technology today

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The Paperless Office + Time = A Paperless Society?

The vision of a "paperless office" dates back to 1975. This concept was broadened to a fully "paperless society" in 1978. The futurists who espoused these terms expected, over time, that new digital technologies would mature to the point that paper communication would become irrelevant.

BusinessWeek in its June 30, 1975, issue described Xerox's vision of a paperless office of the future. The article indicated that by 1995 paper documents would be unnecessary. In their place, people would have TV displays with keyboards on their desks, their mail on these screens, and all other documents available at the press of a button. (www.businessweek.com/stories/1975-06-30/the-office-of-the-futurebusinessweek-business-news-stock-market-and-financial-advice) Thirty-eight years after this article was written, the prediction that communication would someday no longer need paper seems close to reality.

The same technology breakthroughs that ushered in the predictions that paper would become irrelevant to communication are now about to guarantee that paper will continue to play a significant role in electronic communication. It is true that over time our current use of paper will continue to decline. This will take place just as new uses for paper start to emerge.

Andrew Steckl is a professor of solid-state electronics at the University of Cincinnati. His article on electronic "Circuits on Cellulose" in the February 2013 issue of *IEEE Spectrum* magazine was an eye opener regarding the future of paper. Steckl started researching the use of paper as an electronic substrate back in 2008. His group initially saw a "narrow application, what might be called 'e-paper on paper.' Essentially, electronic displays built directly on paper. ... I have become convinced that paper's potential could be just as broad (if not as deep) as silicon has turned out to be." The Gates Foundation announced in June 2013 that it has awarded Steckl and Giovanni Pauletti, of the University of Cincinnati College of Pharmacy, a grant to develop low-cost paper electronic diagnostic testing devices.
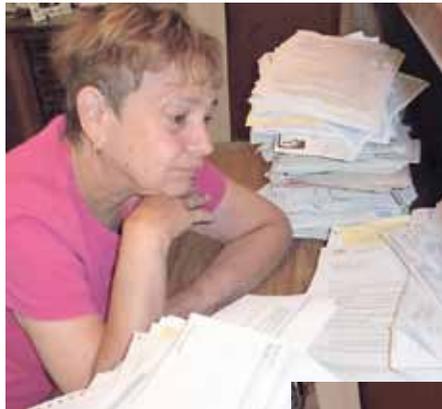

Photo 1—Our current "paperless society" still gives us loads of paper. How do you find anything in this mess?

Photo 2—A Neat-Receipts scanner and software can reduce piles of paper to digital files.

Labs throughout the world are now developing flexible, and perhaps even biodegradable, electronic circuits that use paper as a substrate rather than silicon. When these research projects turn into commercial products, your newspaper, Internet searches, and textbooks might come to you on an iPad with an e-ink paper screen.

E-ink screens are not the significant part of this upcoming paper electronics revolution. Paper electronic products under development include medical testing devices for home or office use, food container labels that signal when the food has spoiled, warning labels that products have passed their shelf life, and messaging devices that cost pennies to make, which allows them to be discarded with the product that they are attached to when their usefulness is done.

At this time, we are not a paperless society and many of us suffer from paper overload. (See Photo 1.) You have stacks of paper that have been saved for a variety of reasons. For example, you need to keep certain documents that show you paid specific school fees, others for filing taxes, still others that contain warrantee or medical information. The largest batch of stored paper probably is stuff that was once saved and you would need to go through each

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Photos: Jessica Nunes

sheet to determine what needs to be shredded or thrown into a paper recycling bin.

At a recent technology show, I had a very interesting conversation with a member of the public relations firm that represents NeatReceipts. The company has a solution to the paper clutter in your home and its technology is a nice fit with this month's topic. NeatReceipts makes scanners that you can use to scan paper clutter into digital files.

It is the software that it sells with its scanners that makes its products interesting. Neat version 5.1 software accurately reads the data on your documents, cards, and receipts and turns them into searchable digital files. It has different screens for the different types of items you might scan and does a fantastic job picking out details from receipts and cards. It places these details in the correct spread sheet column and it also keeps a photocopy of your original document.

To see what it would do with straight text, I ripped some articles out of a magazine and scanned them. At a press of a button on my computer, the scanner converted these photocopies into searchable PDFs. On my computer, each article was now represented by a spreadsheet line in the Articles Draw of my digital file cabinet. The program just needed me to fill in each article name, category, and so forth.

If you do the physical work of scanning all the paper files that you need to save, it could convert what you see in Photo 1 into what you see in Photo 2. Of course, we all tend to be lazy and for most of us those overstuffed old-fashioned paper file cabinets will remain untouched. It is, however, an interesting tool that a person can use to attack the old stuff or just stop building new paper clutter.

Many paper documents contain private information that should be cross shredded to prevent identity theft. Before you discard an original, make certain that a copy is all you will need in the future. Remember digital files are not necessarily safer than paper records.

I have often been asked how I choose topics for my *Tech Directions* columns. The epiphany that drove me to research this topic, as strange as it might sound, was a TV commercial that placed a comical footnote on the move to a paperless society. You can watch the commercial on YouTube at www.youtube.com/watch?v=RRDSj62tlvQ&feature=player_embedded.

Recalling the Facts

1. If you had the opportunity to invent an electronic paper product, what would it be?

2. For school, you do a great deal of reading. What percentage involves reading from books and handouts rather than reading from a computer screen, smartboard, or tablet? How do you think these numbers will change for students sitting where you are 5, 10, and 15 years in the future? ⓖ