategy for achieving your goals and overcoming your obstacles. 5) Specify your strategic benchmarks.

To briefly summarize, this can be accomplished by creating a team consisting of staff from all levels. Everyone must feel that they have an equal voice and stake in the process. For the staff that is not included in this process, updates and minutes of project meetings can be posted on the Intranet for all to view. Additionally, annual agency-wide meetings can be held so that all levels of staff can be updated on the progress of the project and to have a question and answer session. It needs to be known that this is a collaborative effort in which not everything is written in stone and that we our open to change. If a process is being conducted in a manner that is unproductive and inefficient, here is where staff are able to voice their opinions to help create change. After each open session, the sub-groups can also brainstorm on ideas that were generated. By updating all levels of staff annually and allowing them to have a voice, staff will begin to see this project as a collaborative effort and which will help achieve your objectives.

Utilizing both the Force-Field Analytic Problem Solving Model and the Six Hat Theory could help allow for successful endeavors for some time to come.

CHAPTER 5

RELECTIONS ON FUTURE PROBLEM-SOLVING USING CRITICAL AND CREATIVE THINKING SKILLS

Having laid out the way I intended to present my case for EDMS to my agency, this can now serve as a basis for critical reflection. I believe my strategic spirit has been enhanced in a way that has allowed me to be more reflective and creative in my everyday problem-solving activities. This is demonstrated by adjustments to my approach, which are suggested by dialogue, creative thinking, and critical thinking.

Dialogue

As learned in a Dialogue class, to better accomplish group goals, we have to be able to think together. William Isaacs (1999) defines dialogue as, "a conversation with a center, not sides" (p.19). David Bohm, as cited by Keepin (1991), believes "A dialogue is essentially a conversation between equals."

If we follow this thinking, we will try to understand each other's point of view and try to see our goals as being one instead of just trying to accomplish what we believe will individually help us. Accomplishing individual goals may not always help the group as a whole, for it may actually have an inverse effect. So if we enter into a situation with an open dialogue, we might be able to better accomplish the "big picture" goals. Isaacs also believes, "In dialogue, one not only solves problems, one dissolves them" (p.19). This is where annual meetings could open the dialogue door.

To achieve a successful dialogue, Isaacs names four key practices to utilize, which are *listening, respecting, suspending* and *voicing*. To listen, we must not only hear the words, but

we must hear the meaning as well. Too many times, we are not actually listening to the conversation, but preparing to react to what was said. Much of what we are going to react to is from our memory, which Isaacs (1999) believes is a "stored reaction, not a fresh response at all" (p.92). This reaction can interfere with our ability to understand another persons perceptive. Truly listening without resistance and trying to not get bogged down in thinking of how you may react will better help resolve ones' differences.

The second key element in dialogue is *respect*. As Isaacs states in dealing with certain people, "We may not like what they do or say or think, but we cannot deny their legitimacy as beings" (p.111). Since we cannot always pick whom we would like to work with, we have to be able to respect others and their boundaries. If we don't, we cannot expect others to respect our concerns and issues in return. There might also be occasions when we feel there is nothing more to learn or understand. Isaacs believes that this false confidence can lead you to not fully respect "what is different about that person, or new in the situation, that you have not previously understood" (p.133). To communicate respect, we have to be willing to listen as if something new is being taught. We need to look at the person by not just who we perceive them to be, but as a person with the highest potential. We need to view each other as colleagues or peers.

Isaacs's third element in dialogue is *suspension*. He believes when we suspend our thinking,

> "we neither suppress what we think nor advocate it with unilateral conviction. Rather, we display our thinking in a way that lets us and others see and understand it. We simply acknowledge and observe our thoughts and feelings as they arise without being compelled to act on them" (p.135).

By stepping back and viewing the situation or people with new eyes or in a new light, a great amount of creative energy can be produced and released (Isaacs, 1999). This creative reflection also cultivates and allows for our personal learning and growth to be enhanced. Granted, it may

be difficult in a political and bureaucratic environment, but steps must be taken if creative change and effective problem-solving is to occur.

