Information Technology and Libraries at 50
The 1980s in Review

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My view of library technology in the 1980s through the lens of *Journal of Library Automation (JOLA)* and its successor *Information Technology and Libraries (ITAL)* is a bit skewed by my age. I am a Gen-Xer and much of my professional perspective has been shaped by the last two decades in libraries. While I am cognizant of our technical past, my perspective is very much grounded in the technical present. In a way, I think that context made my experience reviewing the 1980s in *JOLA* and *ITAL* all the more fun.

The most pronounced event for the journal during the 1980s was the transition from the *Journal of Library Automation* to *Information Technology and Libraries* between 1981 to 1982. The rationale for this change is perhaps best captured through the context set in the guest editorial "Old Wine in New Bottles?" by Kenney in the first issue of *ITAL:* "Proliferating technologies, the trend toward integration of some of these technologies into new systems, and rapidly increasing adoption of technology-based systems of all types in libraries ...."[1] The article grounds us in the anxieties and challenges of the decade surrounding an accelerating change in technology. Libraries were evolving from implementing systems of "automation," a term that focuses more on processes, to broadening their view to "information technology," which is more of a discipline — an ecosystem made up of technology, process, systems, standards, policies, etc. In a way, the article acknowledges the departure of libraries from their adolescent technological pasts to their young adult present for which the 80s would be the background.

Perhaps no other event is more technologically significant during the decade than the standardization of the internet. While the concept of networks and a network of networks, e.g. the internet, was conceptualized in the 1960s, it was the development of the TCP/IP network protocol that is the most consequential event because it made it possible to interconnect computer systems using a common means of communication. While the internet wouldn't become ubiquitously popularized until the early 1990s with the emergence of the world wide web, the internet was active and alive well before that and, in its early state, was critical to the emergence and evolution of library technologies. From the first issue through the last of the 1980s, *ITAL* references the term "online" frequently. The "online" of the 80s however was largely text based, where systems were interconnected using lightweight terminals to navigate browse and search systems. It was not unlike a massive "choose your own adventure book," skipping from menu to menu to find what you were looking for.

Throughout my review, I was happy to see a small, but significant, percentage of international articles that focused on character sets, automation, and collection comparisons in countries like Kuwait, Australia, China, and Israel. Diversity is a cornerstone for LITA and ALA and the journal has continued this trend to encourage the submission of articles from outside of the U.S. The 1980s volumes of *ITAL* traversed a plethora of topics ranging from measuring system

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performance (efficiency was important during a time when computing was relatively slow and expensive) to how to use library systems to provide data that can be used to make business decisions. Over the decade, there was a significant focus on library organizations coming to terms with new technology, e.g. the automation of circulation, acquisitions, and the MARC bibliographic record. There were several articles that discussed the complications, costs, and best practices for converting card-catalog metadata to electronic records and several other articles that detailed large barcoding projects. The largest number of articles on a single topic focused on the automation and management of authority control in automated library systems. There were articles on the emergence of research databases often delivered as applications on CD-ROMs which would then be installed on microcomputers. The term "microcomputer" was frequently used because the 80s saw the emergence of the personal computer in the work environment, a transformative step in enabling staff and patrons alike to access online library services and applications to support their research and work. Electronic mail was in its infancy and became a novel way to share information with end users across a campus. Several articles focused on the physical design of search terminals and optimizing the ergonomics of computers. There were also many articles about designing the best OPAC interface for users, ranging from how to present bibliographic records to users, to what information should be sent to printers, to early efforts to extend local catalogs with article-based metadata.

Many of these topics have parallels today. Instead of only analyzing statistical usage data we can pull from our systems, libraries are striving to develop predictive analytics, leveraging big-data from across an assortment of institutions. I found the 1988 article "Investigating Computer Anxiety in an Academic Library," which examines staff resistance to technology and change to be as apropos today as it was then.[2] CD-ROMs have gone the way of the feathered and overly hair-sprayed coifs of the 80s and have largely been superseded by hard drives and solid state flash media that can hold significantly more data and can transfer data more rapidly. The current decade of the 2010s has been dedicated to providing the optimal search experience for our end users as we have broadened our efforts to the discovery of all scholarly information, not just what is held in our collections. And of course, instead of adding a few article abstracting resources to our catalogs in an innovative, but difficult to sustain manner, the commercial sector has created web-scale mega-indexes that are integrated with our catalogs and offer the promise of searching a predominant amount of the scholarly record.

