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Selecting Communications and Public Relations Database Media: Online, CD-ROM, and Paper

William J. Buchholz

Bentley College, Waltham, Massachusetts

Communication managers in the nineties confront a bewildering array of possibilities in accessing, maintaining, and promulgating information. Planners in charge of developing and accessing communication databases must appraise their needs across all the information storage media currently available, but especially in paper and electronic modes. Many of today's communication databases are in fact evolving into complex interactive systems that incorporate text, graphics, sound, and video. Managing this multimedia technology will demand that communication professionals move cautiously as they analyze the factors affecting cost, personnel, materiel, space, availability, ease of use, portability, and timeliness. This paper focuses on these concerns in examining three communication database publishing media: computer online, computer CD-ROM, and paper.

THE OLD DATABASES

The term *database* holds a certain fascination for many people. It is one of those "power" terms that first captured our imaginations about twenty years ago with the by-then growing use of mainframe computers in the military and the university, as well as in business, industry, and government. People were not always quite sure what a database was (nor even whether it was one word or two), but the term certainly commanded respect, for it left in its wake a whole host of power terms that seemed marvelous to our ears then: *data access, online, password, security code, down time, time-sharing, real time, batch processing, data entry, data manipulation, random accessibility*, and so on. All the verbal trappings of military glory and power, linked with the mysteries of the computer—what more could one ask for?

In squeezing the power of these earlier mainframe computers into desktop units, what has happened to our fascination with the database? A database, for most of us these days, is a pretty mundane affair: a simple collection of information fields, residing in records, tucked into files. These records can be sorted and reported by zip code, street number, middle initial, sex, age, hat size, or favorite bedtime story. Flat-file or relational database, it's all pretty boring stuff. The once-venerable database is now just a bethumbed and gritty electronic rolodex: essential in running a business, certainly, but not anything to quicken the pulse. The new databases, however, may do just that.

THE NEW DATABASES

Standard definitions of the term *database* have always differentiated *data* from *information* and *knowledge*. *Data* are two or more discrete facts or figures that by themselves contribute to *information* or advance our *knowledge* of an environment. For example, my *data* may indicate that I have ten one-dollar bills in my pocket. If I know to what use that money may be put, the sum of those bills is *information*. More and more these terms have become indistinguishable. Today, in fact, we are witnessing a profound change in the very concept of the database. *Data* itself, to paraphrase Whitman, is now vast; it contains multitudes. Presently obsolete in many ways, the term *database* could be replaced by *informationbase* or *knowledgebase* in some instances, for these terms more appropriately suggest the power and sweep of many systems of organized information.

To illustrate: a few years ago an online database such as *ABI/Inform* consisted only of bibliographic citations and brief article abstracts. Today, many databases contain not only that information, but also the complete text of their cited articles. *The Washington Post*, *The New York Times*, *The Wall Street Journal*, and countless other newspapers exist entirely online. These full-text collections have thus turned the humble database into electronic newspapers, journals, monographs, books, or magazines, whose digitized *information* and *knowledge* can be instantly accessed, analyzed, and manipulated in ways never before possible. On the immediate horizon are even more stunning possibilities: the widespread use of graphical databases.

The alphanumeric base (letters and numbers) that has dominated the IBM/compatible MS-DOS world, has made it difficult, if not impossible, to incorporate graphical elements into databases. With the introduction of OS/2 and Windows a few years ago, IBM/compatible hardware and software has been steadily evolving to accommodate graphical information through the GUI (Graphical User Interface). The Macintosh, having always sported a GUI, has been in the forefront of this graphical database development. Macintosh hypertext programming, for example, allows one to build complex interactive databases that exploit any number of sophisticated relationships among text and picture nodes. And the Next workstation, with its powerful Unix-based operating system adds (to graphics and text) stereophonic sound and built-in CD-ROM capabilities. Thus, our communication databases now have the potential to manipulate libraries of all that humans have ever expressed in words, pictures, and sound.

Ironically, the computerized database, once seen by many communication managers as a centralizing and simplifying means of information storage and access, has in fact become a gateway to complex electronic systems of information manipulation. These advancements in technology, however, recall our links with the past. Digitized information bases, at bottom, are simply the latest form of the oldest storage and publishing medium for the database: paper. The rolodex mentioned earlier is the nonelectronic first cousin to the computerized database as we have come to know it. Product catalogues, parts lists, bibliographies, telephone books—these are the standard forms of the database on paper. Today these databases function in both media, and often intermingle (or entangle) as information

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sources.

