BY CAROL TENOPIR

Why Don't More People Use Databases?

I SPENT MUCH of this summer away from the online world. I didn't go to conferences or read many online magazines. For almost two months I didn't touch a terminal, didn't turn on a microcomputer, and didn't see a modem. I did visit libraries in different parts of the United States and United Kingdom (without telling anyone I was a librarian) and I talked to many different kinds of people. It struck me how little of an impact online information sources have yet to make in most people's lives and work. A vast majority of library users never use online services. Even many microcomputer owners have only a vague idea of what online has to offer. After 15 years, ours is still a relatively unknown service and the issues that seem so important to our workday lives are unheard of to a vast majority of people.

Since we are so close to online searching so much of the time, I think it is valuable to step back at times and examine why more people are not database users. Several speakers at the National Online Meeting in New York this May took this approach and discussed various barriers to widespread use of databases.

Myths, realities

Leroy Cook, a private investigator and online end user, spoke from the perspective of an outsider looking into the online industry in "The View from the Bullseye." He discovered the value of online information retrieval when he purchased a personal computer and began looking for something worthwhile to do with it.

Carol Tenopir is Assistant Professor at the Graduate School of Library Studies, University of Hawaii, Manoa

Cook is excited by the potential of online, but can't understand the lack of interest. "Why isn't the whole population fighting like shoppers at a clearance sale for what you, the online industry, have to offer?" He told the audience that "you have the equivalent of the industrial revolution and most of the world could care less." Cook went on to discuss some of the obstacles to success.

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Steve Arnold of Data Courier, Inc., in "End Users: Old Myths and New Realities," discussed "some of the myths [that arose] when end users, we thought, lurked behind every office door" and the causes for differing realities. The perspective of the information broker was delivered by Reva Basch of Information on Demand, who spoke about the characteristics and expectations of "The Electronic Client," someone who requests searches or documents through electronic messages.

Reaching the customers

The most obvious reason why people don't use databases is because they don't know about them. Reaching the many potential customers who are as yet uninformed about online searching is where most of the effort in the online industry is being spent. The expectation of many in the industry is that if people know what online searching can offer they will become users.

The difficulty of reaching a vast and nebulous clientele is being realized, so "vertical marketing" has become the buzzword in the industry. Vertical marketing identifies discrete segments of users that have similar needs and characteristics. Not all segments in the population need what online databases have to offer, but certain segments have a high potential. Products are developed, packaged, and promoted specifically for each of these segments. Ideally, once people in a targeted segment learn about online searching they will become users. This does not always happen, however, because of several barriers to use.

Obstacle #1: hardware

Hardware is the first obstacle. The basic necessity of purchasing a computer or terminal is cited by Cook as a major limitation on the number of users. Arnold noted that "the [personal computer] market is soft because end users aren't able to use the machines easily and effectively." Personal computers are still best suited to the "person intrigued by technology." The microcomputer market has not lived up to original predictions because almost all of it is difficult for a novice to use. Purchase is still approached from the hardware perspective rather than the applications perspective.

Most online intermediaries or producers don't get very involved with hardware. The initial connection to an online host is often difficult and the hardware salesperson is generally not qualified to offer much help. Lack of standards makes it difficult to upgrade or change hardware.

Telecommunications hardware also sometimes poses problems. Valerie Noble, manager of the the business library at the Upjohn Company, wrote to me about her inability to use end user software at her company. "They won't work on our ROLM digital phone system. Internal technical personnel have been troubleshooting all of our discs, to no avail. And, to date, no vendor has offered any solutions. The result: potential service we cannot fulfill."

Obstacle #2: software

The second obstacle is software, both at the user's end of the database and the vendor's end. For the user, neither communications software nor front-end software can yet be consid-

ered user friendly. It can be time consuming and frustrating to install a communications package, as many of us have experienced. After years of complaints, documentation is still notoriously inadequate. Once installed, packages often have illogical commands or inconsistent requirements.

