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The Circle of Life: Managing a Law Library Web Site Redesign Project

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Managing a Law Library Web Site Redesign Project[*]

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In the great circle of life, Web site designs come and go quickly. Outdated designs are laid to rest as newer, more effective redesigns are born. Because the effectiveness of a law library Web site influences user success, a redesign project deserves careful thought and planning. Ms. Shucha identifies the issues surrounding each phase of a law library Web site redesign project and explains the impact of potential management and design choices.

There's far too much to take in here,
more to find than can ever be found.
But the sun rolling high through the sapphire sky
keeps great and small on the endless round.
It's the circle of life, and it moves us all.[1]

¶1 In the great circle of life, Web site designs come and go quickly. Sites that were once useful or even cutting-edge soon become old and outdated. Many lie abandoned, silently rotting in cyberspace. Others have been patched and mended so many times that they are no longer effective. There comes a time when even the best Web site designs must pass away, making way for the redesign always looming on the horizon.

¶2 Because the effectiveness of a law library Web site influences user success, a redesign project deserves careful thought and planning. Although the literature is full of tips on various aspects of Web design, there are very few guides on managing a redesign project from beginning to end. This article fills that void by identifying the issues surrounding each phase of a law library redesign project and explaining the impact of potential management and design choices. Consequently, Web authors[2] will be able to make more informed decisions about what is right for themselves and their users.

¶3 A successful redesign should involve each of the following phases:

- **Analyzing**. Spend some time analyzing your library's resources, your audience,

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1. TIM RICE & ELTON JOHN, *The Circle of Life*, on THE LION KING (Walt Disney 1994).

2. Throughout this work, the terms "Web author" and "Web designer" are used interchangeably to refer to someone who creates Web sites. The term "Web editor," however, refers to Web editing software.

and your current site. Knowing your landscape will help you chart your course and avoid pitfalls.

- **Designing**. In this phase, you'll set policies and consider content and presentation. These elements should be given careful thought and should be selected wisely.
- **Implementing**. It's time to turn your design into a reality. Follow established policies and use technology to make construction more efficient.
- **Reviewing**. Before publically releasing your new site, last-minute testing might suggest some improvements.
- **Marketing**. When you do finally release your new design, do it with fanfare. A little marketing can go a long way in attracting users to your site.
- **Maintaining**. Keep your new site fresh by updating content and repairing problems. Start collecting ideas for the next redesign!

¶4 It's important to weigh the costs and benefits that a Web site redesign project can bring before embarking on your journey. Only then will you know if a redesign is right for you.

Analyzing

¶5 One of the most important and, unfortunately, often neglected aspects of good Web design is proper analysis. Many Web authors are so eager to jump right into the design phase that they fail to consider their institution's resources, their users' needs, their existing site's effectiveness, or even their own goals. "Remember, the final launch of your redesign will be as good as the plan you start out with, so spend the necessary time during this phase to make sure nothing is left to chance."[3]

¶6 One of the first aspects to consider is whether your institution is willing to provide the resources needed for your redesign to succeed. Undoubtedly, the most important and most costly resource will be the staff time needed to develop the new site. Web design contributors can range from a single webmaster to a multi-departmental Web committee.

¶7 Many libraries, especially larger ones, form committees to redesign their Web sites. A committee may include any number of members, although you'll find it more difficult to reach a consensus as the number increases. To provide focus to the group and distribute workload, a committee chair should be appointed. However, the makeup of the rest of the committee can vary.

¶8 It's wise to include a member from each area of the library to ensure broad representation, expand the level of expertise, and encourage a heightened sense of ownership. It's especially important to consult with your reference librarians and others who have direct contact with patrons. They have first-hand knowledge of

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3.   Kim Guenther, *Evidence-Based Web Redesigns*, Online, Sept.-Oct. 2000, at 67, 68.

what information patrons are seeking and they know the limitations of the current design. When available, technology specialists should also be included on the Web committee. Their expertise may prove invaluable, especially in the implementation phase.

¶9 Some Web design experts feel that it's best not to include your organization's chief decision makers on a Web committee. It's thought that other members of the committee might feel pressure to defer to their wishes. Also, simply finding time to meet might be difficult for someone who naturally has other demands on his or her time. However, it is important that you regularly share progress reports with your directors and executives.[4]

¶10 As an alternative to a committee, a library instead may choose one webmaster to create and maintain the new site. Because committees can be notoriously slow, a single author might be able to complete the redesign more quickly, and thus more economically, than a Web committee. However, sites created by a single webmaster may not be as well balanced as those from a Web committee. Therefore, webmasters should still informally solicit input and suggestions from other library staff. And, of course, chief decision makers should also be informed of your progress on the redesign project.

¶11 Once your Web author(s) has been selected, the next issue to consider is technology. If it's been a while since you purchased your Web editing software, do some fresh investigating because not all editors are alike. Those Web authors who prefer working directly with HTML code should select a package that allows more text-editing control. Others might prefer WYSIWYG ("What you see is what you get") editors that emulate word processors and display pages as they might appear in a browser. Whatever the emphasis, most good Web editors allow the author to alter the raw HTML code as well as the WYSIWYG display. Choose one that's simple to pick up, yet offers enough sophistication for advanced designers. If multiple-user or site licenses are needed, be sure to address this in your budget. Consult with other Web authors and seek their recommendations.

¶12 If the software you've chosen is new to your staff members, they must be trained to use it effectively. Depending on how many people will be contributing to the new site, training expenses can be substantial. However, not offering training can cost just as much or more in lost productivity if staff members must teach themselves how to use the software. Also consider that "[t]he less that an institution invests in giving its Web authors skills to do their job, the less likely they are to produce an exemplary product."[5]

¶13 In most Web projects, budgeting for space on a Web server would also be

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4. For more information about Web committees, see Susan Smith et al., *Make It a Team Effort*, LIBR. J. NETCONNECT, Winter 2001, at 18.

5. Beth Evans, *The Authors of Academic Library Home Pages: Their Identity, Training, and Dissemination of Web Construction Skills,* 9 INTERNET RES. 309, 314 (1999).

a concern, but in a redesign project this shouldn't be a problem.[6] However, if you plan to expand your Web presence substantially, you may need to secure the extra space. Other Web-related expenses that may or may not be relevant to your redesign project include firewalls or other security devices.

