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Exploring Electronic and Hard Copy Sources

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CONSIDER THIS Frequently Asked Questions about Copyright of Hard Copy Information

Although electronic searches for information are becoming the norm, a thorough search often requires careful examination of hard copy sources as well. Advantages and drawbacks of each search medium (Table 8.1) often provide good reason for exploring both.

HARD COPY VERSUS ELECTRONIC SOURCES

Hard copy libraries offer the judgment and expertise of librarians who organize and search for information. Compared with electronic files (on disks, tapes, hard drives), hard copy is easier to protect from tampering and to preserve from aging. (An electronic file's life span can be as brief as ten years.)

Manual searches (flipping pages by hand), however, are time-consuming and inefficient: books can get lost; relevant information has to be pinpointed and retrieved, or "pulled" (page 130), by the user. Also, hard copy cannot be updated easily (Davenport 109–11).

Compared with hard copy, electronic sources are more current, efficient, and accessible. Sources can be updated rapidly. Ten or fifteen years of an index can be reviewed in minutes. Searches can be customized: for example, narrowed to specific dates or topics. They can also be broadened: a keyword search (page 135) can uncover material that a hard copy search might overlook; Web pages can link to all sorts of material—much of which exists in no hard copy form.

Drawbacks of electronic sources include the fact that databases rarely contain entries published before the mid-1960s and that material, especially on the Internet, can change or disappear overnight or be highly unreliable. Also, given the researcher's potential for getting lost in cyberspace, a thorough electronic search calls for a preliminary conference with a trained librarian.

NOTE *With many automated searches, a manual search of hard copy is usually needed as well. One recent study found greater than 50 percent inconsistency among database indexers. Thus, even an electronic search by a trained librarian can miss improperly indexed material (Lang and Secic 174–75). In contrast, a manual search provides the whole "database" (the bound index or abstracts). As you browse, you often randomly discover something useful.*

INTERNET SOURCES

Internet service providers (ISPs) including Compu-Serve, America Online, and Microsoft Network provide access to the

Internet via “gateways,” along with aids for navigating its many resources.

Usenet

Usenet is a worldwide system for online discussions via newsgroups, an electronic bulletin board on which users post, share, and discuss information via email.

Newsgroups are either *moderated* or *unmoderated*. In a moderated group, each contribution is evaluated by a reviewer who must approve the material before it is posted. In an unmoderated group, all contributions are posted. Most newsgroups are unmoderated, and thus generally less reliable than moderated groups.

For a wealth of reliable information, consult *newsfeed* newsgroups, which post news items from wire services such as the Associated Press. Whereas newspapers can print only a fraction of the information received from wire services, newsfeed groups provide all of it online.

Newsgroups typically publish answers to “frequently asked questions” (FAQ lists) about a topic (acupuncture, sexual harassment, and so on). Although potentially informative, FAQs reflect the biases of those who contribute to and edit them (Maeglin 5). A group’s particular convictions might politicize information and produce all sorts of inaccuracies (Snyder 90).

To locate newsgroups on any topic, go to <www.liszt.com/news>.

Listservs

A listserv is a computer-operated mailing list. Like newsgroups, listservs are special-interest groups for email discussion and information sharing. In contrast to newsgroups, listservs usually focus on specialized topics, with discussions usually among experts (say, cancer researchers), often before their findings or opinions appear in published form. Many listservs include a FAQ listing.

Listserv access is available to subscribers who receive mailings automatically via email. Like a newsgroup, a listserv may be moderated or unmoderated, but subscribers are expected to observe proper Internet etiquette and to stick to the topic, without digressions, “flaming” (attacking someone), or “spamming” (posting irrelevant messages). Some lists allow anyone to subscribe, while others require approval by the list owner.

To find listservs on any particular topic, go to <www.liszt.com> or <<http://tile.net/lists>>.

Library Chatrooms

Major libraries offer the research expertise of reference librarians on a round-the-clock basis via live chat. In response to a researcher query, the librarian locates the answer or guides the researcher to the appropriate sources (Kinik 38). See, for example, the *Santa Monica Public Library* site (Figure 8.1) at <www.smpl.org>.

Electronic Magazines (E-zines)

E-zines offer information available only in electronic form. Despite the broad differences in quality among e-zines, this online medium offers certain benefits over hard copy magazines:

- links to related information
- immediate access to earlier magazine issues
- interactive forums for discussions among readers, writers, and editors
- rapid updating and error correction

Major news publications and television and radio news programs also offer interactive editions online. Examples include *ABCNews.Com* <www.abcnews.go.com>, *National Public Radio* <www.npr.org>, and *PBS Online NewsHour* <www.pbs.org/newshour>.

EMAIL INQUIRIES

Email is excellent for contacting knowledgeable people in any field. Email addresses are increasingly accessible via locator programs that search the Internet. However, unsolicited and indiscriminate email inquiries might annoy the recipient.

Online reference librarians in the Library of Congress at <<http://lcWeb.loc.gov>> respond directly to email queries or they forward the question to a member library (Kinik 38).

World Wide Web

The Web is a global network of databases, documents, images, and sounds. All types of information can be accessed and explored through navigation programs such as *Netscape Navigator* or *Microsoft Internet Explorer*, known as “browsers.” Hypertext links (page 461) enable users to explore information along different paths by clicking on keywords or icons.

