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Thanks to those of you who participated in a Web survey during the month of May 2003, the ASIST leadership will soon have a current and fairly accurate profile of members and their concerns about and suggestions for improving ASIST. An invitation was sent via e-mail to over 2000 members and recently lapsed members, and 856 responded. All responses were anonymous, which encouraged candor. However, in a few cases we wish we knew who the writer was. For example, someone complained about being owed a refund on the conference registration fee because he or she had served as a volunteer. ASIST headquarters staff would like to give the refund, but do not know to whom to send it. If you have a concern or complaint for which you wish an individual response, please tell Dick Hill (rhill@asis.org) or me (th90@umail.umd.edu), and we will try to resolve your problem.

I will share a few preliminary results here, but the full analysis of the data is being conducted by members of the Membership Committee and will be reported formally at a later time. The results of this survey will also be compared to the results of a member survey conducted in 1979-1980, which was reported in the Bulletin in August 1980 by Don King, Cheri Krauser and Virginia Sague. A quick scan of a few data points reveals that some things have not changed as much as you might think. For example, the average age of members in 1980 was 43 years; in 2003 it is 45.5 years. It appears that ASIST keeps you young; in 23 years ASIST members have only aged 2.5 years! About 44% of the members in 1980 were male and 56% were female. In 2003 it is 43% male and 57% female. We often hear comments about how these demographics are changing, but they are not, apparently, to the degree sometimes assumed.

It is not easy to compare salaries from 1980 to today, except to analyze whether discrepancies between men and women have continued or not. This kind of detailed analysis will be reported later. Likewise, a profile of advanced degrees and fields of study will require some time to compile.

We also collected a lot of data about how people are funded for attending conferences, reasons for attending conferences and factors that would make an ASIST conference more appealing. For the latter, the highest response categories were practical considerations such as “less expensive conference registration,” “less expensive conference hotel” and “conference city closer to home.” Other popular responses were “more informal networking opportunities” and “more opportunities to meet leaders in the field of information science and technology.”

In response to a question about anticipated level of value to the individual, the three highest rated items were “digital library of ASIST publications,” “magazine focused on applications of information science” and “expanded or enhanced ASIST website.” All three of these are being planned and will be in next year’s budget.

At a two-day retreat in August, the Board of Directors will be scrutinizing and discussing all the survey findings, including the large number of open-ended responses we received in response to the question “What are your ideas for what you would like from ASIST that it does not do now?” Respondents offered a wide range of suggestions—sometimes contradictory or conflicting with each other. Many were related to new categories of membership, ideas for information science research needed or expressions of how ASIST should “look”—less nerdy, less academic, more cutting-edge, more engaged in political and social issues or more focused on practical applications of information science and technology. In analyzing these responses, we must remember that “the plural of anecdote is not data.” Nonetheless, the suggestions were thoughtful, critical and creative, and they will be taken seriously in helping the Board set a course for the Society in the next few years.

Watch for a full report from the Membership Committee. In the meantime, I offer my sincere appreciation to everyone who responded. If you did not get a chance to participate, please remember that my e-mail box is always open, and I would be happy to hear from you at any time.
We begin this issue with the second part of Lee Strickland’s two-part article, “Records and Information Management Perspectives.” Here he discusses recent changes that affect the balance between open access and national security on the one hand and open access and personal privacy on the other – topics of great importance to all of us at both professional and personal levels. Lee is now based at the University of Maryland, but was previously an attorney with the federal government and continues to be heavily concerned with federal information policy.

Turning to another kind of access and the University of Maryland, Allen Rotz reports for us on the 20th (yes, 20th!) anniversary celebration of the Human Computer Interface Laboratory, founded by Lee’s fellow Maryland faculty and ASIST member Ben Shneiderman. Interfaces for children got much attention at this open house. Congratulations to Ben on the continuing success of this pioneering effort.

The authors of this issue’s feature package are all “in practice,” and their articles record their experiences, observations and explorations. Jane Starnes discusses how a successful system for accessing expert knowledge was launched at Intel. Joan Starr discusses standards for information exchange in banking, and Steve Hardin reports his research on how meteorologists use the Web. And from further afield, we turn to Nigeria, where Kazanka Comfort and her colleagues at the Fantsuam Foundation report on the introduction of information technology to women in rural areas, and Innocent Ekoja discusses the work of the (Nigerian) National Agricultural Extension and Research Liaison Services (NAERLS).

In his regular column, Andrew Dillon has some trenchant observations about professional boundaries on the basis of his recent observations in the domain of IA – or what ought to be the domain of IA. And in her President’s Page, Trudi Hahn reports some preliminary results from the ASIST membership survey just concluded.
News from ASIST Chapters

The Central Ohio ASIST (CO-ASIST) chapter offered a look at the renovated State Library of Ohio at its mid-May luncheon meeting. The meeting began with Pete Bates, head of information systems and technology, and Clara Ireland, research services consultant, detailing the treasures in the historic building and plans for the future. Following lunch, participants took a tour of the impressive facility.

For its July meeting, CO-ASIST invited Don Barlow, director of the Westerville Public Library, to discuss radio frequency identification (RFID) and what this emerging technology might offer libraries.

The August meeting of the Southern Ohio ASIST (SOASIST) chapter will feature Thomas S. Blanton, director of the National Security Archive, discussing the USA Patriot Act and the Freedom of Information Act. Blanton, a keynote speaker at the 2002 ASIST Annual Meeting, will discuss privacy, government surveillance and transparency in government.

The Los Angeles Chapter of the American Society for Information Science and Technology (LACASIS) focused on blogs, aka weblogs, chronological publications of personal thoughts and Web links, for its June meeting. Christina Salazar, California Lutheran University, and Donna Feddern, Escondido Public Library, showed examples of weblogs designed for libraries and explained how weblogs are used in different library settings.

LACASIS followed up in July with an opportunity to discover California’s Culinary History, featuring Dan Strehl, founder, Culinary Historians of Southern California, and librarian with Los Angeles Public Library.


LOOKING TO LONG BEACH

Long Beach and Beyond
by Amy Wallace

So the annual conference theme caught your eye, and then you were sold by the ASIST Los Angeles Chapter (LACASIS) articles on Long Beach weather, arts, culture and history. Before you make your travel plans check out the website that LACASIS has created to help you make the most of your stay. The website is linked from the ASIST Annual Meeting page, and can also be found at www.libuci.edu/lacasis/about.html. The website includes a “Maps and Transportation” section that provides information on how to get to Long Beach and how to get around once you are there. There is also the handy “Within Walking Distance” section that can help you locate a fancy restaurant, cup of coffee, post office or place to buy a toothbrush. And just in case you have a few free hours in the afternoon, this section provides details on local attractions within walking distance. You can easily stroll over to the Aquarium of the Pacific, Acres of Books bookstore or the shops on Pine Avenue.

What if you want to venture beyond Long Beach? Once the conference is over you might want to take advantage of Southern California’s wonderful weather and do some sightseeing. Everyone knows Southern California is famous for attractions like Disneyland, Universal Studios, San Diego Zoo, the Mighty Ducks, the Dodgers and the Angels – but there is so much more. What about a trip to Catalina Island, Venice Beach, the International Surfing Museum or the San Diego Super Computer Center? The website includes points of interest in the Southern California area and approximate drive times.

And if all this information is not enough for you, LACASIS has members from all over Southern California who will be attending the Annual Meeting. Members will be happy to answer all of your questions about the local area.

See you in Long Beach.

Amy Wallace is the co-chair of the ASIST Los Angeles Chapter (LACASIS).

The 2003 ASIST Annual Meeting is October 19–22 in Long Beach, California. Check your mailbox for the preliminary program or visit the ASIST website – www.asis.org – for up-to-date information on schedules, presenters, pre-conferences and social events.

Inside ASIST
The European Chapter of ASIST provided support to the Libraries in the Digital Age conference in Dubrovnik, Croatia, May 26-30, and held a half-day preconference meeting. The chapter stressed the role of professional organizations in career development. In highlighting the global nature of ASIST, Emil Levine, chapter advisor for the ASIST-EC, noted that almost 500 ASIST members are international, representing 65 countries.

Tefko Saracevic, Rutgers University, began the preconference with a brief history of ASIST. Kora Golub, Croatia, named ASIST-EC Student-of-the-Year, gave an overview of her participation in ASIST and the benefits derived, including her recent selection for a Ph.D. scholarship in Lund, Sweden.

Five ASIST members discussed the “Role of Professional Organizations in Career Development” and provided personalized accounts of their entry into ASIST and the impact on their careers. Levine, currently living in Vienna, recounted how Isaac Welt, then editor of JASIS and professor at American University, encouraged his students to join ASIS in order to get an A in class! Saracevic traced his career from his love affair with a computer to his entry into Case Reserve so he could learn more about computers. And the only computer was in the library school. Sanda Erdelez, University of Missouri, who is Croatian by birth, entered Cornell with a legal background, and her interests in intellectual property brought her to the library school. Paul Kantor, Rutgers, entered the field as a physicist. LIDA co-director Tatjana Aparac, University of Osijek, Croatia, entered the field through studies in library and information science in Croatia.

With support from the ASIST Chapter Development Fund and donations from Information International Associates and SIG/III, ASIST-EC helped sponsor the attendance of 13 students at the conference, as well as co-sponsoring a wine and cheese party and other events. A total of 17 students were honored with student memberships in ASIST for various academic activities in their home institutions and at the conference.

The conference drew 141 participants from 18 countries. Full details of the conference and papers presented can be found at http://www.pedos.hr/lida/.

News About ASIST Members

Suzie Allard, who recently completed her Ph.D. at the College of Communication and Information Studies at the University of Kentucky, has joined the faculty of the School of Information Sciences at the University of Tennessee as assistant professor. Previously, she was a presidential fellow at Kentucky, where her research focused on digital libraries, knowledge management and health communication. A founding member and past-chair of ASIST SIG/DL, she was the 2002 recipient of the James M. Cretsos Leadership Award.

Lois F. Lunin, editor of JASIST Perspectives for 20 years and 1976 recipient of the Watson Davis Award, received the 2003 Drexel University Alumni Board of Governor’s Service to Profession Award. This honor is conferred upon a graduate who has earned recognition for her professional achievement or whose work has contributed to advancements in her field. Lunin was honored for her decades of commitment to advancing information science through research, publications and volunteerism.

Deanna Marcum, most recently president of the Council on Library and Information Resources, has been appointed associate librarian of Congress and national librarian, effective mid-August.

José-Marie Griffiths, University of Pittsburgh and former ASIST president, will be appointed by President Bush to a two-year term on the President’s Information Technology Advisory Committee (PITAC). PITAC advises the president on maintaining America’s preeminence in advanced information technologies.

News from an ASIST Institutional Member

University of Tennessee Honors 3 ASIST Members

Three professors in the School of Information Sciences (SIS) at the University of Tennessee – all ASIST members – were recently honored for their exemplary research and technological innovation. Awards to Dania Bilal, Carol Tenopir and Gretchen Whitney are particularly noteworthy because SIS professors garnered these awards the first year the new College of Communication and Information was formed.

Dania Bilal, associate professor, was awarded the College’s Research Award. She was recognized for her recent publications in leading journals, including the Journal of the American Society for Information Science and Technology, Online Information Review and Information Processing and Management. She has also published popular articles in the local press.

