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4 Site Design

Page design sometimes gets the most attention. After all, with current web browsers, you see only one page at a time. The site itself is never explicitly represented on the screen. But from a usability perspective, site design is more challenging and usually also more important than page design.

Once users arrive at a page, they can usually figure out what to do there, if only they would take a little time (OK, users *don't* take the time to study pages carefully, which is why we also have many usability problems at the page level). But getting the user to the correct page in the first place is not easy.

In a study by Jared Spool and colleagues, when users were started out at the home page and given a simple problem to solve, they could find the correct page only 42 percent of the time. In a different study by Mark Hurst and myself, the success rate was even lower; only 26 percent of users were capable of accomplishing a slightly more difficult task which, in the case of our study, was to find a job opening and apply for it (averaged across six representative corporate sites with job listings).


The reason for the lower success rate in our study relative to Jared Spool's study was not because we had picked particularly poorly designed sites; on the contrary, we were looking at sites from fairly large and well-respected companies. The difference in success rates was due to differences in the task complexity. The 42 percent success rate was the average outcome across a range of tasks where users were asked to find the answers to specific questions on a website—in other words, the exact task the Web is best for. In contrast, the 26 percent success rate was the average when users had to carry out a sequence of steps in order to complete the task of finding and applying for a job. If a user was prevented from progressing through any one of the individual steps, then he or she would not be able to perform the task. After all, you can't apply for a job if you can't find it. But it also does you no good to find a job posting if the application form is too difficult.

The problem is that web usability suffers dramatically as soon as we take users off the home page and start them navigating or problem solving. The Web was designed as an environment for reading papers, and its usability has not improved in step with the ever-higher levels of complexity users are asked to cope with. Therefore, site design must be aimed at simplicity above all else, with as few distractions as possible and with a very clear information architecture and matching navigation tools.


(Facing page) I thought the dreaded "under construction" signs (complete with little animated construction worker digging away) had died sometime in 1995 after it became clear that all websites are *always* under construction. But unfortunately, they keep springing up, albeit in more sophisticated forms. Don't tell users what you don't have; that's only frustrating. Don't release a partially finished website; keep it under wraps until it has enough utility that it will make sense to users. It is fine to have a small article that talks about future plans or upcoming attractions, but the main entry to the site should focus on what a user can do here and now.

As an aside, what do you think the big question mark does? Never use such cryptic interface elements. The only reasonable interpretation of a question mark would be a help feature because it is somewhat standardized to use a question mark icon to access help. But the Saturn question mark leads to the search engine: Nobody will expect this, so nobody will find it.

A Different Kind *of* Car




Hi. Welcome to our (partially) redesigned Web site. Over the next few weeks, we'll be updating every section of the site to look and work just like the one you see here. And since these new sections will be coming online almost daily, please be sure to come back every so often. Until then, please pardon our cyber dust. And thanks for stopping in.





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www.saturn.com


Think different.

The Apple Store



The Apple Store is closed for the holidays while the computer-making elves work diligently to make the online Apple Store better than ever. Please come back again January 5 to place your order through the Apple Store.

If you don't want to wait, you still have time to start the new year off right by visiting a [local Apple reseller](#) who can supply you with all you need to get started.

If you've already placed your order and want to check on the status, call 1-800-795-1000.