Each Web site has its own *home page* that serves as an introduction to the site and is linked to additional “pages” that individual users can explore according to their needs. To find

various sites on the Web, we use two basic tools: *subject directories and search engines*.

SUBJECT DIRECTORIES. Subject directories are compiled and maintained by editors who sift through Web sites and sort the most useful links into an index of subject categories. Popular subject directories include *Yahoo!* at <www.yahoo.com>, the *Internet Public Library* <www.ipl.org>, and the *Virtual Library* at <www.vlib.org>. Specialized directories (Quible 59) focus on a single topic such as "Software," "Health," or "Employment." See, for example, *Beaucoup* at <www.beaucoup.com> for a listing of specialized directories (and search engines) organized by category.

SEARCH ENGINES. Search engines such as *AltaVista* <www.altavista.com> scan for Web sites containing specific keywords. Because most search engines are maintained by computers instead of people, none of the information gets filtered, evaluated, or organized. So even though search engines yield a lot more information than subject directories, much of it can be irrelevant. Some search engines are more selective than others, and some, such as *SearchIQ* <www.searchiq.com>, focus on specialized topics.

NOTE *Assume that any material obtained from the Internet is protected by copyright. Document all online sources in college papers, and obtain written permission any time you use Internet sources in published documents.*

Intranets and Extranets

An *intranet* is an in-house computer network that employs Internet technology for information access within a company.

Invaluable for on-the-job training, research, and collaboration, a customized intranet provides authorized users access to the company's library, price lists, online discussions, and progress reports—even data files of colleagues. Fast-food chains and other franchises use intranets to respond to franchise questions and to distribute advice, industry/company news, sales figures, and other timely messages (Wallace 12). An intranet puts the company's knowledge and expertise at everyone's fingertips. Some organizations have company

“yellow pages,” listing the expertise and information possessed by each employee.

An *extranet* integrates a company’s intranet with the global Internet. External users (customers, subcontractors, outside vendors) with an Internet connection and a password can browse nonrestricted areas of a company’s Web site and download selected information, including customized reports. Extranets eliminate the need for the traditional printing and mailing of information to clients or suppliers. They also enable collaboration among organizations. At Caterpillar Tractors, Inc., for example, when a customer’s equipment breaks down, the entire company can mobilize immediately, contact in-house and outside experts, access records of previous solutions to similar problems, and collaborate on a solution—for example, designing an improved mechanical part for the equipment (Haskin, “The Extranet” 57–60).

The extranet blend of in-house information and Internet access leaves an organization’s network vulnerable to hackers, spies, or saboteurs. Therefore, each extranet site has its own *firewall* (software that keeps out uninvited users and that controls the data they can access). Firewalls offer password protection and encryption (coding) of sensitive information.

KEYWORD SEARCHES USING BOOLEAN OPERATORS

Most engines that search by keyword allow the use of Boolean¹ operators (commands such as “AND,” “OR,” “NOT,” and so on) to define relationships among various keywords. Table 8.2 shows how these commands can expand a search or narrow it by generating more or fewer “hits.” Boolean commands can also be combined, as in

(electromagnetic *OR* radiation) *AND* (fields *OR* tumors)

The hits produced from this query would contain any of these combinations:

electromagnetic fields, electromagnetic and tumors, radiation and fields, radiation and tumors

Using *truncation* (cropping a word to its root and adding an asterisk), as in *electromag**, would produce a broad array of hits, including these:

electromagnet, electromagnetic energy, electromagnetic impulse, electromagnetic wave

Different search engines use Boolean operators in slightly different ways; many include additional options (such as NEAR, to search for entries that contain search terms within ten or twenty words of each other). Click on the HELP option of your search engine to see which strategies it supports.

OTHER ELECTRONIC SOURCES

In addition to the Internet, other electronic technologies are used for storing and retrieving information. These technologies are accessible at libraries and, increasingly, via the Web.

Compact Discs

A single CD-ROM can store the equivalent of an entire encyclopedia and serves as a portable database, usually searchable via keyword. One useful CD-ROM for business information is *ProQuest*TM: its *ABI/INFORM* database offers full text of more than 600 management, marketing, and business journals published since 1989, along with indexes and abstracts of roughly 1,500 journals from the 1970s onward; its *UMI* database indexes major U.S. newspapers. A useful CD-ROM for information about psychology, nursing, education, and social policy is *SilverPlatter*TM.

NOTE *In many cases, CD-ROM access via the Internet is restricted to users who have passwords for entering a particular library or information system.*

Online Retrieval Services

Libraries and corporations subscribe to three types of mainframe database services that are highly specialized and current, and often updated daily (Lavin 14).

- *Bibliographic databases* list publications in a particular field and sometimes include abstracts of each work listed.
- *Full-text databases* display the entire article or document (usually excluding graphics), and also allow the article to be printed.
- *Factual databases* provide global and up-to-the-minute stock quotations, weather data, and credit ratings of major companies—among facts of all kinds.

Database networks such as DIALOG are accessible via the Internet, for a fee. Specialized databases such as MEDLINE or ENVIROLINE offer free bibliographies and abstracts, and

for a fee, copies of the full text. Ask your librarian for help searching online databases.

