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Impact and Concerns Related to Electronic Records Management and Storage

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Abstract

Electronic document or records management systems have been around for several decades. New technologies have evolved in recent years that provide new and expanded opportunities for organizations to use this electronically stored information in new ways. These storage technologies have also increased the number of real and potential problems, both short and long term, for technology managers. The purpose of this paper is to provide a brief outline of some research in process being done by the authors in the area of electronic document management and to invoke suggestions from other researchers.

Keywords: Document management, records management, storage media, disaster planning

Introduction

Every organization maintains various types of records. The reasons for this include that the organization needs the records to show what they did and why they did it; for accountability (taxes, audits, and legal proceedings); reduce possible liability (to show what they are and are not responsible for); document organizational history; and to comply with existing local, state and federal law (Sprehe, 2000). The management of these various documents has historically involved the storage and tracking of a physical form which was essentially paper. Since the mid-twentieth century this process has increasingly involved the storage images of the documents in a reduced form on micro film. However over the past decade this process has evolved into the storage and management of scanned or digitized documents in an electronic format.

Defining Document, Records, and Data Management

For the purpose of this discussion, the authors are using the Digital Printing & Imaging Association's definition of document management. It is an integrated system for handling the electronic retrieval, analysis, communication, and management of digitized images of paper documents. Originally, a document management system was a computer program (or set of programs) used to track and store images of paper documents. However it has now evolved to being used to distinguish between imaging and records management systems that specialize in paper capture and records respectively. It can also encompass the management of the content of what is being electronically stored. This process is called Content Management (CM). CM is a set of processes and technologies supporting the evolutionary life cycle of digital information. This digital information is often referred to as content or, to be precise, digital content (Duff, 1996).

Growth of Documents, Information, and Data

The growth of information stored in a digital format has changed the way organizations should be viewing the way they electronically store and retrieve documents and information. In an article one of the authors of this paper wrote with Michael Gibson in 1993 (Gehling and Gibson, 1995), we addressed the state of document management at that time. At that time much of the storage of documents involved photographic processes with storage on media such as microfiche or microfilm. Electronic storage was expensive and was just starting being used by some industries.

Since then advances in storage technology has enabled changes in the way organizations generate, store, manage and retrieve information. This evolution has caused data processing professionals to in some degree become electronic librarians of the organization's documents.

The rapid adoption of electronic communications technology in the last decade has also created a major crisis for some organizations. For one thing, the amount of data having to be maintained for extended periods has exploded in recent years. This is partly due to the proliferation of high-tech tools such as personal computers and wireless email devices such as BlackBerries. At the same time, technology is becoming obsolete so fast that electronic documents created today may not be retrievable by tomorrow's devices, the equivalent of trying to play an eight-track tape on an iPod (Squeo, 2005).

In addition, with new compliance laws and other liability issues coming into play, organizations now have more compelling reasons to track unstructured information such as email. Given increasing regulatory compliance pressure, companies must archive content for longer periods of time, which means managing it through a lifecycle and dealing with the related storage issues (Miller, 2004).

An example of this situation is when President Bush leaves office in early 2009. At that time the White House estimates that it will turn over more than 100 million emails to the National Archives, the government body entrusted with preserving America's official recorded history (Squeo, 2005). This is a significant increase over the 32 million from President Clinton's White House however the widespread use of email only came about halfway through his presidency. Given the growth in the use of email by many organizations as an official means of communications internally and externally, those organizations are facing a similar challenge due to legal and other reporting requirements.

Disaster Planning and Electronic Records

The destruction caused by the hurricanes and tropical storms that struck various areas of the southeastern United States in 2004 and 2005, has shown the need for disaster preparedness by organizations. In some areas, organizations' facilities, including their data centers, received extensive damage or were destroyed. In many cases documents that were stored in paper form were destroyed or severely damaged, while documents stored electronically, in many cases, were recovered if they were stored in accordance with the organizations disaster recover plan.

However, document management related disaster planning should not be limited to planning natural events. Barr (2003) reported that a law firm whose offices where located in the World Trade Center on September 11, 2001, was able to recover with vital records intact due to their disaster plan which included a records management plan.