¶14 After securing the resources needed to make your redesign a reality, it's very important to take some time to carefully analyze your audience. Knowing your users is essential in organizing your site, choosing terminology, designing graphics, and more. Begin by asking yourself the following questions about your users:

- *Who are they?* Are they new to the law or legal veterans? Are they new to the Web or experienced surfers? Chances are that you will have a mixed audience. Some of your heaviest users may be law students, clerks, and new associates who are comfortable with technology but need more guidance in finding the law. But don't forget about the partners, faculty, and judges who may be willing to spend some time getting acquainted with your site if the content is worthwhile.
- *What are their needs?* What types of information are they seeking? What tasks would they like to accomplish using your site? Think about the reference questions that your users ask. This will help you determine what information and services might be most useful to them.
- *Where are they?* Are your users operating within your network or outside of it? Will they want to access your services at home or on the road? Study the server logs for your current site. If you know the IP addresses for the computers in your institution, the logs should be able to help you identify the ratio of internal versus external use.[7]
- *What type of hardware and software are they using?* What operating system do they have? Are they connecting via modem, T1, or DSL? Which browser are they using and what version is it? Again, you may be able to answer some of these questions by studying your server logs.

¶15 Although these questions may seem routine, thoughtful answers can significantly impact the design of your future site. Failing to adequately consider your users will likely result in a librarian-centric design rather than one that is based on user needs and perceptions. Remember that the more attuned to the user your site becomes, the more successful it will be.

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6. If your Web server isn't large enough to hold both your existing site and your redesign during the project, you may need to develop the new site on an alternate server. When you are ready to release the new redesign, removing the old site from the server should make room for the new.

7. When using server logs to measure site usage, be sure to exclude statistics generated by Web crawlers. Although allowing search engines to use Web crawlers to index your site is beneficial from a marketing perspective, crawlers can generate large numbers of potentially misleading hits in your log. To learn more about interpreting server log data, see Thomas Dowling, *Lies, Damned Lies, and Web Logs*, LIBR. J. NETCONNECT, Spring 2001, at 34.

¶16 Next, take a look at the successes and failures of your existing site. Start by compiling a list of your own impressions about the site. Identify both problem areas and high points. Follow up by asking users their opinions about the site. Have they ever used the site for research? If so, how often? Which pages do they visit most often? Ask close-ended questions that will provide you with concrete data. You may wish to conduct a short usability test by asking a few representative users to locate specific information on the site and observing their behavior. This will help you identify problem areas that your users may not have articulated in an interview.

¶17 Another more objective way to measure the effectiveness of your site is by studying your server logs. Take a look at which pages were accessed most often. Identifying the content that your users feel is most valuable will allow you to target pages worthy of special effort during the redesign. It's also helpful to determine which pages received very low usage. These may be candidates for reorganization or elimination.

¶18 In addition to your own site, evaluate other Web sites.[8] Examine both the visual presentation (aesthetics) and information architecture (content). Start with law library sites from institutions similar to your own.[9] These will provide the most points of comparison. Take a look at sites outside of librarianship as well, especially online booksellers such as Barnes & Noble or Amazon.com. "Although the main purpose of these competitors' Web sites is to ultimately sell products and services, many of today's library customers are used to slick advertising, beautiful graphics, and very little text."[10] Emulating these well-known designs may help to create a familiar frame of reference for your users.[11] But remember that although it is fine to draw inspiration from other sites, it may be a violation of copyright to borrow directly.

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8. For an interesting evaluation of academic law library Web sites, see Robert C. Vreeland, *Law Libraries in Hyperspace: A Citation Analysis of World Wide Web Sites*, 92 LAW LIBR. J. 9, 2000 LAW LIBR. J. 2. Vreeland contends that a law library site's usefulness can be measured by how many other sites it points to and the number of other sites pointing to it. In this estimation, all but the largest, most impressive sites are disappointing. He even implies that many sites "could be safely switched off, not only without any loss to anyone, but actually to the great benefit of all serious Net users." *Id*. at 22, ¶ 29 (quoting T. Matthew Ciolek, *The Size, Content and Geography of Asian Cyberspace: An Initial Measurement*, J.E. ASIAN LIBR., Oct. 1997, at 1, 12). I feel that Vreeland's analysis is unjustly harsh. While they can't all be powerhouses of legal information, every law library Web site has something to offer, especially to its internal audience. In a landscape as vast as the Web, your site offers your library patrons a personal connection with authority. Even if your site simply acts as a gateway to those larger sites, your internal audience may appreciate your advice on those links because they know and respect you.

9. Several of the American Association of Law Libraries special interest sections maintain directories of their member libraries. For state, court, and county law libraries, see LIBRARY WEB SITES, *at* http://www.aallnet.org/sis/sccll/membrlib.htm (last update May 9, 2002); for academic law libraries, see ACADEMIC LAW LIBRARIES, *at* http://www.aallnet.org/sis/allsis/libraries.html (last updated Apr. 25, 2002). Unfortunately, many law firm and corporate library Web sites reside on Intranets and are not publicly accessible. You may find, however, that some librarians are willing to offer an insider's tour.

10. ELAINA NORLIN & CM! WINTERS, USABILITY TESTING FOR LIBRARY WEB SITES: A HANDS-ON GUIDE vii (2002).

11. See Pat Ensor, *What's Wrong with Cool?* LIBR. J. NETCONNECT, Spring 2000, at 11, 14.

¶19 As the final step of the analysis phase, prepare a list of goals for your site.[12] Consider the essential purposes and functions of your library as expressed in your mission statement. Identify ways in which your Web site can support those functions and better meet those purposes. Specifically state what it is that you hope your users will accomplish with your site. A clear set of agreed-upon objectives will keep you from drifting off course, especially when working with a Web committee. Even if you developed a list of goals for your current site, revisit them now. Chances are that time and advances in technology may have changed your priorities.

Designing

¶20 After reflecting on your library's resources, your audience, and your current site, and then establishing a set of goals for your new site, you are ready to move on to the design phase. Here you will establish site policies and specifications, establish the information architecture, lay out the visual presentation, and, finally, test a paper prototype.

¶21 Before you start thinking about what your new site will look like and what information it will include, it is helpful to establish some design guidelines. These may include both policies for site administration and specifications on style and content. By establishing such guidelines, you will "provide assistance to those involved in Web page development and creation, fostering creativity while enabling the Web site to develop around a common set of standards."[13]

¶22 To foster efficient site construction and maintenance, certain administrative policies should be developed. These may include, but are not limited to, assigning authority for page creation and maintenance, creating guidelines for submitting content to the Web server, identifying a routine for error checking, and scheduling page maintenance. Addressing these issues now may prevent them from becoming problems later, thereby saving you the time and trouble of dealing with them in the future.