NOTE *Never assume that computers yield the best material. Database specialist Charles McNeil points out that “the material in the computer is what is cheapest to put there.” Reference librarian Ross LaBaugh warns of a built-in bias: “The company that assembles the database often includes a disproportionate number of its own publications.” Like any collection of information, a database can reflect the biases of its assemblers.*

HARD COPY SOURCES

Where you begin your search of hard copy sources depends on whether you are looking for background and basic facts or for the latest information. Library sources are shown in Figure 8.2.

If you are an expert in the field, you might simply do a computerized database search or browse through specialized journals and listservs. If you have limited knowledge, you probably want to begin with general reference sources.

NOTE *Librarian Ross LaBaugh suggests beginning with the popular, general literature, then working toward journals and other specialized sources: “The more accessible the source, the less valuable it is likely to be.”*

Reference Works

Reference works provide background that can lead to more specific information. Make sure the work is current by checking the most recent copyright date.

BIBLIOGRAPHIES. These lists of publications on a given subject are generally issued yearly, or even weekly. However, some quickly become dated. To locate bibliographies in your field, begin with the *Bibliographic Index*, a list (by subject) of major bibliographies. For a list of everything published by the government in scientific and technical fields, consult *A Guide to U.S. Government Scientific and Technical Resources*. You can also find bibliographies on highly focused topics, such as *Health Hazards of Video Display Terminals: An Annotated Bibliography*.

ENCYCLOPEDIAS. Encyclopedias provide basic information (which might be outdated).

Examples include the *Encyclopedia of Building and Construction Terms* and the *Encyclopedia of Food Technology*. The *Encyclopedia of Associations* lists over 30,000 professional organizations worldwide (Institute of Electrical and Electronics Engineers, American Society of Women Accountants, and so on). Most of these organizations now have Web sites.

DICTIONARIES. Dictionaries can be generalized or focus on specific disciplines or give biographical information. Examples include the *Dictionary of Engineering and Technology* and the *Dictionary of Scientific Biography*.

HANDBOOKS. These research aids offer condensed facts (formulas, tables, advice, examples) about a field. Examples include the *Civil Engineering Handbook*, and *The McGraw-Hill Computer Handbook*.

ALMANACS. Almanacs contain factual and statistical data. Examples include the *World Almanac and Book of Facts*, and the *Almanac for Computers*.

DIRECTORIES. Directories provide updated information about organizations, companies, people, products, services, or careers, often listing addresses and phone numbers. Examples include *The Career Guide: Dun's Employment Opportunities Directory*, and the *Directory of American Firms Operating in Foreign Countries*. For electronic versions, ask your librarian about *Hoover's Company Capsules* (for basic information on more than 13,000 companies) and *Hoover's Company Profiles* (for detailed information on roughly 3,400 companies).

NOTE *Many of the reference works listed above are accessible free via the Internet. Go to the Internet Public Library at <www.ipl.org>.*

Card Catalog

All materials held by a library usually are listed in its card catalog under author, title, and subject. Instead of being made up of actual cards, most card catalogs are now electronic and can be accessed through the Internet or through terminals in

the library. Visit the library's Web site or ask a librarian for help.

To search catalogs from many different libraries, go to the *Library of Congress Gateway* at <<http://lcweb.loc.gov/Z3950/gateway.html#other>> or *LibrarySpot* at <www.libraryspot.com>, a gateway to over 5,000 libraries worldwide.

Guides to Literature

If you simply don't know which books, journals, indexes, and reference works are available for your topic, consult a guide to literature. For a list of books in various disciplines, see Walford's *Guide to Reference Material* or Sheehy's *Guide to Reference Books*. For scientific and technical literature, see Malinowsky and Richardson's *Science and Engineering Literature: A Guide to Reference Sources*. Ask a librarian about guides for your discipline.

Indexes

Indexes are lists of books, newspaper articles, journal articles, or other works on a particular subject. Most are now searchable by computer.

BOOK INDEXES. All books currently published (up to a set date) are listed in book indexes by author, title, or subject. Sample indexes include *Scientific and Technical Books and Serials in Print* (an annual listing) and *New Technical Books: A Selective List with Descriptive Annotations* (issued ten times yearly).

NOTE *No book is likely to offer the very latest information, because of the time required to publish a book manuscript (from months to over one year).*

NEWSPAPER INDEXES. Most indexes list articles by subject. Sample titles include the *New York Times Index* and the *Wall Street Journal Index*. Most newspapers and news magazines are searchable via their Web sites, and they usually charge a fee for searches of past issues.

PERIODICAL INDEXES. A periodical index lists articles from magazines and journals. For general information, consult the *Magazine Index* (a subject listing on microfilm) and the *Reader's Guide to Periodical Literature* (updated every few weeks).

For specialized information, consult indexes that list articles by discipline, such as the *General Science Index* or *Business Periodicals Index*. Specific disciplines have their own indexes such as the *Index to Legal Periodicals* and the *International Nursing Index*. The *Expanded Academic Index*, on CD-ROM, lists some 1,200 journals and often provides full text and images. Ask a librarian about indexes for your topic.

