Tracing Technology in AAHSL

J. Roger Guard
Assistant Senior Vice President,
Academic Information Technology & Libraries and
Chief Information Officer, College of Medicine
University of Cincinnati Medical Center
231 Albert Sabin Way
Cincinnati, OH 45267-0574
Roger.guard@uc.edu

Wayne J. Peay
Director
Spencer S. Eccles Health Sciences Library
University of Utah
Salt Lake City, UT 84112
Wayne@lib.med.utah.edu

Tracing Technology in AAHSL

Abstract

From the beginning of the association, technology and AAHSL have been intertwined. Technology was the focus of one of the first committees. Innovative applications of technology have been employed in the operations of the association. Early applications of mini-computers were used in the preparation of the Annual Statistics. The association's utilization of network communications was among the first in the country and later applications of the web have enhanced association services. For its members, technology has transformed libraries. The association's support of the early development of IAIMS and of its recent re-conceptualization has contributed to the intellectual foundation for this revolution.

Tracing Technology in AAHSL

It may be no coincidence that the formation of an Association of Academic Health Sciences Libraries (AAHSL) took place at a true watershed in the development of information technology and of libraries. In any consideration of the history of the association, technology emerges as a dominant theme because of its extraordinary impact on its members and because of its ability to facilitate collaboration, a hallmark of AAHSL. While it would be intriguing to explore the impact of technology on academic health sciences libraries over the last twenty-five years, this ambitious project is far beyond the scope of this article. The objectives of this article are to examine the innovative applications of technology in the operations of AAHSL and how the association encouraged technological development by its members.

Background

Information technology, at the time of the formation of AAHSL, was dominated by very large, mainframe computers. The capabilities of these computers, while modest when compared to the desktop systems we now take for granted, had been explored by libraries for more than a decade. While the capabilities of these computers were not particularly impressive, they did occupy extensive space and required rigorous environmental controls. Initially, data input was managed through the laborious production of 80-column punch cards, which subsequently fed data into the system, a procedure usually described as batch processing. Various library applications including serials records, circulation and cataloging were explored using this challenging technology.

By the mid 70s, batch processing was being replaced by dedicated, but dumb, terminals for data input to mainframe computers. The first applications of these terminals were in support of computer-assisted instruction but their most extensive impact certainly was their use for cataloging in OCLC. Computing was amply demonstrating its potential, but in the mainframe environment access and management were centralized institutional functions. Too often library applications were considered “Category W” or the lowest priority. However, this would change with the advent of mini-computers and no one could have guessed what the “potential” of the computer would turn out to be [1].

Technology in the Beginning

The importance of technology to AAHSL was first demonstrated by the formation of the Committee on Information Control and Technology at the initial meeting of the AAHSL Board in 1979. The charge to the committee was:

> *The Committee shall study trends in national information control planning, and in developing information technologies, specifically, their implications for academic health sciences libraries. Particular attention shall be given to information networks, National Library of Medicine programs, including those of the Lister Hill National Center for Biomedical Communications, and to the effect of internal automation procedures of parent institutions on medical school libraries. It is expected position statements will be developed*. [2]

The members of this first committee were James Williams (Wayne State University), Chair, Naomi Broering (Georgetown University), Robin Le Sueur (Harvard University), James Morgan (Oregon Health Sciences University), and Elizabeth Sawyers (Ohio State University).

The preeminent accomplishment of this committee was to engage in a project led by Dr. Marjorie Wilson, Director of the Department of Institutional Development at the American Association of Medical Colleges (AAMC). The initial objective of this project was to update Guidelines for Medical School Libraries published in the *Journal of Medical Education* in 1965. The committee developed several reports on aspects of this project. By early 1980, it was apparent that AAHSL recognized the opportunity that was at hand. On February 14, a meeting was convened by Dr. Wilson and held at the headquarters of AAMC to discuss a new direction for this project. Dr. Daniel Tosteson, Dean of the Harvard Medical School, chaired the meeting, which included the President of AAHSL Sam Hitt and Board member Nina Matheson. The outcome of the meeting was an agreement to refocus the report to address information management in the 1980s. The ultimate result was clearly the single most important publication for health sciences libraries in the last half of the 20th century, what has become known as the Matheson Report or Academic Information in the Academic Health Sciences Center: Roles for the Library in Information Management [3].

