

CHAPTER 2 ELECTRONIC RESEARCH TECHNIQUES

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ELECTRONIC RESEARCH BASICS

As recently as a few years ago, if you wanted to be considered a cutting-edge expert in computer-assisted legal research (CALR) you only had to learn to use Lexis and Westlaw. While Lexis and Westlaw are still the major CALR vendors, you must be able to make use of other electronic databases, including Bloomberg Law, as well as the internet to do minimally competent research.

The general theory of electronic research comes in twos. Electronic information resources come in two basic levels of completeness: either full text records or abstract/index records. There are two basic linguistic difficulties in finding information: *synonymy* and *ambiguity*. There are two basic approaches for overcoming those difficulties in finding information: either subject or keyword search methods. There are two basic measures of search efficiency: precision and recall. And there are two basic tools for improving search efficiency: Boolean searching and field searching.

Completeness

Electronic resources have varying levels of completeness. Some resources are full-text databases and contain the entire text of a document. For example, the Maryland State Archives has a full-text collection of [selected Maryland newspapers](#). Other electronic resources are abstracts or indexes. This type of resource does not provide the full text of the item, but provides varying levels of detail about the item, and citations for retrieving the full text. A common example of this type of database is an [online library catalog](#). Some vendors provide databases of both types—Lexis and Westlaw both have databases that are full-text and databases that are indexes only. Databases available on the [Thurgood Marshall Law Library's web page](#) come in different varieties: full-text, partial full-text, and index/abstract only. Some resources that have full text may only have that text for a limited period of time. Beyond that time frame you may have to pay a document retrieval fee or use a subscription database to retrieve articles. The level of completeness is a factor to consider when you choose a certain resource.

Structure

Databases also come with varying degrees of structure. For example, a library's catalog has limited records, but the information is in a highly structured format that makes it easy to search for items by subject heading, author, or title. The internet can be considered a database with virtually unlimited records and with virtually no structure. The nature of the database dictates the methods that should be used to most efficiently search it. One of the first steps in successful electronic research is selecting the appropriate database and learning enough about the database to pick an efficient search method.

Linguistic Difficulties

In all research the searcher combats some basic linguistic difficulties: ambiguity and synonymy. Electronic research, especially full text, compounds these difficulties. When searching, you are normally looking for a concept, not a particular set of words. But one of the major tenets of "good" writing is to vary your words and find creative, new ways of expressing your ideas. *Synonymy* is the problem of there being many ways to express a single concept. For example, "sentenced to die," "death penalty," and "capital punishment" all express essentially the same concept. Probably you are in law school because you want to become something that can be called an attorney, a barrister, counselor, lawyer, litigator, or solicitor. Electronic research deals only with words, not concepts. To do comprehensive research, the searcher must account for the possible synonyms for the concept being sought. The flip side of the problem is ambiguity. *Ambiguity* is the problem of multiple concepts all being expressed by the same words. If you were to search one of the case law databases for "release" you would find criminal cases where the sentence was life without release, cases where a plaintiff signed a liability release, and cases about faulty auto brake releases. A counselor could mean an attorney, but it could also mean a social worker; a solicitor could mean an attorney, but it could also mean a salesperson. Overcoming synonymy and ambiguity is a first step in effective research.

Efficiency Measures

There are two ways to measure effectiveness of your search. The first measure is *precision*, which means finding *only* what you want to find. A precise search for documents about attorneys would include the documents where "counselor" means attorney but exclude all the documents where it meant a social worker. The second measure is *recall*. Essentially this means finding everything that you want to find. A search for documents about attorneys with good recall would find articles that use any of the words barrister, counselor, lawyer, or litigator. No one but the searcher can determine how precise a search needs to be or how comprehensive the search needs to be. At times a quick and dirty search that retrieves a few examples is all that is needed. At other times the research has to be as comprehensive as possible to retrieve every single case or item on point.

Two major tools exist in electronic research for increasing search efficiency. The first is *Boolean searching*. You have most likely used this at least occasionally when doing research on the internet. This tool is also available in a much more sophisticated fashion on Lexis and Westlaw and on many other electronic resources. The second is *field searching*. This technique takes advantage of the structure of the database. It is available to a degree on the internet, but is much more helpful in

the more highly structured databases like Westlaw and Lexis.