Bilal’s major research area concerns user information-seeking behavior in using the Web. She has been awarded a research grant by Eugene Garfield to investigate designing Web search engines that meet children’s information-seeking behavior and needs. The preliminary results of this funded project were published in the proceedings of the Canadian Association for Information Science (CAIS/ACSI). She has also authored Automating Media Centers and Small Libraries: A Microcomputer-Based Approach, which is used in classrooms worldwide.

Carol Tenopir, professor, was awarded a University 2003 Research and Creative Achievement Award at the 2003 Provost’s Banquet. Designed to honor accomplished researchers known internationally in their fields, this award recognizes Tenopir for her advances in teaching, research and service at the University.
Gretchen Whitney, associate professor, has been awarded the College Faculty Innovative Technology Teaching Award. A 1999 recipient of the ALISE Pratt-Severn Award for Faculty Innovation, she has continued to explore new technologies, such as PDA access to Blackboard and HTML-based lessons; instant messaging; weblogs, and the Wiki Web. She has also taken an historical approach to help new users understand the history of the Internet and has introduced lessons on ASCII art to help students understand such basic issues as case sensitivity.

In 1995, Whitney mounted the first Web page for the School of Information Sciences, alongside sites for two courses that she was teaching. In 1998, she presented perhaps the first research article in the *Journal of Education for Library and Information Science* that was supported by continual updates on a website. In 1999, she mounted the first Web-based distance education course for the school, which included innovative audio-plus-HTML explanations of lessons.

**OBITUARIES**

**ROB KLING**

Rob Kling, professor of information systems and information science in Indiana University’s School of Library and Information Science (SLIS) and adjunct professor of computer science, passed away unexpectedly in mid-May. He was 58 years old.

Blaise Cronin, Kling’s colleague and dean at Indiana University, says, “Rob Kling’s accomplishments are legion, and well documented. He was quite simply the brightest bloke with whom I have had the pleasure of working. Infectiously curious, playfully serious, razor sharp, generous of spirit, and wonderfully open-minded.”

A brilliant scholar and prolific writer, Kling is described by colleague Alan Dennis as “an icon in our field.”

At IU, Kling directed an interdisciplinary research center – the Center for Social Informatics – and directed the SLIS Master of Science degree program. In addition, he served as the editor-in-chief of *The Information Society*, a publication for the information technology profession, and on numerous editorial and advisory boards.

Kling’s research interests were wide ranging. Since the early 1970s, he had been a leading expert on the study of social informatics – the roles of information technology (IT) in social and organizational change and the ways that the social organization of IT is influenced by social forces and social practices.

Kling grew up in northern New Jersey. He completed his undergraduate studies at Columbia University and his graduate studies, specializing in artificial intelligence, at Stanford University. Among his early professional assignments were a research appointment in the Artificial Intelligence Center at the Stanford Research Institute; professorship in computer science at the University of Wisconsin-Madison; and faculty appointments at UC-Irvine. He moved to Indiana University-Bloomington in 1996.

Kling is survived by his wife, Mitzi Lewison of Bloomington, Indiana, and his sister, Ellasara Kling, of New York City.

The family has established the Rob Kling Social Informatics Scholarship Fund at the IU Foundation. Contributions may be made payable to the IU Foundation with the name of the scholarship fund on the memo line. Mail to: Indiana University Foundation, P.O. Box 500, Bloomington, IN 47402.

**BRYCE ALLEN**

Bryce Allen, recently retired from the University of Missouri, passed away unexpectedly in late April. Allen joined the School of Information Science and Learning Technologies (SISLT) faculty in January 1996. He and his wife, Gill Allen, retired after the winter 2001 semester and moved to Nova Scotia. Before his retirement, Allen had been an active teacher and researcher in the area of cognitive aspects of information searching, and more recently Web-searching behavior. Earlier this year, he won the ALISE award for Teaching Excellence in the field of Library and Information Science, praised as “a gifted instructor who excels in his ability to connect with his students.”

Condolences may be sent to his wife Gillian Allen at 408 Seaman St., RR#1 Margaretsville, NS, CANADA B0S 1N0.

**News from the Field**

Responding to a call from the Library of Congress, a task force of ALA’s Association for Library Collections & Technical Services (ALCTS) and the Association for Library and Information Science Education (ALISE) has recommended appropriate training and education for bibliographic control of Web resources (www.loc.gov/catdir/bibcontrol/CatalogingandMetadataEducation.pdf).

To address the challenge of cataloging 21st century library materials, the Library of Congress hosted a bicentennial conference on “Bibliographic Control for the New Millennium” (www.loc.gov/catdir/bibcontrol/). John Byrum, chief of the Library of Congress Regional and Cooperative Cataloging Division, remarking on the genesis of the conference, said “Libraries have witnessed an explosion in Web resources and they recognize the need to integrate them into their collections. The conference sought to enable an open discussion and the development of an action plan to pursue.”

Among more than two dozen action items from the LC conference, two of them relate to education and training. The Library of Congress asked that ALCTS take a lead role to accomplish these two action items. As a first step, ALCTS created its joint task force with ALISE. The task force, chaired by Beth Picknally Camden of the University of Virginia, engaged principal investigator Ingrid Hsieh-Yee, associate professor of the School of Library and Information Science of the Catholic University of America, to survey ALA-accredited programs and to recommend fresh approaches.

The group responded with a five-part plan to help metadata and cataloging educators and trainers.
Concerns have been present for some years that our laudable drive for “openness” has led to the inopportune disclosure of sensitive information affecting our national security. However, the renewed importance of homeland security in the face of threats from international terrorism have required that we diligently re-examine our policies on public access to government information – both in terms of voluntary releases, such as publication on government websites, and mandated disclosures under the Freedom of Information Act (FOIA) and numerous other disclosure statutes.

As a matter of policy, how should we balance our rights to government information as members of a democratic society when, at the same time, such information could benefit terrorists?

Indeed, the issue of openness is even broader given the following permutations: First, consider the various holders of sensitive information – from corporations that fear providing information to the government to private scientific publishers who value the importance of scientific information exchange but nevertheless acknowledge that certain information may present national security risks. Second, consider that we must address not only sensitive national security issues but individual privacy issues as well. As citizens, we generally applaud openness until we realize that our personal information may be threatened with disclosure. And third, consider the growing role of private information brokers for government information. Does the insertion of private enterprise in the lifecycle of government information mean that citizens risk the integrity of critical information as well as their rights under existing law to require accuracy and amendment as necessary? In sum, the question presented: Where is national information access policy today – and tomorrow?

**Openness and National Security.** Beginning more than five years ago, certain sectors of the Executive

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**Records and Information Management Perspectives**  
**Part 2: Access to Public Information**

by Lee S. Strickland

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branch and Congress began to fear that mandated FOIA releases were, in the aggregate, revealing information harmful to national security. This was perhaps most evident in the actions of former Department of Energy Secretary O’Leary in the Clinton administration and her push for openness that resulted in Congressional direction to review immense volumes of information that had been cleared for release. And it was more recently evident – also beginning several years ago but accelerating in the aftermath of September 11 – where many agencies have reconsidered information currently on the Web or otherwise available to the public. These changes in access ranged from documents impinging on intelligence sources and methods related to Gulf War Veterans’ Illness to worst-case scenarios prepared for the Federal Emergency Management Agency to mandated disclosures on community water treatment programs by the Environmental Protection Agency (EPA). By way of very specific examples, the EPA removed some 9,000 documents (including many scientific research papers that referenced “nuclear” or “chemical” or “storage”) as well as Environfacts database that allowed people to search for information about environmental issues in their neighborhoods and received more than 100 million hits a month. The critical point is that each of these instances, and hundreds of others, presented a very real conundrum between the needed release of information of great import to Americans – and the feared benefit to our adversaries.

It was for such reasons that Attorney General (AG) Ashcroft on October 12, 2001, announced a reversal of the policy of former AG Reno who had urged discretionary releases unless it was “reasonably foreseeable that disclosure would be harmful.” Indeed, Ms. Reno had established a presumption of “maximum responsible disclosure of information … that the government must ensure that the principle of openness in government is applied in each and every disclosure and nondisclosure decision that is required under the Act.” As she explained the issue, the “American public’s understanding of the workings of its government is a cornerstone of our democracy[…] and we make government throughout the executive branch more open, more responsive and more accountable.”

The new policy allows governmental agencies to withhold whenever there is a legal basis to do so and is based, according to the Department of Justice, on “the importance of protecting sensitive institutional, commercial and personal interests that can be implicated in government records – such as the need to safeguard national security, to maintain law enforcement effectiveness, to respect confidentiality, to protect internal agency deliberations and to preserve personal privacy.” In other statements to highlight the deference that will be given to individual agencies in their withholding decisions, Mr. Ashcroft has stated that “when you carefully consider FOIA requests and decide to withhold records, in whole or in part, you can be assured that the Department of Justice will defend your decisions unless they lack a sound legal basis or present an unwarranted risk of adverse impact on the ability of other agencies to protect other important records.”

Following this policy change, Andrew Card, Jr., the White House Chief of Staff, directed agencies on March 19, 2002, to reexamine how they protect information that could be used by terrorists and report the results of their efforts to the Office of Homeland Security within 90 days. Specifically the memo calls for the classification or reclassification of information on weapons of mass destruction, directs agencies to classify such information if it has never been classified, irrespective of age, provided that it has not been disclosed to the public under proper authority, and further directs reclassification of sensitive information concerning nuclear or radiological weapons if, although it had been declassified, it had never been disclosed under proper authority. The directive further suggests that “sensitive but unclassified” information could be protected under other FOIA exemptions including Exemption 2 for information about the “critical infrastructure” where disclosure of internal agency records might cause a risk that

See [www.ombwatch.org](http://www.ombwatch.org) for detailed information on federal government information withdrawals. Also note that such security concerns have not been limited to the federal arena and have been major concerns in the states. Many legislative proposals were criticized because of the lack of standards for withholding. (For example, in Maryland, it was proposed that a government official could deny access to records relating to public security simply if the official “determines that inspection of the information would constitute a risk to the public or to public safety.”) And many openness advocates such as the Reporter’s Committee for Freedom of the Press have also noted that the “public has incredibly strong interest in knowing what the government is doing to protect the public.” In the end, most of these state proposals were generally rolled back to more reasonable levels with definitive reference to specific information to be protected. (For instance, Maryland SB 240 authorizes withholding of “specified response procedures or plans prepared to prevent or respond to emergency situations; specified building plans, blueprints, schematic drawings, diagrams, operational manuals, or records of other buildings or structures operated by the State or any of its political subdivisions; or specified records prepared to prevent or respond to emergency situations” provided and only to the extent that access would jeopardize the security of a structure, facilitate the planning of a terrorist attack, or endanger the life or physical safety of an individual.)
laws or regulations could be circumvented or Exemption 4 for information voluntarily provided to the government by the private sector.

The primary concern with all of these efforts to reduce openness is not that certain previously available government information may prove of value to terrorists – and perhaps should be protected – but that there are no standards for making the new determinations.

Most recently, federal legislative action on openness has been in the context of legislation to establish a Department of Homeland Security (DHS) with the House and the Senate taking significantly different approaches. Initially (in 2002), the House version of the Homeland Security Act (HSA) included a broad new FOIA exemption for information voluntarily submitted to the new department with somewhat vague definitions and also preempting all state open records laws. The Senate version included a fairly narrow FOIA exemption for documents submitted to the new department that concerned vulnerabilities and contained no preemption of state open records laws. However the change in the Senate resulting from the November 2002 elections resulted in a passage of a final HSA that included the broad exemption for information supplied to the government. Section 204 of the act specifically encourages the sharing of information with the DHS by the private sector, state and local governments, and individuals. It does so by providing that information voluntarily provided by non-federal parties to the DHS that relates to infrastructure vulnerabilities or other vulnerabilities to terrorism is not subject to public disclosure under the FOIA even if such information is forwarded by DHS to other federal agencies.