¶23 Creating style and content specifications for your site will help foster consistency, accessibility, and usability. Setting policies for consistent inclusion and placement of certain elements, such as headers, footers, and navigation bars will increase the familiarity and comfort level of your users. You may also consider establishing rules for use of multimedia "extras," such as Javascript mouseovers, frames, PDF files, and graphics, because they can affect access capability and speed. Other considerations might include creating a style guide for consistent

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12. For tips on constructing a list of goals for your site, see PATRICK L. LYNCH & SARAH HORTON, WEB STYLE GUIDE: BASIC DESIGN PRINCIPLES FOR CREATING WEB SITES (1999).

13. JERI L. TRAW, LIBRARY WEB SITE POLICIES 5 (Coll. Library Info. Packet Comm., CLIP Notes, No. 29, 2000).

terminology,[14] drafting rules for file naming, establishing policies for linking to other sites, and identifying an optimal screen resolution for your design.[15]

¶24 Once you've established your "rules of the road," it's finally time to make some specific design decisions about what your site will look like and how it will be organized. To be effective, site design should be considered from the user's perspective, not from your own. Most usability experts agree that good Web sites are user-centric rather than author-centric, and therefore you'll find that the time you spent analyzing your users and their needs was well spent. Remember that lawyers don't think like librarians, so don't expect them to approach a Web site as you would. Even if something makes perfect sense to you, if it doesn't work for the user, then it doesn't work.

¶25 While this principle may sound simple, it can be difficult to follow. As law librarians, we have become accustomed to organizing information according to time-honored models. Classification schemes such as LC call numbers, MARC records, and key numbers are the backbone upon which the traditional brick and mortar law library is formed. Therefore, it can be very difficult for library Web authors to resist structuring and labeling information according to our own particular organizational models.

¶26 For example, a recent usability study found academic library Web sites are typically designed "on the premise that people enter a library or access a Web site to look for a particular tool, such as the catalog, or use a particular service such as interlibrary loan, or a particular format such as a journal. But people have information problems and cannot extrapolate from the list which tool/service is best suited to help with them. The Web site must guide users in the resolution of their problems."[16]

¶27 So when it comes to library Web design, put aside all your predefined "librarianesque" notions about organizing information. Start fresh by putting yourself in your users' shoes and considering their information needs. Based on your earlier user analysis, you should have thoughts on this already. Then, consider how your site might address those needs in a voice that your users can understand. This should be the basis of your site's organization.

¶28 Not sounding so simple anymore, is it? As you begin to make those design decisions, how do you know if your new site will be both useful and easy to use? Unfortunately, you won't—not yet. Only after you've designed a prototype based on educated intuition can you measure patron success through "observation and analysis of user behavior while users use a product or product prototype to achieve a goal," also known as "usability testing."[17]

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14. For a sample style guide, see UW–MADISON LIBRARIES WEB STYLEBOOK, *at* http://www.library.wisc.edu/libraries/News/stylebook.html (last updated Sept. 18, 2002).

15. For a selection of academic library Web site policies, see TRAW, *supra* note 13, at 21–72.

16. Louise McGillis & Elaine G. Toms, *Usability of the Academic Library Web Site: Implications for Design*, 62 C. & RES. LIBR. 355, 365 (2001).

17. Ruth Dickstein & Vicki Mills, *Usability Testing at the University of Arizona: How to Let the Users in on the Design*, 19 INFO. TECH. & LIBR. 144, 146 (2000).

¶29 In Web page design, there are two distinct stages to consider: information architecture (content) and visual presentation (aesthetics). Because it would be very difficult to lay out the visual presentation without any content to populate it, the establishment of your information architecture must come first. Although many Web designers spend a great deal of time perfecting the visual "look and feel" of their site, the impact of content selection and organization is sometimes overlooked. "How information is categorised, labelled and presented and how navigation and access are facilitated—the information architecture—determines not only whether users will and can find what they need, but also affects user satisfaction and influences return visits."[18]

¶30 The key concept in information architecture is "chunking," in which the designer identifies all information to be included in a site and arranges it into manageable sections, or "chunks." Begin by brainstorming all of the things you would like to offer on your site. Write down everything that comes to mind, no matter how large or small. Include content offered on your existing site because much of it can probably be reused. Record your ideas on index cards—one card per idea. This will prove useful later, when you are sorting the information.

¶31 Be sure to include content that you might not be able to offer right away because of time constraints or current technological limitations. Even if you cannot offer something yet, identifying it now will help you organize your site so that it may easily be added later. Don't worry about arranging the content now because doing so might limit your creativity. Remember that your goal is to establish an organizational structure to accommodate your content, not to choose content that fits into a predetermined structure.

¶32 When you've exhausted all your content ideas, the next step is to evaluate the merit of each suggestion. Sort your list into three categories: "yes," "no," and "not yet." In the "yes" group, put those things that fit the needs of your users and the mission of your library, and that can realistically be in place by the time the redesign is released. The "no" pile will consist of things that would be of little value to your users or are outside the scope of your library mission. In the "not yet" category, place ideas that would otherwise be useful and appropriate, but are simply too time-consuming or technologically advanced to include right away.

¶33 When evaluating new content ideas, you will have to rely solely on your educated intuition. In judging the merit of existing content, however, your site server logs can assist you. Examine the hit count data you collected in the analysis phase. Determine which pages your users accessed most often; these should certainly be placed in the "yes" pile. However, don't rush to place low use pages in the "no" category. Question whether the content itself is undesirable or simply the manner in which it has been presented on the existing site.

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18.   Shelley Gullikson & Ruth Blades, *The Impact of Information Architecture on Academic Web Site Usability*, 17 Electronic Libr. 293, 293 (1999).

¶34 Next, using the pile of "yes" and "not yet" cards, you can begin to form the organizational structure of your site. First, using a large table, group related content cards together, then arrange them by order of importance. "Once you have determined a logical set of priorities, you can build a hierarchy from the most important or most general concepts, down to the most specific or optional topics."[19] Figure 1 illustrates this principle.