Search Approaches

There are two basic ways you can approach finding information in electronic format: a subject approach or a keyword approach. A common example of a subject approach is the old library card catalog. Modern online library catalogs offer both the option to search by subject and the option to search by keyword. When you search by subject, you search subject headings that have been assigned to an item as descriptive of the item's contents. Another example of the subject approach specific to legal research is the West Key Number system. The important thing to remember about the subject approach is that someone (or even a program) has analyzed the item and assigned a subject descriptor to it. This means that some of the work is done for you. For example, by doing a subject search for the heading "homicide" you would find items dealing with that subject even if the item uses the words "murder," "stab," "kill," or "fatally wound" without using the term homicide. Also, a subject search for the heading "homicide" would *not* retrieve an item about the filming of Homicide: Life on the Street. The subject approach is one way to compensate for the problems of synonymy and ambiguity. While some of the work is done for you, subject searching also means that you are depending on the work having been done correctly, and you are limited to subject headings assigned by somebody else.

When you search using the keyword approach, you are searching for any appearance of your search term. In full text databases this method searches for your term in the title field of the item, the text field, the assigned subject headings, and any other field in the item. The important thing to remember about the keyword approach is that it searches for *character strings* only and does *not* search for concepts. This means that for whatever information you seek, you must decide what terms best describe it. Keyword searching is particularly helpful when the concept you seek is very new and has not yet had a chance to be incorporated into subject headings.

BOOLEAN SEARCHING

Boolean logic is used to construct search statements using logical connectors. This kind of searching allows you to relate multiple search terms together to more accurately express the concept you are seeking.

The three basic logical operators are:

- and** Terms on both sides of the **and** connector must be present somewhere in the document in order to be retrieved. Westlaw interprets the ampersand symbol (&) as an **and** connector. In Bloomberg Law, a space between terms is interpreted as an **and** connector.
- or** If one of the terms connected by the **or** connector appears in a document, that document will be retrieved. Some search engines spell out the **or** connector while some interpret a space as an **or** connector. In Westlaw a space is interpreted as an **or** connector. In Lexis, how a space is interpreted depends on the other connectors that are present in the search. In Bloomberg, spaces are treated as **and**. To be on the safe side, it is best to type out the and/or connectors and to enclose phrases in quotes in all three systems, that way you don't

have to remember the variations.

not Documents containing the term after the **not** operator will not be retrieved. Westlaw calls this connector **but not** or the percentage (%) sign, Lexis calls it **and not**, and Bloomberg Law uses **but not**, **and not**, and simply **not**.

The **not** connector can be a very tricky connector to use effectively. It takes only one instance of a word to eliminate a document from your results set.

These three connectors are available in just about any electronic research tool. More sophisticated connectors are available on Bloomberg, Lexis, and Westlaw, and are also becoming more prevalent in internet search engines as well. One limitation to the basic connectors is that they work on the entire document. If you want to find cases about attorneys committing malpractice, the search **attorney and malpractice** is too broad. It will find cases that are about medical malpractice, but have the word “attorney” anywhere in the document—even if it is just a sentence saying “the plaintiff’s attorney objected to the evidence.”

Proximity connectors help with this difficulty. Common proximity operators are:

within –search terms must be within a specified number of words of each other. There is a great deal of variation among the search engines with this connector. Some search engines call it NEAR, some allow “w/n” where *n* is the number of words, some offer “w/s” for within the same sentence, and some offer “w/p” for within the same paragraph.

pre – the first term must precede the second term. Some search engines call it BEFORE, and some allow specifying the maximum number of words in between the search terms, e.g. **attorney pre/5 malpractice**.

adj – adjacency or phrase searching requires the terms to appear directly adjacent to one another and in the specified order. Some search engines use quotation marks to indicate phrase searching.

Most search engines have some methods for dealing with word variations.