The upshot of all this is that communication professionals are facing extraordinary information management choices. Simple data management in one medium, whether computer or paper, is evolving into the management of interactive systems across multiple media that incorporate text, graphics, sound, and even video. Managing this technology will demand that communication professionals move cautiously as they analyze the factors affecting cost, personnel, materiel, space, availability, ease of use, portability, and timeliness. The remainder of this paper focuses on these concerns in examining three communication database publishing media: computer online, computer CD-ROM, and paper.

ONLINE DATABASES

When a database goes online, it is accessible to anyone who has a computer, a modem, and a subscription to the right online service. With the overwhelming number of online databases currently available, the chief question becomes: how do you navigate through the useless to find the useful? First, you need to choose between the two types of online services: *general-interest* and *special-interest*.

The general-interest services, such as CompuServe, Delphi, GENie, and The Source, offer a number of very useful communication-related online databases. These services are attractive too because of their forums and electronic mail. In CompuServe, for example, the Public Relations and Marketing forum is a place for communication professionals to seek the advice and counsel of other professionals around the nation. But more significant, at least for the purpose of this paper, are the databases. Using CompuServe, for example, communication professionals needing the latest demographic information from the U.S. Census Bureau can simply dial into CENDATA, access BUSDEM (business demographics database), and glean the *advertiser's service report* classified by Arbitron TV Markets (ADI) or Nielsen TV Markets (DMA). These kinds of communication-related databases, however, are more likely to be found in the special-interest collections from services like BRS Search, DIALOG, Dow Jones News/Retrieval, EasyNet, NewsNet, Lexis, Nexis, Vu/Text, and Westlaw. Table 1 gives a general idea of the types of communication-related databases available from DIALOG, one of the largest of these special-interest services.

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Selected DIALOG Databases	
Database Name	Database Content
ABI/Inform (8/71-present)	Abstracts over 600 business periodicals
Adtrack	Media; marketing program services
American Statistics Index	Social, economic, demographic data
AP News	National, international, business news
Arthur D. Little/Online	Business related; management sciences
BusinessWire	Full-text news releases, every segment of industry
Career Placement Registry	Job recruitment
Cendata	Government; census data
CIS (CIS Index)	Legislative bill information; legal publications
Commerce Business Daily	Federal procurement information
Corporate Affiliations	Profiles 42,700 parent companies and affiliations
D & B Donnelley Demographics	Demographics; census data; marketing
D & B Million Dollar Directory	Sales and marketing information
Facts on File	Summaries of current affairs in newspapers
Foundation Grants Index	Private foundation grant awards
Foundation Directory	Private foundation entity data
GPO Publications Reference File	Indexes present, forthcoming GPO documents
Magazine Index	435 magazines (50 full-text)
Moody's Corporate Profiles	Financial information on 3,800 public companies
Newsearch	Articles and wire stories from over 1,800 sources
Newswire ASAP	Complete text and indexing from PR Newswire, Kyodo, and Reuters
Patlaw	Government; legal; patents
Population Bibliography	Demography, family planning, migration
PR Newswire	Product releases, financial relations
PTS Marketing and Advertising Reference Service (MARS)	Information on advertising and marketing of consumer goods and services
UPI News	General news, commentaries, business

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While DIALOG carries the full-text version of newspapers such as the *Wall Street Journal* and the *New York Times*, among others, Vu/Text, another full-text special-interest service, goes even further. Vu/Text carries the major regional U.S. newspapers such as the *Boston Globe*, *Chicago Tribune*, *Columbus Dispatch*, *Houston Post*, *Los Angeles Times*, *Miami Herald*, *Philadelphia Inquirer*, *Washington Post*, and the like—well over one hundred full-text versions of newspapers from which communication professionals may glean information.

