

■ KENNETH E. KENDALL, Feature Editor, School of Business-Camden, Rutgers University

Are you reading this column on the Web or are you seeing it for the first time in your paper copy of *Decision Line*? Or are you (gasp!) reading a copy you downloaded and printed using university-provided paper? Will you file this copy of the article, or toss it away because you know you can find it in the Decision Sciences Institute online archives? We all recognize that technological improvements have made the creation, scanning, storage, and transferring of documents in a digital medium easy, efficient, and effective. But do we really take advantage of the efficiencies in these information-processing functions? For example, it has been estimated that the introduction of email into organizations has caused a 20 to 40 percent increase in the use of paper. In this engaging article, Greg Sherbon tackles the question of why more offices are not going paperless. Greg concludes that the only reason paper is still in such high demand is personal preference and that over time, as new employees with modern preferences are hired, we will move to an increasingly paperless workplace.

Document Management in the Digital Age: Why Do We Still Use Paper?

by Greg Sherbon, Financial Accounting Manager,
Resorts International Hotel, Inc.

Earlier this year, the company I work for recognized a growing problem. Our warehouse had a severe lack of room for all of the items stored there. I work in the casino industry, so the warehouse is filled with slot machines, office furniture, promotional gifts, and, of course, old paperwork. Almost 50 percent of the space in the warehouse is occupied by paperwork. In my opinion, my company actually does a very good job at reviewing the files in storage and destroying them as soon as they have passed their useful life according to the Internal Revenue Service and the Casino Control Commission.

One Never-Ending Problem and Two Solutions

The amount of paperwork generated on a continual basis makes this lack of storage space a never-ending problem. Two solutions to the dilemma were identified. The first and most obvious solution was to get a bigger warehouse. The warehouse we currently use is old and small, so it was determined that getting a bigger warehouse was a useful idea. However, finding a suitable warehouse and going through

the purchasing process takes time (and is still on-going). The other solution was to find a paperless option for document storage.

A committee was formed (it included me) to contact companies that offer electronic document storage and put together a proposal for the president of the company. After listening to presentations from four different companies and discussing them with the other committee members, I became aware of a difference in opinion regarding this project's possibilities and goals. Initially, I thought we could find a solution that could decrease the amount of paper stored in our warehouse and that could also improve the working efficiency of our offices. The possibilities for document searches and document transfers from one department to the next seemed to me to be a great benefit for this project. Documents could be scanned and made quickly available.

I could foresee a future where my department produced account analysis strictly in a digital format with spreadsheet analysis and invoice backup all stored in one file that could easily be e-mailed instead of stored in bulky binders. Most of the other



Greg Sherbon

is the financial accounting manager at Resorts International Hotel, Inc., a casino hotel in Atlantic City, NJ. He has worked in the casino industry for seven years between Resorts and the Mohegan Sun Casino in

Uncasville, CT. He has a business finance degree from Montana State University and is currently an MBA student at Rutgers University, School of Business-Camden.

gksherbon@hotmail.com

committee members, however, were looking for a solution where our documents could be stored on a CD-ROM at the end of each year for retrieval only when needed. This was and is a very frustrating point for me. My colleagues are quick to shoot down any idea that incorporates increased technology in their work lives. If technological advances can help us become more efficient in the workplace, shouldn't we incorporate them? If people quickly dismiss new technology ideas, will it ever really be possible to have a paperless office?

The heart of this column involves the advent of technology in relation to electronic document storage and the acceptance of such technology in the workplace. Increasingly, technology allows us the ability to conduct almost all office transactions and communications without the need for paper. However, the use of paper since the introduction of this technology has actually increased. This article discusses the technology, some of the reasons why paper consumption has escalated, and whether or not this trend must continue.

Unwrapping the Issues

For the past 20 years, we have been hearing about how computers were going to decrease the amount of paper used in business. Everyone's assumptions have been that technological advances will provide us with high-tech offices that consist of video phones and computers with virtual reality interfaces and voice-activated systems. While that may still lie in our future, our present is far from showing that kind of efficiency, or ease of use.

