THE PAPERLESS OFFICE: ACCEPTING DIGITIZED DATA

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This paper explores the implications of paperless office environments. It highlights some of the insurance industry's accomplishments, and briefly touches on other organizations move to paperless.

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ABSTRACT

This paper explores the implications of paperless office environments and the realities organizations face in their attempts to go paperless. Of the many industries that have or are currently attempting to go paperless, the insurance industry has been on the leading edge of a completely digital environment. This paper highlights some of the insurance industry's accomplishments, as well as briefly touching on other organizations looking to digitize their offices.

INTRODUCTION

At the advent of the computer technology age, many observers believed mainframe computers, followed later by personal computers and personal computer networks, would address a number of very specific business goals. Computers would make workplaces more efficient by eliminating mistakes blamed on the human factor and slash costs by reducing the need for human overhead by assigning certain redundant tasks to computers rather than to people. Computers would never get tired, would never need coffee breaks and would rarely make mistakes on their own. The computer age would also lead to a more educated nation. Those employees displaced by computers would be forced to educate themselves and take up new trades. Some would even re-enter the workforce to repair and recalibrate the machines that put them out of a job.

Another argument was that as computers became more prevalent in the workplace, businesses would reduce and eventually eliminate the need for paper. By eliminating paper, information technology proponents believe businesses can cut exorbitant costs and boost efforts to protect the environment. Computer-based business systems, in their opinion, would also vastly improve office efficiency and effectiveness by eliminating certain "face-to-face" steps required in the antiquated paper-based office environment.

Reality has proven that a paperless office has been impossible to achieve thus far. Today's individuals, computer savvy as they are, have shown they are unwilling to give up the convenience and low cost of paper for more cumbersome and costly digital display devices. Individuals have also relegated printers, copiers and fax machines into the "for granted" category, believing one belongs on everyone's desk. Until digital display devices transfer data from computer to medium as simply as printers do with paper, the paperless office may never be a reality. More and more, however, we are seeing digitized data creep into our everyday lives; eventually paper will be a scarce resource and digital information transfer will be the norm.

The Paper Chase

Since the Egyptians first used rudimentary writing utensils to communicate on sheets made from reed, paper has been the most common method of documenting information. This method of transmitting the written word has been so etched into the minds of today's society that giving up this means of communication will be a very long time coming. In fact, studies have even shown that people are able to retain 30% more information if it is shown to them on paper than if they see it on a computer screen (*New Zealand Management*, 2001; King, 2001). These statistics, however, are sure to drop as society becomes increasingly cognizant of the computer as an information transfer medium. Additionally, technology is advancing to make display devices more paper-like. According to King, "Characters in the movie 'Red Planet' use a screen device that unfolds like a thick map or scroll. This technology isn't too far off; several manufacturers are working on similar technology" (King, 2001). Each generation will become more and more used to digitized data, so much so that eventually the line that separates screen and paper will vanish as digitized information display mediums become more and more like their older brother. Already this transformation in common office vernacular is evident. Almost gone are the days when co-workers ask, "Did you get my memo?" or "Did you see the paper today?" Today's water cooler conversations are more likely to contain the phrase, "Did you get my E-mail?" or "Did you see the latest on that story on FoxNews.com? They just updated their site eight minutes ago!"

The rise of the Internet has also spurred more paper-averse environments. For example, the insurance industry is currently using Internet and Intranet-based display tools to allow access to policy information, file applications and claims status for customers, agents and brokers, among others (Hilgen, 2000). Proponents argue that Internet-based paperless services are faster, cheaper and more efficient—and friendlier to our environment. The Center for Energy and Climate Solutions recently published an article by Joseph Romm, a former Assistant Secretary of Energy. In this article, Romm makes a largely tongue-in-cheek observation that "during 1997 and 1998, energy consumption remained nearly the same, even as GDP grew 8% and energy prices stayed low. That…has never happened before. The explanation: The use of the Internet is making commerce more efficient, thereby reducing the use of natural resources ranging from oil to paper" (Chen and Lindsay, 2000). But the Internet-based service offered by insurance agencies goes beyond protecting our scarce natural resources. Rather, this service is offered as a way for companies to gain a competitive advantage with their customers over other insurance agencies in order to improve their profit margin. Patrick Watts, assistant vice president of the Alliance of American Insurers, says, "'[The effort is] driven by competition—can you provide the service faster and better than your competitor? If there are people doing this because it's more environmentally sound, I haven't heard of them'" (Hilgen, 2000).