- 1) A root expander (often the ! symbol, but different engines may use different symbols) substitutes for any number of characters, e.g., **depreciat!** will search for depreciate, depreciated, depreciating, depreciation.
- 2) The universal character * stands for one character, e.g. **advis*r** will search for advisor or adviser. You can use more than one universal character in one word, e.g. **bl**d** will retrieve **blood** and **bleed**. Bloomberg also uses ? as a universal character.
- 3) Many search engines, including both Lexis and Westlaw, automatically search for both the singular and regular plural forms of a word when you enter the singular form. However, Bloomberg Law does not. Check the “include word variations” box in Bloomberg to include plural forms. Keep in mind that while Westlaw searches for both regular plurals, those formed by simply adding the letter “s” to the end of the word, and irregular plurals,

for example, woman/women, Lexis searches only for regular plurals. When in doubt, enter both the singular and irregular plural, or use the root expander to pick up the different endings.

In all search engines, certain very common words such as **on**, **under**, **with**, will not be searched. Such words are called *stop words*, and each database has its own set of stop words. For example, the word “law” might be a useful term in a medical database, but it is so common that it might be a stop word in a legal database. For databases you use frequently, learn the stop words and avoid using those words in your searches.

Again, in all search engines, the order of connectors will dramatically affect your search results. A search in a job listing database for **attorney and (Chicago or New York)** is quite different than a search for **(attorney and Chicago) or New York**.

The first search will retrieve job listings for attorneys in Chicago and for attorneys in New York. The second search will retrieve job listings for attorneys in Chicago, and all job listings in New York.

Every search engine, including those for Bloomberg, Lexis, and Westlaw, has its own *order of processing*, the order in which it processes the connectors if you don’t explicitly set the order. For the multitude of general search engines, the best strategy is to explicitly set the order of processing by using parentheses and to avoid combining too many different kinds of connectors.

FIELD AND SEGMENT SEARCHING

In most databases the records or items are divided into parts that reflect the divisions in the documents themselves. The more highly structured the database, the more parts each record will have. Westlaw and Lexis both have divided their documents into extensive fields or segments and a search using them could, for example, find all the Maryland opinions written by Judge Marvin H. Smith. Without being able to specify a field or segment, a search for such a common word as **Smith** would make the search very difficult. With field or segment searching, a document is only retrieved if **Smith** is located in the designated field. This type of searching also can be very helpful in law review databases by giving searchers the option of running keyword searches only in the titles of articles.

BLOOMBERG LAW, LEXIS, AND WESTLAW

Lexis and Westlaw are established components of legal research. Bloomberg Law is a newer competitor in the online legal research market. It is no longer cutting-edge to be proficient in using these online databases for legal research; it is mandatory. The good news is that all these databases provide extensive, highly structured law-focused databases, and offer sophisticated research mechanisms.

Some advantages to searching Bloomberg Law, Lexis, or Westlaw rather than the internet:

- **Focused, reliable, subscription-only content.** Information on Lexis, Bloomberg, and

Westlaw is focused on primary law and secondary materials that are helpful to the attorney. If you run a search on “habeas corpus” you won’t be inundated with retrieved items (hits) that are postings from inmates requesting assistance, or advertisements from attorneys who specialize in habeas corpus matters. In addition, much of the content is accessible by subscription only, such as annotated laws and secondary sources.

- **Search engines that index the *entire* database.** Unlike the internet, where even the best search engines index far less than all of its contents, every document in these commercial databases is indexed and broken down by content type.
- **Search mechanisms that remain consistent.** With Westlaw you will always need to put a phrase in quotes, and in Lexis a string of words will always be treated as a phrase. While there are differences between the two vendors, only two systems need to be remembered, not the multitude of search mechanisms available on the internet.
- **Highly structured format.** Both these vendors provide organization to the document collection as a whole (sources or databases) and detailed organization within each document (segments or fields).

To take best advantage of these features it is essential to become familiar both with the organization schemes used by each vendor and with their respective search mechanisms. Bloomberg, Lexis, and Westlaw allow searchers to run an initial search and then filter results by date, document type, and other categories. However, sometimes it is useful to first identify and select the subset of the documents in the system most likely to contain the sources you want. Selection of the appropriate pool of documents in which to run your search or searches can greatly enhance your research efficiency.