At the vendor's end, query languages are often cryptic, confusing, and inconsistent, especially to the infrequent user. Arnold complained of this inconsistency from the end user's point of view. "For every function which is made easy, new ones come along which are hard to master . . . . Nothing seems to strike a comfortable balance between hard and easy; it is either one or the other." He pointed out that to inexperienced users "the fact remains that logging on successfully, selecting an online service, searching and retrieving the appropriate information, reading it, shaping and intepreting it, and preparing the data in a form suitable for a customer's use are difficult tasks."

Cook is especially bothered by the lack of consistency in "terms, symbols, and prompts" among various online systems. To the potential end user the differences are major but are seemingly solvable. He complained, however, that when he mentions this to members of the online industry, standardization is dismissed as impossible.

To Cook, standardization is "not only possible, it's inevitable . . . . Words, symbols, and prompts are not technically required to be anything except what someone arbitrarily decides they will be. There are a lot of us who would like to use your services, and we would even pay money to do so. We don't have the time or the resources, however, to totally reeducate ourselves every time we change a piece of hardware or software. The unnecessary proliferation of terms, symbols, and prompts standing between the end users and your databases limits your potential market to a tiny fraction of what it might otherwise be."

According to Arnold, "if anything, the principal vendors of online information look less similar today than they did five years ago." In addition, the databases are not standard in terms of structure, abbreviations, and quality. "With more and more organizations becoming database producers, the customer has a bewildering job to determine which database in a general topic area is useful. Trying to evaluate the quality of one database with another is a near impossible task. Consistency is farther away today than it was in 1981." The necessity of learning "the idiosyncratic structures of each database," in addition to the host systems, is often too much to expect. Front-end software or gateways are not yet sophisticated enough to solve these problems completely.

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Obstacle #3: expectations

A third barrier is unrealized expectations. Arnold points out that "generally speaking, end users have not found online information retrieval the godsend the online industry's hype promised. Timesharing vendors, software companies, manufacturers, database producers, and other companies have overpromised what information can actually deliver."

Basch deals with "technophile" clients who are very comfortable with computers but often have little experience with research. They assume "that *everything* is available online—all subjects, all types of material, going back to the invention of moveable type . . . . They also expect full-text retrieval as a matter of course, and are often skeptical about the utility of abstracts. Personal computer hobbyists, especially, who have read about the wonders of database searching, must be told that not all publications are indexed online, and that coverage generally begins with the early 1970s, at best. There's a noticeable letdown when we inform them that all or part of their project will be tackled manually."

Unfortunately, the expectations that microcomputers and access to online information in the workplace would substantially increase productivity are yet to be realized. Arnold told the audience that "sadly, in 1986 it is quite difficult to equate the PC's presence with increased revenues and greater profitability." Using the manual sources in a library can still sometimes yield better results at a lower cost with less frustration.

The problem of cost

Related to overexpectations is cost. Prime-time costs for databases, in general, keep going up. Costs are often too high for the casual user. In the business community, Arnold believes that users are becoming more price sensitive because "companies are spending more money on PCs, software, and online information. Costs to the organization have probably increased. This puts greater pressure upon the online user to keep costs down."

At the same time, special non-prime-time discounts and reduced prices for special services have started. Most of us see these lower prices as positive, but Arnold warned that they have served to devalue information to a clientele that "does not have the ability to understand the value of information." Often the lower-priced special services are the first exposure to online databases for end users. Arnold fears it is difficult to raise prices or expect users to pay higher prices for other services once they have been made so low.

Solutions

Many in the information industry are working on solutions to overcome these barriers. Others continue to believe that better marketing alone will vastly increase the number of online users. Librarians have an important role to play with the information industry. We can continue to work actively on the development of standards for online systems and database structures. We can help vendors develop better software by sharing our expertise and criticisms with software developers. (Or as some have done, become software developers ourselves.) We can encourage fair pricing schemes that allow increased access to information while maintaining the value and quality of that information. We need also to find a way to communicate with hardware developers and dealers so they can be better informed of the needs of database users and of online applications.

Proceedings of the 1986 National Online Meeting are available for $50 from: Learned Information, Inc., 143 Old Marlton Pike, Medford, NJ 08055.