Robert McGarvey (2000) notes a report from the American Forest and Paper Association that says "from 1990 to 1998—the very years when the computer, that alleged key to paperlessness, became an office staple—annual consumption of paper rose from 80 million tons to 96 million tons in the United States." That is a 20 percent increase in a time of drastic improvement in office technology. McGarvey also points out that the Internet is a large reason for the increase in paper use. Because of the Internet, we now have significantly more information at our fingertips (literally). Information we apparently want to "hold onto" in some way.

The Internet and other improved technologies have changed the way we use

paper. Liu and Stork (2000) point out that copier use has decreased since 1990. This is due in part to the computerization of much of our information, leading us to use printers much more than copiers. "Factors contributing to the increased use of printers over copiers include the shift of information distribution patterns from Print-Copy-Distribute to Distribute-View-Print, along with the shift from centralized to decentralized printing."

Most people now have printers in their offices or share printers with a small work group rather than using one printer for a large number of people. This ease of access is another factor that increases the amount of paper being used. If a working printer is available, inevitably someone will use it. Personally, I know there are times when I print out a document multiple times just in an effort to check the formatting and make sure it will look acceptable to others in my organization whom I know will print it out.

Another reason that paper use continues is that while technology improves to get rid of paper, technology also improves in a way that helps to keep paper around. Larry Kreger (1999) recounts that in 1966, Americans wrote over 20 billion paper checks for payments of goods and services. It was expected that banks would soon lose the ability to process all of the checks being written. So, new technology was invented for the banking industry to improve efficiency such as automated teller machines, online banking, direct deposit, and many other banking innovations.

So, how many checks are written today? In 1996, Americans wrote 64 billion paper checks. That is over triple the amount of checks from 30 years earlier. Why isn't this a problem? Because the technology for processing checks has improved. Electronic machines that read checks can now process 50,000 to 80,000 checks per hour. It's hard to get rid of paper when you have technology that improves the use paper.

Paper Is Preferred

Despite the evidence that shows how the consumption of paper has increased since computers have become an essential part of every office throughout the world, it is my position that eventually we will have paperless offices. Every computer company in the world is working on developing technology and software to make

computers more efficient and easy to use for more tasks than ever before. In the example of my company, we are considering moving towards paperless office solutions that allow invoices, purchases orders, and receiving documents to be scanned and indexed in a way that allows corresponding documents to be matched together quickly and easily.

Nadine Post (2003) discusses how 3-D technology allowed the renovation of Chicago's Soldier Field to be done in a paperless fashion. The use of 3-D models instead of 2-D drawings allowed the engineers and construction crews to work together to solve construction issues ahead of time to speed the building process.

A 3-D model, shared between designer and fabricator, wipes out the need to create shop drawings, a process vulnerable to human error. Instead, the steel detailer simply enhances the engineer's design model by adding all the elements, such as bold holes, bolds, angles and plates required for fabrication and erection. The process minimizes request for information and reduces the time to answer them. The engineer then approves the detailed model. The fabricator uses the approved model to produce the steel members and the erector to build the structure. (Post 2003)

There are other examples of technology that can improve efficiency. Earl Cooper (1988) describes how the use of computer technology to analyze data in laboratories can take human judgment and data review, and therefore human error, out of the equation in scientific experiments. "Human error will be eliminated and sample lots can be released much more rapidly. The integrated electronic systems will free laboratory analysts to do what they do best—analysis—and thereby contribute to improving the quality and quantity of their output."

The use of paper is a personal preference. There is evidence that new technology does not instantly change the way people work, especially when it involves personal preference. Liu and Stork (2000) note that the invention of the printing press did not quickly eliminate handwritten works. While printing presses were abundant at the end of the fifteenth century, the art of calligraphy became more pronounced: "The sixteenth century became not only the age of the printed word, but

also the century of the great manuals of handwriting.”

While I don't believe it will take centuries for the preference for viewing documents online instead of on paper, I do believe it will take some time for people to adapt to paperless technology. It is my belief that, as future generations grow up with computers and computer technology, they will become more comfortable with using and viewing documents online.