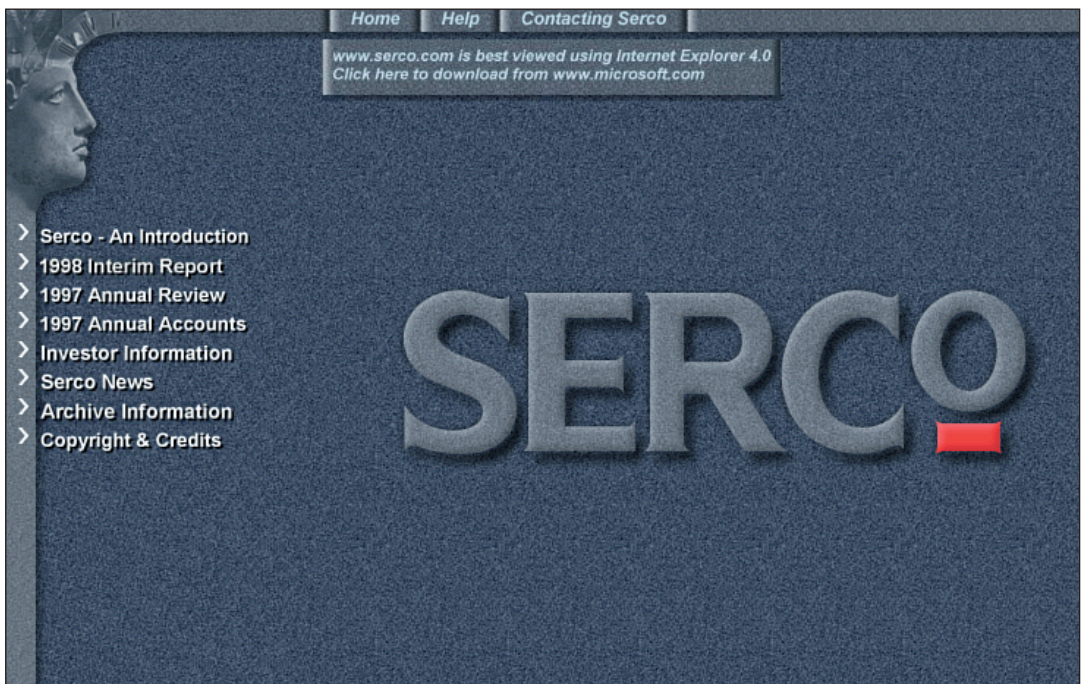
store.apple.com

The Home Page

The home page is the flagship of the site and should therefore be designed differently from the remaining pages. Of course, home pages and interior pages should share the same style, but there are differences. For example, the home page should not have a *Home* button, because it is very annoying to click on a button that links right back to the current page. Also, the home page should typically have a larger logo and a more prominent placement of the company name or site name. The first immediate goal of any home page is to answer the questions “Where am I?” and “What does this site do?”—both of which require a straightforward and large version of the name. The answers should not be in the form of the dreaded mission statements sometimes seen on overly bureaucratic sites. Rather, it should be obvious from the design what purpose the site would serve for a first-time user.

For the first-time visitor, answering the question “What does this site do?” may be the most important function of the home page, but for most other users, the most important function of a home page is to serve as the entry point

What does this company do?
Simplicity is good, but a home page
needs *some* info.



www.serco.com

Tuesday, August 24, 1999

batteryplanet.com



Welcome!

- | | |
|---|---|
| <input type="checkbox"/> Organic Coffee | <input type="checkbox"/> Earth-Friendly Products |
| <input type="checkbox"/> Books | <input type="checkbox"/> Plush Toys & Puppets |
| <input type="checkbox"/> Unique Gifts | <input type="checkbox"/> Natural Baby & Personal Products |

Earth Dream

Click Here

LinkExchange

Battery Planet is where you will find the finest companies that offer batteries and accessories for everything wireless. Each site is rated so you can easily choose a company to buy from.

We make it easy to shop online. With our unique rating system, you'll know which sites offer toll free customer support, secure online ordering, whether or not we have test shopped them, the rating we gave them, and what their warranty/return policy is.

To begin your search, just click on a category, or search by company with the search form.

Does your company sell batteries and accessories for wireless products? Would you like to be listed on Battery Planet? Then click [here](#)!

Choose a category

Camcorder
Cellular Phone
Cordless Phone
Laptop/Notebook
Medical/EMS
Sealed Lead Acid
Two-Way Radio
UPS Batteries

Or search by company name

Search

Power Hungry?
eBatts.com

Wireless Connection
CHEAP
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Online Wireless SuperStore
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Click For Answers

Why do things appear darker when they're wet?

Download FREE Software!

utilities

games

screen savers

Internet

20Net Exclusives

SuperStats.com

The webmaster's network

[\[click here\]](#)



www.batteryplanet.com

The first impression from this home page is that this might be a place to buy coffee or get free software when, in fact, it's a place to buy batteries. But there is not a single picture of a battery on the home page, nor is the word highlighted anywhere. The site name is nice and prominent and does imply a battery-oriented site, so the design is not a total loss. Also, the navigation categories are easy to find and fairly logical. But why waste space on a colored stripe across the top with today's date? For a sporadically updated site, there might be some benefits from a footer that mentions the date of the latest update, but the current date will never be used by anybody.

(Facing page) There is too much junk on this home page, especially considering that we are seeing only the top half here. But the page still works because most users will be drawn immediately to the interactive part of the page where they can enter their trip information and go immediately to a list of available flights.

to the site's navigation scheme. Often, this will take the form of a list of the top levels of a hierarchical directory, but depending on the information architecture, different forms of top-level entry aides may make sense.

For example, people visiting a travel site will often want to make an airline reservation, so a way to enter the departure and arrival cities for a trip can often be a good top-level entry point into such a site.

The home page is also the place to feature any news or special promotions you want to bring to the attention of all visitors. But remember that most people come to your site in order to accomplish something specific. Only rarely are they interested in simply checking out what might be happening in your company or what products you feel like putting on sale. Therefore, the news area should be relatively restrained and leave a large part of the page available for navigation—the exception to this rule obviously being sites that focus on news. For such sites, the user's goal in visiting will often be to “see what's up” without having any specific stories in mind in advance. Even for news sites, it is still important to remember that some users will visit in order to research specific stories or current events and that people will also often want to find old articles that have long ago been pushed off the home page. Navigation remains a priority in any case.