CITATION INDEXES. Citation indexes help answer this question: *Who else has said what about this published idea?* Using a citation index, a researcher can track down the publications in which the original material has been cited, quoted, critiqued, verified, or otherwise amplified (Garfield 200). Examples include the *Social Science Citation Index* and *Web of Science (Science Citation Index Expanded)*, which cross-references articles from more than 5,700 journals.

TECHNICAL REPORT INDEXES. Government and private-sector reports written worldwide offer specialized and highly current information. Sample indexes include *Scientific and Technical Aerospace Reports* and the *Government Reports Announcements and Index*. Proprietary or security restrictions, of course, restrict public access to certain corporate or government documents.

PATENT INDEXES. Patents are issued to protect rights to new inventions, products, or processes. Information experts Schenk and Webster point out that patents are often overlooked as sources of current information: "Since . . . complete descriptions of the invention [must be] included in patent applications, one can assume that almost everything that is new and original in technology can be found in patents" (121). Sample indexes include the *Index of Patents Issued from the United States Patent and Trademark Office* and the *World Patents Index*. Patents in various technologies are searchable through databases such as *Hi Tech Patents* and *PI (World Patents Index)*.

INDEXES TO CONFERENCE PROCEEDINGS. Many of the papers presented at the thousands of

professional conferences are collected and then indexed in listings such as the *Index to Scientific and Technical Proceedings* and *Engineering Meetings*. The latest ideas or advances in a field often are unveiled at conferences, before appearing as journal publications.

Abstracts

Beyond indexing various works, abstracts summarize each article. The abstract can save you from going all the way to the journal to decide whether to read the article. Abstracts usually are titled by discipline: *Biological Abstracts*, *Computer Abstracts*, and so on. For some current research, you might consult abstracts of doctoral dissertations in *Dissertation Abstracts International*. Most abstracts are searchable by computer.

Access Tools for U.S. Government Publications

The federal government publishes maps, periodicals, books, pamphlets, manuals, research reports, and all sorts of other information. A few of the countless titles include *Electromagnetic Fields in Your Environment*, *Major Oil and Gas Fields of the Free World*, and the *Journal of Research of the National Bureau of Standards*. Much of this information can be searched online. Your best bet for tapping this complex resource is to request assistance from the librarian in charge of government documents. If your library does not hold the publication you seek, it can be obtained through electronic access or interlibrary loan.

Here are the basic access tools for documents issued or published at government expense and access tools for privately sponsored documents.

- *The Monthly Catalog of the United States Government*, the major pathway to government publications and reports.
- *Government Reports Announcements and Index*, a listing (with summaries) of more than one million federally sponsored research reports and patents since 1964.
- *The Statistical Abstract of the United States*, updated yearly, offers statistics on population, health, employment, and the like. It can be accessed via the Web. CD-ROM versions are now available.

Many unpublished documents are available under the Freedom of Information Act. The FOIA grants public access to all federal agency records except for classified documents, trade secrets, certain law enforcement files, records protected by personal privacy law, and similar types of exempted information.

Suppose you have heard that a certain toy has been recalled as a safety hazard and you want to know the details. In this case, the Consumer Product Safety Commission could help you. Perhaps you want to read the latest inspection report on conditions at a nursing home certified for Medicare. Your local Social Security office keeps such records on file. Or you might want to know if the Federal Bureau of Investigation has a file that includes you. In all these examples, you may use the FOIA to request information. (U.S. General Services Administration 1)

Contact the agency that would hold the records you seek: say, for workplace accident reports, the Department of Labor; for industrial pollution records, the Environmental Protection Agency.

Much government information is posted to the Web. For example, the Food and Drug Administration maintains a bulletin board at <www.fda.gov> on experimental AIDS drugs, on drug recalls, and related items; the Department of Energy at <www.doe.gov> offers information on human radiation experiments. One gateway to government sites: the Library of Congress page at <<http://lcWeb.loc.gov>>.

Microforms

Microform technology allows vast quantities of printed information to be stored in rolls of microfilm or packets of microfiche. (This material is read on machines that magnify the reduced image.) Ask your librarian for assistance.

EXERCISES

1. Using the printed or electronic card catalog, locate and record the full bibliographic data for five books in your field or on your semester report topic, all published within the past year.
2. Consult the *Library of Congress Subject Headings* for alternative headings under which you might find information in the card catalog for your semester report topic.
3. List five major reference works in your field or on your topic by consulting Sheehy, Walford, or a more specific guide to literature.
4. List the title of each of these specialized reference works in your field or on your topic: a bibliography, an encyclopedia, a dictionary, a handbook, an almanac (if available), and a directory.