**Openness and Individual Privacy.** While openness policy tends to focus on national security interests, there is also a significant contest between openness and individual privacy in various contexts: required disclosures under the FOIA (or state equivalents), growing access facilitated by expanding e-government services and the exploding access provided by private data aggregators and the concomitant loss of “practical obscurity.”

We will briefly consider these in turn. First, the frequent invocation of the FOIA by private companies for information on individual citizens speaks for itself – many citizens and most courts believe that even the fact of communication between an individual and a government agency bears an expectation of privacy.

Second, the benefit and curse of e-government is less visible. We appreciate easy access to real estate and court records until we realize that our easy access is the same for everyone. At the present time, the federal and state courts are struggling with the issue of whether and to what extent the paper files (available to all in the courthouse) should be available online.

And lastly, we must consider the multiple risks posed by private data aggregators – businesses that compile and sell government information in electronic form – that are largely unregulated and that present enormous privacy implications.

Consider by way of example, www.rapsheets.com, a company that has begun selling national criminal background checks for a small fee based on their compilation of some 50 million criminal records in 36 states, as well as any number of other companies selling all sorts of public record information including bankruptcies, divorce data, civil lawsuits or property ownership. First, there is the direct potential for an invasion of privacy by eliminating the concept of “practical obscurity” – a term of art used to recognize that privacy interests may exist in isolated data generally unknown to the public. And second, there is the equally real threat that in a de facto manner the public record may be corrupted. Consider the implications if such companies become the de facto holder and supplier of public record information. While the official public record would continue to be available at various courthouses or state agencies, few would have (or avail themselves of) access since the primary vehicle of dissemination and access would become the electronic version held by the private data brokers. The question then presented: What becomes of the rights granted to citizens by state and federal privacy laws (for example, right of access, correction and accounting for disclosures)?

**In Sum**

Records and information management (RIM) is no longer an arcane world of primary interest to a few. Our information age has converted the issue to one of critical importance to every corporate manager and each citizen – as information has become a key business asset and is similarly valued by individuals in terms of personal privacy. While we as information professionals tend to think in terms of availability, authenticity and reliability as key objectives for our RIM efforts, we must also verbalize another – security from theft. This has been one of the many concerns to the Cobell court, it is a vital concern in e-government implementations and is becoming a central focus of business information managers as they become cognizant of the significant liability issues. We shall consider in future installments a number of the legal and policy issues at play in the protection both of corporate data and customer data held by business.
Knowledge Compass: Opening Windows, Punching Holes in Stovepipes, Forming Communities, Connecting People to People

by Jane K. Starnes

Intel Corporation is a Fortune 100 company with over 80,000 employees located at multiple sites all over the world. As with all such organizations, Intel has divisions created by organizational structure, time differences among sites and geographic separation. These become barriers to sharing information within the organization. Add to that the fact that Intel does not have a central document repository or comprehensive intranet index, and it all adds up to so much information, so little time.

Looking for a Solution

We looked for a solution to these barriers that would enable employees with critical problems to discover the best expertise within the organization and facilitate the exchange of that expertise. We wanted to capture the outcome for reuse. And we knew that we would need the tools to analyze the results to be able to demonstrate that this effort was worthwhile.

The steps in the process were as follows:

■ The Technology Team and the Business Team collected business requirements and translated them into product requirements.
■ Twelve products were evaluated, four selected for testing.
■ One product was selected and a pilot project was kicked off in October 2001. The system was named Knowledge Compass (KC). The pilot
  • grew from 500 users to about 1300 in six months;
  • showed savings of $1,000,000;
  • reduced training time, product cycle time and business processing time; and
  • ended in August 2003 with management commitment to “take it to the enterprise” (a statement indicating that a lot of funding and staffing would be allocated at a time when both were being cut throughout the company).

What is Knowledge Compass?

Knowledge Compass (KC) is a system for locating “experts,” asking questions and capturing the answers for reuse. The database is built in two ways: (1) experts pre-load documents and links to resources that already exist and (2) people ask questions, and the answers are kept, graded and sometimes recorded as “best practices.” KC is a customized implementation of the product from AskMe, Inc. (www.askme.com)

How Did We Do That?

In tight budget times, this project won high-level management support and major funding. The following were among the keys to success:

■ A Management Review Committee watched over the project from beginning to end.
■ The project was tightly managed, and time spent was carefully justified and accounted for.
■ Product requirements were developed in conjunction with customers and the selected product met most of the criteria.
■ The product was carefully marketed in a way that demonstrated its special niche in the flow of information.
■ Users were trained on how to use the product; there were several levels of training, tailored to the type of interaction the individual was expected to have with the product (moderator, expert or knowledge seeker).
■ Evaluation was continuous and very numbers-based. How many users? Repeat users? How many questions posted? How many answers?
■ The vendor was committed to making our installation successful.
Customers were recruited in two ways:
1. “Followers” were signed up when their managers decided to join the pilot. The implementation team followed a repeatable process, focusing on the key behavior changes needed and the reuse of documents and processes.
2. The “infection model” encouraged word of mouth advertising. Enthusiastic users were given model presentations to showcase their new tool to co-workers and encourage them to sign up.

What is Knowledge Compass?

Figure 1 illustrates the Start screen of Knowledge Compass. Customers can browse through the vocabulary tree or enter keywords in the search box at the top right. Users can designate certain categories as favorites. The system also adds frequently visited categories to the favorites lists. Searches can also be initiated from the e-mail system, using an easily installed plug-in. The results page is returned in an e-mail message containing links to KC product.

When an answer is posted, the requestor receives an e-mail with a link to the answer in KC. The requestor rates the answer with one to four stars, grading the usefulness of the answer. Average ratings for each expert are shown in their profiles and reported to their category moderators. The answer can be nominated as a Best Practice; the category moderator approves best practices.

Who Is an Expert?

Category moderators select experts or they sign themselves up. Experts’ profiles allow them to define the scope of their expertise (for instance, “I can write Excel macros, don’t know pivot tables”) so that requestors will be able to direct questions to selected experts.

Figure 4 shows an example of the basic profile that every expert enters.

The profile page also shows the summary statistics for that individual. The rating of answers is a self-policing mechanism—an expert who gets consistently low ratings should withdraw. Category moderators also monitor the answers and ratings.

How Knowledge Compass Was Deployed

Work teams of two to four people were formed. The Business Engagement team was largest—they developed training materials, conducted “sales presentations” and worked with customers on implementation. The Technical Support team was two people plus contract support from our internal programming support group. The Management Review Committee comprised the senior IT managers.

Once we got the commitment to expand the use of Knowledge Compass to the entire company, we knew that we would need to work on the taxonomy. We developed a small “backbone” taxonomy into which all other categories would fit hierarchically. Manufacturing, marketing, product design, research and development, sales, security and safety, and software development were among the categories in the backbone taxonomy.

We interviewed more than 40 people from all levels, and all organizations then proposed several different models for the taxonomy. A focus group selected an activity-focused vocabulary. We thought that this focus on the activity or task, rather than the organization, would encourage more sharing across organizations. A manual and training class for how to use and expand the taxonomy were developed and every new customer group received that training.
Preparation for the Big Expansion

During the pilot, a few customers got a lot of attention from the team. We knew that if we were going to succeed in taking this product to a lot of customers, we would need for the customers to carry more of the load. We developed checklists for customers on how to prepare their groups to participate, provided model timelines and gave the product advocates for the groups such responsibilities as doing presentations for recruiting experts. We gave them PowerPoint presentations and encouraged them to personalize them for their groups.

Training for product advocates, category moderators and experts was offered at appropriate points along the timeline, using PowerPoint presentations, delivered through an online collaboration tool. The members of the implementation team were “certified” for each level of the training so that we could be sure that consistent messages were being delivered. The training materials are now being converted to Web-based instructional classes that can be self-paced rather than instructor-led.

Definitions of Roles for Knowledge Compass

The project encompasses the following roles:

■ The implementation manager is a member of the KC team who helps the customer team set project schedules and provides or arranges training at each step of the timeline.

■ The taxonomy consultant is a part-time member of the KC team and works with the group to select the categories in which they will participate and helps to create new ones. The taxonomy consultant is a member of the library staff.

■ The product champion is the individual from the customer group who advocates Knowledge Compass within the group and convinces management to participate.

■ The category moderator(s) works on the vocabulary for the group, requiring familiarity with the work of the group. Moderators recruit experts and monitor group usage of the categories to make sure the groups are using the tools appropriately. They are also responsible for monitoring the quality of the content their experts are providing. For most customer groups, the product champion and category moderator were the same person, but the system allows for each category to have its own moderator, so some groups have several moderators.

■ Experts are customers who sign up to answer questions in a category and identify resources to link to categories such as FAQs, web links and departmental documents.

■ Knowledge seekers are all other users of Knowledge Compass – those who search the database for best practices and/or post questions.

How Do We Know It’s Useful?

Table 1 shows the kind of information we tracked.

Insights Gained from the Experience

With a project of this size, many signs emerge to help guide future efforts. The following are among the insights we gained:

■ “Experts” is an off-putting term for some users.

■ Using total users as the sole criterion for success led to • rushing customers through training
• not spending enough time on vocabulary development
• not leaving experts enough time to adequately collect resources.

■ It’s a big culture change to encourage sharing information and needs more time.

■ Management asks how to value and reward information sharing, and we’re still inventing answers.

■ Individuals want to know how management will value their effort to participate.

■ The urge toward “faster, better, cheaper” is pushing us toward less hands-on customer involvement which may make quality control harder.

Additional Information

For additional information about this effort, please see Knowledge Compass: Capturing and Providing Business Information (www.intel.com/eBusiness/pdf/it/wp030601.pdf) and AskMe Corporation (www.askmecorp.com). All opinions are those of the author and should not be interpreted as official INTEL policy.

Table 1: Categories of information gathered to measure performance.
Metadata Use in the Commercial Banking Industry

by Joan Starr

In the library and archive information professions, metadata is typically presented as an enabling tool for information resource retrieval and/or management. In the industrial and commercial worlds, however, metadata can serve an altogether different goal: information exchange, either in a transaction or report format. The exchange paradigm of information use is scarcely apparent in information science literature, perhaps, in part, because transactional information is, by nature, pre-archival. Yet, the World Wide Web has blurred the lines between that which is fixed and stored and that which is underway, so, perhaps, this is an appropriate time to examine metadata use in the commercial sector.

This inquiry will begin with a brief introduction into the information-related behaviors of the American banking industry and include a discussion of how the use patterns have changed in recent years. It will further describe the development of one particular metadata standard currently gaining momentum and endorsements in the financial sector. Finally, it will identify a number of critical considerations that may impact the future direction and acceptance of that metadata standard.

Classic Information Behavior of Banks

To gain an overall understanding of the role of metadata in banking operations, it is first useful to delineate the specific types of information banks typically handle, as well as what they do with that information.