Figure 1. *Establishing Hierarchy*
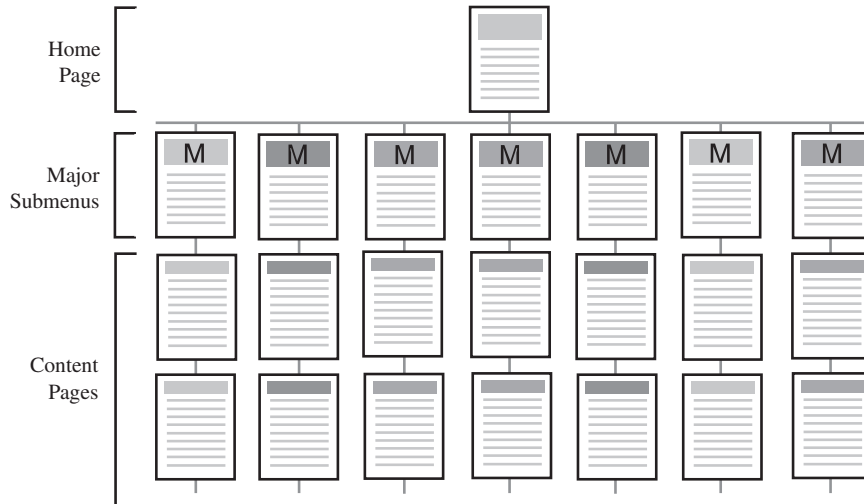
Source: Patrick J. Lynch & Sarah Horton, *Yale Style Manual Guide, Site Design, Introduction* (visited Jan. 10, 2002) <http://info.med.yale.edu/caim/manual/sites/site_design.html>.

¶35 Because research shows humans can remember and understand no more than nine separate items of information, try to limit the number of headings and amount of content on each page.[20] Not doing so could result in a structure that is too shallow, such as in figure 2.

¶36 Conversely, you should also avoid a structure that is too deep, such as in figure 3. Consider the "three-click rule" which states that the user should be able to get to the desired content within three mouse clicks from your home page.[21]

¶37 However, as useful as the "nine-item" and "three-click" rules may be, don't be afraid to bend them as necessary. "The concept of a chunk of information must be flexible, and consistent with common sense, logical organization, and convenience. Let the nature of the content suggest how it should be subdivided and organized."[22] Remember that "[w]ith a well-balanced, functional hierarchy you

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19.   LYNCH & HORTON, *supra* note 12, at 25.
20.   *See* CHAMBERS & ASSOCIATES, *Chunking Principle, in* GLOSSARY, *at* http://www.chambers.com. au/glossary/chunk.htm (visited Jan. 24, 2002).
21.   LEE KONSSRAD ET AL., DESIGNING AN EFFECTIVE WEB SITE NAVIGATION, *at* http://wiscinfo.doit.wisc. edu/ltde/ORFI/wds/modules/navigation.htm (last update Aug. 23, 2002).
22.   LYNCH & HORTON, *supra* note 12, at 25.

Figure 2. *Shallow Hierarchical Structure*
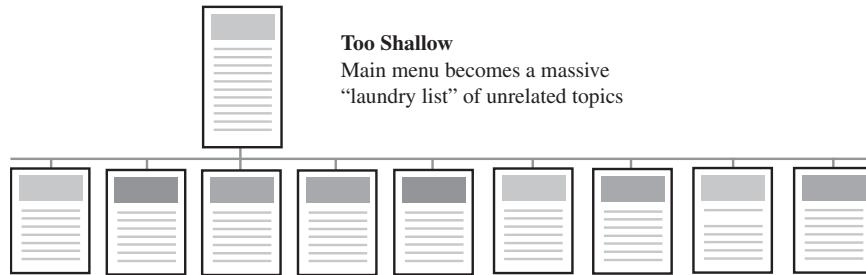
Too Shallow
Main menu becomes a massive
"laundry list" of unrelated topics

Source: Patrick J. Lynch & Sarah Horton, *Yale Style Manual Guide, Site Design, Introduction* (visited Jan. 10, 2002) <http://info.med.yale.edu/caim/manual/sites/site_design.html>.

Figure 3. *Deep Hierarchical Structure*
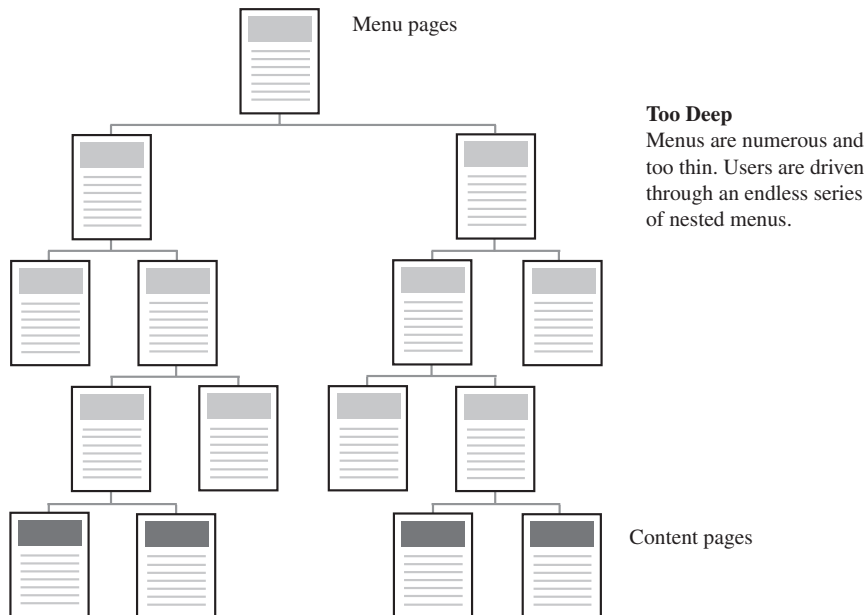
Menu pages

Too Deep
Menus are numerous and
too thin. Users are driven
through an endless series
of nested menus.

Content pages

Source: Patrick J. Lynch & Sarah Horton, *Yale Style Manual Guide, Site Design, Introduction* (visited Jan. 10, 2002) <http://info.med.yale.edu/caim/manual/sites/site_design.html>.

can offer users menus that provide quick access to information and reflect the organization of your site."[23]

¶38 Eventually, your stack of cards should begin to resemble the spokes of a wheel with content spinning out from your home page. When you feel that the organization is relatively settled, create a site map to document the arrangement.

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23. *Id*. at 26.