Whether you focus on general- or special-interest services, as you begin to explore the online database opportunities, you will soon feel overwhelmed by the number of available databases. Cuadra Associates estimates that over 4,200 online databases currently operate worldwide. Before you subscribe to an online service—to avoid wasting time and money—you should peruse Cuadra's *Directory of online Databases; the Directory of Periodicals Online: Indexed, Abstracted and Full-text; The Federal Database Finder; Computer-Readable Databases: A Directory and Data Sourcebook; The North American Online Directory*, or a similar publication to get a clear idea of the kind of database you think you will need. If, for example, you want to access communication periodicals online, a good place to begin your search would be the *Directory of Periodicals Online: Indexed, Abstracted and Full-text*. Subject areas of interest include advertising, communication, fund raising, marketing, local government, media (industry and trade), public affairs, public opinion, and public relations. But before you actually go online, spend some time learning the ins and outs of searching. The *Manual of Online Search Strategies; How to Look It Up Online; Online Searching: Principles and Practice*, and *Online and On-Disc Searching: A Dictionary and Bibliographic Guide* offer invaluable advice for search preparation and performance.

Whether you need a statistical, citation, or full-text newspaper or journal database, your decision to search through the wealth of information available to you online must follow from a careful analysis of this medium. Just keeping up with what's available online, as well as becoming familiar with the various search routines, may be simply too time-consuming. If you must have access to the latest information across a multitude of online and expensive databases, you should consider hiring an information broker, a professional researcher familiar with the databases available and their search routines.

If you perform your own searches, or hire an information broker, the following brief summary will give you a general sense of the advantages and disadvantages of searching online.

Online advantages

1. Information from online databases may be downloaded easily and in bibliographic, full-text, or tabular form for editing in a word processing, spreadsheet, or database program. Thus, accessed information need not be keyed in as it would if one were extracting data from the printed page.
2. Vendors are able to update their databases daily, weekly, biweekly, monthly, quarterly, or annually.

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3. Online services offer hundreds of databases that can be accessed easily from a single terminal in the home or office.
4. Unlike printed databases, electronic databases eliminate printing and mailing costs (in time, handling, and materials).
5. With experience, online data searches are more effective and efficient than index searches on paper, simply because every instance of the search term or phrase can be located in the database.
6. Many databases can be accessed at any time of the day or night.

Online disadvantages

1. You should have a computer with a hard disk drive (minimum of 20Mb). You will also need a modem, communications software, and a printer.
2. For the independent subscriber (that is, for a single individual) the cost of a special-interest service like Nexis or DIALOG is prohibitive. Even the more affordable general-interest services like CompuServe can be quite costly:
 - Initial subscription = \$35
 - Annual fee = \$18
 - Connect cost = \$12.50/hour
 - Report surcharge = \$20 - \$100
 - Long distance charges = Variable
3. *A la carte* costs mount quickly. Charges for connect-time vary according to the bps rate of your modem (300 baud, 1200 baud, 2400 baud). The higher the bps rate, the higher the charge. Rates may also vary according to the day of the week and the time of day.
4. Some databases are very difficult to use and require extensive training or study of the database structure and search algorithms. (Inefficient searches yield false drops that cost a great deal of money because of access time charges, line charges, and the like.) Even if you hire an information broker to do the searching, while your labor is eased, your costs will mount—anywhere from \$25-\$100/hour for searching (depending upon the broker), plus the access costs and phone charges.
5. Online searches do not invite casual browsing because of connect costs and the complexity of search methods; thus, you must be somewhat familiar with the nature and scope of the database.
6. In the process of downloading data, power interrupts, telephone line noise, and other unforeseen difficulties can corrupt data.

After carefully weighing the advantages and disadvantages, you may discover that online databases are too complicated, expensive, and intimidating for your purposes. You may then want to examine the possibility of finding what you need in CD-ROM databases. With the prices of hardware and software dropping dramatically

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in the last few years, and with the number of database titles increasing significantly, CD-ROM may well become the database publishing medium of choice within the next five years.

CD-ROM PUBLISHING

Compact Disk-Read Only Memory (CD-ROM) is a *publishing* medium that displaces paper as a means of promulgating information. CD-ROM can only be read from, not recorded to. Thus, CD-ROM should not be viewed as a *temporary* archival medium like a hard-disk, floppy disk, or tape storage device. Unlike these media, CD-ROM accommodates dramatically large amounts of digitized text, images, and sound on a cheap medium that can be accessed with minimum difficulty and maximum speed.

What most recommends CD-ROM as an information medium is its tremendous storage capacity, which ultimately translates into cost savings in time, space, and money. For example, a single encased CD-ROM disk, storing 540Mb of data and weighing 3.36 ounces, can replace as much as 270,000 pages of paper weighing 2,835 pounds (Table 2)—nearly a ton and a half of weight replaced by just over 3 ounces. To mail this 540Mb of information would cost \$.85 in CD-ROM and \$2,925.72 in paper (Lind, 49). Looked at another way, one CD-ROM can hold 500 books, which would cost about \$.10 each to publish (Getz).