Many Types of Information. Commercial banking is an enterprise with several distinct, but interrelated functions, each of which generates large amounts of information. Banks maintain information on deposit accounts, loan accounts, customer profiles, bank investments, market research and corporate accounting. This last category includes general ledger and balance sheet data and also reserve account balance information that the bank must report to regulatory agencies such as the Federal Depository Insurance Corporation (FDIC) or the Federal Reserve Bank. Banks, like any modern organization, also have personnel-related information systems, and some very large banks support their internal and external communications with document-management systems as well. These systems have allowed banks to digitize signature cards, automate loan application processes and replace many other paper-based workflows.

To accommodate this range of content types, bank systems deal with several distinct information format types. Account information, either regarding individual deposits or loans or in connection with the corporation’s accounts, tends to be almost exclusively numeric, although borrower’s signatures are increasingly likely to be stored as graphic files, typically in TIFF format. Market research, on the other hand, may include numeric data as well as textual analysis, and perhaps even graphic representations. If the bank is using a document-management system, the system will be configured to handle a wide range of file types, including word-processed documents, Web pages, spreadsheets, slide presentations and perhaps even audio and video files. Where there is no document-management system in place, this full range of file types is typically stored on a shared (internal) network drive.

Three Principal Uses of Information. Banks, then, possess a wealth of information. And, the range of information types has a correspondingly broad range of information uses, falling into three categories: transaction, retrieval or reporting. For the purposes of this discussion, transaction is defined as information access in which content is changed. Retrieval is defined as information access in which content is not changed. Reporting, perhaps the most interesting category, presents an intersection of transaction and retrieval. That is, with reporting, the individual content elements are not changed, but they may be recombined and manipulated in such a way as to create a completely new and additional information packet.

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Table 1. Use of Information in Banks

<table>
<thead>
<tr>
<th>INFORMATION TYPE</th>
<th>DATA TYPE(S)</th>
<th>TYPICAL USES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposit and loan accounts</td>
<td>numeric, some graphic</td>
<td>Depositor or borrower access for view-only from corporate website, and for update from automated teller machines (Retrieval or Transaction) Employee access for view or update from internal systems (Retrieval or Transaction)</td>
</tr>
<tr>
<td>Customer profiles and loan applications</td>
<td>text, numeric</td>
<td>Internal automation systems access in a system-to-system relationship (may or may not include updates) (Retrieval or Transaction) Employees can access for view or update from internal systems (Retrieval or Transaction)</td>
</tr>
<tr>
<td>Investment files</td>
<td>numeric</td>
<td>Employee access for view or update from internal systems (Retrieval or Transaction) Shareholder reports (Reporting)</td>
</tr>
<tr>
<td>Corporate communications</td>
<td>numeric</td>
<td>Shareholder and Regulator reports (Reporting)</td>
</tr>
<tr>
<td>Internal communications</td>
<td>text, numeric, graphic</td>
<td>Employee access for view or update from internal systems (Retrieval or Transaction)</td>
</tr>
<tr>
<td>External communications</td>
<td>text, numeric, graphic, multimedia</td>
<td>Public access for view-only from corporate website (Retrieval) Employee access for view or update from internal systems (Retrieval or Transaction)</td>
</tr>
</tbody>
</table>

Table 1 summarizes the discussion above and illustrates the distinctions made between the three information use types. Briefly, most bank systems for information access must allow both retrieval and transaction activity, depending upon the identity or status of the individual seeking access. The third use type, reporting, is critical to corporate accounting and investment information which must provide new compilations and combinations of data to shareholders and regulators.

Evolution of the Banking Industry

All the information described above, with the likely exception of document-like objects stored in a document-management system, has resided without descriptive metadata schemes in banks’ computer systems. Most of the information (accounts, profiles and related graphics) has been retained in relational databases and accessed for viewing (retrieval), update (transaction) or extraction (reporting) using proprietary tools. This includes Web portal access tools provided by database vendors for intranet, extranet or Internet access. And, as indicated above, word-processed documents, Web pages, presentations and spreadsheets have been stored “loose” on network drives. Any access from outside the organization’s network is increasingly provided using some variety of hypertext markup language (HTML) served up to an Internet or extranet site. Internal access for update (transaction) or extraction (reporting) activity is gained through the proprietary software tools used to create the files. Internal view-only access (retrieval) may use the company’s intranet site or the proprietary software.

Needless to say, metadata projects are both complex and costly to implement and maintain. For the private sector, this effort is a program of such magnitude that it must proceed on the basis of a truly compelling cost-recovery (or cost-avoidance) case or a regulatory requirement. Interestingly, the banking industry happens to be poised at a convergence of both of these arguments.

The Internet Changes Commerce. It is widely acknowledged that the Internet radically alters the commercial environment. In 2000, Gary Gensler, undersecretary for domestic finance in the Clinton Administration, told a meeting of the Bank & Financial Analysts Association, “There may be no part of our economy more suited to delivery in electronic form than financial services... The Internet creates a 24-hour marketplace for financial services” (Gensler, 2000, p.50). Suddenly, not only do the bank’s depositors and borrowers expect to see—and even manipulate—their account information on the Internet, but also the bank’s suppliers would like to establish secure extranet relationships for data exchange. Indeed, the entire financial information community now seeks to access, exchange and research data in ways previously thought to be impossible. Bank executives are facing significant costs of failing to provide the new access with new tools.

Congress Changes the Rules. In 1999, Congress passed the Financial Services Modernization Act of 1999, commonly referred to as Gramm-Leach-Bliley. This act repealed the 1933 Glass-Steagall Act, which created statutory separation between commercial and investment banking. Gramm-Leach-Bliley authorizes the creation of financial holding companies to act as containers for commercial banks, securities firms, insurance companies and other financial services. Gramm-Leach-Bliley effectively introduced a wave of mergers and acquisitions. This has two effects: banks are now handling new kinds of information, and banks are challenged to combine, or at least reconcile, internal information from multiple pre-merger organizations.

The Next Generation of Banking

With all this activity, it may come as no surprise that there are many proposed financial information standards. A comprehensive list would include the following standards for information exchange and transactions: ACORD (insurance), FinXML (capital markets), FIXML (securities), FpML (financial derivatives), MDDL (financial markets), MISO (mortgage industry), OFX (consumer finances), RETML (real estate), STPML (securities). Two more standards have been proposed specifically for financial industry messaging, IFX and SWIFTML. Finally, there are currently three proposed reporting standards: IRML and RIXML both for economic and investment research reporting, and XBRL for business reporting. For an explanation of all these acronyms, please see Table 2.
Industry analysts warn that this glut of standards efforts, especially for transactions, will inevitably result in some fall-out. The suggestion is that, ultimately, all transaction standards will coalesce around the ISO 15022 specification. ISO 15022 is the standard for message exchange in the securities industry. As noted, one area where there appears to be a bona fide standard is in business reporting, with XBRL.

A Brief History of XBRL. The genesis of XBRL is in the field of accounting, rather than banking. In 1999, the American Institute of CPAs gathered a group of accounting firms and technology vendors to work together on an XML-based standard focused on the requirements of accounting reports and aiming to serve all stakeholders for that information. The first XBRL specification was made available in July 2000. In early 2001, the XBRL consortium held its first international meeting, and, significantly, the FDIC joined the organization. Later that year, the federal government’s Joint Financial Management Improvement Program recommended the use of XBRL to U.S. government agencies. At the close of 2001, the Bank of America conducted a pilot using actual client information, allowing customers to upload financial information from QuickBooks and then convert the data to XBRL format.

By December, 2002, the membership of XBRL International, the standard’s governing body, had reached 170, and its steering committee included representatives from major accounting firms, such as Ernst & Young LLP, Morgan Stanley Dean Witter, and PriceWaterhouseCoopers, technology vendors such as Microsoft, regulators such as the FDIC, and academics. The XBRL US Domain Group chair and Microsoft executive, Rob Blake, has been quoted as saying, “The XBRL consortium is becoming more like a Who’s Who list of vendors, banks and accountants” (Solomon, para. 13). This may be the best way to explain the standard’s dominance in the financial reporting market.

Under the XBRL Covers. The XBRL specification consists of a document type definition (DTD) for a core bundle of elements and attributes, as well as a taxonomy syntax for creating new elements and attributes. To date, a number of taxonomies have been created, and XBRL International uses a ranking system to keep them organized. Only one, the Journal Taxonomy, is in a “Recommended, Final” state. Others, in “Recommended, Public Working Draft” or “Approved,” include the Global Common Document Taxonomy, the U.S. Financial Reporting Taxonomy and several International Accounting Standards taxonomies. The XBRL International website also hosts royalty-free, conforming taxonomies its members have created. At the present time, these include a Management Report Taxonomy and a US GAAP (“Generally Accepted Accounting Practices”) Taxonomy.

XBRL does not include any explicit provision for a controlled vocabulary. One can argue that a cohesive community of practice, such as the accounting industry, with its national and international standards frameworks, supplies a de facto controlled vocabulary. As long as XBRL implementations and extensions are limited to this subject area, the lack of a formal vocabulary structure may not be discernible. The Version 2.0 specifications suggest that vocabulary problems may lie ahead by acknowledging that XBRL could be used outside the financial services arena. The specifications explicitly avoid an authority control role for XBRL International, but they include support for business entity authority control provided by some other organization, such as NASDAQ or CUSIP (a service bureau run by Standard & Poor’s for the American Bankers Association). This takes the form of an identifier element with an attribute of scheme, as in the following example from the specifications:

```xml
<identifier scheme="www.nasdaq.com">SAMP</identifier>
```

One may translate this as “The company with the NASDAQ ticker symbol SAMP.”

For demonstration purposes, Reuters Group created a number of example financial reports, exposing the XBRL coding (Reuters Group, 2001). Here is the code for cells in a table entitled, “Reuters Group Revenue Analysis – Third Quarter 2001.”

```xml
<xtbl:row>
  <xtbl:cell align="center" valign="middle">288</xtbl:cell>
  <xtbl:cell align="center" valign="middle">313</xtbl:cell>
</xtbl:row>
```

XBRL International uses a ranking system to keep them organized. Only one, the Journal Taxonomy, is in a “Recommended, Final” state. Others, in “Recommended, Public Working Draft” or “Approved,” include the Global Common Document Taxonomy, the U.S. Financial Reporting Taxonomy and several International Accounting Standards taxonomies. The XBRL International website also hosts royalty-free, conforming taxonomies its members have created. At the present time, these include a Management Report Taxonomy and a US GAAP (“Generally Accepted Accounting Practices”) Taxonomy.