Isaacs's final element in a successful dialogue is ones' *voice*. Your voice is something that is true for you without being influenced by outside factors. To find our voice, we must reach some confidence level in what we want to say. To allow for confidence, we need to create a trusting and safe forum or environment where staff can voice their opinions and concerns. But we have remember what Isaacs states, not everything needs to be said, but enough to get the meaning across.

I believe to have a successful EDMS, we must not only investigate what we are trying to accomplish as a department, but must have an open dialogue in taking into consideration and addressing our stakeholders' opinions and concerns. Though in the beginning of our project, not all stockholders opinions and concerns seemed to be addressed, an effort has since been made.

Stakeholder Opinions and Concerns

Our sister agency in Michigan took into account all their stakeholders' opinions; through open dialogue we can do the same. The two major stakeholders that an EDMS will have an affect on and whose opinions we need to take into account are our staff and the public. Our staffs are the ones that will be constantly utilizing and managing the documents, so their opinion is invaluable. Even though they are not directly funding the project, it is affecting them directly; the general public's opinion is also invaluable due to the amount that they request documents. With a system like this, they will be able to access their requested documents by home or have them electronically sent to them. No more wasted trips to only find out what they are looking for is missing, for now it will always be there. Other stakeholders that might need to be taken into account would be the patrons who submit the documents. They will not longer have to print,

bind and send to us their reports. They will be able to submit them online electronically or send them to us by disc. Our Legal and IT Department are also stakeholders in this project, for they have to make sure that the legal aspects of the documents are being preserved along with the implementation of the system on the network. Taking all of the concerns and issues into account throughout the process will surely help create a successful end result.

Critical Thinking

Implementing a Successful EDMS

To successfully implement an EDMS, we must think more critically in our decisions. Robert H. Ennis defines critical thinking as, "reasonable reflective thinking that is focused on deciding what to believe or do" (p.10). This reflective process involves the use of problem-solving strategies, which are also similar to De Bono's and Lewin's methods. As learned in a Critical Thinking class, one problem-solving strategy would include the following steps to help resolve the problem: to *state, search, evaluate*, and to *elaborate* the surrounding elements (Tishman, Perkins and Jay, 1995). These elements are also closely related to the key issues that are addressed and summed up in Monique L. Attinger's article, *The business case for imaging* in the 1993 January issue of Records Management Quarterly. Attinger believes according to those in the field, that there are four key steps to implementing a successful EDMS: *to understand what we do now, to understand what we want to do, applying technology to what we want to do,* and to *know your business first, then apply technology*.

In combining Attinger's and Tishman's problem-solving techniques, our first step (*State*) would be to *Understand What We Do Now*. Recognizing what the problem is can be the most difficult step in problem-solving (Sternberg, 1985). If do not have a grasp on what and how we conduct our business now, it will be impossible for us to go forward. We need to understand

how we manage the workflow or our documents and all the job structures surrounding them. It would include all aspects from the creation to destruction of our documents and all products and services involved in the process, as she says, the "big picture" (Attinger, 1993).

The second step (*Search*) would be to *Understand What We Want To Do*. We need to imagine what we want our system to look like. Look at different technologies that could be used. Even though I do not believe it is the case, we may come to find out that the technology isn't the solution to our problem, but it is a change in our business process that is required.

Our third step (*Evaluate*) would involve *Applying Technology To What We Want To Do.* This step would essentially include the model and costs of what we our currently doing and what our desired model and costs would look like. We would include all the possible places we might get bogged down utilizing this process and technology. We would show and include all of the costs of purchasing the technology along with the benefits that could be derived from it. This step can be difficult, for we may not always be as critical as we should be. We might be afraid that if we are too critical in our critiquing and dismissing our options, we might be left with nothing (Elbow, 1994).

As mentioned earlier, our fourth and last step (*Elaborate*) would be to *Know Your Business First, Then Apply Technology*. When we are completely aware of what our department does, then we can apply the right type of technology to help resolve our issues and increase our productivity. As Attinger stated, "All business decisions can be enhanced and improved with a solid knowledge of what we are doing and what is coming" (p.15).