You'll find that flowcharting is an ideal way to represent your site map in a clear, easy-to-follow format.

¶39 The terminology you choose to label and describe content on your Web site can also have a great impact on usability.[24] Once again, step back and attempt to look through your users' eyes. Consider the main elements, or "spokes," in your organizational structure; try to express these concepts in simple, concise terms that your users can understand. Where possible, create labels that describe the tangible (book, article, etc.) rather than the conceptual (catalog, index, etc.). Avoid potentially confusing library lingo, including jargon (Boolean operators), acronyms (ILL, OPAC), and vendor labels (OCLC).[25]

¶40 Once you have established the information architecture for your site, you may begin to conceptualize the visual presentation. It's important to give a significant amount of thought to the way in which you combine visual elements, such as color, graphics, and placement. Your visual presentation doesn't just convey an image for your Web site, it represents your entire library. Consider that for some patrons your Web site may be their first or only exposure to your library. Additionally, your presentation can also greatly affect the way users interact with your content. A well-planned interface that anticipates user response will encourage successful navigation.[26]

¶41 Because not every user will enter your site through the home page, every page in your Web site must be able to stand on its own. Therefore, there are certain visual elements that should be included on each page.[27] First and foremost, make sure that all pages contain the name of your library and parent institution so that users who "deep link" to an interior page know that you are the author. As obvious as this sounds, it's surprising how often it is omitted. Along with the name, include an e-mail address to which users can submit questions or suggestions. Make sure it is an e-mail account that someone in your library checks regularly.

¶42 Each page should also contain links to the site's home page and main navigational headings, or "spokes," as determined by the information architecture. Often, these are the same links offered on your home page. Including these elements will eliminate "orphan" pages that contain no links back to your other pages.

¶43 There are also a number of other visual elements commonly used by Web

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24. According to a study appearing in *Information Technology and Libraries*, researchers found that most academic library Web sites that were surveyed contained at least one instance of potentially unclear language. Mark A. Spivey, *The Vocabulary of Library Home Pages: An Influence on Diverse and Remote End Users*, 19 INFO. TECH. & LIBR. 151, 155 (2000).

25. *See* Leo Robert Klein, *The Web is not Your Library*, LIBR. J. NETCONNECT, Winter 2001, at 36, 36–37; Spivey, *supra* note 24, at 153.

26. Because there are many guides to effective Web design, no specific recommendations on font size, color, frames, etc. are offered here. For specific visual design tips, see JENNIFER NIEDERST, WEB DESIGN IN A NUTSHELL: A DESKTOP QUICK REFERENCE (2001); MARTHA C. SAMMONS, THE INTERNET WRITER'S HANDBOOK (1999); LYNCH & HORTON, *supra* note 12.

27. Fortunately, using templates, you can create and save these elements in one place and easily repeat them on an infinite number of pages. *See infra* ¶¶ 52–66 for more on these and other technology tools.

authors. Although they are important, they may not merit the same degree of attention as those listed above. So that users may easily determine the timeliness of the information, consider including the date the page was created and the date the page was last modified on each of your pages. Some Web authors also include a copyright statement on each page, even though copyright enforcement of Internet materials is relatively uncharted. Nevertheless, such a notice can be easily included and may end up affording you some protection.

¶44 Placement of the visual elements mentioned above is also important. Many of these elements can be incorporated into a header, footer, or left menu bar. Because they are so prevalent on the Web, these features offer a sense of comfort and familiarity to users. "Using a familiar layout and site structure helps users. They expect the logo at the top, the content in the middle, menus on the left, and footers. Make use of their intuitive knowledge, and put their brain cycles to work on understanding what services are offered."[28]

¶45 Consistency will also help your users become acquainted with your site design more quickly. If you offer navigational links or a help button in a certain place on one page, users will expect to find it there on other pages; do not disappoint them. The terminology you use should also be consistent. Don't confuse users by having several different names for the same thing. If you took the time to create a style guide when establishing policies for your site, it will help ensure consistency. A consistent visual presentation will not only help users navigate more easily, it will also alert them when they leave your site.

¶46 When viewing a Web page, there are certain places on the screen to which the eye is naturally drawn. With proper placement, you can direct your users' attention to the most important portions of the page. One way this is done is through the use of white space, which is simply the blank space between visual elements. Used effectively, white space breaks a page into manageable sections and allows the user to quickly skim for relevant information.[29]

¶47 "Hot spots," or areas of the screen upon which the user focuses most, can also be used to guide the user's eye. Studies have shown that the "hottest" spot on the screen is the top left corner. Not surprisingly, this is where most Web authors place their name and navigational links. Next is the top right, followed by the bottom left and bottom right. When designing your pages, be sure to put the most important information in the places to which your users are naturally drawn.[30]

¶48 With an understanding of the principles of effective information architecture and visual presentation, you are ready to design a prototype of your new site. Because every proposed design goes through multiple revisions, consider sketching your site layout on paper before implementing it electronically. Unless you're

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28. Darlene Fichter, *Designing Usable Sites: A State of Mind*, Online, Jan.–Feb. 2001, at 68, 70.
29. Lee Konrad et al., Creating an Appealing Web Site Design, *at* http://wiscinfo.doit.wisc.edu/ltde/ORFI/wds/modules/aesthetics.htm (last update Oct. 2, 2002).
30. *Id.*

a computer design expert, it's much easier to correct problems and implement changes with an eraser than with a mouse. You'll find that a standard sheet of paper in landscape position roughly matches the dimensions of a monitor screen.[31]

¶49 Even with a paper prototype, you can begin to test the usability of your new site to see if you are on the right track. Start with a small group of representative users and ask them to perform certain tasks by pointing to where they might click if the site were live. As they "click," follow along by presenting paper sketches that illustrate each requested page. Record their path by making note of where they clicked and in what order they did so. If you created a flowchart site map when designing the site, you may also find it ideal for recording user paths. Try not to coach or show approval or disapproval of users' choices; be quiet and let them do the talking.