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</xtbl:row>
```
This example shows several notable characteristics of XBRL. First, it can be used within HTML documents. Second, its most basic unit is the “item,” and each item has sufficient metadata attributes to provide unique identification. In this example, both items are of the same type, an income category of operations revenue. In XBRL, every item has an associated time period. The first, 313, is being reported for the third quarter, ending September 30, 2001, and the second is being reported for the third quarter, ending September 30, 2000. Notice also the reference to an authority control, with the “unit” attribute pointing to ISO 4217. This is the International Organization of Standards list of currency type abbreviations.

**Future Directions.** XBRL looks very promising as an emerging standard. It has been designed for flexibility, extensibility and international portability, although, as noted above, it has made little provision for vocabulary control, and it presently allows for only two types of data, text and numeric. Also, its governing board, XBRL International, is a collaborative body of virtually every important stakeholder in financial reporting, with the exception of individual investors and borrowers.

Indeed, there are a number of key indicators that point to XBRL’s dominance. Numerous financial services software vendors now provide either add-on components to translate proprietary outputs into the XBRL format or completely new products, building XBRL compatibility into all the automated processes associated with financial reporting. This development is key, as borrowers, investors and back office clerks are not liable to perform XBRL encoding by hand. One assumes that there is no coincidence involved in the placement of the Microsoft representative to XBRL International, Rob Blake, at the head of the U.S. delegation.

The other interesting partner on the XBRL International Steering Committee is Phil Walenga, the XBRL project manager for the FDIC. This regulatory agency collects data on a quarterly basis from the majority of U.S. depository institutions in the “Report of Condition and Income,” more commonly known as the “Call Report.” In the summer of 2002, the FDIC, under the umbrella of the Federal Financial Institutions Examination Council (FFIEC), issued a request for proposals for the development of a system to automate the submission of call reports, using XBRL. The FFIEC is a consortium of the FDIC, the Board of Governors of the Federal Reserve System (FRB), the National Credit Union Administration (NCUA), the Office of the Comptroller of the Currency (OCC) and the Office of Thrift Supervision (OTS). This amounts to a wholesale endorsement of the standard, as it will force the financial institutions to adopt XBRL in order to comply with reporting requirements.

In the wake of the Enron scandals, some XBRL promoters are looking at the standard as a way to make corporate financial information more transparent and more easily and meaningfully analyzed. A first step toward the fulfillment of this promise is EDGAR Online. EDGAR Online is a proprietary online tool that is widely used to gain easy access to the information reported to the Securities Exchange Commission’s Electronic Data Gathering, Analysis and Retrieval (EDGAR) system. In early 2001, EDGAR Online announced an XBRL repository for financial statements. The goal was to make available a single source of company financials for use by analysts, investors (individual and institutional), journalists, accountants and others. This will have the tendency of making financial and marketing analysis more consistent and probably speedier as well.

Overseas, several countries have actually endorsed XBRL as national standards or, at least, recommendations. These include Australia, Singapore and the United Kingdom. The incentive is apparently cost-avoidance, with one Italian bank making loans more affordable for companies that use XBRL-compliant accounting software. The discount reflects the bank’s belief that these borrowers are likely to have more consistently audited books, presumably making them a better credit risk. An organization of chief financial officers in Europe, CFO Europe, identified XBRL as number eight in its list of “Top 20 technology trends” for 2003, suggesting that the standard is likely to encourage the creation of many new and innovative financial reporting tools. These developments increase the pressure upon domestic banks to adopt XBRL as they compete for global investments.

**Conclusion**

With its many information constituents including federal regulators, the commercial banking industry has an increasingly powerful incentive to coalesce on a metadata standard for the exchange of information. While the field of contenders is still quite large for transactional exchanges, there is a clear leader for financial reporting. Economists and other social scientists should welcome this development, inasmuch as XBRL-formatted call reports will soon become the stuff of trend analyses and other statistical research. The metadata scheme designed for information exchange will turn out to enable efficient information retrieval.

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**For Further Reading**


What Do You Do With It Now That You Have It? The Impact of Web Weather and Climate Information

by Steve Hardin

It’s trite but true: people from nearly every walk of life are both posting and using the information available on the World Wide Web. Uses range from recreation to commerce to education to research. Included in that research area are thousands of sites that deal with meteorology and climatology. The exact number of related sites is difficult to pin down – it is constantly changing – but a search on the Google search engine (www.google.com) for “meteorology or climatology” yielded about 352,000 hits in January of 2003. Weather and climate information is now vastly easier to obtain than it was only a decade ago. Material that once had to be slowly printed out on a telefaxsimile or even received through the mail with a paid subscription to a service is now quickly (and in many cases freely) available on the Web.

What impact has this glut of information had on the practice of the two disciplines of meteorology and climatology? To find out, I interviewed 10 researchers and practitioners in the field: two national Weather Service meteorologists, two broadcast meteorologists, two volunteers from the SKYWARN ham radio storm-spotting network, two academic faculty members and two employees of government-sponsored climatology centers. Each respondent was asked the following five questions aimed at determining their use of and attitude toward weather and climate information on the Web:

- Do you make use of weather/climate information on the World Wide Web as part of your professional duties?
- Which are your top three favorite sites? Why?
- Do most of your colleagues also use the Web for weather/climate information?
- What has been the overall impact of the increased availability of weather/climate information?
- Overall, would you say the impact has been good or bad for the profession? Why?

While the questions for the most part elicited usable responses, combining the responses to a couple of the questions provided a better flow when discussing the results of the survey.

Use of the Web

Every respondent reported using the weather and climate data available on the Web. However, there was a clear dichotomy on how the data was used. Broadcast meteorologists, SKYWARN volunteers and faculty members all said they were consumers of the data available; National Weather Service meteorologists and those who worked for climate data centers said they did not use the Web very much to create their products. They produce as well as consume data, putting up information on their own websites.

For example, Jason Puma, NWS Forecast Office in Indianapolis, said the people in his office do not use the Web very much for forecasting. They have their own sources, such as the Advanced Interactive Weather Processing System (AWIPS), which allow them to generate forecasts and view models without using the Web. However, he said, the Web is good as a backup.

On the other hand, the SKYWARN volunteers use the Web extensively during severe weather outbreaks. Douglas Childs, a net control operator and trainer for North Alabama SKYWARN, said he uses radar data and the sites that have warning texts to stay on top of developing weather situations. Gary Wheeler, coordinator for Illiana SKYWARN,
Overall, the respondents agree the impact of the increased availability of weather and climate information on the Web is good.

a regional ham radio storm spotter network based in the Terre Haute area, also uses the Web for updates on breaking weather.

The broadcast meteorologists also make extensive use of the Web. Both Kirk Melhuish of WSB-AM in Atlanta and Ed Kieser of WILL-AM in Urbana, Illinois, said the Web is a valuable source of information, both for real-time weather data and for model guidance in producing forecasts. Like the government meteorology and climatology employees, they use the Web to disseminate information as well.

The faculty members use the Web, too. Dr. Cary Mock of the University of South Carolina said he uses it in research to get data and in teaching to obtain real-time weather maps and satellite images. Marion Alcorn of Texas A&M University said he accesses the Web both for personal use and to have his students look at weather maps as part of their laboratory exercises.

Favorite Websites

There was a wide range of responses when respondents were asked to name their favorite websites. Al Wallis, meteorologist and data consultant for the National Climatic Data Center in Asheville, North Carolina, says he does not rely on other websites in his work. Instead, he and his colleagues take data such as observations from other sites and mount them on the NCDC site at http://lwf.ncdc.noaa.gov/oa/ncdc.html. Steve Hilberg, director of the Midwestern Regional Climate Center (MRCC), contributes to the MRCC website (http://mcc.sws.uiuc.edu/), but he also uses the College of DuPage site (http://weather.cod.edu) because it has a nice models page that emphasizes the situation in the Midwest. He also uses the National Weather Service’s Interactive Weather Information Network (http://iwin.nws.noaa.gov), as well as the UCAR RAP site (www.rap.ucar.edu/weather), because it has good satellite and surface data. In addition, he makes use of the NWS Lincoln, Illinois, radar site (www.crh.noaa.gov/radar/latest/DS.p19r0/si.kilx.shtml). It updates about every six minutes, something he said “we’ve prayed for for years.” In both cases, he prefers the Lincoln radar site to the one in Indianapolis; he wants to see what is coming rather than what has already passed.

Steve Hilberg of the College of DuPage uses the University of Utah site (www.met.utah.edu/) which has a link to a mesoscale observation network called Meso West (www.met.utah.edu/mesowest). The data there is collected by the University of Utah; the NWS staffers FTP it into their own website. In addition, he uses the Climate Prediction Center site at www.cpc.ncep.noaa.gov for information on El Nino and other hot topics.

The broadcast meteorologists also make heavy use of the NWS weather sites. WSB-AM’s Melhuish uses the Storm Prediction Center site mentioned earlier. He also likes the Quantitative Precipitation discussion page (http://qpf.cpc.ncep.noaa.gov). In addition, he visits a number of university sites, especially the Ohio State University (http://twister.sbs.ohio-state.edu/) which he uses because it has the various Model Output Statistics (MOS) data and forecast discussions easily available from a single page. He said he visits the NWS site every day. He also uses the SUNY Brockport site (www.weather.brockport.edu) daily. In addition, he finds the Penn State weather site valuable. A professor there has a site named “Eyewall” (http://eyewall.met.psu.edu) which features a lot of information on a single page. WILL Radio’s Kieser says he visits many sites, and the ones he uses change all the time. He said he uses the National Centers for Environmental Protection (NCEP) site (www.ncep.noaa.gov) because it puts out models faster and farther out than ever before; he said it is even faster than the UNISYS site (http://weather.unisys.com). His second favorite site is the RAP site mentioned earlier which has “lots of good data presented well.” He also uses the Storm Prediction Center’s site, especially its interactive map.
The faculty members had a somewhat different set of priorities. Texas A&M’s Alcorn says the UNISYS site is his favorite – its weather maps are easy to read. He also likes the NWS Southern Region Headquarters city forecast page (www.srh.noaa.gov/hgx/). It “provides a forecast for the local area for a week in advance and the page is nicely laid out.” South Carolina’s Mock differentiates between the sites he uses for research and those he uses for teaching. In the first category, he likes the Climate Diagnostics Center (www.cdc.noaa.gov/), which he calls a great website “for quickly constructing synoptic and regional climate maps at the research level.” He also uses the National Climatic Data Center site; he said it is the main website for getting climatic data for the United States as well as for other parts of the globe. In addition, the NWS Tropical Prediction Center site (www.nhc.noaa.gov) is good for “following hurricanes and tropical storms.” In the second category, Mock prefers the Real Time Weather Data site at the previously mentioned National Center for Atmospheric Research, as well as the UNISYS site and the Weather World 2010 Project at the University of Illinois (http://ww2010.atmos.uiuc.edu/(Gh)/home.rxml). He says this site “is great for introductory college and secondary teaching concerning basic weather concepts.”

A summary of the websites mentioned, sorted by frequency of mention during the interviews, is presented here.

<table>
<thead>
<tr>
<th>Times Mentioned</th>
<th>Name and URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Storm Prediction Center – <a href="http://www.spc.noaa.gov/">www.spc.noaa.gov/</a></td>
</tr>
<tr>
<td>3</td>
<td>RAP – <a href="http://www.rap.ucar.edu/weather">www.rap.ucar.edu/weather</a></td>
</tr>
<tr>
<td>3</td>
<td>UNISYS – weather.unisys.com</td>
</tr>
<tr>
<td>2</td>
<td>Intellicast – <a href="http://www.intellicast.com">www.intellicast.com</a></td>
</tr>
<tr>
<td>2</td>
<td>National Climatic Data Center - <a href="http://lwf.ncdc.noaa.gov/oa/ncdc.html">http://lwf.ncdc.noaa.gov/oa/ncdc.html</a></td>
</tr>
<tr>
<td>2</td>
<td>NWS Short-range base reflectivity for Lincoln, IL – <a href="http://www.crh.noaa.gov/radar/latest/OS.p19r0/si.klsl.shtml">www.crh.noaa.gov/radar/latest/OS.p19r0/si.klsl.shtml</a></td>
</tr>
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<td>1</td>
<td>Climate Diagnostics Center - <a href="http://www.cdc.noaa.gov/">www.cdc.noaa.gov/</a></td>
