

Personal Information Management

Cheap and fast search and storage technologies help bring order to our messy personal information environments, freeing us to make the most of our information collections.

In his autobiography, American founding father Benjamin Franklin described 13 virtues [2]. The third—order—gave him the most trouble: “Order,” he wrote, “... with regard to places for things, papers, etc., I found extremely difficult to acquire” [sic]. Today, more than 200 years later, order in many human endeavors continues to be an elusive goal. Personal information management (PIM) is intended to support the activities we, as individuals, perform to order our daily lives through the acquisition, organization, maintenance, retrieval, and sharing of information. Although

❧ *Illustration by Brad Yeo* ❧

nearly everyone has to apply PIM techniques in their daily lives, popular interest in PIM technologies has picked up recently and is the subject of this special section.

In 1945, Vannevar Bush, director of the U.S. Office of Scientific R&D during World War II, envisioned using technology to support PIM through the creation of what he called a Memex "... device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility" [1]. The phrase "personal information management" was first used in the 1980s [4] in the midst of popular excitement over the potential of the personal computer to greatly enhance our human ability to process and manage information. The 1980s also saw the advent of so-called PIM tools, with basic support for managing appointments, to-do lists, and contact information. Interest in PIM has increased in recent years, not only as a hot tech topic but as a serious area of inquiry, focusing the best work from a diverse set of scientific and engineering disciplines, including cognitive psychology, human-computer interaction, database management, information retrieval, and library and information science. (See [3] for a review of PIM, including its influences and alternate definitions.)

Our own interest in PIM became more focused as a result of a workshop in January 2005 at the University of Washington sponsored by the U.S. National Science Foundation (pim.ischool.washington.edu/). As the workshop made clear, interest in PIM is double-edged—offering greater access to information while risking the loss of what is important. The pace of improvement in various PIM-relevant technologies gives us reason to believe that earlier visions of PIM may be realized in the near future. Digital storage is cheap and plentiful. Better search support makes it easy to pinpoint the information we need, even when it's buried in vast databases of unrelated information. The ubiquity of computing and communications and the miniaturization of computing devices make it possible for us to take our information with us wherever we go.

But interest from the research community in PIM also follows from the growing awareness of the problems these new technologies sometimes create. The information that Benjamin Franklin and others of his generation struggled to order in paper form is now scattered in multiple versions among paper and digital copies and isolated in separate applications and devices around the world. Even a seemingly simple

action like responding to an email request can cascade into a time-consuming, error-prone chore that requires integrating information from various distributed collections of paper and electronic documents, email, Web pages, and more. The result may be that we can't find what we're looking for, even when we're sure it's part of our own collection.

We selected the articles here to reflect the opportunities and challenges of new PIM technologies for two main reasons: the desire to apply improvements in digital technologies to the enduring challenge of PIM and the desire to ensure the overall concerns of PIM are not lost in the rush by software and hardware vendors to exploit the technologies to deliver digital convenience.

Mary Czerwinski et al. open the section by discussing the potential for amassing and supporting access to a lifetime of digital memories that capture personal experience in digital form. Wanda Pratt et al. discuss the special relevance of PIM to patients, especially those in a long-term struggle with illness like breast cancer. Increasingly, all patients bear a personal responsibility to collect and manage information relating to their medical conditions. Even personal survival may depend on their ability to manage it. However, it also raises important questions of privacy and security not only for them and for the medical professionals who treat them but also for customers, students, citizens, and employees everywhere. Clare-Marie Karat et al. provide an insightful overview of efforts to improve people's ability to control who sees what in their personal information.

The next two articles offer differing perspectives on the role of search in managing personal information. Edward Cutrell et al. advance the notion that applications of search might eliminate (or greatly alter) the need for PIM. Search based on personal information can be customized, personalized, and contextualized in ways that go way beyond the standard query/results interaction. Catherine C. Marshall and William Jones provide a counterargument to such adaptation in their look at how people keep and organize the information they encounter as they go about their daily routine. Even if improved search means we can always find the information we need, we may continue to organize it for other reasons, including to boost our confidence, support serendipitous browsing, and provide the satisfaction of putting our things in order.

Email applications play a central role in many of our lives. For example, many of us live in our email

during the day (and at home at night), using it not only for communication but also for task, time, and document management. Yet we are also often confused and distracted by the growing complexity of our email applications. Steve Whittaker et al. explore the future of email in support of PIM, emphasizing its role as a natural segue from PIM to interpersonal and group information management (GIM). Thomas Erickson explores further the practice of PIM in a larger networked GIM context defined by a person's various roles in life as, say, parent, spouse, friend, employee, and team member.

Problems of information fragmentation emerge as a recurring theme across all these articles. David Karger and William Jones review several promising approaches toward integrating and unifying personal information and PIM support. But even as existing tools and gadgets have increased information fragmentation, how do we know that new approaches really do help us manage our information over time and across situations? Diane Kelly explores the special challenges of measurement and evaluation of PIM behaviors and tools.

These articles provide a glimpse into leading researchers' efforts to turn the Vannevar Bush vision of personal information collection, storage, sharing, and organization into an important aspect of the lives of everyone with a computer, whether desktop or mobile. Better PIM means we make better use of our increasingly precious time. We might waste less of our time with the burdensome and error-prone activities of managing information and take more time making creative, intelligent use of the information to get things done. As Benjamin Franklin said, "Do not squander time; for that's the stuff life is made of." **C**

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