Following the publication of the Matheson Report, technology dominated the activities of the association. At the 1982 meeting of the AAMC, Dr. John A.D. Cooper, co-author of the Matheson Report moderated a panel on the topic “Academic Medical Centers Confront the Information Age.” The panel was only one of several programs that considered the Matheson Report at the meeting.

The following year, the National Library of Medicine launched its Integrated Academic Information Management Systems (IAIMS) program to help academic health sciences centers and their libraries achieve the recommendations of the Matheson Report. In 1985, the Committee on Information Control and Technology was reconstituted as the Committee on Library Information Management Technology. The committee took up the challenge of trying to track the rapid development of technology in member libraries. In the fall of 1987, the committee conducted an extensive survey of the membership to identify library

systems used, the amount of end-user database searching and participation in local area networks. The resulting 188 page report provides a snapshot of library technology at that time but regrettably it was out of date by the time it was published [4].

More often than is recognized or often acknowledged, luck enters the equation. Certainly this is the case with the establishment of AAHSL. The association had the great good fortune to have Richard Lyders as one of its founders and then to have its first administrative home at the Houston Academy of Medicine/Texas Medical Center Library (HAM-TMC). Lyders brought to technology development in AAHSL two invaluable factors. First, he had a genuine interest in use of computers and second the resources of the HAM-TMC library were available to explore these technologies. These state of the art resources were a substantial contribution to the association, supporting the production of the AAHSL *Annual Statistics* (as documented elsewhere in this Symposium) and association administration. HAM-TMC served as the administrative headquarters of AAHSL until 1993.

Electronic Communications

The association began its exploration of the use of technology to provide member services and support early in its development. The first issue of the AAHSL Newsletter in 1981, contains two references to email. The first is a brief reference to the use of the Telenet TELEMAIL to develop a questionnaire and conduct a survey on the education, research and development activities of libraries. This note is followed by a brief “Cut here and mail today” survey to determine if the members would use TELEMAIL. The brief survey is then followed by a note on “Using TELEMAIL,” which states that “Any searcher will find TELEMAIL simple.” While these early email systems obviously had at their core a revolutionary concept, these first implementations exemplify most of the really bad facets of early computing – hostile, cumbersome, unreliable, expensive. It is clear that these difficulties were not easily overcome since three years later, at the 1984 AAHSL annual meeting, a handout on cost-effective use of email was distributed. As late as 1989, a BITNET demonstration was included in the annual meeting program. It is to the credit of the early leadership of the association that they recognized the really good idea in spite of technological impairments.

In April 1989, electronic communications in the association were transformed with the establishment of the AAHSL listserv at the University of Utah. The listserv used locally developed software based on the model of the PACS-L listserv that was developed and hosted at the University of Houston. Again, the software would never have been mistaken for user-friendly and it required a significant amount of manual support. While it took several years before all AAHSL directors participated on the list, it did attract a critical mass early on and it became both a useful communication device and an interesting

new expression of community among association members. The utility of posing questions to colleagues was quickly appreciated. In addition, announcements of new directors, changes of position, retirements and deaths added significantly to the sense of community.

By the spring of 1990 the AAHSL electronic discussion group had grown to 50 members. In the fall of 1990, after discussing a request from the MLA Medical Informatics Group that their membership be included in the AAHSL electronic discussion group, the AAHSL Board decided that the AAHSL electronic discussion group would remain separate from MLA. The AAHSL newsletter was discussed vis-à-vis the electronic discussion group in 1990. J. Pat Craig (Louisiana State University at Shreveport), the *AAHSL News* editor, believed that the electronic discussion group had an "adverse impact on the newsletter." This prescient concern played itself out four years later as the AAHSL Board, in 1994, acting on the recommendation of Brett Kirkpatrick (University of Texas Medical Branch at Galveston), voted to discontinue *AAHSL News*. By the fall of 1990, the AAHSL Electronic Discussion Group had increased to 78 participants and the list was no longer restricted to library directors [5].