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<tr>
<td>1</td>
<td>Climate Prediction Center – <a href="http://www.cpc.ncep.noaa.gov">www.cpc.ncep.noaa.gov</a></td>
</tr>
<tr>
<td>1</td>
<td>EMWIN – via iwin.nws.noaa.gov/</td>
</tr>
<tr>
<td>1</td>
<td>Eyewall – eyewall.met.psu.edu</td>
</tr>
<tr>
<td>1</td>
<td>IWIN – iwin.nws.noaa.gov/</td>
</tr>
<tr>
<td>1</td>
<td>Meso West – <a href="http://www.met.utah.edu/mesowest">www.met.utah.edu/mesowest</a></td>
</tr>
<tr>
<td>1</td>
<td>NCEP site - wwwrl.ncep.noaa.gov/</td>
</tr>
<tr>
<td>1</td>
<td>NWS Southern Region Headquarters – <a href="http://www.srh.noaa.gov/hgx/">www.srh.noaa.gov/hgx/</a></td>
</tr>
<tr>
<td>1</td>
<td>NWS Tropical Prediction Center - <a href="http://www.nhc.noaa.gov">www.nhc.noaa.gov</a></td>
</tr>
<tr>
<td>1</td>
<td>Quantitative Precipitation discussion – <a href="http://www.hpc.ncep.noaa.gov/">www.hpc.ncep.noaa.gov/</a> discussions/qpfpfd.html</td>
</tr>
<tr>
<td>1</td>
<td>Ohio State University – twister.sbs.ohio-state.edu</td>
</tr>
<tr>
<td>1</td>
<td>SUNY Brockport – <a href="http://www.weather.brockport.edu/">www.weather.brockport.edu/</a></td>
</tr>
<tr>
<td>1</td>
<td>University of Utah weather site – <a href="http://www.met.utah.edu">www.met.utah.edu</a></td>
</tr>
<tr>
<td>1</td>
<td>Weather World 2010 Project –ww2010.atmos.uiuc.edu/(Gh)/home.rxml</td>
</tr>
<tr>
<td>1</td>
<td>WeatherTAP - <a href="http://www.weathertap.com/">www.weathertap.com/</a></td>
</tr>
</tbody>
</table>

Impact of the Information on the Web

Overall, the respondents agree the impact of the increased availability of weather and climate information on the Web is good. This perception is especially strong among those who produce as well as consume Web information. Wallis, Hilberg, Puma and Toronto agree an important aspect of the Web’s usefulness lies in information dissemination. Puma notes the National Weather Service’s mission is to “protect life and property” of the citizenry: anything that helps the NWS “get the word out” is good and the Web is great for this task.

On a related note, the Web is supplanting the telephone as an important means of disseminating information. For the forecaster and data provider, a desirable side effect of this occurrence is an accompanying reduction in the number of phone calls to their offices. Hilberg said the number of calls to his office peaked in 1997. Interruptions are rarer and generally take less time. Puma notes that he can often refer a caller to the appropriate Web site, walk the caller through the information retrieval process once and then not have to worry about being interrupted by that caller again. Hilberg says many of the people who call his office now are people who need “certified” information or other data not readily available on their website. (This writer notes parenthetically that a number of websites consulted for this paper seemed designed to make telephone contact numbers rather difficult to find – perhaps an effort to shift more of the contact from the telephone to the Web.)

The broadcast meteorologists also appreciate the reduction in interruptions from listeners; they too can often refer callers to websites. In addition, the convenience of the data’s availability makes it possible for them to do their jobs more efficiently. Melhuish notes that without the Web, he would need to constantly run from his office in the radio station to the weather center in WSB-AM’s companion television station to get his data. There is a downside to all this data, however, in the form of information overload. Melhuish notes “you can look at 23 or 24 competing models and never decide what the best forecast is until it’s too late!” Kieser reports his biggest problem 15 years ago was a lack of data; that’s no longer the case. Both broadcast meteorologists say they appreciate getting international weather information too – it comes in handy when someone wants a forecast for overseas.

SKYWARN volunteers say the Web helps them and the general public stay abreast of weather developments. Wheeler notes that there was a time when everyone had to rely on local television stations for radar. The advent of the Weather Channel improved the situation a bit. But the Web allows people to find the particular information they want. Childs echoes the usefulness of getting one’s own information. “It makes decisions to shut down the nets when appropriate easier since we have the data to look at ourselves.” Weather net control operators and
spotters, he says, are better informed thanks to the Web. “When I can say ‘Spotters in area X, the cell of concern will be in your area in five minutes,’ it lets people concentrate on spotting rather…[than] checking with the TV…”

Academics praise the Web for making more information available faster. “Worldwide, nearly real-time weather information is more readily available for use in the classroom,” says Alcorn. On the other hand, he says the impact of the Web has not been good in all areas “because there is a lot of undesirable information being spread around.” Mock agrees: “Sometimes data is not properly screened for quality before being on the Web.” He adds that good researchers can usually tell good data from bad, and most of the major agencies such as the National Oceanic and Atmospheric Administration do good quality control. He also says the Web has “raised expectations in teaching in terms of access to more detailed information.” He goes on to say the Web “has taken away the more traditional manual lab component in meteorology … [such as] drawing weather maps…replacing it with the computerized aspects and…expectations to do more rigorous number crunching[.]. In climate research, it has increased the scope of ‘expected’ research articles in publication…there are more big regional/global datasets [available now]…”

Conclusions and Future Research

Persons interviewed say the development of the World Wide Web has had a profound impact on the way climatologists, meteorologists and other people who deal with weather do their jobs. For the most part, this impact has been very positive. Respondents agree that the Web makes possible the production of weather forecasts that are both more accurate and timelier. And while no one interviewed for this paper explicitly stated it, this writer suspects a better understanding of the mechanisms of climatology has resulted from the ready availability of larger, more extensive data sets. The Web has also enhanced public safety by permitting better informed storm spotting and more rapid dissemination of emergency information.

Several avenues for follow-up research present themselves. It would be interesting to take the more traditional approach mentioned earlier in this paper and conduct a more formal survey with a verifiable instrument distributed to many more subjects. A more random sample could increase the confidence that the results represent the beliefs of practitioners in the field and enable a more rigorous statistical analysis. In addition, this writer notes that every respondent in this survey was male. It could be useful to assess any gender differences in Web use and perceptions of its impact.
Information is required to conduct research, and completed research generates further information, whose communication is vital. The communication of agricultural, scientific and technical information is one of the most important aspects of agricultural research. In Nigeria, one of the major agencies for this activity is the National Agricultural Extension and Research Liaison Services (NAERLS). It is critical that those for whom the information is targeted have access to it. The primary target of NAERLS information is Nigerian farmers, whose relative access is assessed in this study.

The NAERLS Survey

For this study, the research method adopted was the descriptive/survey type, and the population comprised the NAERLS staff and Nigerian farmers. A sample of 500 farmers, using a cluster sampling procedure was taken, made up of 100 farmers from each of the five ecological zones of Nigeria.

Three instruments were used for survey research: questionnaire, documentary sources and interview. There were two types of questionnaires, one for the NAERLS staff and the other for farmers. The NAERLS questionnaire was open-ended and sought to inquire into the institute’s information services. The farmers’ questionnaire was meant to seek for information on their access to NAERLS information/information services.

In administering the questionnaire to the farmers, the researcher made use of enumerators who were educated and could speak the local languages of the respondents in the respective zones. These enumerators used interviews to get responses to the questions. They then ticked the appropriate responses in the questionnaires of both literate and illiterate farmers. The purpose was to see which services were used and whether there were differences in access among the five ecological zones of Nigeria.

The NAERLS and Its Information Services

Information gathered from NAERLS shows that it coordinates agricultural extension and research in Nigeria, liaising as the name implies with all agro-based research institutes, all universities and other tertiary institutions offering agriculture, all international research institutes and all private and public agricultural units/departments in the country, etc. Among its activities as contained in The NAERLS: Bank of Agricultural Information (1993) are the production and beaming of audio and visual media packages, publication of extension literatures and the organization of training workshops and seminars.

To discharge its activities effectively, the NAERLS has liaison offices in each of the five ecological zones of Nigeria. Figure 1 shows the map of Nigeria indicating the location of each of the zones and their headquarters.
The zones and the states that make up each are:


2. North East zone takes care of Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe States. Its headquarters is at Maiduguri.

3. North West zone has Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto and Zamfara as the states it covers, with headquarters at Zaria, which also serves as the national headquarters.


5. South West Zone has its headquarters at Ibadan and it covers Delta, Edo, Ekiti Lagos, Ogun, Ondo, Osun and Oyo States.

**NAERLS Information Services**

The NAERLS has a number of information services that can be categorized as follows:

- **Farm Broadcasts.** For farm broadcasts, the institute uses radio and television. There are 14 NAERLS programs broadcast in different radio stations across the country. The earliest of them commenced in 1963. From the 14 radio programs, a total of 6,938 releases have been made. They are broadcast in English, Hausa, Igbo, Yoruba and Pidgin English.

  There are also currently two NAERLS television programs and one that has been discontinued. The television programs have had 3,163 releases as of the end of 2000. They are broadcast in Hausa and English in various television stations across the country.

- **Extension Publications.** In all, about 30 million copies of extension publications from over 1,000 titles have been produced and distributed to farmers and extension workers. These publications have included:
  - Extension Guides
  - Extension Bulletins
  - Recommended Practices
  - Circular Letters
  - Flipbooks
  - Posters
  - Handbills
  - Leaflets
  - Daily Records of Extension Activities
  - Newsletters
  - Occasional papers
  - Extension Journals
  - Training Manuals
  - Conference & Seminar Proceedings
  - Hausa Publications
  - Ajami Publications
  - Cropping Season Evaluation Report
  - Commodity Prices

- **NAERLS Newspaper Articles.** The institute produces new paper articles meant as timely advisory service on improved agricultural practices to literate farmers. Table 1 gives the subject areas covered by the articles and the number of articles in each since the inception of the service up to 1997 when it ceased.

- **Agricultural Shows and Farmers’ Field Days.** For the benefit of farmers and other agricultural practitioners, the NAERLS assists the federal, state and local governments to plan and organize agricultural shows and also participates actively in trade and science fairs. The institute also organizes farmers’ field days, in addition to helping state agricultural development programs (ADPs) and other research institutes to organize them. Between 1965 and 2000, the institute participated in 333 agricultural shows.

- **Training.** The training is mainly directed at extension agents who it is expected would pass the knowledge acquired to farmers. The beneficiaries are extension agents from state ADPs, Ministries of Agriculture, educational institutions, farmers, etc. Between 1970 and 2000, the institute conducted 388 training sessions from which 53,528 participants across the country benefited, as shown in Table 2. For the purpose of training, the institute also produces documentary teaching slides, which are also distributed to the ADPs, Ministries of Agriculture and other parties. In all 470 slides each in a set of between 20 and 60 covering various areas of agriculture were produced and distributed.

- **Extension Advisory Services.** The NAERLS offers advisory services to livestock and crop farmers and rural women, as well as youths. They cover production, pest control, post-harvest technology and any other aspect or problem in agriculture for which beneficiaries invite the institute.
Regional Differences

The analysis of the survey data showed that among the North East, North Central and North West Zones, there is no significant difference in farmers’ access to disseminated information and information services. The three zones are however significantly different from the South West Zone in terms of access to disseminated information and information services. And between the South West and South East Zones, there is a significant difference in terms of the access farmers have to NAERLS information and information services. The most significant difference, however, is between the South East and the three northern Zones.

A number of factors are responsible for the difference in access to disseminated information in the zones. Farmers in the northern zones enjoy more information services than those in the southern zones; they have the advantage of closeness to the NAERLS headquarters; and they have been receiving the information and information services for a much longer time. Information provision to farmers by the institute began in the north in 1963 but in the south it was only in 1987 when the institute received a national mandate. Another important reason is the willingness of media organizations in the north to continue airing NAERLS information services in the northern zones even when payments are not made. This is unlike in the southern zones, especially in the South East where the media houses promptly stop broadcasting the programs following default in payment. In the South East where access to NAERLS information services is least, most of the farmers indicate that they fail to use the agricultural radio programs because they are broadcast on short wave and medium wave bands instead of the frequency modulated (FM) band, which they prefer and mostly listen to.