The Department of Defense may well have the most pressing need to employ CD-ROMs to relieve these burdens associated with paper-based information storage. The requirement to reduce paper, because of weight and space constraints, led the DOD in 1985 to begin digitizing as much technical data as possible. Thus, while paper is no longer feasible as a technical documentation medium for the DOD, the CD-ROM, because of its minimal space and weight requirements, is ideal (Table 2).

Table 2: Storing 540 Megabytes of Data		
Medium	Quantity	Weight
Text on paper	270,000 pages	2,835lb
5 1/4" floppy diskette	1,500 floppies	54.44lb
Microfiche cards	1,200 cards	8.75lb
1200 baud transmission	1,104 hours (46 days)	NA
9-track magnetic tapes	10 tapes	6.94lb
CD-ROM	1 disk	0.21lb
Source: <i>CD-ROM EndUser</i> , December 1989, p. 42, and Lind, p. 78.		

The perfect suitability of the compact disc as a publishing medium was proven in

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July of 1989 when Reference Technology completed the first phase of a project to document on CD-ROM

over 17,000 pages of manuals, letters, regulations, and guide specs for the U.S. Army Corps of Engineers. The second phase of this project will move 600 pages of forms onto CD-ROM (*Laserdisk Professional*, July 1989, 87). Seventeen thousand pages of documentation in a paper medium would equal at least 34 reams of paper. Bound, these would probably weigh 200 pounds and would fill a medium-sized bookcase. But these same 17,000 pages employ a mere 6% of the storage capacity of a 5 1/4" CD-ROM in a jewel box weighing 3.36 ounces. The encased CD-ROM takes up less than half an inch of shelf space.

Networked with other CD-ROMs, this slim and light medium has astounding storage capabilities. David Lind notes: "one personal computer with a stack of 8 networked CD-ROM drives can access up to 2 million text pages . . . of data, constituting a potential weight in paper of 22,680 pounds (11.34 tons!)" (Helgerson, 41). The 8 encased CDs would weigh slightly over 11/2 pounds. In 1987 the Navy, in its "Paperless Ship" project, set out to eliminate as much paper as possible simply because of this kind of weight: "A Navy cruiser weighing almost 10,000 tons requires 26 tons of paper manuals to maintain and operate its weapons systems alone" (Helgerson, 40). While CD-ROMs virtually eliminate the space, weight, and handling costs associated with paper, perhaps even more attractive is the compact disc's easy updating and accessibility.

Since 1985, the DOD has been concerned about the amount of time it takes to update information on paper. The Air Force, for example, spends 20 months on average to distribute "two million pages of updates to maintenance manuals" (Helgerson, 40). And within the last year, many civilian organizations as well as the DOD have discovered the benefits of moving thousands of pages of technical reference information to users economically and efficiently via CD-ROM. Hewlett-Packard was the first computer manufacturer to inaugurate this CD-ROM customer support. Microsoft, Ford New Holland, Lotus, DEC, Arthur Andersen & Company, Mack Truck, and Nynex have also discovered that with CD-ROM the user can access data in mounds of information instantly. At Arthur Andersen & Co., "using only one-third of the space on a single CD-ROM, the firm replaced a 500-pound library of accounting and auditing information and hundreds of floppy diskettes and software manuals" (Dreiss and Bashir, 50). What before had taken hours or even days of hunting through paper-based documentation now takes but a few minutes with CD-based documentation.

Further, with a major new software release, Marc Hoff of Hewlett-Packard points out that "typically about 50 percent of the documentation gets updated as well. Customers with paper documentation would complain about the hours spent updating this information, inserting the updates. . . . With CD-ROM this [updating] is done automatically on disk." In fact, the older manual can exist on disk with the newer version so that customers can have quick and easy access to both (Herther, 30). With CD-ROMs a company like "Arthur Andersen can update and distribute its entire library for a fraction of the cost of printing a single manual" (Dreiss and Bashir, 52). And if the manual on disk is being distributed to thousands of recipients

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worldwide, inserting updates, which used to take hundreds of hours, now takes no time at all.