Insurance companies are benefiting from this transformation by seeing healthier bottom lines. In fact, insurance companies around the world apply 1.5 – 2% of net written premium on equipment, labor, services and supplies related directly to document maintenance. However, by figuring in certain indirect costs such as queue times, professional productivity losses and business process impacts, documentation shows that up to 15% of net

written premium can be associated with document storage and administration (Finlay, 2001). In an insurance company, that 15% cost eats directly into profits. While it is true that digitizing data has substantially reduced the costs associated with paper maintenance, most insurance companies are unable to accurately document how much going paperless has saved them (Hilgen, 2000).

The ability of certain insurance companies to transform to paperless offices has truly allowed them to do more with less. Hartford Mutual Insurance Company developed an archival imaging system 10 years ago. This precipitated a drop in their expense ratio from levels in the high 30s during the early 1990s to roughly 31 in 2000. The transformation to paperless allowed Hartford Mutual to go from 131 people and $55,000,000 of premium to 114 people and $77,000,000 of premium. "Technology," according to Philip Raub, president, chairman and chief executive officer of Hartford Mutual, "has allowed us to do that by automating processes that used to be labor intensive" (Hilgen, 2000). Algoma Insurance Brokers of Sault St. Marie, Ontario began to use digital photos for all aspects of their business, from applications to claims processing. After recognizing the value of quick electronic access by multiple departments, they soon made the conscious effort to transform into an all-digital document infrastructure. Algoma expects to save up to $40,000 in labor costs per year with the new digital document center (Finlay, 2001).

A Paperless Government?

There is a wide range of organizations attempting to "go paperless." The Automated Business Service System, or ABSS, is the Air Force's answer to a fully computer-based system for the procurement of goods and services. Before ABSS, the requesting office completed a purchase request. This document contained certain information including a description of the item or service being procured, possible sources for procurement, cost estimate, and an appropriate account to which the finance office would charge the purchase. This purchase request was delivered first to the finance office to ensure sufficient funds existed in the account. After verification of funds, the request was signed off by the finance office and delivered to the contracting office. Here, certified professionals who obligate funds on behalf of the government contact multiple sources and negotiate the purchase based on certain criteria. Finally, the purchase was agreed upon by the government contractor and providing company, an official contract was produced and delivered, along with the original purchase request, back to the finance office for final funds obligation. The paper trail did not end there; invoices, delivery receipts and receiving reports were all required in order to make payment. Each of these steps involved paper, lot of paper. Each office was required by regulation to maintain a file pertinent to each request for at least six years and in some cases even longer. Misawa Air Base, a U.S. Air Force base located in Northern Japan, made ABSS the standard in October 2000. During that fiscal year, the base Contracting Squadron took action on nearly 3,000 separate contracting actions valued at well over $18,000,000. If each of these actions had been taken on paper, the amount that would have been needed—and the space required to store all that information—would be absolutely mind-boggling. Now the information previously stored in multiple file cabinets all around the base can be stored on a central server and will eventually be written onto a few CDs. In time, every purchase request,

approval and award with everyone's documented actions for each base will be stored on a few CDs in one drawer.