In 1992 Wayne Peay forecast the challenges of the next decade when he said:

> *The radical changes of the last decade are only a prelude to the revolution that libraries will experience in this next decade. The combination of new technologies and high-speed networks will result in a true information explosion. Academic health sciences libraries will continue to act as a front-end to this increasingly complex information environment, fulfilling their education, research and service responsibilities. To be effective in this role, librarians must refine and expand their skills in order to meet current challenges and to anticipate future opportunities.* [6]

Precursors to the Web

At the time of the Web's creation in 1992 AAHSL's technology focus was on improving electronic communications and strengthening the use of computers in AAHSL libraries. The use of computers in medical education and the promise of the "clinical workstation" were among the topics discussed by AAHSL directors in business and program sessions. Personal computer ownership among the 1993 medical school entering class was growing even though no AAMC/AAHSL institution required students to own personal computers. It was clear to many observers that integrated library systems (ILS) had gone through a growth and maturation phase and that second generation integrated systems were beginning to bloom. In the fall of 1993 the AAHSL Information Technology Committee, chaired by Mark Frisse (Washington University in St. Louis), proposed an AAHSL Gopher. By spring 1994 an AAHSL Gopher was established at Washington

University but by the end of that year. the AAHSL Gopher was cancelled due to lack of use. This was a classic case of a superior technology (the web) shifting the paradigm almost overnight. At this point in time, the web had been in existence for over two years and had also begun to take root at NLM and at some AAHSL member libraries.

AAHSL on the Web

The web's integration of electronic communication, desktop and server computing, a graphical user interface, ease of use, and relatively low costs thrust it into the forefront of all AAHSL technology discussions overnight. Almost miraculously the hostile, cumbersome, unreliable, and expensive aspects of early computing had disappeared. In the fall of 1995, The AAHSL Library Information Management Committee, chaired by Susan Jacobson (Columbia University), investigated the feasibility of creating an AAHSL web page to be hosted at the AAMC. Forming partnerships with AAMC on information technology became an important initiative for AAHSL in 1996 and the web became the major focus area. By June 1996 AAHSL Information Management Technology Committee representatives Susan Jacobson and James Bingham (University of Kansas) negotiated with AAMC's vice president for Information Technology, Tom Moberg, to host AAHSL's home page on the AAMC web site. Security was a major concern and Moberg believed that AAMC would need to impose write access restrictions for any home pages hosted on the AAMC system.

The AAHSL Board decided that it would be important for AAHSL to have editorial control of the web page and the possibility of a member institution hosting the web page was discussed. Both Jim Bingham (University of Kansas) and Roger Guard (University of Cincinnati) indicated a willingness to host such a web page. The Board recommended that the AAHSL homepage be started at an AAHSL institution, with the possibility that it be transferred to the AAMC web site at a future time. The Board still believed that there were advantages of web collaboration with AAMC if the terms and conditions could be worked out. AAHSL made a strong effort to secure this web technology linkage with AAMC but AAHSLwas the first "outside" organization to seek this type of collaboration. The web linkage concept gradually faded because of the inability of AAMC and AAHSL to find mutually beneficial terms and conditions.

The initial AAHSL web page was hosted at the University of Kansas and developed for AAHSL by the Cincinnati web development team led by Josette Riep. A three-tier architecture was selected for the AAHSL web site. This architecture, stress tested during the deployment of NetWellness, consisted of a relational database (Microsoft SQL Server), middleware (*Cold Fusion*), and a browser (Internet Explorer or Netscape).

As early as February 1997 the AAHSL Board planned for a robust AAHSL web presence, proactive web management, and ongoing web development. The initial web challenge had shifted from an almost pure issue of technology in the

early and mid-1990s to the realization that technology was only one leg of a three legged web stool. The other two legs were content and art/design/architecture. At this juncture the Board decided that an AAHSL Web Editor position, based on the Annual Statistics Editor model, would add great value to the AAHSL web presence. The Web Editor would be responsible for overall web site design and content and would report to the Board.