Westlaw: Organization of Materials

Westlaw allows users to simultaneously search across multiples sources from a text box at the top of the page. Searchers can use natural language or Boolean searching. On Westlaw, documents are organized by general categories of materials into databases: federal materials (cases, statutes, legislative materials, administrative regulations and other sources); state materials (the same types of materials on the state level, with the user’s state listed first); “topical practice areas” which arranges documents by areas such as environmental law, bankruptcy and the like; law reviews, legal periodicals, and current awareness, which includes various secondary sources; and several other categories.

Each main category is divided into many subcategories that correspond to individual databases. Clicking on a category at each stage of the menu screen leads you further into the database directory until you reach the point of selecting the database you wish to search.

For any database, detailed coverage information, along with helpful search tips, can be obtained by accessing the “Scope” service. Once in the database, click on the “i” (information) button next to the database name in order to access “Scope.”

Lexis: Organization of Materials

The Lexis platform also allows the user to search across sources by entering either Boolean or natural language searches. Lexis organizes its “Sources” similarly to Westlaw. From the home screen you may choose to use one of the last sources you have previously used or look for a source by browsing through the content types. Broad categories of materials are displayed that can be narrowed by clicking on subcategories until the desired set of materials is reached. For search tips and scope information specific to each source, use the support box on the home screen.

Bloomberg Law: Organization of Materials

Bloomberg Law also allows user to search across sources by using the <GO> bar at the top of the homepage to run a keyword search. On Bloomberg Law, sources are also organized into topics similar to Lexis and Westlaw.

Selecting Databases/Sources

The database/source you select for a search is dependent on a number of variables. A rule of thumb that is often heard is to initially select the smallest database containing the type of documents you’re looking for, but this is dependent upon the circumstances. However, researchers now often conduct a broad search and then post-filter results using *facets* such as jurisdiction, type of material, and date. The following tips may provide guidance:

- If you are doing secondary source research at the beginning of a project, it might make sense to run a search in one of the combined secondary source databases that combine materials from journals, treatises, and A.L.R. rather than searching separate sources/databases for this information. Depending on your fee arrangement with the vendor, however, note that higher rates might be charged for searching in the larger, combined sources (see below).
- On the other hand, if you are researching a problem that is controlled by the law of a particular jurisdiction, it would be more reasonable to search for case or statutory law in a database that contains only materials from that jurisdiction, at least until you determine whether your research will necessitate an examination of persuasive authorities.
- All three systems provide databases of materials for specialized areas of law. Often these databases include portions of statutory or regulatory codes, or of reporters, that are relevant to a particular specialty area. These specialized databases can improve search efficiency but should be used with caution to ensure that relevant materials are not being overlooked because they do not appear in the selected database.
- When doing statutory research, you can sometimes opt to use either an annotated (including references to cases and other materials as well as the statutory language) or unannotated (including the statutory language only) version of the code. Often the annotated code is a better choice because the terms actually used in the statute may not be those generally used when discussing a topic. For example, a particular term may not actually appear in the

statute but the term may appear in the case annotations, so your search will retrieve the statute you seek. In other situations, the annotations may be so voluminous or the topic so broad that searching the annotated version creates a large retrieval of irrelevant items.

- Probably the most difficult selection decision is among the case law databases. Bloomberg, Lexis, and Westlaw provide numerous databases/sources containing cases from various combinations of courts.

Pricing

Make certain you are familiar with your institution or firm's billing arrangement with Lexis or Westlaw. Unless you have a flat fee arrangement, you may be billed at a higher rate for use of some large combined databases.

Firms pay a flat rate for the content package they purchase under Westlaw and Lexis. For example, a firm may purchase a Maryland-only package, and material from other states is outside the firm's plan. The firm has unlimited use of materials in the plan during the duration of the contract, without additional charge. In contrast, Bloomberg Law has a simpler pricing model based on a monthly flat fee per user.

When using Lexis or Westlaw, if an attorney gets a result in their search which is outside of the plan, they get a warning that the document is outside their plan. If the attorney decides to access that document, they are charged an additional fee for that out-of-plan document. Of course, some of these out-of-plan documents may be accessed on the internet for free, or from a lower cost database.