Arguments for Paper Don't Stack Up

There are many people today who think that we will never reach the time of having paperless offices. Hsu and Mitchell (1997) compared using paper and using computers with 11 different criteria including ergonomics, contrast, resolution, weight, viewing angle, durability, cost, life expectancy, power, search capability, and other intangibles. In their opinion, search capability was the only issue that computers won outright.

In 1997, this may have been true. But six years is a long time in the computer technology era. These days, technological advances have made this debate much closer than it was at the time. New laptops today are smaller, lighter, and more durable than they were in 1997. Resolution and contrast of computer screens have and will continue to improve, with the consequence that reading from a computer screen and reading a book are not as significantly different as they used to be. Yes, computers need electricity to work, but we need light to read and much of the time the light we use comes from lamps that use electricity.

Hsu and Mitchell state that the life expectancy of books is much greater than the life expectancy of computerized data. Computer hard drives crash, CD-ROMS can be destroyed, and many other accidents can occur that would result in data being lost. While this is true, the issue here is whether an office can be paperless, not whether our lives can be paperless.

Most offices do not rely on books published decades ago; they rely on data that

is usually less than five years old. Anything older than that is usually not relevant enough to be considered. Also, data is not just stored in one place. By putting your documents in a digital format, you have almost automatically assured that it will be backed up in numerous places. For example, let's say your university is going to make the accounts payable department paperless. That means that every invoice that comes into the university will need to be scanned. The scanned invoices are usually put onto a CD-ROM, the initial storage site.

If you are in a large university, your computers are usually on a network. So, for the invoices to be accessed by many people, the CD-ROM will need to be uploaded onto the network drive, the second storage site. Network drives are usually saved to a back-up location on a regular basis, the third storage site. Individual users will tend to save copies of invoices on

their individual workstations for quick access later, the fourth storage site. So you can see that a paperless office provides its own procedures for making sure that

data isn't lost.

The one issue that is hardest to overcome is cost. I discussed this issue with Laura Palazzo, the finance director, and my boss, at Resorts. She finds this to be the biggest problem with going paperless. "The paperless solutions presented to us were interesting, but it doesn't make sense for us to spend the amount of money necessary to implement these products." In the short term, the cost of paper is much less than the cost of the new technology necessary to go paperless.

To take an office paperless, you must upgrade the technology you have currently. You need to have scanners for the paper documents, you must have storage drives to store the documents, and you must have new software to access the documents. Depending on the amount of paper you need to store digitally, you will need to look into possibly hiring a person for the scanning or you may have an outside company come in to take care of it. While this all sounds like a great way to improve

efficiency, it does cost quite a bit of money. A company or university needs to do a thorough analysis of the costs involved to determine the Return-On-Investment they will receive compared to what they feel is necessary to proceed with the project.

Relevance to Today's Decision Makers

Most managers can readily identify how quickly paper can become a problem. I currently have stacks of paper in my office. It becomes more difficult by the day for me to keep track of all the paperwork sitting on my desk. During a busy time, when I am working on a project or involved with end-of-the-quarter reporting, the amount of paper on my desk doubles and becomes more and more problematic. Liu and Stork (2000) reported these statistics on how paperwork affects an organization:

- Professionals today spend about 60 percent of their time handling paper daily;
- Large organizations lose one document every 12 seconds;
- 3 percent of all documents are incorrectly filed;
- 7.5 percent of documents are lost forever;
- Disorganization in the workplace may cost executives up to six weeks of time per year;
- The average executive spends three hours per week hunting for mislabeled, misfiled, or lost documents.

Having more documents online allows for easier organization of materials.

Microsoft Outlook is an effective tool for organizing documents sent electronically. Folders can be set up to store messages and documents. Personal notes can be saved for reference at a later time. The journal function can help keep track of conversations as well as access and change materials. This program also helps to solve the problem of misfiled documents. If a document is not in the folder you expect, simply do a search for the document and it will be found in seconds. And, as previously noted, paperless offices provide automatic backup for files, making it much harder to lose documents.