Available CD-ROM databases

Saving storage space, handling costs, and access time are vitally important to information consumers, but *only* if the requisite databases are available on CD-ROM. Because this technology is relatively new (first developed in 1983 by Philips and Sony) at the end of 1988, only 305 database titles were available for purchase (*Laserdisk Professional*, July 89, 83). But, the Optical Publishing Association projects that CD-ROM titles in print may reach 3,000 by the end of this year (*Personal Computing* 26). It is probably safe to say, that, given the enthusiasm with which this technology is being embraced as a publishing medium, the next few years will witness an explosion of custom applications (internally produced proprietary CD-ROM database titles like those at Arthur Andersen) as well as commercially marketed titles for general consumption. But for now, this last year has produced a number of commercially available titles that may be of interest to communication professionals. Some of these include:

Computer Library: Billed by Ziff Communications as the "first desktop reference on computers and computing," this CD-ROM contains the full-text of *Digital Review*, *Lotus Magazine*, *Microsoft Systems Journal*, *PC Magazine*, and *PC Week*, among others.

DIALOG OnDisc: Includes ERIC, Standard and Poor's, Corporations, and other databases. Browse on disc; search for the latest updated information online.

Dun's Million Dollar Disc: Contains a half million biographies of the key decision-makers as well as corporate information on 180,000 companies whose net worth exceeds \$500,000.

Encyclopedia of Associations: One CD-ROM disk holds all 18 printed volumes of the Encyclopedia (more than 90,000 entries).

Facts on File: Contains the full-text and cumulative index of all articles published from 1980-1988.

Microsoft Bookshelf: Contains full-text versions of *The World Almanac*, *Chicago Manual of Style*, *Bartlett's Familiar Quotations*, *Roget's II: Electronic Thesaurus*, *American Heritage Dictionary*, *Business Information Sources*, *The U. S. Zip Code Directory*, *Houghton Mifflin Spell Checker and Usage Alert*.

Microsoft Stat Pack: U.S. Census data and business statistics; tables are available in Excel and 1-2-3 format.

Multi-Ad Creator: CD-ROM's first major software program, this is used to copyfit text and lay out advertising pages.

Nynex Phone Directory: The 9.8 million entries in Nynex's service area contain names, addresses, zip codes, and phone numbers; updated monthly.

Because CD-ROM is just now coming into its own as a significant publishing medium, individuals should consider carefully if it is yet right for them. Single users

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may have less need for CDs than do multiple users in corporations or colleges and universities. The following brief summary gives a general sense of the advantages and disadvantages of CD-ROM.

CD-ROM advantages

1. Information from the databases may be manipulated easily in bibliographic, full-text, or tabular form for editing in a word processing, spreadsheet, or database program. Thus, accessed information need not be keyed in as it would if one were extracting data from the printed page.
2. One 5 1/4" disc can hold 540Mb, well over 200,000 pages of paper-based data. Thus, information storage concerns, particularly weight and shelf-space, are negligible. Printing, distribution, and handling costs are also a fraction of those incurred using paper.
3. Information can be accessed without concern for incurring online charges. No meter running means that searches can be more tentative and exploratory.
4. Thousands of pages of information can be scanned entirely, using any search terms desirable, thus eliminating the fear of missing key items that might not have been included in a paper index.
5. Information updates, especially for technical information that must reach thousands of users in a timely manner, are easier to promulgate on CDs than on paper.
6. CD databases are easily portable, especially important for knowledge-workers who must move from site to site.
7. CDs allow for interaction among text, graphics, and sound. This multimedia dimension makes CDs valuable as training aids or educational adjuncts.
8. Some CD titles are very inexpensive. For example, the complete works of Shakespeare, the major writings of Twain, Thoreau, Emerson, Whitman, Hawthorne, Melville, Jefferson, Franklin, and the Constitution Papers, in a single collection, retail at \$249 on one CD-ROM.
9. CD databases can be accessed at any time of the day or night.

CD-ROM disadvantages

1. You should have a computer with a hard disk drive (minimum of 20Mb). You will also need a CD-ROM player and a printer. Initial outlay for the CD-ROM player (between \$500-\$1500) may be prohibitive, unless the medium is used enough to justify start-up costs.
2. To date, very few commercial titles are available.
3. While online databases can be updated daily, CD-ROMs are updated much less frequently (usually quarterly; in some cases monthly). If you need timely financial information or access to full-text newspapers, and the like, you should go online. Services like DIALOG will provide both online and on-disc

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options to subscribers.