Note that a document delivery charge for downloading/printing may apply in addition to the cost of viewing the document. Westlaw gives the option of hourly (charged by the amount of time you are on the document) or transactional (charged per document fee).

Even if a flat fee contract is in place, searching in a larger-than-necessary database/source may slow you down considerably due to the need to sort through superfluous documents. Also, frequent use of the larger databases/sources may be the basis for fee increases the next time your institution negotiates its contract.

COMPOSING SEARCHES

There are two basic approaches to searching for documents on Bloomberg, Lexis, and Westlaw: *terms and connectors* and *natural language*. Studies show that the two methods of searching produce comparable results.

Terms and connectors searching combines search terms that describe your issue into a query using Boolean logic. The Boolean search mechanisms available on both services give a sophisticated set of proximity connectors beyond the standard **and**, **or**, and **not**. Conventional wisdom is that this is usually the preferred method of searching if comprehensive results are desired, that is, if your goal is to find all the cases or other sources on a topic. You may also want to select terms and

connectors searching when you are familiar with the topic and its language/jargon (e.g., case research).

Natural language searching allows you to enter your query as an ordinary sentence or phrase and is the default method for searching in Bloomberg, Lexis, and Westlaw, although in Bloomberg, keywords are automatically joined with an **and** in searches without operators. Natural language searching is usually regarded as more appropriate if you are looking for a sample of relevant cases. Natural language searching is very useful in locating secondary source materials that provide background on the subject of your research. You should also run a natural language search first if unsure what search terms would create a successful terms and connectors search.

Bloomberg, Lexis, and Westlaw all publish training materials expressly for law students, which provide extensive explanations and examples of techniques for online research. Training materials such as videos and tutorials are available on their websites.

Define Your Issues

With online database searching it is important to analyze your facts, that is, determine the legal issues raised by your problem. If you are using internet for your search, the only cost in your on-the-fly search is your time. If you generate your searches on-the-fly using an online legal research system, you could also be incurring significant charges from the vendor as well. Identifying the legal issues involved may require some background reading and research. It is very difficult to formulate an effective terms and connectors search if you are unclear about what your issues are. Sometimes a natural language search can help you to find some background information.

Select Search Terms

Once you have a reasonably clear idea what your issues are, list the key terms, including synonyms, antonyms, and related concepts that could appear in an opinion or other document discussing your issue. For example, a medical doctor could be referred to as a doctor, physician, surgeon, or M.D. An opinion discussing the constitutionality of a statute could use “constitutional,” “unconstitutional,” or both.

When you input a terms and connectors search into your online legal research system, you should: 1) spell terms correctly; 2) anticipate alternative terms; 3) write your search to pick up different word forms of your search terms. Natural language searching, on the other hand, will automatically look for alternative forms of words you have included as part of your search.

Inclusion of a particular word or phrase within a terms and connectors search mandates that the word appear within a retrieved document *unless* that word is coupled with another in the search by the **or** connector or the rarely used **not** (Bloomberg Law), **and not** (Lexis), or **but not** (Westlaw). On the other hand, words and phrases included in a natural language search do not have to appear in every document retrieved. Rather, the documents retrieved are presented in order of statistical relevance, with those documents containing the greatest number of the least common words or phrases from the search being presented first. However, both Lexis and Westlaw allow the researcher to make particular words and phrases mandatory in a natural language search. Both

systems recommend that this feature be used with great caution.

In terms and connectors searching on both Bloomberg Law, Lexis and Westlaw, use root expanders and universal characters to include words with variant endings or spellings. On Bloomberg Law, Lexis and Westlaw, the root expander is the exclamation mark (!) while the universal character is star (*).

Bloomberg Law, Lexis, and Westlaw ignore certain very common words such as a, an, as, on, the. Avoid using these words in your terms and connectors searches. In your natural language searches these words will be automatically excluded from your search.

To search for phrases on using a terms and connectors search, place the terms within quotation marks: “**last clear chance**” or “**blood alcohol.**” This works for Bloomberg Law, Lexis, and Westlaw. In natural language searching, many, but not all, phrases will be automatically recognized and searched. However, to insure that a phrase is recognized, you should place it within quotation marks on both systems.