Conclusion

I firmly believe that incorporating technology into the workplace in an effort to de-

The average executive spends three hours per week hunting for mislabeled, misfiled, or lost documents.

crease paper is a necessity to improving efficiency. I also firmly believe that many of my colleagues are going to fight this change tooth and nail. There will always be reasons not to move to a paperless environment, with cost being the issue hardest to overcome. Eventually, the improvements in technology are going to provide solutions that will be almost impossible to overlook. Until that time, it is necessary for people who share my view to come up with "recommendations that are forward looking and scaleable to organizational needs" (Kreger 2000). And I will continue to be frustrated in meetings. It's OK, I'm getting used to it.

References

- Cooper, E. L. (1988). The paperless analytical lab. *The Scientist*, 2(4). http://www.thescientist.com/yr1988/feb/cooper_p22_880222.html.
- Hsu, R. C., & Mitchell, W. E. (October 1997). After 400 years, print is still superior. *Communications of the ACM*, 40(10).
- Kreger, L. (1999). Paper & the information age. *Information Management Journal*, 33(4), 38-42.
- Liu, Z., Stork, D. G. (2000). Is paperless really more? *Communications of the ACM*, 43(11), 94-97.
- McGarvey, R. (2000). The quest for the paperless office. Home Office Mag.com Retrieved online 11/5/03. <http://www.Entrepreneur.com/article/0,4621,279014,00.html>.
- Nann, M. (2003). Federal court headed for paperless filing system. *The Legal Intelligencer*, 229(60), 1.
- Palazzo, L. Director of Finance for Resorts International Hotel, Inc. Personal interview on 11/5/03.
- Post, N. M. (April 14, 2003). Stadium engineer drives toward 'paperless' project. Sharing of 3-D steel model forces big changes in building process. *Engineering News Record*, 250(14), 50. ■

Kenneth E. Kendall
School of Business-Camden
Rutgers University
Camden, NJ 08102
(856) 225-6586
fax: (856) 424-6157
ken@thekendalls.org
<http://www.thekendalls.org>

International Issues, from page 6

member's expenses, and these are often covered by the trip fees. Second, these programs require either staff or faculty leaders to accompany the students and take care of planning, execution, and logistics, and most importantly to problem solve when things do not go as planned (plant tours cancel at last minute or a student loses his or her passport). Third, faculty members bring their own specialization to the trip and contribute valuable insight into factory tours, discussions with local business leaders, and other social or cultural aspects. For example, during my five previous field trips to Mexico City as Southern Methodist University trip leader, I participated in many social and cultural events outside of the normal day's activities. I was asked to speak about our MBA program on national television, often took small groups of students out to dinner with local business people and former alumni, and visited several Mexican university MBA programs and colleagues.

In conclusion, we see that there are many avenues available for internationalizing business programs. Every school has some program in place and it is important to encourage our students to participate in these activities. Many of us regret not taking part in exchange programs while we were young students. In today's increasingly internationally focused world, it is even more important for students and faculty to get involved with international programs when they get the chance and to help bring new opportunities into their schools.

International Program Websites

- <http://fisher.osu.edu/international/index.html>
- <http://ecampus.bentley.edu/dept/sa/prginfo.htm#summer>
- <http://www.gsb.columbia.edu/chazen/tours.html>

- <http://web.odu.edu/webroot/orgs/ao/ip/ip.nsf/pages/wvbus>
- <https://www.gsm.mq.edu.au/>
- <http://www.hkkk.fi>

References

- Dornier, Ernst, Fender, & Kouvelis. (1998). Global operations and logistics. John Wiley & Sons.
- Flaherty, M. T. (1996). Global operations management. McGraw-Hill.
- Oppenhiemer, A. (1998). Bordering on chaos: Mexico's roller-coaster journey to prosperity. Little Brown & Co. ■

M. Johnny Rungtusanatham
Arizona State University
W. P. Carey College of Business
Department of Management
Tempe, AZ 85287-4006
(480) 727-6268/fax (480) 965-8314
j.rungtusanatham@asu.edu