4. Some CD-ROM titles are quite expensive. *The Oxford English Dictionary*, for example, lists at around \$900.
5. No CD-ROM drivers are available for OS/2 systems.

You may feel that, intriguing as CD-ROMs are, you would prefer to search your databases on paper. Though paper has many disadvantages, it remains the most comfortable and efficient medium for many people. If you pick your vendor well, you may find that the paper database fulfills all your needs.

PAPER DATABASES

The phone book (both white and yellow pages), professional directories, lists, catalogues—we use these paper databases daily. In addition, many communication professionals have grown dependent upon their well-worn copies of *Bacon's Media Alerts*; *Bacon's Publicity Checker*; *The Directory of Newsletters*; *Foundation Directory*; *O'Dwyer's Directory of Corporate Communications*; *O'Dwyer's Directory of Public Relations Firms*; *Public Relations Register*; *Standard & Poors Register of Corporations, Directors and Executives*; *Standard Periodical Directory*; *Standard Rate and Data Service*, to name a few. The best of these databases are accurate, comprehensive, timely, and predictable. For these reasons, they inspire confidence and loyalty. The remainder of this paper focuses on two communication databases published in paper that exemplify these qualities and point to some of the major advantages and disadvantages of paper as a database publishing medium.

The phone book

The most popular communication database on paper, and probably the easiest to use, is the phone book. What makes this database so easy to use? Predictability and simplicity. This database consists of only three fields (name, address, and phone number); even if infinitely repeated, the data are controlled by the database's limiting format. Perhaps equally important is the alphabetical ordering of this information. The phone book has no index because the book itself *is* the index. The format-limited data arranged alphabetically are thus controlled by their easily perceived and infinitely repeatable patterns. In short, any child who can read can use a phone book.

What happens when the data and the indexing get more complex? Information may become irretrievable. Cross-referencing illustrates the increased difficulty of finding information in a database stored on paper. Looking up a city office or state bureau in the white pages, for example, can become monumentally frustrating. Searching in the yellow pages is raised to an even higher level of difficulty because information is topically *and* alphabetically arranged. The hunt may take quite some time, or even fail, if the search terms have not been selected carefully. (Shall I start with "Lexington" or "town government"? Is the information on special color-coded pages? Once on the right pages, what bureau might subsume the particular office I need?) Is it any wonder that we prefer to call the operator rather than thumb our

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way through this paper maze?

In paper databases, then, the index completely controls the information search. The more complex the data, the greater the need for a highly refined index or indices. For, unlike electronic database search terms, which can be sent through the entire corpus of information on the fly, paper database search terms are frozen in print. Furthermore, these collections of terms are only as good as the indexer has chosen to make them. The searcher is at the complete mercy of the index and the density of the data.

To understand more clearly the advantages and disadvantages of paper as a database publishing medium, let us examine a paper database that raises search complexity, timeliness, and information density to the highest levels.

MediaMap

Many people involved in computer-industry public relations have no doubt heard of, or use, the *MediaMap Computer Industry Report*, produced by Cambridge Communications, Inc. This 750+ page report, issued quarterly, is a perfect example of a highly dense *informationbase* whose utility is directly related to its means of access. *MediaMap* provides detailed information on *all* the media associated in any way with the computer industry: syndicated columnists, the trade and business press, industry research firms, the national press, industry newsletters, TV and radio shows, and user groups—in short, anyone whom you could possibly want to contact in the computer industry.

The 13-page entry for *PC Week* (from the First Quarter 1990 Report) illustrates well the comprehensiveness of *MediaMap*. The entry begins with the capsule summary, overview, and demographics of *PC Week*. Immediately following, a meaty 51/2-page editorial profile covers all sections of the magazine in detail. Whenever possible, *MediaMap* gives insight into editorial preferences, timetables, areas of coverage, contact information, and internal information flow, as well as the editor's philosophy, intent, and direction. An invaluable 21/2-page editorial calendar indicates magazine topics eight months into the future.