Concluding Remark

The NAERLS has made a lot of effort to make agricultural information available to Nigerian farmers. Unfortunately, however, not all farmers in the country have equal access to these information services, with those in the southern part at disadvantage. It is hoped that the NAERLS will take measures to ensure that farmers in southern Nigeria have as much access to its information services as those in the north.

Table 1. NAERLS Newspaper Articles, 1976-1997

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<td>41</td>
<td>15</td>
<td>13</td>
<td>4</td>
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<tr>
<td>Crop Protection</td>
<td>6</td>
<td>51</td>
<td>13</td>
<td>9</td>
<td>6</td>
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<td>Gardening</td>
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<td>17</td>
<td>14</td>
<td>7</td>
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<td>15</td>
<td>5</td>
<td>2</td>
<td>1</td>
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<td>Fertilizers &amp; Manures</td>
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<td>11</td>
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<tr>
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<td>-</td>
<td>8</td>
<td>27</td>
<td>19</td>
<td>14</td>
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Table 2. Training conducted by NAERLS for extension agents, 1970-2000

<table>
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<tr>
<th></th>
<th>NUMBER CONDUCTED</th>
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<th>NUMBER OF PARTICIPANTS</th>
<th>CUMULATIVE</th>
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<td>45</td>
<td>1,433</td>
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<td>1976 – 1980</td>
<td>63</td>
<td>108</td>
<td>2,943</td>
<td>4,376</td>
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<td>1980 – 1985</td>
<td>102</td>
<td>210</td>
<td>7,449</td>
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<td>1996 – 2000</td>
<td>13</td>
<td>388</td>
<td>254</td>
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</table>
Relevance and Priorities of ICT for Women in Rural Communities: A Case Study from Nigeria

by Kazanka Comfort, Lydia Goje and Kachong Funmilola

The use and deployment of information and communication technologies (ICT) in Nigeria has been largely an urban and upper-class activity. It was therefore unusual for an NGO to attempt to promote ICT for rural communities and especially for women.

Fantsuam Foundation uses Microfinance and ICT as complementary tools for poverty alleviation. The ICT program starts with two rooms provided by the community. One of the rooms is the Community Library and the second is the IT training room. This article reports the preliminary results of the evaluation of an information and communication technologies program for women in rural communities in Nigeria.

Methods

This research was conducted using focus group discussions, interviews and participant observation. The focus group consisted of eight women, all of whom were literate in the Hausa language. One of the interviewees was a graduate who has lived in an urban center where there are ICT facilities.

Issues Investigated

The following issues were discussed at the focus group and in the interviews:

- Means of communication available in the communities
- Frequency of their use and types of messages and information for which the facilities were used
- Reliability of the communications means and the participants’ preferences
- Relevance of ICT to their lives
- Their problems of access
- Sending of messages by post
- Sorts of messages for which they generally use these various means of communication
- Frequency of access to or use of telegram, telephone, telex, e-mail and the Internet

Findings

Content of messages usually has to do with emergencies, family health, financial assistance for school fees, farm inputs, leaking roofs and communal violence.

The most common means of communication used are verbal messages and letters, either to distant places or nearby; the danger always exists of inaccurate delivery of these urgent messages. Letters are sent by hand at the bus stops through willing drivers or passengers traveling in the direction of the messages’ destination.

The problem with verbal messages is that the message may not be delivered as it was sent, or the content may be distorted— a message that “Mother’s cow is dead” might be delivered as “Mother is dead.” Such messages can have drastic consequences for those affected.

One of the women had used radio messages for news about her father’s health. Two had used telephones for similar reasons. No one had used these media for exchange of greetings: the cost was too high, and only emergency messages were delivered through them.

All the women have heard of telegrams but have not used them and did not consider telegrams relevant to their daily lives. Those who used the telephone and radio messages are people who had once
lived in cities. At the moment we do not have telephone access in Bayan-Loco village.

None of the women had ever used the Internet or e-mail. It was exciting for them to know that they can be connected to the whole world through the Internet and that e-mail can be instantaneous like the telephone, and they wished it were available.

**Perceptions about ICT**

The women attending the ICT training are those who are involved in the microfinance program. The economic empowerment of microfinance gives them the confidence to engage in acquiring computer skills, which are regarded as an elite activity.

There was need to explain that ICT covered a range of facilities (electronic and paper-based). However, they will only use ICT facilities if they meet immediate needs for them and their families, e.g.

- Sending urgent messages to distant families
- Requesting remittances from family members overseas
- Obtaining health information on vaccinations for children, preventive measures for epidemics
- Exploring job opportunities in the cities
- Finding announcement of dates for national examinations for students
- Obtaining market prices of grains
- Ascertaining the availability of fertilizers at affordable prices
- Obtaining weather forecasts and the impact of weather on farm activities
- Making wedding and funeral announcements.
- Factors that influence attitudes to ICT include
  - Previous exposure through living in the city, level of education
  - Fear of new technology (technophobia)
  - Lack of reliable ICT facilities in rural communities due to lack of electricity or telephones
  - Desire to acquire higher status in the community
  - Encouragement of children to enroll for IT training as a means of improving job chances. Some of them have decided to enroll their children for the ICT training after completing their own training.
  - Desire for a fast facility to get information quickly to the police in the event of a threat to peace in the communities.

**ICT Is Desirable, but Is It Feasible?**

The following are the main challenges to implementation of ICT:

- Level of literacy among women
- Accessibility of ICT information in local language
- Solar power and wireless e-mail are feasible technologies for communities that have no telephone or electricity, but these are currently unaffordable
- Since none of our training facilities has a phone connection, Fantsuam Foundation has to access its e-mail in the capital city, Abuja, a five-hour return trip from Kafanchan. A senior staff member has to undertake these journeys. The trips have cost implications and prevent timely responses to correspondence, and there are safety considerations for road travels. In addition there is the cost of access at cybercafés – the commercial Internet service providers in the capital city. Some of them have unreliable dial-up connections, so sometimes our trip (the travel time + the cost + safety considerations) to the cybercafé is wasted. On a successful trip, the staff will also send and receive e-mails on behalf of some of our clients.

**Conclusion**

Fantsuam Foundation is promoting access to ICT for women in rural communities using four strategies:

1. Part of the cash prize of the Hafkin Africa Prize was set aside to provide scholarships for women to acquire IT skills at the Bayan Loco Community Learning Centre.
2. We have invested in a satellite telephone (the only one that serves a population of over 300,000). Callers from the diaspora are able to talk to families in the villages. Fantsuam takes the phone to the receiving family and the caller pays the bills: a sustainable service.
3. We have a van that serves as Mobile Community Telecentre to carry two laptops on specific days to remote communities to provide IT training. The vision is to provide a wireless Internet access to the van so that it will provide e-mail post office service to the communities. An affordable technology has not made this dream a reality.
4. Women are the primary agents of their communities’ information shops.

Women attend the IT training because it

- Enhances their status within the community
- Provides them the skills to serve as volunteers for the proposed Community Information Shop
- Promises eventual relevant and timely information on issues determined by the communities, for instance,
  - For urgent messages to distant family members
  - To promote communal peace
  - To inform job seekers of employment opportunities
  - To document indigenous knowledge and skills of elderly members of the community
  - To initiate accurate recording of births and deaths (vital registration)

This paper was originally presented at the Kampala Know-How Conference 2002, organized by ISIS-WICCE (Women’s International Cross-Cultural Exchange,) July 22 – 27, 2002, Kampala, Uganda.
Guarding the Borders or Blocking the Way? IAs to Be Banned!

by Andrew Dillon

Andrew Dillon is dean of the School of Information at The University of Texas at Austin. He can be reached by e-mail at adillon@ischool.utexas.edu

Hot on the heels of the Joint Conference on Digital Libraries in Houston in May – where there was not a mention of information architecture (more on this later) – I return to find an alarming message in one of the IA lists. Apparently the State of Ohio has decided that information architects should be banned, or at least renamed. Seems that the Board of Certification for architectural qualifications has a problem with the use of the term architecture in the IT sector since it might cause people to have erroneous expectations of the services IAs offer. I can just hear the jokes now! There is no official word yet on how they view cosmetics manufacturer L’Oreal’s use of the term lash architect, but no doubt some crusaders will get around to that eventually; after all, innocent people might get hurt.

Now this really does open up a can of worms. If you look hard enough, the term architect is used in some very original ways. There’s PHP Architect*, a magazine for PHP professionals (there’s a group that needs a name change), interaction architects (splitters!), Spiral Architect (a band whose aim is, apparently, “controlled anarchy”) not to mention the more mundane but real job title couplings of chip architect, community architect, screen architect, digital architect, human resource architect, leadership architect, strategic architect…you get the picture.

I mentioned this tempest in a teapot to the dean of the School of Architecture recently, and he was similarly bemused by the apparent concerns of the certifiers. But this is not new in the emerging professions. Software engineers, for instance, have had trouble for years with people telling them they were not “real” engineers, but it hasn’t lessened the demand or the use of the title. This battle has also raged in the HCI world where objections were raised to the title usability engineer, a term one still cannot easily use to describe a profession in Texas. Nothing personal, I always hated that term anyhow, but it strikes me as odd that people get upset by labels such as engineer and architect but pay little or no attention to the use of scientist which gets attached to the most unlikely fields of practice (but let’s not go there). Here’s hoping common sense prevails but what are the odds of that once the lawyers get involved?

Perhaps the Ohio Board of Certifiers had already had a word with the ACM and IEEE because this year’s Joint Digital Libraries Conference was practically an IA-free zone. The great irony of this, to me at least, is that one goes to a conference where a community discusses digital libraries, organization of collections, user interface design, content management, large scale system creation and implementation, and there is not a single mention of IA in the presentations. That’s all right, you say – they may not use the words, but they are really talking about IA anyway. Well, perhaps so, but who was listening? I did not meet anyone there who had been to the IA summit in Portland. How can this be?

Sadly, despite the belief and insistence that IA is a multidisciplinary field or the claim in the DL community that it takes multiple perspectives to bring such technologies to fruition, there is a form of community rigidity at play that keeps some highly relevant groups apart. I am not sure what the basis is exactly. Partly it may be history and funding (the JCDL series was originally populated largely by NSF grant holders or wanna-bes), partly it may be the old academic versus professional divide (the academic community have never been the largest group within IA, but they dominate DL conferences). It’s not difficult to understand how professional groups are so concerned with establishing their own world view that divisions and lack of communication naturally occur. We have these divisions ourselves in IA, and if we could not call the profession information architecture I wonder how long it would be before those divisions dismantled the group?

Breaking out of these boundaries is never easy, but sometimes I wonder if it is even possible once a group has self-identified. Maybe the protection of turf is really a cognitive reaction to the flexibility required to see new perspectives, a natural defense mechanism in the face of ambiguous or challenging stimuli, a normal group response once we have self-selected and determined that we need to be distinct from others, with our own rituals, labels and credentials. Who knows? We would need a psychologist to figure that one out – a licensed one only please.

*Editor’s Note: For those of you like the Editor who are unacquainted with PHP, it is an html-embedded scripting language and stands for “PHP Hypertext Preprocessor.” It’s recursive. Isn’t that clever!
From Voting Machines to “Scary”: HCIL Celebrates Its 20th Anniversary

by Allen Rotz

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T