In May 1998 Audrey Newcomer (St. Louis University) was named Web Editor. A new AAHSL web server was installed at the University of Cincinnati and more web site planning was under way. Surprisingly, as of spring 1998, at least two AAHSL institutions still did not have Internet access.

In March 1999 the AAHSL Annual Statistics were converted from electronic spreadsheet and paper to the AAHSL web site. This major milestone was achieved under the leadership, dedication, and hard work of James Shedlock (Northwestern University), the AAHSL Annual Statistics Editor. At Shedlock's request, the Board agreed to a contract with the University of Virginia to automate the AAHSL Annual Statistics input and reporting process. A second contract was signed to do the retrospective Annual Statistics on the web. Shedlock, the AAHSL Board, and the contractor teamed to define the scope of work and the retrospective statistics design. Included in the scope of work was adding a database of descriptive data and inputting and analyzing the salary data.

The AAHSL web site was given a new look and feel by staff at AAHSL's business management firm, Shirley Bishop Inc., and new content was added daily or weekly. In the fall of 1999 the AAHSL Board approved up to $10,000 to begin to move the web site to a commercial hosting site. A new Web Editor position description, along the lines of the Annual Statistics Editor position, was drafted. The Web Editor would have a three year term and report to the AAHSL Board.

In November 2001 the AAHSL Board dissolved the Information Management Technology Committee and a new Web Editorial Board, chaired by Web Editor, Edward Tawyea (Thomas Jefferson University) was formed. Members included Tom Basler (Medical University of South Carolina), Kenny Marone (Yale University), Connie Poole (Southern Illinois University), Judith Robinson (Eastern Virginia Medical School), and Etheldra Templeton (Philadelphia College of Osteopathic Medicine). In January 2002 the AAHSL web site was successfully moved to the Seattle-based commercial hosting service AdHost.

AAHSL's Technology Partners

Group on Information Resources (GIR)

In 1996 Karen Brewer (New York University) reported on her discussions with David Rodbard, Director, Information Resources Outreach and Liaison Activities for AAMC, regarding the planned meeting entitled Information Resources as an Integrating Strategic Asset in Academic Medicine, to be held in Leesburg, VA, Sept. 8-10, 1996. This meeting was one of the seeds that led to the birth of AAMC's Group on Information Resources (GIR). In 1997 AAHSL offered AAMC President, Jordan Cohen, support in forming the GIR. By spring 1999 AAHSL had 55 members who were GIR institutional representatives. Jim Bingham and Julie McGowan (Indiana University) have served as chairs of the GIR Steering Committee. Carol Jenkins (University of North Carolina), Lynn Morgan (Mount Sinai), Scott Plutchak (University of Alabama), and Roger Guard have also served on the Steering Committee.

In January 2000 the AAHSL Board (chaired by Carol Jenkins) met with the GIR Steering Committee (chaired by Jim Bingham) to explore areas of information/knowledge collaboration. Likely candidates for collaboration were thought to be statistics, leadership, programming and education (mainly at national meetings). AAHSL is an independent organization that has formal standing with the AAMC through its membership in the Council of Academic Societies. GIR is a subsidiary group of AAMC. Examples of the practical differences in the relationships are the respective web sites (AAHSL's web site is independent of AAMC; GIR is part of the AAMC web site with other AAMC groups) and the differences in handling of governmental relations (AAHSL governmental relations is independent of AAMC; GIR has no separate governmental relations arm so works through the AAMC). These structural and cultural differences plus different foci and priorities are among the reasons that few substantive information/knowledge domain initiatives have sprung from the AAHSL/GIR collaboration. Two notable exceptions are the co-sponsorship of the annual Matheson Lectureship and the joint reception at the AAMC Annual Meeting.