These systems treat compound (hyphenated) words and acronyms (such as E.P.A.) somewhat differently. For detailed discussions, consult the manuals for each of the services. A useful strategy is to enter alternative versions of the term (e.g., **EPA or E.P.A. or “Environmental Protection Agency”**).

Relate Your Terms Logically

The next step with terms and connectors searching is to use logical connectors to arrange your terms into ideas and concepts. The basic connectors OR and AND function the same on Bloomberg, Lexis, and Westlaw as on the internet.

There are several other connectors that allow you to search for terms occurring in some proximity—and therefore presumably in some logical relationship—to one another in the documents.

/p searches for terms appearing in the same paragraph;

+p on Westlaw requires the first entered term to appear before the second entered term;

/s searches for terms appearing in the same sentence;

+s on Westlaw requires the first entered term to appear before the second entered term

/n searches for terms appearing within n words of each other (n may be set as any number from 1 to 255). Example: **dog /5 bit!** retrieves **dog** or **dogs** within 5 words of **bite, bites, biting, bitten**;

not (Bloomberg) **and not** (Lexis) and **but not** (Westlaw) exclude documents containing the specified terms (use **and not** and **but not** with extreme caution as it is easy to exclude

relevant documents).

Order the Connectors Properly

Both systems process search terms and connectors in a specified order depending upon which connectors are used. Failure to understand the order in which connectors are processed by the computer can lead to unintended results and missing important documents. Following is the basic order of processing:

- **or** is always processed first;
- proximity operators are processed next;
- **and** is processed next;
- **not, and not** or **but not** processed last.

Evaluate Your Search

Beginning online researchers often write searches that are long, complex, and contain unnecessary or non-specific terms. Usually simpler searches are better, provided they contain the terms most likely to be used in the documents dealing with the issues. As noted above, if you are having trouble even getting started because of unfamiliarity with the topic to be researched, do some background reading, perhaps coupled with a natural language search.

When should you edit your search? Sometimes the cases you retrieve with your first query suggest other terms that should be incorporated in your search query. If your original search was too broad (retrieved too many citations or irrelevant citations), you can modify it by adding other terms after an “and” or a proximity connector. If your original search was too narrow (few or no citations), you can add terms (synonyms, antonyms, concepts) after an “or” connector.

Field Searching

All documents are divided into parts called *segments* on Bloomberg Law, Lexis, and Westlaw. Field searching can be used in terms and connectors searching, but not in natural language. Available segments or fields vary depending upon the type of documents in the source or database. Bloomberg Law, Lexis, and Westlaw, all let researchers filter search results using fields after an initial search. Lexis and Westlaw also let researchers use fields for the initial search. On Lexis, you can use fields by typing the name of the field and then including the search term in parenthesis. On Westlaw, researchers should also type abbreviation for the field (see below) and then the search terms within parentheses. Typical segments or fields for case law include:

	LEXIS	WESTLAW	BLOOMBERG LAW
Parties to the case	Name()	TI()	Party Name
Court that decided the case	Court()	CO()	Court

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Attorneys representing parties to the case	Counsel()	AT()	Attorney or Law Firm
Docket number of the case	Number()	DN()	Docket Number
Citation of the case	Cites()	CI()	
Judge who wrote any portion of the opinion	Writtenby()		
Summary of opinion	Syllabus()	SI()	
Judge who wrote the majority opinion	Opinionby()	JU()	Judge
Opinion of the court	Opinion()	OP()	

These services provide a list of database or source specific fields. To view this feature in Westlaw, click on “Advanced Search” link next to the search button. To see this list on Lexis, click on the “Advanced Search” link next to the main search box.

It takes practice to compose searches that are both effective (high recall of relevant documents) and efficient (minimal retrieval of irrelevant documents). Law school is the best time to gain this experience. Because terms and connectors searches are literal, they will not pick up documents with spelling errors, unanticipated variations in language, or that discuss concepts and facts analogous but not identical to your issues.