Probably one of the most fascinating and valuable features of this dense *informationbase* is the "Annotated Masthead," which gives not only names and phone numbers of everyone on the editorial staff but also the latest personnel and structural developments. Because *MediaMap* researchers are in constant contact with the personnel at *PC Week*, information in the Annotated Masthead is continually updated; further, some of the annotations contain interviews with the editors. In other words, *MediaMap* often lets you in on some very important professional discussions, as illustrated in this entry for John Pallatto, Senior Editor, News:

Pallatto works on the Applications Development team with Beth Freedman, Gina Smith, and Paul Sherer. "If you have any kind of tool that will help programmers, I want to hear about it," Pallatto says. He likes to discuss new products with people on the phone, since it allows him to get a good feel for the product and where it fits into the market. . . . When sending new product information to Pallatto, include color slides and names of users or

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beta users to contact with the initial package. "It's standard procedure here that when we cover new products, we contact beta testers and users to make sure the product really is out there and running . . . it's a reality check." Pallatto also wants to hear about major press events—though he doesn't have a chance to attend every one. He does make it to both COMDEX shows, PC Expo in New York, and the major CASE shows such as CASEXpo. (365)

After reading Pallatto's entry, you know his feelings about phone calls, the news he wants (and why), the details he desires (and why), events he wishes to hear about, and the major trade shows he attends.

This richness of information in *MediaMap*, however, is valuable only if readers are able to find what they need. As information density increases, the likelihood of finding any particular piece of that information is directly related to the search methods available. Thus, for browsers the table of contents offers an alphabetical listing of contents by topics. For more serious information hunters, the three color-coded indices order information (1) by topics; (2) by names of people, publications, and organizations; and (3) perhaps most interesting and useful of all, by 33 kinds of publicity opportunities. These publicity opportunities, subdivided into audience and product, include the following 14:

1. Beta Product Review
2. Book Review
3. Case Study
4. Company News
5. Company Profile
6. Events Listing
7. Interview
8. New Technology Profile
9. Personality Profile
10. Product Announcement
11. Product Review
12. Rumors & Inside Information
13. Vendor Submission/Article
14. Vendor Submission/Letter

A search through the publicity opportunities index leads the user to page-number references for every opportunity related to the type of coverage sought (for example, *all* 263 product announcement columns throughout the *entire* computer media). Within the heading for each type of coverage, listings categorized by audience and product allow precise targeting, in addition to comprehensive coverage.

These three indices, the table of contents, and a well-ordered presentation format allow *MediaMap* users to search through this rich abundance of information as efficiently and effectively as possible. But the medium itself, paper, while often a

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blessing, becomes something of a curse when the user needs to home in directly on target. Electronic searches are superior at this point, for they drop the user on the key word in context; paper searches take the user to the page, but are unable to highlight the key word on that page. Thus, search words and phrases buried in pages full of text are more difficult to find, making the final phase of the search much more time consuming. For most users, however, the added search time in a well-organized and accessible paper database like *MediaMap* is inconsequential. More serious is the problem of information dating or data perishability. Simply put, the data gets old fast.

Information Obsolescence

The kind of information in *MediaMap* is perishable because media people move about so much. The chief drawback of having this often short-lived information published on paper is that it can be rendered useless within a year—even within a quarter. To safeguard against information obsolescence, *MediaMap* clients receive every quarter a completely new 750+ page report, reflecting all the recent changes. They also receive a quarterly *Update Memo* (33 pages for the First Quarter 1990) that allows for easier list maintenance in consolidating all the changes within the last quarter. In addition, clients receive the critically important editorial calendar data, issued twice yearly in an *Editorial Calendar Planner*, especially valuable in November because it previews the next year's editorial schedules before the calendars are widely available.

Even with all these provisional measures, however, *MediaMap*, as a paper-based information medium, is vulnerable to time. Sensitive to this problem, *MediaMap* offers its clients phone support covering tutorials and media inquiries. Thus, the time limitations of paper are potentially overcome through the external support of another medium, the telephone. Data transfer and manipulation, however, remain a problem. A 700-name mailing list, for example, would have to be created by laboriously combing through *MediaMap*; the list would then have to be maintained manually every quarter as the information is updated.

Recognizing this limitation of the paper medium, *MediaMap* has taken delivery variation one step further with their "Contacts on Disk." This service, billed as an option, is certainly one that many clients would appreciate, especially those who keep their media contacts in a computerized database. Available for both the Macintosh and DOS systems, these ASCII data files contain names, addresses, phone numbers, key publicity opportunities, page number references, and topical interest areas for everyone listed in the current quarterly report. Personnel changes (both additions and deletions) are handled in such a way that updating the computerized database quarterly is not problematical.