5. Identify the major periodical index in your field or on your topic. Locate a recent article on a specific topic (e.g., use of artificial intelligence in medical diagnosis). Photocopy the article and write an informative abstract.
6. Consult the appropriate librarian and identify two databases you would search for information on the topic in Exercise 2.
7. Identify the major abstract collection in your field or on your topic. Using the abstracts, locate a recent article. Photocopy the abstract and the article.
8. Using technical report indexes, locate abstracts of three recent reports on one specific topic in your field. Provide complete bibliographic information.
9. Using patent indexes, locate and describe three recently patented inventions in your field, and provide complete bibliographic information.
10. Using indexes of conference proceedings, locate abstracts of three recent conference papers on *one* specific topic in your field. Provide complete bibliographic information.
11. Using the *Monthly Catalog* or *Government Reports Announcements and Index*, locate and photocopy (or download and print) a recent government publication in your field or on your topic.
12. Using OCLC, RLIN, *ProQuest*, *SilverPlatter*, or similar online or CD-ROM services, locate and copy the bibliographic record (including abstracts, if available) of four current books and four current articles in your field or on your topic.
13. If your library offers students a free search of commercial database networks such as DIALOG, ask your librarian for help in preparing an electronic search for your semester report.
14. Explore Internet databases via Prodigy, Pathfinder, the Microsoft Network, or a similar access provider or “on-ramp.” Prepare a list of promising database resources for your report topic.
15. Locate an Internet discussion list related to your report topic. Download and print out the group’s FAQ list. For a directory of listservs, consult <<http://www.liszt.com>>.
16. Using *Netscape Navigator*, *Internet Explorer*, or a similar browsing program, search Web sites to locate resources for your report topic.
17. If your library belongs to a consortium of electronically networked libraries, search the holdings of other libraries on the network for topic resources not available in your library. Prepare a list of promising possibilities.
18. Students in your major want a listing of at least *two* of each of the following discipline-specific sources: the main reference books; indexes; periodicals; government publications; commercial, Internet, and CD-ROM databases; online newsgroups and discussion groups. Prepare the list (in memo form) and include a one-paragraph description of each source. Be prepared to discuss your list in class.
19. Most Web browsers allow you to do keyword searches (page 135) by using a search engine such as *AltaVista* or *Infoseek*. Each engine has its own guidelines and peculiarities; these usually are explained in a “help” file or user’s guide. Learn to use at least one search engine; for your colleagues, write instructions for designing and conducting a Web search using that engine.

URLs: <www.searchiq.com>
 <www.lycos.com>
 <www.altavista.com>
 <www.infoseek.com>

COLLABORATIVE PROJECTS

1. Group yourselves according to major. For other students in your major, prepare a guide, in the form of a brochure, to your library's electronic resources (CD-ROM services and commercial database services, electronic catalogs, network consortium, Internet gateways, and so on). Describe discipline-specific types of resources available via each electronic medium. Early in this project, arrange for a group tour and demonstration of your library's resources by a librarian. (In conjunction with this project, your instructor may assign Chapters 15 and 22.)
2. Divide into groups and prepare a comparative evaluation of literature search media. Each group member will select *one* of the resources listed below and create an individual bibliography (listing at least twelve recent and relevant works on a topic of interest selected by the group):
 - conventional print media
 - electronic catalogs
 - CD-ROM services
 - a commercial database service such as DIALOG
 - the Internet and World Wide Web
 - an electronic consortium of local libraries, if applicable

After recording the findings and keeping track of the time spent in each search, compare the ease of searching and quality of results obtained from each type of search on your group's selected topic. Which medium yielded the most current sources (page 165)? Which provided abstracts and full texts as well as bibliographic data? Which consumed the most time? Which provided the most dependable sources (page 166)? The most diverse or varied sources (page 121)? Which cost the most to use? Finally, which yielded the greatest *depth* of resources (page 122)?

Prepare a report and present your findings to the class. (In conjunction with this project, your instructor may assign Chapter 24.)

3. Divide into groups and decide on a campus or community issue or some other topic worthy of research. Elect a group manager to assign and coordinate tasks. At project's end, the manager will provide a performance appraisal by summarizing, in writing, the contribution of each team member. Assigned tasks will include planning, information gathering from primary and secondary sources, document preparation (including visuals) and revision, and classroom presentation. (See page 98 for collaboration guidelines.)

Do the research, write the report, and present your findings to the class. (In conjunction with this project, your instructor may assign Chapter 24.)
4. Group yourselves according to major. Assume that several employers in your field are holding a job fair on campus next month and will be interviewing entry-level candidates. Each member of your group is assigned to develop a profile of *one* of these companies or organizations by researching its history, record of mergers and stock value, management style, financial condition, price/ earnings ratio of its stock, growth prospects, products and services, multinational affiliations, ethical record, environmental record, employee relations, pension plan, employee stock options or profit-sharing plans, commitment to affirmative action, number of women in upper management, or any other features important to a prospective employee. The entire group will then edit each profile and assemble them in one single document to be used as a reference for students in your major.

SERVICE-LEARNING PROJECT

Two sites that provide information specific to service-learning and grant writing are the *Foundation Center* at <www.fdncenter.org> and *Donor's Forum* at

<www.donorsforum.org>. Go to the *Foundation Center* site and click on “finding funders.” Enter a search term that describes an issue your agency addresses (for example, “addiction” or “affordable housing”). Develop a list of ten foundations that look like primary sources of support for your agency. Detail these ten foundations in a one-page summary memo to the agency staff. (For more on grants and grant writing, see Chapter 23.)