Issues Related to Storage Media

One of the biggest concerns in the area of document management is the form in which the documents are stored. Swartz (2004) reported that organizations are storing records in multiple media formats. She found that paper records are increasingly yielding to electronic records because most everything done in today's business environment is electronic. Text-based documents such as books, articles, reports, forms, contracts and correspondence have been in circulation in paper form for centuries. More recently computers and information technologies have provided varying facilities to manage, store and retrieve either reference to documents or whole documents (Zantout and Marir, 1999).

Different types of storage media have different projected useful life expectancies. As can be seen in figure 1, the useful life expectancy of each type of storage media (and the data that is stored on it) varies greatly. However given the relative long life of some media, the technology needed to retrieve the data off of that media may be only a fraction of that of the media. Therefore an IT manager responsible for maintaining an organization's historical records may also need to be concerned about having access to equipment and applications capable to reading the media on which the records are stored.

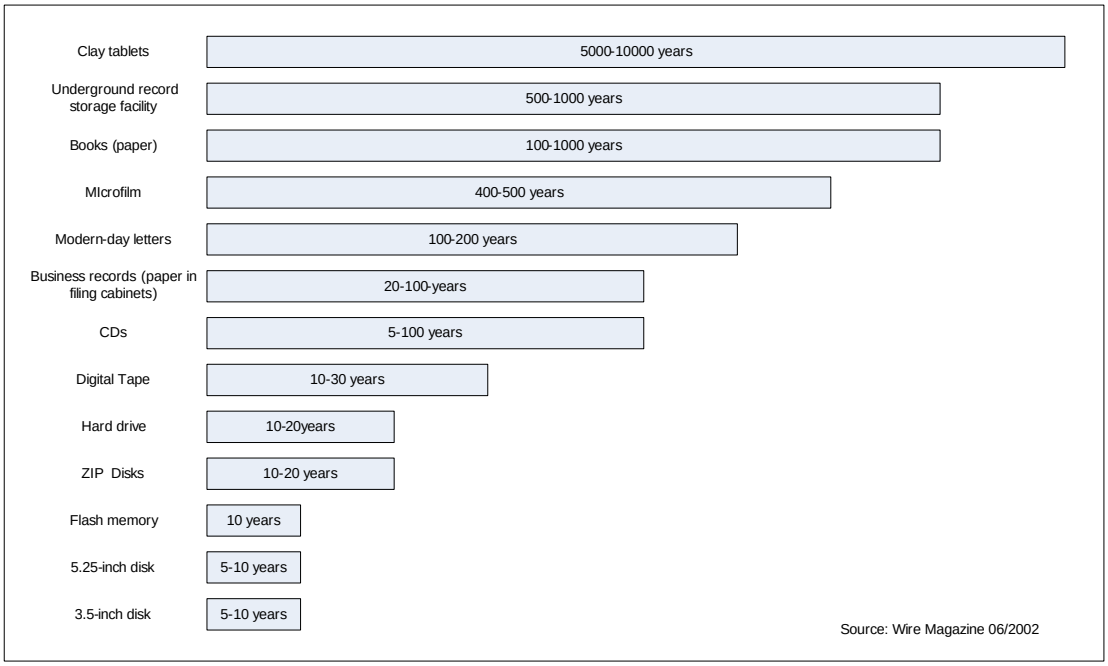

Figure 1. Life Expectancy of Some Forms of Storage Media

Conclusions and Potential Research Directions

The management of electronic or digital document and records has an increasing number of implications for the IT practitioner, researcher, and end-user. The authors of this paper feel that organizations should not only be concerned about what is being stored electronically, but how it is being stored along with the issue of how it can be accessed in the future. The authors also believe organizations, especially those that are small and medium size, also need to look at electronic records management as part of their disaster planning processes.

In the next phase of this research, the authors plan to examine through a series of case studies how small and medium size law offices and local government agencies are addressing the issue of electronic document management and how they are incorporating it into their strategic and disaster plans. The authors also plan to investigate as part of these discussions the how these organizations are dealing with complying with federal, state and local legislation related to the short and log term management of electronic records. In addition, the authors plan to discuss security related issues.

As of December 2005, the authors have conducted some preliminary interviews at some state agencies of a southeastern state and with a consultant handling document conversion for law offices and local governments. Depending on the findings from these and further initial case studies, the authors intend on developing a series of questionnaires to be used in a wider survey of various organization types to see if there are any general trends or concerns that can be reported.

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