As project teams are pulled together, following Tishman, Perkins and Jay's key elements of problem-solving of *state, search, evaluate*, and *elaborate,* the management of this process

should be able to be more efficiently streamlined. The following table also better explains each these elements.

Table 8.1

Thinking Challenge	**Strategy Step (Building Block)**
When you need to be clear about what you're doing or where you're going…	STATE: either the problem, the situation, or your goals(s).
When you need to think broadly about something…	SEARCH: for ideas, options, possibilities, purposes, features, assumptions, causes, effects, questions, dimensions, hypotheses, facts, or interpretations.
When you need to assess, rate, or decide something…	EVALUATE: options, plans, ideas, theories, or things.
When you need to think about the details of something…	ELABORATE: possibilities, plans options, hypotheses, or ideas.

Table provided from Tishman, Perkins and Jay's: The Thinking Classroom. (1995). Page 102.

Creative Thinking

During each one of these steps, one must keep an open mind so that creative thoughts can better be enhanced. By allowing staff to freely throw out ideas without initially commenting on them, they will be more able to work without a creative or perceptual blocks. A creative block is when there is something interfering with ones' ability to be creative. If a person feels like they can freely give their ideas to the group, they will be more likely to have creative thoughts that would be helpful in resolving the problem. But since we are often too accustomed to perceiving that certain things will always happen in a certain manner, it is usually difficult to see things in a different light (Davis, 1992). This is also where de Bono's "Hat" method could come in handy.

Raymond S. Nickerson (1999), an expert in the field of creativity, states that there are experts in the field that believe creativity can be considered a special form of problem-solving. He also believes that the combination of critical and creative thinking methodologies during a problem-solving project will allow for a more workable and efficient outcome. Additionally, to

be truly effective, you have to utilize both critical and creative skills during the process. He goes on to say:

> "Creative thinking is expansive, innovative, inventive, unconstrained thinking. It is associated with exploration and idea generation. It is daring, uninhibited, fanciful, imaginative, free-spirited, unpredictable, revolutionary. Critical thinking is focused, disciplined, logical, constrained thinking. It is down to earth, realistic, practical, staid, dependable, conservative" (p. 397).

To get staff to be more open and creative during the problem-solving process, I recommend following Feldusen and Treffinger's (1985) method of creative problem solving, by reducing the group size. By working in a smaller group, the dynamics allow for a better atmosphere to cultivate creativity and allow for more productivity to occur. They go on to say,

> "students are more likely to offer contributions when they are in a small, personal, closely seated group of people. Furthermore, the reduced number of students allows for more time for each of the students to presenting ideas..." (p.90).

In a larger group, creative thoughts are usually held back because people fear that their ideas might be negatively perceived (Elbow, 1994). However, these ideas must be able to be freely spoken. If a person is bureaucratically influenced, their motives might be considered hostile towards change (Williams & Yang, 1999). Peter Senge (1990) believes this is why we need to create an atmosphere where groups can be allowed to grow in an environment of team learning and with a shared vision. This is key when working in a multifaceted organization.

Succeeding with an EDMS

Now not every EDMS is going to work from the get-go, but it has a good possibility if planned right. If you do not have a system that can effectively manage your records, you could end up like FBI in the McVeigh trial. The FBI Director, Louis Freeh came before Congress and said that poor records management had caused investigators to overlook more than 3,000 pages of evidence during the trail. That could have caused a long delay and at the same time damaged

the creditability of the agency (Haynes, 2001). I believe if you have your documents properly indexed and managed, you could be on your way to an efficient EDMS working environment. As a public government department, one of our underlying goals is to serve the public. With a system like this, citizens will be able to better access information via the Internet in a self-served method (Knapp & Sanders, 2000). With the change in technology, we will have to start straying away from tracking a group of employees and tasks, and lean more towards measuring efficiency and productivity instead (Greengard, 1998). The results of implementing and creating an EDMS environment could be summed up with two final quotes:

> "Agencies will be able to accomplish more in less time and with less people. The end result will be government that is far more efficient and responsive than ever before." (Government Technology, 2001, p.3).