8.1

For more on disciplinary research domains online visit
<www.ablongman.com/lannonweb>

TABLE 8.1

Hard Copy versus Electronic Sources: Benefits and Drawbacks

	Benefits	Drawbacks
HARD COPY SOURCES	<ul style="list-style-type: none"> • DISCOVERED AND ORGANIZED BY LIBRARIANS • easier to preserve and keep secure 	<ul style="list-style-type: none"> • TIME-CONSUMING AND INEFFICIENT TO SEARCH • hard to update
Electronic Sources	<ul style="list-style-type: none"> • more current, efficient, and accessible • searches can be narrowed • can offer material that has no hard copy equivalent 	<ul style="list-style-type: none"> • access to recent material only • not always reliable; sources or broadened may • user might get lost • material might disappear

HARD COPY SOURCES

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- access to recent material only
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- user might get lost
- material might disappear

be very biased

Benefits of hard copy sources

Drawbacks of hard copy sources

Benefits of electronic sources

Drawbacks of electronic sources

CONSIDER THIS Information Can Be “Pushed” or “Pulled”

The conventional strategy for distributing information requires recipients to *pull* the information—retrieve what they need when they need it, say, from the corporate library, the company files, or the Internet. An alternate strategy pushes hard copy or electronic information directly to selected recipients. “The best argument for [push] strategy is that people don’t know what they don’t know” (Davenport 148).

How Push Technology Works

Specialized software (such as *Headliner Professional* or *Pointcast Network*) allows users to stipulate the types of information they want. After searching, retrieving, and highlighting information tailored to a user’s needs, push software automatically downloads the material to the client’s desktop.

For Internet searches, users stipulate categories of information (say, municipal bond prices) or specific Web sites to be searched, with updates as requested. Intranet data or Internet material, links included, can be downloaded and then browsed at will.

A push-type search of the company intranet might combine field data from various salespeople (say, about orders or competition), or track the number of hits to the company Web site, or analyze email questions to the Web site about specific products. The user can then view search results (displayed in charts and graphs, spreadsheets, or reports organized by product

category) via his or her email or browser (Baker 65; Cortese 152; Cronin, “Using the Web” 254; Haskin, “A Push” 75+).

Workplace Applications of Push Technology

The ultimate promise is that push technology will enable any company to become “event driven.” “Every employee will know everything he or she needs to know as soon as the information becomes available” (Desmond 149). Examples:

- ℓ *announcements of new developments, breaking news, weather conditions, and so on*
- ℓ *internal company information—say, new policies, sales updates, market events*
- ℓ *product updates, news about competing companies or research breakthroughs, conference proceedings*
- ℓ *electronic copies of relevant articles in journals or trade publications*

Drawbacks of Push Technology

- ℓ *No electronic search agent can discriminate like a human reviewer.*
- ℓ *Push software might introduce viruses, clutter one’s hard drive with worthless material, and breach system security.*

Examples of Push Technology

- ℓ *Comprehensive retrieval systems, such as SavvySearch, simultaneously employ dozens of Internet search engines (Infoseek, WebCrawler), develop a customized search plan, and rank each source on the basis of usefulness to the researcher.*
- ℓ *“Bozo filters” sift through email messages, weeding out the nonessential and give priority to others on the basis of particular names or other keywords.*
- ℓ *“Personalized newspaper” programs monitor hundreds of news and information sources, select the news most relevant to the individual subscriber (e.g., about a particular company, industry, or medical treatment), and assemble and deliver the document via fax or email (Hafner 77).*

A coming generation of electronic “mentors will search databases for information useful to a particular individual, and ... spark the user’s creativity with questions and facts like those from a human consultant” (“Electronic” 56).

8.2

Learn more about database networks on the Web at

www.ablongman.com/lannonweb

Moderated newsgroups try to filter out unreliable material

Listservs usually are more specialized than newsgroups

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Benefits of online magazines

FIGURE 8.1 A Library Chatroom An on-call librarian can respond to questions via the Interactive Reference link even when the library is closed.

Source: “Ask Now” Web page from Santa Monica Public Library, <<http://www.asknow.org/portal.cfm?lib=SMPL>>, or <<http://www.smpl.org>>, Ask Now Link. Used by permission of Metropolitan County Library System.

Subject directories are maintained by humans

8.3

For more on evaluating the output of search engines visit

www.ablongman.com/lannonweb

Most search engines are maintained by computers and not people

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TABLE 8.2

Using Boolean Operators to Expand or Limit a Search

<i>If you enter these terms . . .</i>	<i>The computer searches for . . .</i>
electromagnetism <i>AND</i> health	Only entries that contain both terms
electromagnetism <i>OR</i> health	All entries that contain either term
electromagnetism <i>NOT</i> health and do not contain term 2	Only entries that contain term 1
electromag* = truncated search word words	All entries that contain this root within other words

¹British mathematician and logician George Boole (1815–1864) developed the system of symbolic logic (Boolean logic) now widely used in electronic information retrieval.