¶50 When testing is complete, study user response by analyzing both their comments and paths taken. Pay close attention to concepts or terms that caused confusion. Although it may be difficult, take user responses seriously even if they tell you something you do not want to hear. Remember again that if something doesn't work for the user, then it doesn't work.[32] Usability testing only works if you approach it with an open mind. Fixing potential problems at this stage of the design process is fairly painless. However, if you continue to implement your design without alteration, the problems identified are going to resurface in your finished product where they will be much harder to fix.[33]

¶51 In addition to identifying potential problems, usability testing also can help settle disagreement among Web authors. In cases where designers cannot agree, let the user decide what works best. Testing is also helpful for Web authors who must defend against criticisms from those outside the design team. Most important, it gives authors a fresh perspective and forces them to consider the site more objectively.[34]

Implementing

¶52 For those following the redesign management plan outlined above, the actual implementation phase should be fairly routine. Because most of the important design decisions have already been made, Web authors can focus their energies on

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31. Anna Belle Leiserson, *Web Wizards: Engineers, Artists, and Librarians*, 94 Law Libr. J. 167, 171, 2002 Law Libr. J. 11, ¶ 18 (2002).

32. *See* Dan Marmion, *Library Web Page Design: Are We Doing It Right?* 20 Info. Tech. & Libr. 2, 2 (2001). In another example, after a great deal of painstaking design work, University of Arizona librarians made the difficult decision to discard their first several designs when usability testing revealed that patrons were unsuccessful in navigating the site. They found that most problems "were caused by librarians expecting users to understand how library information is organized and to know the meaning of standard library terminology." Dickstein & Mills, *supra* note 17, at 148. By listening to their users, the Arizona librarians ultimately created a highly usable, well-used site.

33. *See* Comm. Technologies Branch, Nat'l Cancer Inst., *Usability Basics*, *in* Usability.Gov, *at* http://www.usability.gov/basics/ (last visited Oct. 13, 2002).

34. Dickstein & Mills, *supra* note 17, at 149–50. For guidelines on conducting usability tests, see Norlin & Winters, *supra* note 10, at 31–64.

transforming ideas into electronic reality. With tools such as templates and style sheets, Web authors can implement their designs more quickly and easily than ever before.

¶53 Both templates and style sheets store formatting elements in one central location within the site. Web authors only need to designate this information once, then "attach" it to desired pages. As each attached page is requested, these elements are pulled from "storage" and incorporated into the displayed page. Although templates and style sheets function in much the same way, they are actually two unique tools that can be used together or alone.

¶54 A template serves as the foundation for many other pages within a site. It is similar to a sheet of letterhead upon which a document is printed. "Templating is the separation of content from the common page elements, such as the top logo or header area, side menu, and footer area of the page."[35] Consistently used page elements are pulled together and saved independently of page content. As each new page is created, the template is recalled and new content is simply inserted into it.

¶55 The real beauty of templates, however, comes with updating. Because consistent page elements are stored in one central location, a single change can alter the appearance of an entire site. Any modifications made to the template are automatically implemented sitewide, including pre-existing pages. This can be especially useful for a site redesign project in which visual presentation changes but page content remains fairly constant.

¶56 There are several ways to incorporate templates into your Web site. Some Web editors, such as Macromedia's Dreamweaver, include a templating feature that automatically manages your templates. Other Web authors prefer to use Server Side Includes (SSIs) for templating. "Basically, SSIs embed special commands into an HTML document that tell the server to perform specific actions [such as inserting a header, footer, etc.] when a user requests the page. The server then creates the Web page on-the-fly by merging files or inserting requested information."[36]

¶57 Unlike templates which gather consistent page elements, style sheets (also known as cascading style sheets) assign rules that tell the browser how to display such elements. A style is simply a group of formatting attributes, such as font, color, or size. Using a style sheet, you can combine several attributes into one custom style and assign it a name, such as "title" or "subtitle," that describes its purpose.

¶58 For example, imagine that you want the title of every page in your Web site to combine the following four attributes: font—Times New Roman; size—24 pt; weight—bold; color—gray. While you could manually assign each one on every page, this would become very cumbersome. By creating a custom style that com-

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35.   Darlene Fichter, *Building Web Sites Using Dynamic Templating*, Online, Nov.–Dec. 2000, at 84, 84.

36.   Michelle Mach, *The Service of Server-Side Includes*, 20 Info. Tech. & Libr. 213, 213 (2001). SSIs are very powerful tools that also have applications outside of templating. *See id.*

bines all four attributes, you've reduced four clicks down to one. As with templates, any changes made to a style are automatically updated on all attached pages. This can save Web authors a great deal of time and help ensure consistency.

¶59 As with templates, style sheets are especially useful when updating your site. Continuing the example, if next week you decide that you don't like the Times New Roman font and would rather use Garamond, simply change the style on the style sheet once. Rather than having to search through every page on your site to make this font change, the style sheet will automatically apply the change to all pages in the site using the "title" style. As an added bonus, style sheets also produce cleaner code and can reduce download time because your pages only contain coding for one "title" style instead of all four individual style attributes.

¶60 As new documents are created, pay special attention to the names that you assign to your site's files and folders. Although it may seem obvious, remember that renaming a file or folder will change the URL for that page, resulting in numerous broken links and bookmarks. Therefore, avoid renaming if possible. It is estimated that every six months, approximately 16% of all once-valid Internet links break.[37] As an Internet user, you know how frustrating those "404 Not Found" errors can be; do not be the cause of that frustration for your users.

¶61 As harmful as it be may be to rename a file or folder, renaming your domain in a redesign could be even more damaging. Consider that "[n]ot many users will take the time and energy to hunt down your library's new URL when their old bookmark fails them—especially if the next bookmark on their list is Amazon or AskJeeves. Even if they did, they wouldn't always know where and how to look."[38]

¶62 Nevertheless, as many Web authors know, renaming a file, folder, or even a domain is sometimes unavoidable. To help ensure that your users move with you, place pointers or automatic redirects in the old locations and keep them active for at least one or two years. If you eventually do remove a pointer, check for 404 errors in your site's server logs over the next few months. Consider contacting the referring page Web authors to inform them of the change.

¶63 Because the names you assign to your files, folders, and domains can affect the usability of your site, keep them simple and decipherable. Choose names that are short, yet descriptive of content. Avoid unusual characters, such as carats, underscores, or hyphens, that could be mistyped by the user. Web servers are case sensitive, so use all lowercase to reduce confusion. Spaces in file or folder names should also be omitted because servers tend to replace them with percent signs. It is perfectly fine to run words together in names to avoid troublesome characters and spaces.[39]

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37.   Thomas Dowling, *One Step at a Time*, Libr. J. netconnect, Fall 2001, at 36, 36.