Why not eliminate this sometimes cumbersome three-pronged approach (paper, telephone, computer) and present *MediaMap* either online or on CD-ROM? The answer is simple: user preference. The public relations and communications people who use *MediaMap* often are uncomfortable with technology, or they work in small companies that cannot afford online or CD access to databases. *MediaMap* thus

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offers solutions for everyone: it is a database published on paper (with all the attendant advantages) that also provides auxiliary media (the telephone and computer) to support information timeliness and transferability. The paper medium thus becomes the hub of an information universe. The paper publications are central because, for all its shortcomings as a publishing medium, paper has the greatest single advantage of all: to the vast majority of users, paper seems somehow more humanly approachable.

With *MediaMap* in mind as a touchstone in this analysis, the following summarizes the advantages and disadvantages of paper as a database publishing medium.

Paper database advantages

1. The vast majority of people prefer to work with information published on paper because it is less threatening than the electronic medium.
2. Relatively inexpensive (often free), paper requires no hardware or software investment, maintenance, operation, or upgrade; no electricity; no special office furniture or supplies.
3. Paper is portable (easily moved from desk to desk, home to office, person to person).
4. Paper is usually simple to search, especially if the vendor supplies a good index for large alphabetically ordered databases. These may be indexed by category, area, company, product, person, title, and the like.
5. Smaller databases take up little shelf space.
6. Paper requires no site licensing fees or exorbitant costs for multiple copies. Multiple users may access a single copy of the database.
7. No special skills or training are required to access information in the database.
8. Paper databases can be used any time of the day or night and can be browsed through casually without incurring added expense.

Paper database disadvantages

1. Storage space for paper databases, especially those numbering thousands of pages, can be exorbitant.
2. Because updating is expensive and time consuming, important data may become obsolete. That is, products come and go; people change phone numbers, offices, positions, companies, and the like.
3. Printing and mailing costs can be very high. Vendors pass these costs on to consumers.
4. Information searches may not be as thorough in larger databases, because locating every instance of a key word or phrase in context is impossible without the computer's comprehensive search capabilities.

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5. Information in the database must be transferred manually; such transfers may involve hundreds of hours of labor as information is keyed in to electronic format for a word processor, spreadsheet, or database program.
6. Paper databases contain only text and inert graphics; they have no multimedia potential for sound or video.

Because information dates so quickly, paper, even with all its advantages, needs support from other fronts. *MediaMap* serves as an excellent example of how one vendor has managed to devise a delivery mix (paper and computer) that assures ease of use and timeliness of information in a very sophisticated communication database.

CONCLUSION

This paper has discussed the many advantages and disadvantages of the publishing media for communication research databases: online, CD-ROM, and paper. While paper-based information itself may be more difficult to access and is, of course, less malleable, the vast majority of people today prefer it as a medium. Paper, after all, is not in the least forbidding. For many people, computers are. With computers, we surrender some portion of our control over the medium. The computer is intricate, mysterious, tricky, and bedeviling. Power outages or downed phone lines render us helpless. Paper, on the other hand, is something like an old friend we're patient with and enjoy because we've known him since our youth.

But paper as a database publishing medium, though it will never disappear, will surrender more and more territory to the computer. In the nineties, we will see computer access speed and memory increasing dramatically, more CD-ROM titles being published annually, more online and online/CD-ROM services (like those of DIALOG) being offered at lower prices, and the integration of digitized video, graphics, text, and sound becoming much more common. Within a few years, as more people become familiar with the GUI (Graphical User Interface) and its extraordinary potential to mix video, graphics, text, and sound in very sophisticated databases, the computer will no doubt become the dominant medium for database publishing.

In the so-called "information age" of the nineties, communication professionals will thus decide in favor of, or against, online, CD-ROM, and paper as database publishing media based chiefly upon (1) information availability, (2) information perishability, (3) access time, (4) storage space, and (5) cost. Database services and vendors will no doubt follow the lead of DIALOG and *MediaMap*, offering their wares in a variety of media to satisfy a variety of needs. Because no single medium will entirely exclude the others, and as more vendors realize the market will sustain, indeed demand, that databases be offered through multiple means, communication managers will have to study carefully the advantages and disadvantages of their communication database needs across all three media.

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