GUIDELINES for Researching on the Internet*

1. *Try to focus your search beforehand.* The more precisely you identify the information you seek, the lower your chance of wandering through cyberspace.
2. *Select keywords or search phrases that are varied and technical, rather than general.* Some search terms generate better hits than others. In addition to “electromagnetic radiation,” for example, try “electromagnetic fields,” “power lines and health,” or “electrical fields.” Specialized terms (for example, “vertigo” versus “dizziness”) offer the best access to sites that are reliable, professional, and specific. Always check your spelling.
3. *Look for Web sites that are specific.* Compile a hotlist of sites most relevant to your needs and interests. Specialized newsletters and trade publications are good sources.
4. *Set a time limit for searching.* Set a ten- to fifteen-minute time limit, and avoid tangents.
5. *Expect limited results from any search.* Each search engine (*AltaVista, Excite, HotBot, Infoseek*, etc.) has its own strengths and weaknesses. Some are faster and more thorough while others yield more targeted and updated hits. Some search titles only—instead of the full text—for keywords. No single search engine can index more than a fraction of ever-increasing Web content. Broaden your coverage by using multiple engines.
6. *Use bookmarks and hotlists for quick access to favorite Web sites.* Mark a useful site with a bookmark, which you can then add to your hotlist.
7. *Download or print out files.* Site addresses can change overnight; material is rapidly updated or discarded—especially from a newsgroup or listserv. When you find something you need, download or print it before it changes

or disappears. Be sure to accurately record the URL where you found the information and the date on which you accessed the site.

8. *Be selective about what you download.* Download only what you need. Unless they are crucial to your research, omit graphics, sound, and video files. Focus on text files only.
9. *Never download copyrighted material without written authorization from the copyright holder (page 144).* It is a federal crime to possess or give out electronic copies of copyrighted material worth over \$1,000 without permission (Grossman 37). Only material in the public domain (page 145) is exempted.

Before downloading *anything* from the Internet, ask yourself: “Am I violating someone’s privacy (as in forwarding an email or a newsgroup entry)?” or “Am I decreasing, in any way, the value of this material for the person who owns it?” For any type of commercial use, obtain permission beforehand and credit the source exactly as directed by the owner.

10. *Consider using information retrieval services.* An electronic service such as Inquisit or DIALOG protects copyright holders by selling access to materials in its database. For a monthly or per-page fee, users can download full texts of articles. Subscribers to these Internet-accessible databases include companies and educational institutions. Check with your library.

Although these services effectively filter out a lot of Internet junk, they do not catalog material that exists only in electronic form (say, e-zines or newsgroup and listserv entries). Therefore, these databases exclude potentially valuable material (such as research studies not yet available in hard copy) accessible only through a general Web search.

*Guidelines adapted from Baker 57+; Branscum 78; Busiel and Maeglin 39–40, 76; Fugate, “Mastering” 40–41; Kawasaki, “Get Your Facts” 156; Matson, “(Search) Engines” 249–52.

Types of online databases

CONSIDER THIS Information in Electronic Form Is Copyright Protected

Unanswered Questions

Copyright and fair use law (page 144) is quite specific for printed works or works in other tangible form (paintings, photographs, music). But how do we define “fair use” (page 144) of intellectual property in electronic form? How does copyright protection apply? How do fair use restrictions apply to material used in multimedia presentations or to text or images that have been altered or reshaped to suit the user’s specific needs?

Information obtained via email or discussion groups presents additional problems: Sources often do not wish to be quoted or named or to have early drafts made public. How do we protect source confidentiality? How do we avoid infringing on works in progress that have not yet been published? How do we quote and cite this material without violating ownership and privacy rights (Howard 40–41)?

Present Status of Electronic Copyright Law

Subscribers to commercial online services such as DIALOG pay fees, and copyholders in turn receive royalties. But few specific legal protections exist for noncommercial types of electronic information.

Since April 1989, however, most works are considered copyrighted as soon as they are produced in *any* tangible form—even if they carry no copyright notice. Fair use of electronic

information is generally limited to brief excerpts that serve as a basis for response—for example, in a discussion group. Except for certain government documents, no Internet posting is in the “public domain” (page 145) unless it is expressly designated as such by its author (Templeton).

Until specific laws are enacted, the following uses of copyrighted material in electronic form can be considered copyright violations (Communication Concepts, Inc. 13; Elias 85, 86; Templeton):

- ℓ *Downloading a work from the Internet and forwarding copies to other readers.*
- ℓ *Editing, altering, or incorporating an original work as part of your own document or multi-media presentation.*
- ℓ *Placing someone else’s printed work online without the author’s written permission.*
- ℓ *Reproducing and distributing original software or material from a privately owned database.*
- ℓ *Copying and forwarding an email message without the sender’s authorization. The exact wording of an email message is copyrighted, but its content may legally be revealed—except for “proprietary information” (page 79).*

Some copyright violations (say, reproducing and distributing trade secrets) may exceed the boundaries of civil law and be prosecuted as felonies (Templeton).

When in doubt, assume the work is copyrighted, and obtain written permission from the owner.

For more on the open source software and copy-leftist movement visit www.ablongman.com/lannonweb.

The role of research

“As a freelance researcher, I search online databases and Web sites for any type of specialized information needed by my clients. For example, yesterday I did a search for a corporate attorney who needed the latest information on some specific product-liability issues, plus any laws or court decisions involving specific products. For the legal research I accessed LEXIS, the legal database that offers full-text copies of articles and cases. For the liability issue I began with Dow-Jones News/Retrieval and then doubled-checked by going into the Dialog database.”

—Martha Casamonte, freelance researcher

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FIGURE 8.2 Ways of Searching the Literature Many of these resources are now accessible via the Web.