There was a really interesting thread of articles over the decade that traced the evolution of the ILS in libraries. There were articles about how to develop automation systems for libraries, the various functions that could be automated — cataloging, circulation, acquisitions, etc. — and evaluation projects for commercial systems. If the 2000s was the era of consolidation, the early 1980s could easily represent the era of proliferation. The decade nicely traces the first two generations of library systems, starting with university-developed automation and database backed systems and the migration of many of those systems to vendors. The Northwestern University-based NOTIS system was referenced a lot and there were some mentions of OCLC's acquisition and distribution of the LS/2000 system. This part of our automation history is a palpable reminder that libraries have been innovative leaders in technology for decades, often developing systems ahead of the commercial industry in an effort to meet our evolving service portfolios. This early strategy for libraries mirrors recent developments of institutional repositories, Current Research Information Systems (CRISs), and faculty profiling systems like VIVO that were developed before the commercial sector saw the feasibility of commercialization.

The cycle of selecting and implementing a new integrated library system is something that many organizations are faced with again. The only difference is that the commercial sector has entered into the development of the 4th or 5th generation of integrated library systems, many of which are coming with data services integrated and most of them are implemented in the cloud.

In addition to seeing our technically rudimentary past, there were several articles over the decade that discussed especially innovative ideas or that anticipated future technologies. A 1983 article by Tamas Doszkocs which was written long before the emergence of Google is an early revelation that regular patrons struggle to use expert systems that require normalized and Boolean searching strategies. Not surprising is the conclusion that users lean organically toward natural language searching, but even then we were having the expert experience vs. intuitive experience debate in the profession: "The development of alternative interfaces, specifically designed to facilitate direct end user interaction in information retrieval systems, is a relatively new phenomenon."[3] The 1984 article, "Packet Radio for Library Automation," is about eliminating the challenges of retrofitting buildings with cabling to connect LAN networks by using radio based interfaces.[4] Could this be an early precursor to WiFi? There is the 1985 article titled "Microcomputer Based Faculty-Profile" about using a local database management application on a PC to create an index of faculty publications and university publishing trends.[5] This is nearly three decades before the popularization of the CRIS and faculty profile system. In 1986, there is an article "Integrating Subject Pathfinders into a GEAC ILS: A MARC-Formatted Record Approach," an article that made me think about how library websites are structured, and the current trend of developing online research guides and making them discoverable in our websites as a research support tool.[6] And finally, I was struck by the innovative approach in 1987's "Remote Interactive Online Support," wherein the authors wrote about using hardware to make simultaneous shell connections to a search interface so they could give live search guidance to researchers remotely.[7] We take remote technical support for granted now, but in the late 80s, this required several complicated steps to achieve.

The 80s were an exciting time for technology development and a decade that is rife with technical evolution. I think this quote from the article "1981 and Beyond: Visions and Decisions" by Fasana in the *Journal of Library Automation* best elucidates the deep connection between the past and the future, "Library managers are currently confronted with a dynamic environment in which they are attempting simultaneously to plan library services and systems for the future, and to control the rate and direction of change."[8] This still holds true. Library managers are still planning services in a rapidly changing environment, except, I like to think we have learned to live with change that we cannot control the rate nor direction of.

[1] B. Kenney, "Guest Editorial: Old Wine in New Bottles?," *Information Technology and Libraries*, 1 no. 1 (March 1982), p. 3.

[2] MaryEllen Sievert, Rosie L. Albritton, Paula Roper, and Nina Clayton, "Investigating Computer Anxiety in an Academic Library," *Information Technology and Libraries 7 no. 3 (September 1988), pp. 243-252.*

[3] Tamas E. Doszkocs, "CITE NLM: Natural-Language Searching in an Online Catalog," *Information Technology and Libraries* 2 no. 4 (December 1983), p. 364.

[4] Edwin B. Brownrigg, Clifford A. Lynch, and Rebecca Pepper, "Packet Radio for Library Automation," *Information Technology and Libraries* 3 no. 3 (September 1984), pp. 229-244.

[5] Vladimir T. Borovansky and George S. Machovec, "Microcomputer Based Faculty-Profile," *Information Technology and Libraries* 4 no. 4 (December 1985), pp. 300-305.

[6] William E. Jarvis and Victoria E. Dow, "Integrating Subject Pathfinders into a GEAC ILS: A MARC-Formatted Record Approach," *Information Technology and Libraries* 5 no. 3 (September 1986), pp. 213-227.

[7] S. F. Rossouw and C. van Rooyen, "Remote Interactive Online Support," *Information Technology and Libraries* 6 no. 4 (December 1987), pp. 311-313.

[8] Paul J. Fasana, "1981 and Beyond: Visions and Decisions," *Journal of Library Automation* 13 no. 2 (June 1980), p. 96.