The Air Force is no stranger to the need to incorporate practices of the corporate sector into their daily work, and the concept of a paperless environment would seem to be a perfect area on which to focus. Recently, companies such as General Electric embraced the concept of a paperless environment, expecting to save some $18,000,000. GE estimates that by the end of their project to eliminate stand-alone fax machines, printers and copiers, they will send some 30,000 machines to vendors, charities or the trash by the end of next year. GE is opting instead for electronic storage mediums requiring employees to store information on company-provided laptops and smart phones (Moore and Prasso, 2001). Additionally, companies have started to offer electronic storage services to select clients. Chase Manhattan Bank, for example, introduced i-Vault! in 1999 as an Internet-based image document storage service for banking customers. They have recently expanded their storage capability and now offer their services to outside businesses. Soon, a total of eighty-four companies will use the i-Vault! service. "Businesses find i-Vault! Valuable", according to Wagner, "because it offers unlimited, secure storage capabilities without the requirement of investing in and maintaining expensive onsite equipment, and because it allows employees to sort through, search, and cross-reference large numbers of documents at record speed" (Wagner, 2001).

Incorporating the same principles of both GE and Chase Manhattan, ABSS is the paperless method of procuring goods and services while also offering secure storage capabilities limited only by the size and/or quantity of servers devoted to the system. The "drafter" of the purchase request enters a password into the system and describes the type of good or service he or she is looking to procure. The drafter is still required to annotate possible sources as well as a cost estimate. Upon completion, a notice is sent via electronic mail to the appropriate "approver" for that account. The approver then logs into ABSS and approves or disapproves the purchase request. If approved, an E-mail notice is sent to the finance office for their action. At this point, the finance office logs into ABSS and initiates an interface with an independent computer system that determines whether or not sufficient funds exist in the appropriate account for purchase. If so, electronic notice is immediately sent to the contracting office to allow the contractor to log into the system and make final purchasing action. All these actions are done without the use of paper and from individual desktop systems.

As expected, the transformation to paperless is not a painless undertaking. It requires carefully thought out implementation schedules from management and unbridled commitment from the entire corporation. There are four steps, however, that a company can take to start on the road to a paperless office. First of all, the company must place priority on forms based on importance and frequency of use (*The Practical Accountant*, 2000). Insurance companies, for example, realized multiple people—lawyers, litigates, claims settlers, field agents, clients, etc.—may have wanted access to a particular document at the same time (Hilgen, 2000). Digitized data allows this to happen. Secondly, companies should acquire scanners and Adobe Acrobat software to start digitizing hard copy data for storage (*The Practical Accountant*, 2000). The i-Vault! system offers this type of service for Chase Manhattan clients since they are allowed to access cancelled checks after the checks have been scanned

into the system (Wagner, 2001). Third, companies should attempt to standardize by converting MS Word or Lotus-based documents into PDF format in order to take advantage of the additional options this software offers. Finally, the company should look for ways to distribute forms electronically rather than through hard copy (*The Practical Accountant*, 2000).

How Close Are We To Paperless?

Given the advantages of a paperless office, why is society not yet there? The answer is deceptively simple: There is no substitute on the market today that is as portable, durable, simple, and accessible as paper. In fact, contrary to the Center for Energy and Climate Solutions' study, the consumption of paper per capita in the United States has grown 43% since 1980, according to the American Forest and Paper Association. This works out to about 2 pounds of paper per person per day (Hilgen, 2000). Canada is the world's largest exporter of office printing paper, and they have seen their paper exports more than double in the last 15 years, the same time frame as the computer revolution (*New Zealand Management*, 2001). There seems to be no retarding the propagation of paper in the office, at least not in the near term. In fact, Hewlett Packard, one of the world's most well known printer manufacturers, predicts a 50% increase in paper use over the next five years (*New Zealand Management*, 2001). One of the primary contributors to the rise in paper consumption is the propagation of computers and computerized data communication (Hilgen, 2000).

Over 200 million printers have been sold since 1998 and some 6.3 million printers designed to print digital photographs will be sold by 2003. Additionally, Gartner Group has estimated that laser printer and fax machine sales in the United States has increased 12 and 22 times over, respectively, during the 1990s (*New Zealand Management*, 2001). The rise in printer sales have to do primarily with the converse drops in cost for these peripherals. Each of these devices requires paper, and for 2001 it is estimated North America will use some 2.2 trillion pieces of paper in printers, fax machines, copiers and other document-reliant machines (King, 2001).