Reference sources provide basic facts

Indexes list current works

8.4

What happens when you are locked out of a source? Learn more at www.ablongman.com/lannonweb

Publicly accessible government records

CONSIDER THIS Frequently Asked Questions about Copyright of Hard Copy Information

Copyright laws ultimately have an ethical purpose: to balance the reward for intellectual labors with the public’s right to use information freely.

1. *What is a copyright?*

A copyright is the exclusive legal right to reproduce, publish, and sell a literary, dramatic, musical, or artistic work. Written permission must be obtained to use all copyrighted material.

2. *What are the limits of copyright protection?*

Copyright protection covers the exact wording of the original, but not the ideas, concepts, theories, or factual information that it conveys. For example, Einstein's theory of relativity has no copyright protection but the exact wording in announcing or explaining the theory does (Abelman 33; Elias 3). Also, anyone paraphrasing Einstein's ideas but failing to cite him as the source of that paraphrase would be guilty of plagiarism.

3. *How long does copyright protection last?*

Works published before January 1, 1978, are generally protected for ninety-five years. Works published on or after January 1, 1978, are copyrighted for the author's life plus seventy years.

4. *Must a copyright be officially registered in order to protect a work?*

No. Protection begins as soon as a work is created. But an author suing for copyright infringement would need to register the work before proceeding.

5. *Must a work be published in order to receive copyright protection?*

No. In fact, a legal ruling of "fair use" for any unpublished work is less likely than for a published work because unauthorized use violates the author's right to decide if, when, and how to publish the work (Elias 108).

6. *What is "fair use"?*

"Fair use" is the legal and limited use of copyrighted material without permission. The source of any material that is not your own should, of course, be acknowledged. Fair use does not ordinarily apply to case studies, charts and graphs, author's notes, or private letters ("Copyright Protection" 30).

7. *How is fair use determined?*

In determining whether the use of copyrighted material is fair, the courts ask these questions:

- ℓ *Is the material being used for commercial or for nonprofit purposes?* For example, nonprofit educational use is viewed more favorably than for-profit use.
- ℓ *Is the copyrighted work published or unpublished?* Use of published work, say, a news article, is viewed more favorably than use of unpublished essays, correspondence, or the like.
- ℓ *How much, and which part, of the original work is being used?* The smaller the part of the original, the more favorably its use will be viewed. Never considered fair, however, is the use of a part that "forms the core, distinguishable, creative effort of the work being cited" (*Author's Guide* 30).
- ℓ *How will the economic value of the original work be affected?* Any use that reduces the potential market value of the original will be viewed unfavorably.

8. *What is the exact difference between copyright infringement and fair use?*

Although using ideas from an original work is considered fair use, a paraphrase that incorporates too much of the original expression can be considered infringement—even when the source is cited (Abelman 41). The reproduction of a government document that includes material previously protected by copyright (graphs, images, company logos, slogans, or other material) is considered infringement. The United States Copyright Office offers this general caution:

The distinction between "fair use" and infringement may be unclear and not easily defined. There is no specific number of words, lines, or notes that may safely be taken without permission.

Acknowledging the source of the copyrighted material does not substitute for obtaining permission. ("Fair Use" 1–2)

When in doubt, obtain written permission from the copyright holder.

For updated information about fair use issues, especially pertaining to works in electronic form, visit the Stanford University Library Web site at: <<http://www.fairuse.Stanford.edu>>.

9. *What is material in the "public domain"?*

“Public domain” refers to material not protected by copyright or material on which copyright has expired. Works published in the United States ninety-five years before the current year are in the public domain. Most government publications and commonplace information, such as height and weight charts or a [metric conversion] table are in the public domain. These works occasionally contain copyrighted material (used with permission and properly acknowledged). A new translation or version of a work in the public domain can be protected by copyright; if you are not sure whether something is in the public domain, request permission. (“Copyright Protection” 31)

10. *What about international copyright protection?*

Copyright protection varies among individual countries, and some countries offer virtually no protection for foreign works (say, one produced in the United States):

There is no such thing as an “international copyright” that will automatically protect an author’s writings throughout the world An author who wishes copyright protection ... in a particular country should first determine the extent of protection available to works of foreign authors in that country (“International Copyright” 1–2)

In the United States all foreign works that meet certain requirements are protected by copyright (Abelman 36).

For more on international copyright issues, go to The World Intellectual Property Organization at <www.wipo.org>.

11. *Who owns the copyright to a work prepared as part of one’s employment?*

A work prepared in the service of one’s employer or under written contract for a client is a “work made for hire.” The employer or client is legally considered the author and therefore holds the copyright (Abelman 33–34). For example, a manual researched, designed, and written as part of one’s employment would be a work made for hire.

12. *What guidelines cover material downloaded on a computer?*

In recent rulings on electronic copyright issues, courts have followed traditional copyright laws (Graybill 27). For the latest developments, visit the Web site of the United States Copyright Office at: <[http:// www.loc.gov/copyright](http://www.loc.gov/copyright)>. For more on electronic copyright issues, see page 138, and visit *The Copyright Website* at <[http:// www.benedict.com](http://www.benedict.com)> and the University of Texas legal site at <[http://www.utsystem. edu/OGC](http://www.utsystem.edu/OGC)>.

For links to articles about intellectual property issues, go to the *Publishing Law Center* at <www.publaw.com>.

For more exercises, visit
<www.ablongman.com/lannon>