> "Properly implemented, an electronic document management system will lift the paper weight—and free users to do the strategic work they do best." (Fisher, 2000, p.58).

With possible results like these, you could look forward to a successful EDMS. You could also look forward to sharing information with whoever needs it in a matter of seconds or minutes, versus hours or days. Our inefficiencies in dealing with the hard copy document could all but be eliminated, resulting in empowering the employee to better manage their time conducting other needed tasks. You must also remember, that a positive attitude is possibly the most important part of changing a business culture. An EDMS might not solve all of your problems, but it will surely help relieve them.

Utilizing the three key methodologies that I have learned in the Critical & Creative Thinking Program, open dialogue, and critical & creative thinking, should make for a more efficient and effective work environment. This in turn should result in more successful project endeavors.

While writing and finishing this Synthesis, I realized that there are a lot of personnel issues that constantly surround and influence everyday projects. These conflicts and disputes, whether small or large, can play a major role in our ability to be successful. Since the Critical and Creative Thinking Program has taught me to think differently on many levels, I realize that I might be missing a deeper understanding of how to constructively manage personnel in projects that I undertake. This self-reflection has led me to the Dispute Resolution Program at UMASS – Boston. Here I hope to acquire the skills necessary to better manage future personnel disputes and conflicts.

BIBLIOGRAPHY

Abernathy, Donna J. "User-Friendly E-Learning." *Training & Development.* March 2001. p.19.

Aldrich, Clark. "How to make learning programs matter." *Information week.* February 26, 2001. p.58

Allerton, Haidee E. "Top Ten E-Learning Myths." *Training & Development.* September 2000. p.32 – 33.

Amadei, Robin N., and Lyn Wade. "Government employees learn to work in sync." *Personnel Journal.* September 1996. p.91 – 95.

American Society of Association Executives. "Electronic Document Management." *Association Management.* October 2000. p.126-127.

Attinger, Monique L. "The business case for imaging." *Records Management Quarterly,* January 1993. p.10 – 16.

Bolan, Sandra. "Break Even E-Learning: Companies must determine their training ROI before choosing a delivery method." *Computing Canada.* August 10, 2001. p.24.

Bolch, Matt. "The Changing Face of the Workplace." *Training.* December 2000. p.72 - 78.

Bono, Edward De. *Six Thinking Hats.* Boston, MA: Little, Brown and Company. 1999.

Boyle, James. "A blueprint for managing documents." *Byte.* May 1997. p.75 – 80.

Bradford, Allyn. "Effective Teamwork." University of Massachusetts at Boston. 1999. Not published. From article for summer seminar in "Critical and Creative Thinking in the Workplace."

Brown, Jennifer. "Emotional Intelligence: Peer relationships, not pay or perks, foster employee loyalty." *Computing Canada.* January 26, 2001. p.25

Byvelds, Rita and Joanne Newman. "Understanding Change." Ministry of Agriculture and Food. Government of Ontario, Canada. Copyright 2002, *Queen's Printer for Ontario.* January 1992. Cited from web at: *http://www.gov.on.ca/OMAFRA/english/rural/facts/91-014.htm*

Caudron, Shari. "Training and the ROI of Fun." *Workforce.* December 2000. p.34 – 39.

Center for Technology in Government – (CFTIG). "Models for Action: Developing Practical Approaches to Electronic Records Management and Preservation." University at Albany. 2001. Cited from web at: *http://www.ctg.albany.edu/projects/er/erproj.html*

Clancy, Heather. "Microsoft reminds us that Training shouldn't be an Afterthought." *Computer Reseller News.* July 30, 2001. p.74.

Davids, Meryl. "Flipping Over Efficiency." Quoted in "Strategists of the Century." *Journal of Business Strategy.* September 1999. p.34.

Davis, Gary A. *Creativity is Forever.* Dubuque, IA: Kedall/Hunt Publishing Company, 1986.