38.   *Id.*

39.   Bonnie Shucha, *Just What the Webmaster Ordered: Tips for Marketing a Law Library Web Site*, AALL Spectrum, Mar. 2002, at 12, 12.

¶64 When implementing a site design, Web authors should consider accessibility and the principle of "universal design." According to Ron Mace, founder and former program director of the Center for Universal Design, "products and environments [should] be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design."[40] Using accessible design techniques will assist all users in accessing and interpreting your site.

¶65 The use of non-HTML multimedia "extras," such as graphics and mouse-overs, can be an essential part of the visual presentation. However, some additional steps are required to ensure accessibility for all users. Whether by choice or necessity, some users will connect to your site via browsers that are not capable of displaying some or all extras. Make sure that your Web pages degrade gracefully if a user's browser encounters unknown code.[41] The content of each page must still be accessible without all the extras.

¶66 Accessibility isn't just a good idea; it may be required by law. "The Americans with Disabilities Act (ADA) of 1990 requires that U.S. programs and services be accessible to individuals with disabilities. A 1996 Department of Justice ruling makes it clear that ADA accessibility requirements apply to Internet resources."[42] If your law library receives public funding, you may be required to follow the Federal Rehabilitation Act's amended section 508 standards.[43]

Reviewing

¶67 As you finish the implementation phase and see your new site roll off the assembly line, you will undoubtedly experience a tremendous feeling of accomplishment and relief. After weeks, months, or even years of work, your new site is finally ready for release—almost. As with any publication, Web authors should allow some time to evaluate their site before releasing it to the public. "As surely as users will be attracted to quality content, they will be repelled by a site full of errors and broken links. Therefore, it's important to check and double-check for

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40. *Quoted in* Ctr. for Universal Design, N.C. State Univ., What is Universal Design? *at* http://www.design.ncsu.edu/cud/univ_design/ud.htm (last visited Oct. 13, 2002).

41. When a browser encounters code it doesn't understand or can't display, degradation occurs. Degradation is considered graceful if the page content remains fully accessible. Cari D. Burstein, *Graceful Degradation*, *in* Accessible Site Design Guide, *at* http://www.anybrowser.org/campaign/abdesign.html#degradability (last modified July 31, 2002).

42. Disabilities, Opportunities, Internetworking & Tech., Univ. of Washington, World Wide Access: Accessible Web Design, *at* http://www.washington.edu/doit/Brochures/Technology/universal.design.html (modified Mar. 14, 2002). *See* Civil Rights Div., Dep't of Justice Core Letter #204 (Sept. 9, 1996) (letter from Deval L. Patrick, Assistant Attorney General, Civil Rights Division, to Senator Tom Harkin), *available at* http://www.usdoj.gov/crt/foia/cltr204.txt.

43. For the text of section 508, see Workforce Investment Act of 1998, Pub. L. No. 105-220 § 408(b), 112 Stat. 936, 1202–06 (1998) (codified at 29 U.S.C. § 794d (2000)). For a list of section 508 priorities and examples, see Blaire Bundy & Tim Dugdale, *1194.22 Web-Based Intranet and Internet Information and Applications*, *in* Section 508 Web Development Guidelines, *at* http://wiscinfo.doit.wisc.edu/ltde/orfi/wds/modules/508guidelines.html (May 24, 2001).

mistakes."[44] Fortunately, there are a number of technology tools that can help Web authors identify and correct problems.

¶68 Most good Web editors include built-in error checkers; make use of them. Dreamweaver, for example, can check the spelling of all visible text while excluding HTML codes. The "find and replace" feature can also help you quickly correct page text or code if desired. The HTML cleanup function in Dreamweaver will automatically check a page for code errors, including empty, duplicate, or invalid tags.

¶69 Each link in your site should also be checked for validity. If your site is large, manually checking each one could quickly become very time-consuming and tedious. Fortunately, there are tools to assist with this task as well. Many Web editors offer internal link checkers which identify any links between your own pages that may be broken. For external links, try the World Wide Web Consortium's Validation Service.[45] With this free link checker, Web authors can manually check each page for broken links or configure routine e-mail delivery of sitewide reports.

¶70 In addition to error checking, Web sites also should be tested for accessibility. Make an effort to view your site using as many different types of browsers as possible, including text-only systems such as Lynx. Turn off all special viewers and examine your graphics, mouseovers, and other "extras." Double-check that all content is clearly accessible and degrades gracefully.

¶71 To help Web authors identify and repair accessibility problems, the Center for Applied Special Technology (CAST) developed a useful tool called Bobby. "Bobby is a comprehensive web accessibility software tool designed to help expose and repair barriers to accessibility and encourage compliance with existing accessibility guidelines. . . . CAST has worked closely with the World Wide Web Consortium's (W3C) Web Accessibility Initiative (WAI) to develop an evaluation tool that employs their Web Content Accessibility Guidelines and provides page and site evaluation support for developers. Support for the new US Section 508 standard was implemented in December 2001."[46] Bobby identifies and prioritizes potential problems and offers suggestions on how to repair barriers to access by individuals with disabilities.

¶72 After you've run through your site with a fine-toothed comb and have corrected all known problems, it's time for a test run. A final round of usability testing will give you a preview of user reaction and allow you to adjust any additional problem areas. If you tested your paper prototype design, this round of testing hopefully should only require some fine-tuning. Knowing ahead of time what reactions to expect from users should reduce any anxiety and allow you to more confidently release the site.

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44.   Shucha, *supra* note 39, at 12.
45.   W3C HTML VALIDATION SERVICE, *at* http://validator.w3.org (Sept. 19, 2001).
46.   ABOUT BOBBY, *at* http://bobby.watchfire.com/bobby/html/en/about.jsp (last visited Oct. 13, 2002).

¶73 Before scheduling the final public release, offer your library staff members the courtesy of a private in-house demonstration. If there are any concerns or suggestions, it is important to address them now. Because they will be fielding questions about the new site, it's imperative that library staff feel comfortable with the content and arrangement. If someone suggests a change that you feel is appropriate, by all means make it. However, suggestions that go against usability test findings should be discussed openly and defended against. Although it may sound cliche, explain to staff that "the customer is *almost* always right."

Marketing

¶74 When the time finally arrives to publicly release your new site, make some noise about it. A little marketing can go a long way in drawing users to your site. Some types of promotions take advantage of Web technology, but others do not. Some are available at no cost, while others may involve some expense. Choose the balance that's right for you and your library.