IAIMS: The Next Generation (IAIMS:TNG)

At the same time as AAHSL is celebrating its 25th anniversary, the Integrated Advanced Information Management Systems (IAIMS) program at the National Library of Medicine is celebrating its 20th anniversary. AAHSL and IAIMS have been linked from the beginning so it was certainly appropriate for the association and its members to contribute to NLM's review of the program. Begun in 1998, once again as a contract between NLM and the AAMC, the review was designed to examine the impact of the program, determine if it should be continued and if so what its goals should be. The AAMC was fortunate to recruit two distinguished investigators to lead the project. Valerie Florance, Ph.D., previously the Director of the Edward G. Miner Library at the University of Rochester Medical Center and a successful IAIMS Principal Investigator and Daniel Masys, M.D., who had a distinguished career at NLM before leaving to

become Director of Biomedical Informatics at the University of California, San Diego.

The IAIMS review was conducted in three parts. First, various focus groups and surveys were conducted which included participation by the association and its members. A comprehensive survey of the IAIMS literature was performed. Site visits also took place at thirteen institutions. The results of these efforts were presented to the IAIMS:TNG Panel that assisted the investigators. The impact of the IAIMS program over the last ten years has clearly been significant. Major advances in the development of infrastructure, resources and tools have been made possible by the IAIMS program. However, the larger goal of seamless integration of information resources and services remains beyond reach. Similarly, the expansive vision of the role of libraries has not been realized. Of course, the extraordinary extent of technology in the academic environment and in society in general could not be predicted. Nonetheless, the benefits of IAIMS to libraries have been demonstrable. Libraries have either led or directly contributed to technology leadership, which has increased the expectations. Libraries are now viewed as centers of innovation with services extending far beyond the walls of the traditional facility.

The final result of the IAIMS:TNG study was the publication of Next-Generation IAIMS: Binding Knowledge to Effective Action [7] by the AAMC. The clear conclusion is that while much has been accomplished, significant work remains. While the original IAIMS program was designed with a destination as its goal, this re-conceptualization of IAIMS is more of a path and a process. The report provides broad action agenda for this next generation of IAIMS. For libraries, the opportunities remain and are in their own way no less expansive than the original vision and are summarized in two major challenges, “(1) implementing a set of methodologies for managing the institution’s knowledge store and allowing people to manipulate the knowledge store retrospectively and prospectively, in real time, for their own purposes, and (2) building linkages from the institution’s knowledge that is external (i.e., not owned by it)” [8]. In its conclusion, the report accurately describes the challenges that lie ahead, “IAIMS must further the use of the technology to move knowledge into action – to improve health to integrate local and distant information resources, to enable good decisions, to enhance learning to aid discovery and innovation” [9].

Summary

AAHSL and technology have been intertwined from the beginning of the association. Technology was the focus of one of the first AAHSL committees and innovative applications of technology have consistently been used in the programs and operations of the association. AAHSL was an early, proactive supporter of IAIMS and was again a key supporter of the IAIMS re-conceptualization in the new millennium. AAHSL remains a central resource for academic health sciences libraries in the intelligent diffusion of knowledge.

Technology is a valuable tool in enabling knowledge diffusion. In part because of the inexorable acceleration of technological change AAHSL will continue to be a knowledge resource and sounding board for member ideas.

References

1. For the best history of first generation computing in medical libraries see: Pizer IH. Looking backward, 1984-1959: Twenty-five years of library automation – a personal view. Bull Med Libr Assoc 1984 Oct;72(4): 335-348.
2. Annual Report. Association of Academic Health Sciences Library Directors. 1978/1979.
3. Matheson NW, Cooper JAD. Academic information in the academic health sciences center. Roles for the library in information management. J Med Educ 1982 Oct;57(10): Pt 2.
4. Association of Academic Health Sciences Library Directors. Report on automation activities of member libraries - 1987.
5. Source materials for 1990-2002 are drawn from two main resources. From 1990 through 1994 the primary resource was *AAHSL News*. *AAHSL News* was discontinued in late 1994. From 1995-2002 the main resource was AAHSL Board Meeting Minutes, AAHSL Business Meeting Minutes, and AAHSL President's Reports.
6. *AAHSL News* Vol.12 No.2 Page 2 (1992)
7. Florance V, Masys DR. Next-Generation IAIMS: Binding knowledge to effective action. Washington, DC: Association of American Medical Colleges, 2001.
8. IBID., 36.
9. IBID., 46.