DEP Electronic Government Initiative – (DEP EGI). "Change Management." *DEP - from the Commonwealth of Pennsylvania.* July 2001. Cited from web at: http://www.dep.state.pa.us

Dorobek, Christopher J. "There's no quick fix for archiving electronic records, archivist says." *Government Computer News.* September 28, 1998. p.8

Elbow, Peter. "Teaching Two Kinds of Thinking by Teaching Writing." In Walters, Kerry S. (Ed.). *Re-Thinking Reason.* Albany, NY: Suny Press, 1994. p.25 – 31.

Ennis, Robert H. "A Taxonomy of Critical Thinking Dispositions and Abilities." In Baron, Joan Boykoff and Robert J. Sternberg (Eds.), *Teaching Thinking Skills: Theory and Practice.* New York, NY: W.H. Freeman, 1997. p.9 –25.

Feldhusen, J. and D. Treffinger. *Creative Thinking and Problem Solving in Gifted Education.* 3rd Ed. 1985.

Fisher, Beth. "Removing the paper weight." *The CPA Journal.* September 2000. p.58.

Fletcher, Patricia T. "Electronic records management in state government: planning for the information age." *Records Management Quarterly.* October 1990. p.26 – 33.

Frame, Scott. "Forget the paperless office." *Computing Canada.* January 20, 1997. p.36

Franklin, John. "Training for teachers moves online." *Curriculum Review.* March 2002. p.5.

Frook, John Evan. "PlaceWare sets table for Web-based training." *B to B.* October 29, 2001. p.9.

Gilhooly, Kym. "Making E-Learning Effective." *Computerworld.* July 16, 2001. p.52-53.

Gottfredson, Gary D. *Planning to Overcome Obstacles to Change: Force-Field Analysis and Action Planning.* Ellicott City, MD: Gottfredson Associates. November 21, 2001.

Government Technology. "Terminating The Paper Trail." 2001. P.3 *Solution Spotlight: Hyland Software, Inc.*

Greenwald, Nina L., and Jack Levin. "Swimming Against the Tide: The Creative Child as a late bloomer." In Lynch M.D., and Harris C.R. (Eds.), *Fostering Creativity in children, K-8.* Allyn and Bacon, 2000. p.78-87.

Greengard, Samuel. "How technology will change the workplace." *Workforce.* January 1998. p.78 – 84.

Gustke, Constance. "Pulp Fiction – The paperless office is a fairly tale. Here's the next best thing." *Cliff Davis Smart Business for the New Economy.* July 1, 2001. p.88

Haynes, Heather. "Records Management." *Washington Technology.* June 18, 2001. p.26 – 30.

Hauserman, William. "Are your ready for change?" *PIMA's North American Papermaker,* July 1999. p.28

Hawk, Kathleen. "Training: Programming the Peopleware." *Inform,* January 1993. p.38 – 42.

Heck, Mike. "Document management fuels e-business – Content, knowledge management tools lower Web maintenance costs and improved quality of information." *InfoWorld.* August 7, 2000. p.59 – 62.

Hemphill, Barbara. "Will the Internet replace your filing cabinet?" *Agency Sales Magazine,* June 2001. p.37 – 39.

Hounsome, Chris. "The Records Management Challenges of Amalgamation." *Municipal Monitor.* June/July 2001. p.2 – 7.

Isaacs, Nora. "Buried Alive. – There's no such thing as a paperless office. But here's the next best thing." *PC/Computing.* March 2000. p.104 – 109.

Isaacs, William. *Dialogue.* New York, NY: Doubleday. 1999. p.19, 92, 111, 133, and 135.

IPC Training & Consulting LLC. "Organizational Change." Cited from web at: http://www.jpc-training.com/change.

Keepin, W. *Lifework of David Bohm – River of Truth.* 1991. Cited from web at: http://www.shavano.org/html/bohm.html

Knapp, Miriam E. & Jason R. Sanders. "Document Technologies for Digital Government: A Primer for Finance Officers and the Public Managers." *Government Finance Review.* October 2000. p.41 – 46.

Kreger, Larry. "Paper & the Information Age." *The Information Management Journal.* October 1999. p.38 – 42.