Most home pages need a prominent search feature because many users are search-dominant and don't want to bother navigating to their destination link-by-link. For sites where search is a primary access mechanism, it makes sense to include an actual search box right on top of the home page. For other sites, a simple (but still prominent) link to the search page may suffice.

In summary, a home page should offer three features: a directory of the site's main content areas (navigation), a summary of the most important news or promotions, and a search feature. If done well, directory and news will help answer the first-time user's need to find out what the site is about in the first place. Even so, always look at the home page with an eye to asking, “What can this site do for me?” And remember the name and logo.



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eBags

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[My Travel](#)

[Deals](#)

[Places to Go](#)

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[go to msn.com](#)

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up to 30%

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Leaving from

Departing (MM/DD/YY)

9/19/99



Time

evening

Going to

Returning (MM/DD/YY)

9/21/99



Time

evening

1 adult

[More search options...](#)

Go

This search is limited to adult roundtrip coach fares.

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[Casino Destinations](#)

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Fare Compare: Are you getting the most for your money? Check out the airfares that other customers are finding on our most popular routes.

IN MY TRAVEL



[My Itineraries](#)

View or update your purchased, reserved, or planned trips.



[My Profile](#)

Update your travel preferences and account information.

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- [Fare Tracker:](#) Receive a free weekly update on low fares to your favorite cities.
- [MileageMiner:](#) Track your frequent flyer accounts and maximize your miles.

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FlixFinder: [Tips](#)

Wednesday, August 25, 1999

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Who Said That?



You know the quote, "Do I feel lucky? Well, do ya punk?" Can you name the movie it's from? Test your movie IQ with our 10 Unforgettable Quotes matching game. [Try it now.](#)

Interview: Rushmore's Wes Anderson



There's real-life and reel-life inspiration behind the success of the hot comedy [Rushmore](#). For the inside scoop, read our [exclusive interview](#) with [Rushmore](#) director [Wes Anderson](#).

Editors' Choice: Crime Doesn't Pay!



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[Out of Sight](#)

In the most underrated movie of 1998, [George Clooney](#) and [Jennifer Lopez](#) dazzle and sizzle.



[Ronin](#)

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Incredible Value and Convenience!

www.netflix.com

(Facing page) What website are we on here? Very clear that it's NetFlix. Second, what is the purpose of this site? Reasonably clear that this is a place to rent DVDs. But if you overlook the top of the page and glance directly at the middle of the page (as done by many users), you might also have thought that this was a site with movie reviews. The most prominent individual design element is probably the text entry box marked "Redeem" which is only useful for users with a special coupon. The entire coupon process takes up too much space on the home page: It would have been simpler to provide a link to a special page that could have explained the process better. Also, the search field slightly vanishes into the background of the navigation bar even though it is more important to most users than the coupon. A bigger problem with this home page, however, is the small amount of space allocated to the content directory relative to the current specials. The true depth of the site (3,700 products) is not well represented. The design does get a bonus point for the "1-2-3" area: simple and scannable content that summarizes the process of doing business with the site.

(Following pages) These two airline sites show different approaches to home page design. United Airlines focuses on easy access to the many features on its site, whereas American Airlines focuses on easy access to two important features: logging in to your frequent flyer account and finding a flight between two cities. United Airlines' approach works best if use is fairly evenly distributed across multiple features. The home page makes it clear what one can do on this site, even though the "shortcuts" are too indistinct and fail to emphasize the site's most important features. The use of two levels of categories frees users from having to scan through all the features. I would have preferred to use three top-level categories instead of two: I think that "Reservations" and "Mileage Plus" (the frequent flyer program) should be combined into a single top-level category, because they both relate to the individual user's specific data and trips. The two remaining categories contain generic information about air travel and the corporation, respectively.

American Airlines' approach reduces the vast majority of site features to a set of pull-down menus that are difficult to navigate: Users can never see the full set of features (like they can at United) because they can pop up only a single menu at a time. And many of the menus are so long that they require scrolling, meaning that users can't even view the entire list of options in a menu in a single glance. Thus, American Airlines' approach works only if the two highlighted features, in fact, account for almost all use of the site.

For both sites, note how they have successfully combined traditional corporate information with e-commerce capabilities. There is no conflict between having a site that serves both functions as long as users quickly can find the links to buying stuff. United Airlines fails slightly here, even though it does make "Reservations" the first (and thus most prominent) category in its navigation scheme.

Shortcuts | Award Travel | E-Fares | Flight Status | Mileage Summary | Reservations**New UAL.COM Features and Registration Information**

Award Travel Redemption is here, along with faster updates to your Mileage Plus account! Learn how to register under our new feature release.