Search efficiency may be greatly improved by limiting your searches to particular segments or fields of the documents in the source/database you are searching, or by specifying a date or time period for your search result.

Natural language searching will sometimes overcome some of these limitations. However, it does much less than many researchers realize in automatically searching for synonyms and related concepts. Nonetheless, a natural language search can often be a good starting point in an area unfamiliar to the researcher, especially if followed by a well-crafted terms and connectors search. More than that, however, most experienced researchers rely on a combination of online and manual research techniques to ensure comprehensive results.

Select Your Source or Database

You must have already determined the controlling jurisdiction. Usually it is most efficient to begin searching in the smallest database containing mandatory authorities.

Evaluating Search Results

Given the amount of you documents you may retrieve it is important become effective at quickly evaluating results to determine if documents are relevant. Some tips for quickly evaluating results include:

- Browse the documents you have retrieved by looking for highlighted search terms in the text of the documents. Typically, terms are automatically highlighted and one may move easily to points in documents at which search terms appear by clicking “Navigate all

Terms” (Lexis), the green ► (Westlaw). You can also use your browser’s Control/Command+F function to search for keywords inside of documents (Bloomberg, Westlaw, Lexis).

- Lexis and Westlaw also permit searchers to look for additional terms in documents that were not included in the initial search. To do this use “Locate” (Westlaw) or “Search Document” (Lexis) to look for specified terms within your search result.
- When reading cases, use headnotes or syllabi to quickly find points of law.

LOW-COST SUBSCRIPTION DATABASES FOR LEGAL RESEARCH

While Lexis and Westlaw have dominated the electronic legal research landscape for many years, new competitors have recently emerged. Alternative electronic legal research databases including Casemaker, Fastcase, VersusLaw, and HeinOnline are continuously expanding their content and features and are providing a challenge to the traditional vendors in an increasingly competitive market. While this Guide cannot individually address each one, the basic principles of electronic research apply: utilize the Help features and tutorials available on the various systems before conducting research in order to educate yourself about how to maximize the effectiveness and efficiency of your research.

COST EFFECTIVE RESEARCH USING INSTITUTIONAL REPOSITORIES

Institutional repositories (IRs) are online platforms for collecting, preserving, and disseminating access to articles, presentations, speeches, videos, photographs, and other materials that are the intellectual output of an institution. Institutions often provide free, public access to materials in their IRs.

Many law schools have created IRs. For example, Maryland Carey Law has its own institutional repository, [Digital Commons@UM Carey Law](#). It includes faculty scholarship, articles from academic journals like the *Maryland Law Review* and the *Journal of Business Law & Technology*, student articles and award-winning papers, and other law school publications.

Using a law school’s IR is often a cost-effective method for finding law review articles. Instead of relying on subscription legal research services to retrieve law review articles, researchers can often find them freely online in IRs. Moreover, in many instances, law journals are also freely available online, separate from an institution’s IR.

IRs can typically be found on the institution’s website or by using a search engine like Google to look for the [name of institution] + institutional repository. The website [OpenDOAR](#) also provides a directory of IRs around the world. Search engines also typically index materials from IRs. As a result, online researchers can often find links to IR materials in their search engine results.

INTERNET RESEARCH

Overview

The internet as a research tool is both an astoundingly rich resource and an astoundingly frustrating one. It falls to the searcher to be aware of its limitations.

The internet is not nearly as structured as the databases from commercial vendors such as Bloomberg Law, Lexis, and Westlaw. Most internet searchers use one of the many search engines as a means of finding information. Each search engine works a little differently, however, and those differences can affect search results. It is easy to think that when you have run a search in a couple of search engines that you've done a fairly thorough search. However, a comprehensive search is impossible on the internet.

Probably the biggest difficulty with search engines is their lack of standardization. One search engine may treat a search for **attorney malpractice** as a phrase search, another one may treat it as a search for **attorney or malpractice**, and a third may treat it as **attorney and malpractice**. Again, there are too many search engines to spend time learning the peculiarities of each one. To learn how to maximize the effectiveness of a search on a particular search engine, click on its Help link, search tips, or advanced search instructions.