Labelle, Sylvie. "Six Thinking Hats." A summary given by Labelle. Cited from web at: http://members.ozemail.com.au/~caveman/Creative/Techniques/sixhats.htm

Lewin, Kurt. "Group decision and social change." In Theodore M. Newcomb, Eugene L. Hartley, & Eleanor E. Maccoby (Eds.) *Readings in social psychology.* New York, NY: Holt. 1958. p.197 – 211.

Major, Meg. "E-Learning becomes Essential." *Progressive Grocer.* February 1, 2002. p.35 – 36.

Matlin, Margarget W. *Cognition.* Toronto, Ontario. Canada: Nelson Thomson Learning, 2002.

McNamara, Carter. Ph.D. "Basic Context for Organizational Change." *The Management Assistance Program for Nonprofits.* 1999. Cited from web at: www.mapnp.org/library/mgmnt/orgchnge.htm

Mitchell, Lori. "E-learning methods offer a personalized approach." *Info World.* April 16, 2001. p.84 – 85.

Mullich, Joe. "Curing those piles-of-paper blues; Chronimed's intranet document management system streamlines billing." *PC Week.* June 23, 1997. p.33 – 38.

Nadler, Leonard. "HRD and Productivity: allied forces." *Training & Development Journal.* August 1988. p.25 – 30.

New York State Office for Technology.- (NYS OFT). "Electronic Document Management Systems – A Cookbook for Success." 2001. Cited from web at: www.oft.state.ny.us/cookbook/toc.htm Section 6.3.

Nickerson, Raymond S. *Enhancing Creativity.* In Sterngberg, Robert J. (Eds.). Handbook of Creativity. New York, NY: Cambridge University Press, 1999.

Paul, Richard. and Binker, A.J.A., et al. "Critical Thinking Staff Development: The Lesson Plan Remodeling Approach." *Critical Thinking Handbook: How to prepare students for a rapidly changing world.* Santa Rosa, CA: Foundation for Critical Thinking, 1993. p.397 – 408.

Rubin, Irwin., and Robert Inguagiato. "Changing the work culture." *Training & Development.* July 1991. p.57 – 61.

Senge, Peter M. *The Fifth Discipline.* New York, NY: Doubleday. 1990.

Sherriton, Jacalyn. and James Stern. "HR's role in culture change." *HR Focus.* April 1997. p.27 – 28.

Stephens, David O. and Roderick C. Wallace. "Electronic Records Retention: Fourteen Basic Principles." *Information Management Journal.* October 2000. p.38 – 52.

Sternberg, Robert J. "Teaching Critical Thinking, Part 1: Are We Making Critical Mistakes?" *PHI DELTA KAPPAN.* November 1985. p.194 – 199.

Strong, Karen V. MIT, LIT. "Integrating EDMS Functions & RM Principles." *The information Management Journal.* July 1999. p.18 – 27.

Tishman, Shari., Eileen Jay, and David N. Perkins. *The Thinking Classroom.* Needham Heights, MA: Allyn and Bacon, 1995.

Vernon, Mark. "The only way it up." *Computer Weekly.* September 18, 1997. p.54 – 55.

Villarreal, Pete. "Plains National Bank Shrinks Paper Use." *Inform.* July 1998. p.48 – 50.

Werner, Tom. "Change Management and E-Learning." *Brandon-Hall.com.* 2001. Cited from web at: http://www.brandon-hall.com/whitpaponcha.html

Williams, W. M. and L. T. Yang. *Organizational Creativity.* In Sterngberg, Robert J. (Eds.) Handbook of Creativity. New York, NY: Cambridge University Press, 1999.

Williamson, Margaret. "Cattle brokerage firm advancing with the times." *Computing Canada.* October 24, 1996. V22 N22. p.1 –2.

Woolnough, Roisin. "99% favour classroom learning." *Computer Weekly.* February 28, 2002. p.2001 – 2004.

Zemke, Ron. "Why organizations still aren't learning. (interview with author Peter Senge) (Interview)." *Training.* September 1999. p.40 – 44.