¶75 If you failed to include meta tags during the implementation phase, consider adding them now to the header section of your Web pages.[47] While they don't affect the visible page content, search engines draw on meta tags to index and display information about Web pages. Page <title> is perhaps the most important and easily implemented meta tag. This is the title that search engines display when retrieving a Web page.[48] Choose one that is short, yet descriptive of page content, and include the name of your library so users have a sense of the information's authority. For example, the <title> tag for a page containing the University of Wisconsin Law Library's staff directory might read: <title> Staff Directory, UW Law Library </title>.

¶76 Though underused by many library Web designers, the <keywords> and <description> meta tags can also help guide users to your site. The <keywords> tag contains a string of search terms that describe the page. Search engines use these words to index Web pages, so select words that you think your users might choose when trying to locate your page. Continuing our example, the <keywords> tag for the UW Law Library's staff directory might be: <meta name="keywords" content="staff, librarians, law librarians, directory, University of Wisconsin, UW, Law Library, Law School">.

¶77 The <description> tag contains a one- or two-sentence summary of the page contents, such as: <meta name="description" content="Contact information

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47. A meta tag is "[a] special HTML tag that provides information about a Web page. Unlike normal HTML tags, meta tags do not affect how the page is displayed. Instead, they provide information such as who created the page, how often it is updated, what the page is about, and which keywords represent the page's content." *Meta Tag*, *in* Webopedia, *at* http://www.webopedia.com/TERM/m/meta_tag.html (last modified Jan. 18, 2002).

48. If you fail to designate a page title, many search engines will simply display the words "Page Title."

for UW Law Library staff by name and department.">. Many search engines display this information in their search results right after the page <title>.[49]

¶78 Another way you can use technology to attract users is by registering your site with major search engines. If you didn't register your site before the redesign, you may wish to do it now. Although some search engines will find your site anyway by following links to it from other pages, registration can increase the odds and help speed up the process. Most search engines encourage recommendations with a free self-submission feature. To get more of your pages indexed, try registering several pages within your site because some engines only follow a small number of internal links. Also, register with several different engines or use a multisite submission service that will submit registrations on your behalf.[50]

¶79 There are also a number of things that don't involve technology that you can do to get noticed. Begin by making a practice of including your URL on any written materials that your library distributes, such as your official letterhead, business cards, e-mail signatures, and publications. If your library or institution has a newsletter, write an article announcing the redesign. And keep contributing articles as your site grows and new features are added.

¶80 If you have a marketing budget, consider designing a few personalized freebies to give your users. Colorful bookmarks featuring your URL and site highlights can be effective. They are easily created with any graphics program and can be printed in-house using a color printer or colored paper. While more expensive, you may also consider purchasing custom-printed mousepads which will put your URL right at your users' fingertips—literally.

¶81 Public relations events can also be a very effective way of introducing new users to your site and educating existing users about any changes. There is no need to plan anything grand; simply work your site into the special events already taking place at your library. Plan some time to demonstrate the site on library tours offered during the first week of school or summer associate orientation. Schedule bibliographic instructional sessions in which you can demonstrate particular resources on your site. Offer Web-centered contests and prizes for National Library Week.

¶82 Not every marketing effort has to be planned in advance. Don't underestimate the importance of day-to-day interactions with library patrons. "Be an everyday advocate for the library's Web site. Get to know its users personally. Find out what content they would like to see and try to get it. Those that helped create content will likely recommend it to others. And, of course, don't ignore the importance of the reference interview. If the site can guide a patron to an answer, show him or her the path to that information. A patron who has achieved success by using a site will probably return."[51]

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49.   For assistance generating meta tags, see META Builder 2, *at* http://vancouver-webpages.com/META/mk-metas.html (last visited Feb. 11, 2002).

50.   For a list of multisite submission services, search for "Submitting Services" in the *Google Directory*, *at* http://directory.google.com (last visited Oct. 13, 2002).

51.   Shucha*, supra* note 39, at 13.

Maintaining

¶83 By now, your new redesign should be publically available, working properly, and well used by your patrons. To make sure it stays that way, it must be properly maintained. Responsibility should be assigned to specific library staff members for routinely updating content and checking for errors. In many cases, those responsible will be the page authors. In other situations, one webmaster may oversee all site maintenance. Whomever you assign, be clear and firm about your expectations.

¶84 When establishing a maintenance schedule, be realistic about plans to update content. If you do not have enough staff time or commitment, don't offer a labor-intensive current news and events feature on the site. When you do promise updates, make sure to deliver them. "There's nothing worse than offering a 'what's new' or similar high-maintenance feature from your Web site only to have it stretch into weeks and months of inactivity and zero updating. Users will think one of two things have happened (or both): someone's fallen asleep at the switch, or there's truly nothing new happening on your site or in your organization. Both do little to engender a devoted, consistent user base."[52] As suggested earlier, include the date created and date last modified on each page so that users can quickly assess the timeliness of your content.

¶85 Whenever possible, use technology to assist with maintenance. Remember that templates and style sheets can facilitate rapid sitewide changes. But perhaps the best maintenance tool is a back-end database that dynamically delivers content to the site. If you included one in your design, you know that although they are time-intensive to create, database-driven Web pages can be easily updated by anyone on your staff, even those with no knowledge of traditional Web page creation.

¶86 Effective site maintenance also involves routine error checking. "Be vigilant. Keep your site working well. Test, test some more, and keep checking your site for problems. Minimize any obstacles that can slow down or stop users from getting the job done."[53] Although certain errors such as misspellings and broken HTML code probably won't resurface after an initial correction in the review phase, broken links can occur at any time. Every Web user knows that URLs that may have been perfectly valid at one time can quickly lead nowhere as Web sites change or die. For this reason, the internal and external link validation tools recommended earlier should be used regularly.

¶87 A good maintenance routine should also include a projected date to revisit the site design. At least once every two to three years all Web sites should be critically reevaluated for usefulness and effectiveness. In preparation, record any new ideas and suggestions for your site that cannot easily be incorporated into the existing design. This will give you a head start on brainstorming content for your next redesign.

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52. Guenther, *supra* note 3, at 72.
53. Fichter, *supra* note 28, at 72.

Conclusion

¶88 Having just completed a redesign, you know that even the best Web sites don't last forever. Just as one site design dies, another rises in its place to meet the challenges of a new generation of users. But life on the Web is short and today's new design will soon make way for another. It's the circle of life and it moves us all.