With all these negatives, why should a legal researcher use the internet at all? The internet can be a cheap alternative to the use of commercial databases such as Lexis and Westlaw for finding primary legal materials such as U.S. federal and state statutes, bills, cases, and regulations. Depending on the topic, some materials can be available more quickly on the internet than on Lexis and Westlaw. The internet can augment an average law library's resources by providing alternate copies of print materials, and information that cannot be found in the law library in print or electronic format.

The following is a small, but illustrative, sampling of internet legal resources:

- [Findlaw](#). A web portal focused on law and government, provides access to an online library of legal resources for use by legal professionals, consumers, and small businesses. FindLaw's mission is to make legal information on the internet easy to find.
- [Govinfo](#). Provides free public access to official publications from all three branches of the Federal Government. This site includes public laws, the *United States Code*, the C.F.R., the *Federal Register*, presidential documents, and more.
- [Congress.gov](#). This resource is provided by the Library of Congress and is a gateway to extensive federal legislative information, including legislative text, Congressional Record, and Committee Reports. It will continue to add content over the next several years.
- [Legal Information Institute](#). Provided by Cornell University, this resource offers extensive holdings of case and statutory law, and some administrative sources. Materials are arranged both by jurisdiction and by topic. Most of the case law is fairly recent. There are not full

runs of court decisions.

- [Public Library of Law](#). Provides free access to primary sources including federal and state cases, statutes, regulations, and constitutions, as well as legal forms.
- [Electronic Resources for International Law](#). Provided by the American Society of International Law, the ERG is designed to be used by students, teachers, practitioners, and researchers as a self-guided tour of relevant, quality, up-to-date online resources covering important areas of international law.
- [Oyez](#). This site from the Chicago-Kent College of Law includes U.S. Supreme Court cases as well as a collection of audio recordings of oral arguments from 1981 to the present, and arguments from selected earlier cases.
- [Google Scholar](#). A search engine that covers scholarly articles (some full text, some abstracts only) as well as case law.

Strategies for Internet Research

- **Learn how your favorite research engines operate**

There are a number of major internet search engines. None of them use the same syntax for organizing search requests. Serious researchers are advised to select several, and familiarize themselves with their syntax.

- **Use more than one search engine for important projects**

The various search engines do not index the internet the same way and they do not rank the results of their findings the same way and as previously pointed out, no one engine covers more than a fraction of all the web pages. For this reason, you will want to use more than one. There are “meta search engines” that will send your search request to more than one search engine simultaneously.

- **Plan your searches**

There is no surer way to waste time on internet legal research than to cast about without a plan. Just as you would with Bloomberg Law, Lexis, or Westlaw make sure you:

1. define your issues;
2. analyze your facts;
3. decide how to express your search;
4. select the most relevant electronic resources to search; and
5. run your search and evaluate your results.

- **Evaluate reliability**

In drafting a brief, would you cite and rely on the *National Enquirer* or a high school

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student's essay to support an important point? It's not that hard to identify and avoid the internet equivalents. To evaluate the quality of an internet site as a research tool, consider objectivity, expediency, timeliness, accuracy, authenticity, and scope.

Some considerations: Is the site free or fee-based? If it costs, are there any guarantees of quality control? Who is the author/publisher, is it a government agency, university, organization, company, law firm, a good-hearted individual? What is the source of the data, who provided it and in what format? Was the original pagination of paper versions retained? Is there an electronic signature to confirm authorship? What is the date of the website or document? When was it last modified or updated? Is the document full text, index or abstracts? Is it complete or excerpted? Is the content of the electronic version as accurate as the print? Are there archives? How long is data retained at the website? Broken links? Ease of navigation? Search mechanisms? How easy is the website to access? Slow connections? Is information on the site stable? Is there a contact person? Are broken links quickly fixed?

If you have a choice of publishers for a document, choose the originator of the document such as a government agency, international organization, or similar source. Rely on documents only where it is possible to verify date, authorship, and other indicia of authenticity.

For more information, see "[How To Evaluate Information – Checklist](#)" from JUSTIA's Virtual Chase website. This checklist provides helpful information and tips on identifying sources, determining objectivity, finding the date of publication, and verifying information.