Printed words on paper seem to add some credibility and permanence to the information being transpired. Computers and high capacity printers "have increased paper usage ten-fold," according to Foote, "simply through their ability to spew out copies faster and more furiously than ever" (Foote, 2001). "Just about every innovation in the digital revolution was supposed to cut out more paper," reads the year 2000 annual review of the Forest Products Association of Canada. "Precisely the opposite continues to happen" (*New Zealand Management*, 2001). Paper is a medium which everyone can use and to which everyone has access. Why transform a business into using a medium of information exchange that is not comfortable to everyone?

Another contributor to the slow transformation to the paperless office is the lack of standardization, particularly in relation to electronic-based office forms. The idea of using electronic-based forms, or E-forms, to conduct normal business operations previously conducted on paper has surfaced along with the rise in the use of networks. The problem, however, is that these E-forms have no real industry standard and exist on some four different

E-form categories. E-forms known as Web Forms can be written either in an HTML, with wide browser access but little functionality, or Java script, with specific accessibility but wider functionality. Corporations can also customize their own forms as long as they are willing to accept the front-end costs to design and the recurring costs and personnel expertise devoted to maintaining these forms. Commercial Form Packages are cheaper and less painful than custom-built forms, however, they usually require special software and limit the company's ability to be flexible in the products offered. Finally, the use of PDF Forms based on the Adobe Software reader is yet another viable option for E-form development due to the commonality and popularity of the software involved (*The Practical Accountant*, 2000). Aetna U.S. Healthcare offers EZLink, an E-form based program that allows human resource professionals to update healthcare information on employees via the Internet. Doctors can then more readily view the updated information from their office via the Internet. Soon Aetna will offer this service to all employees (Hilgen, 2001). Certainly one can envision the day when policyholders, pending receipt of required documentation, will be able to update information and view changes from the comfort of their own homes.

Another obstacle to going paperless was the belief that a person needed to physically sign a contract in order to make it complete. However, 17 states have already enacted legislation and 28 others are considering legislation that will make electronic signatures acceptable. Until that time, however, insurance companies will still have to be somewhat reliant on paper to complete transactions (Hilgen, 2001). While these reasons may play some role in organizational resistance to digitized data, the foremost reason is that organization, and more importantly, people within organization resist change. Senior management drives revolutionary change within an organization. How they implement this change and whom they involve has everything to do with making the change a successful one.

Dr. Michael W. Mercer in his article "How does Change Management need to Change?" paraphrases his colleagues at Harvard Business School Michael Beer and Nitin Nohria who wrote that two out of every three attempted changes in organizations fail (Mercer, 2001). Mercer further states there are two schools of thought to implementing organizational change. One method is called Theory E in which the manager focuses on the backbone of the organization, its strategies, structures and systems, because these aspects of operations can be changed through top-down action. This method of change uses specific goals such as financial data or shareholder satisfaction to measure its success. Theory O change is more employee participatory in nature, but "isn't opposed to the creation of economic value—it simply maintains that creating sustainable competitive advantage is the best means of serving shareholders' long-term interests" (Mercer, 2001).

Competitive pressures drove the insurance industry to move to a paperless environment. Their transformation was driven more by Theory O beliefs since, by digitizing, data companies like Hartford Mutual and Algoma have significant advantages to offer clients. The Theory E school drove the U.S. Air Force to go paperless as very few individuals in the field helped develop or beta test ABSS. Both transformations appear to be successful, so the argument that one method is better than another is driven more on a case-by-case basis rather than on absolute theory.

SUMMARY/CONCLUSION

Modern society may be far away from the day when one can reach into a pocket and unfold a viewer in order to show a store clerk, boss or friend notes made on a digitized piece of paper. Office workers are closer, however, to the day when they can plug a viewer into their computer, access the daily paper of choice, and download the information before they go to work and society accepts this as the normal routine. But until the day when digital viewing devices are as simple to use, disposable, storable, and as widespread as paper, there will never be a truly paperless environment.

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