he Human Computer Interface Lab at the University of Maryland put on its 20th Annual Symposium and Open House on May 30. This daylong event was a report on and a celebration of the accomplishments at HCIL in the past year.

Each of the 17 reports was a quick 10-minute overview of a particular project plus time for a few questions. HCIL should be commended for keeping on schedule and the presenters for not running beyond their time slots.

The reports were grouped by topic into three sessions – two in the morning and one after lunch and cake to celebrate the 20th year. The symposium ended by mid-afternoon to allow ample time for the Open House where attendees could meet informally and talk to the faculty and students involved in each project. Everyone had a chance to individually manipulate the interfaces and experience the look and feel, even if they had to wait for the most popular ones.

HCIL was established just two years after the introduction of the first IBM PC – a time when computer interfaces had barely advanced from blinking lights and hexadecimal codes to still cryptic DOS commands on a monochrome CRT. HCIL is an innovator using interdisciplinary teams of faculty and students from computer science, psychology and library and information sciences to perform research and bring to commercial marketability well-designed interfaces that allow users to accomplish tasks quickly, efficiently, effectively and with a sense of confidence and accomplishment. Government and industry partner with HCIL on both theoretical research and projects that have specific, defined goals.

In the first morning session, chaired by Allison Druin, HCIL showed it does not limit its definition of human to adults but also includes children. The audience was wowed with two reports on the International Children’s Digital Library – a five-year project to develop and test the best way of using technology to provide online access to children’s books in a format designed to mimic the thought processes of a child rather than an adult. The actual software technologies are based on previous NSF-funded research conducted between 1999 and 2002 by HCIL to develop an interface to support 7-9-year-olds in querying, browsing and organizing multimedia information.

Two search methods are available and both are highly visual using zoom to move between the specific and the general. The first method shows a globe. The child clicks on a region and books from or about that region are displayed. The other method searches through 13 categories in a way that matches how a child would look for a book if actually present in a library. Working with children during the design, it was decided that books should be searchable by the color and shape of their covers as well as how they make children feel – e.g., whether it is a “scary” book or a “happy” book. Other categories include subject, type of characters and “true” or “make-believe.”

Although the interface is particularly usable and flexible, its downside is its requirement that the PC be a minimum of a 700 MHz Pentium III, 256 MB RAM, operate with a Java Virtual Machine plug-in and have broadband access. Identifying this as a significant limitation, HCIL just announced the launch of an HTML-only version that will work over dial-up.

The other report related to the Children’s Library was on an effort funded by a three-year NSF grant to analyze and expand functionality to meet the needs of children aged 10-13 years. The older kids rejected the “cute” design of the interface considering it too childish. They were interested in a “cool” interface, but there was a diversity of ideas as to what represented “cool.” The solution was to provide a way for the older kids to customize the “skin” of the interface.

Younger children use the library for reading pleasure. Older kids need the additional functionality necessary for a school focus with reading for homework. With this expansion, a teacher can mark up a reading assignment, indicate which parts might be particularly important, attach a reading comprehension question via an electronic sticky note and the student can communicate questions and comments back to the teacher in a similar way. (Items 1, 2, and 3 in “For Further Reading”)

The other report in this session also dealt with a non-traditional approach to information retrieval, “User Interaction in Speech and Video Retrieval: Relevance Judgment and Query Reformulation.” (Item 4)

Françoise Guimbretière chaired a session titled, “Devices Big and Small.” The first report in this group was “A Fisheye Calendar Interface for PDAs: Providing Overviews for Small Displays.” This software, running on Pocket PC PDAs (personal digital assistants), implements a ZUI (zoomable user interface) to address the problem of displaying information on a small hand-held device. (Item 5)

The last presentation of the morning was a report on a study to provide guidelines for the design of GUIs for young children. Four- and five-year-olds were measured in their ability to use a mouse to point to different size targets. Children of this group needed larger targets than older children or adults, thus verifying that interfaces must be designed specifically for young users. (Item 6)

Ben Shneiderman, founding director of HCIL, gave a lively intro for the afternoon session, “Information Understanding.” The presentations given during this session had a common theme of using a computer to provide information in a manner that enables thinking and understanding. Symposium attendees received a copy of HCIL’s just published book, The Craft of Information Visualization, a collection of 38 key papers on information visualization.

The only presentation that did not focus on improving visual display of information was one that evaluated the use of sound to convey geo-referenced data to blind users. This effort builds upon research in using non-
speech sound to provide blind users the special relations of information arrayed in tables and menus. Some of the abilities and limitations of using non-speech sound with screen readers are presented in item 7 below.

A presentation whose topic is of potentially great effect on everyone was the summary of an HCIL study on the electronic (touch-screen) voting machines purchased by four Maryland counties in 2002. Ben Bederson, HCIL director, explained how the analysis focused on how easily and accurately voters could use the machines – a critical issue as small inaccuracies could change the results in close elections. Designers of voting machines face unique challenges. The machines

- must work for everybody (elderly, disabled, uneducated, etc.);
- are not frequently used; people walk up and use them with no required training; and
- should not require external help (although it is allowed).

Usability problems were identified and remedies were proposed. An array of information on electronic voting systems and the study’s final report is at www.cs.umd.edu/~bederson/voting/umd-dre-report.pdf. See also item 8. See items 9–12 in the reference list for other reports included.

The last presentation was on “Piccolo,” a new software toolkit for the design of interactive 2D graphics. It is claimed to be an improvement in every way over its predecessor Jazz, which is also from HCIL. It is based on the Java2D API and provides zooming (a particular feature of HCIL software) and multiple representation. Being open source it is available free at www.cs.umd.edu/hcil/piccolo/

The major theme at HCIL is the development of methods that allow humans to comprehend, analyze and understand multidimensional data when it is represented visually. The information-seeking mantra is overview first, zoom and filter, and then view details on demand. This procedure enables users to find what they need and understand what they find. It bridges the gap between what you know and what you need to know with the goal to make the benefits of information available to everyone.

HCIL demonstrated that it made many advances in the past year to achieve its goal – design, implement and evaluate novel interface technologies that are universally usable, useful, efficient and appealing.

Note: Several presentations have not been described because of both space limitations and a lack of additional online information relevant to these presentations.

### For Further Reading


Note: Most of these PDF files have HTML versions. Simply replace the pdf extension with html.
FROM JASIST, V. 54 (3)


Study and Results: Vast numbers of documents are created and published in electronic form, many of which are copies or alternative versions of one kind or another. Our research concerns the problem of identifying documents that originate from the same source, which we refer to as co-derivative.

We compare new and existing techniques for identifying co-derivatives, and show that our novel identity measure is the most effective for finding plagiarized documents.

What's New? We investigated two approaches to determination of co-derivation. The first is a ranking method, based on information retrieval technology; we developed a new similarity measure designed specifically for identifying co-derivative documents. The second approach, fingerprinting, is based on work pioneered by Manber. We investigated many variations of the fingerprinting approach and evaluated their performance against the ranking method. While both methods were able to identify most of the co-derivative documents in our test collections, we found that the ranking method was the best at separating the correct from the incorrect matches.

Limitations: All of the techniques that we tested were used to measure whole-document similarity. We anticipate that further improvements may be made to the effectiveness of these plagiarism-detection methods by comparing short sections of the documents.


Study and Results: Rule-based information filtering systems maintain user profiles where the profile consists of a set of filtering rules expressing the user's information filtering policy. This study compares the effectiveness of the two alternative rule-based filtering methods: stereotype-based rules vs. personal rules. The results show that the stereotype-based filtering outperforms the personal rule-based filtering.

What's New? Although, intuitively, personal filtering rules seem to be more effective because each user has his own tailored rules, this comparative study reveals that stereotype filtering rules yield more effective results. We believe that this is because users find it difficult to evaluate their filtering preferences accurately, while the stereotype generation process smoothes the subjective evaluations of the users. The results imply that by using a stereotype it is possible not only to overcome the problem of user effort required to generate a manual rule-based profile, but also at the same time even to provide a better initial user profile.

Limitations: The experiment was performed with a small group of users, and since it addressed initial user profile generation scenario, it was static in nature. No adaptation was performed.

FROM JASIST, V. 54 (6)


Study and Results: There is a lot of interest in counting links between websites for the purpose of creating indicators or discovering patterns of collaboration or information use. Previous studies have found that simple link counting is problematic within the academic domain because individual websites can duplicate links thousands of times, swamping the total counts and making it difficult to extract meaning from the results. A previous paper by the first author [JASIST, 53(12), 995-1005] created models of Web documents on a larger scale than that of the page by binding pages together into directories, domains or university-wide sites. These models do not account for cases where knowledge of a general information URL is passed among members of a university and repeatedly used. This phenomenon has caused anomalies in previous counts. We have produced new modified counting schemes based upon the new models by disallowing repeated counts of the same target document.

What’s New? A method for counts of links between websites that attempts to exclude multiple links between sites due to information sharing in the source site.

Limitations: No simple document model can on its own eliminate all anomalies in Web-publishing behavior. The data set for the study only covers the UK academic Web.


Study and Results: In this paper we investigate utilizing user's search behavior as additional evidence to relevance feedback algorithms. Our main hypothesis is that how a user interacts with an information retrieval system can provide useful information on what is of interest to the user. We carry out five interactive experiments to investigate how aspects of search behavior, such as precision, and aspects of relevance assessments, such as the use of partial relevance assessments, can be used to make information retrieval systems more responsive to individual searches.

What's New? This article furthers research into relevance feedback by not only considering the content of relevant documents but also considering the context in which relevance assessments are made — the user’s search behavior. One of the most popular features of our approach is that user search behavior can be used to explain to users why the system makes individual query modification decisions. This explanatory role increases user satisfaction and also increases the use of relevance feedback.

Limitations: The experiments presented in this paper are preliminary pilot experiments, using only six subjects per experiment.

FROM JASIST, V. 54 (8)


Study and Results: Systems such as Web search engines and site-based search tools provide rapid access to vast quantities of text data. Efficient construction of inverted indexes is essential to provision of such search. In this paper, we review the principal approaches to inversion, analyze their theoretical cost and test them experimentally on collections of up to 20 gigabytes. Of the previous approaches, the most efficient is a sort-based single-pass method of Moffat and Bell (published in JASIS in 1995), which however has the severe drawback of requiring that the full vocabulary of the lexicon be held in memory. This drawback is also a problem for the two-pass approaches, which have the additional limitation that the data must be processed twice. As an alternative, we explore a straightforward one-pass approach and show that it is more efficient than the alternatives.

What’s New? Our one-pass approach involves building partial indexes in memory, dumping them to disk (including their vocabularies) and then merging. Efficiency is achieved through a range of refinements, leading to a fast approach that does not need the complete vocabulary of the indexed collection main memory and can operate within limited resources.

Limitations: Using this approach, indexes can be built for larger collections, faster and in less memory than with previous methods. While larger collections or other kinds of full-text databases, such as path-indexed XML, were not explored, such data is not expected to present difficulties.