Earn 4,000 Bonus Miles!

Purchase your first roundtrip flight at ual.com and receive 4,000 Mileage Plus miles when you complete your travel on United, United Express or United Shuttle.

United E-Fare Specials for Hawaii

Aloha! Special discounts for travel to and from Honolulu, Maui and Kona are available until September 12. Click on the link for more details.

Traveler Section**Reservations**

Award Travel
E-Fares
Flight Search
Flight Status
Packing Tips
Reservations
Route Maps
Special Services
Ticket Offices
Travel Resources
United Connection
United Vacations

**In the air**

Duty Free
Entertainment
Food Service
High St Emporium
Laptop Power
Route Maps
Seat Maps
Service Classes

**At the airport**

Airport Maps
Baggage Info
Business One
Concierge Service
Electronic Tickets
Red Carpet Clubs
Special Services
Time to go!

**Upon arrival**

3 Perfect Days
Airport Maps
Baggage Info
City Guides
Currency
Embassies
Foreign Languages
Hotels/Lodging
Maps
Mileage Summary
Visa/Customs
Weather

Airline Section**Mileage Plus**

Contact Index
FAQ
Mileage Summary
New Members
Partners
Premier Scene
Program Info
Special Offers

**Products**

Alliances
Business One
Concierge Service
Electronic Tickets
Red Carpet Club
Service Classes
Silver Wings Plus
United Cargo
United Connection
United Express
United Ground Link
United Services
United Shuttle
United Vacations

**Our company**

Addresses

Annual Report
Community Support
Contact Us
E-mail
Employment
Investor Relations
Phone Book
Press Releases
Speeches
Worldwide Sites
Year 2000 (Y2K)

**History**

Current Fleet
Past Planes
United History

Welcome to AA.com™
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American Airlines®

LOGIN

AAdvantage #

A112233

PIN

GO MY HOME PAGE

GO RESERVATIONS

GO AADVANTAGE

☐ Save my AAdvantage #

PIN HELP

NEED A PIN?
FORGOT YOUR PIN?
CHANGE YOUR PIN?

AAdvantage

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TODAY'S NEWS ON AA.com

[Fall BreakAAway Fare Sale](#)

[Business Express Soon To Be American Eagle](#)

[A Special Welcome To Reno Air Customers](#)

[Login for Current Web Fare Specials and Net SAAver Fares](#)

[September Letter From The AA.com Web Team](#)

FLIGHT SCHEDULES AND FARES

Departure City (city name or [code](#))

Departure Date

Arrival City (city name or [code](#))

Return Date

VIEW SCHEDULES

VIEW FARES

WHAT'S ON AA.COM

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Plan your travel and review your current reservations here.

GO AAdvantage

Get the most out of your AAdvantage membership.

GO Specials

Shop here for travel, AAdvantage and other specials.

GO Programs & Services

Everything American – products, programs and services.

GO Corporate

View press releases, career opportunities and more.

www.aa.com

How Wide Should the Page Be?

The most-frequently asked question in all my web seminars is “What width screen should I design for?” People usually want to know whether 640 pixels or 800 pixels is the goal. My standard answer is that you shouldn’t design for *any* standard width; it is far better to create page layouts that will work across a range of window sizes. Not only do users have varying monitor sizes set to a variety of resolutions, but they may not always have their windows maximized to take up the entire screen.

Those users who have small screens should not be required to scroll horizontally to use your home page (vertical scrolling is bad enough), and users who have large screens should be allowed to benefit from their investment. Even so, many home page designs do take up a specific size, and if you choose this approach, you are advised to stay under 600 pixels in width unless you are designing for an intranet where the users are known to have large monitors. The use of 600 pixels instead of 640 is important because on all screens, several pixels are gobbled up by the browser’s window borders—the page content, therefore, cannot use the full width of the monitor.

Home Page Width

During the first years of the Web, home pages tended to get bigger and bigger as designers threw in options and used ever-more bloated graphics. At various times, I surveyed the early Web and calculated the average width of the home pages I found:

April 1995:	525 pixels
January 1996:	568 pixels
August 1996:	598 pixels
May 1997:	586 pixels

In 1998 and 1999, some home pages ballooned to 775 pixels (to fit an 800-pixel monitor), but most stayed at 600 pixels.

It is now rare to see narrow home pages (say, 300 pixels wide), although some sites use “liquid” designs that don’t have any specific width. In principle, it is best to design this type of resolution-independent home page, which can adapt to various screen sizes. If this is not possible, then the standard advice is to assume that many users will still be using 640 pixels for several years to come.



The Magazine Bill Just Wants to Have Fun With HyperCover Links

Newsweek.com

Tuesday, August 24, 1999

SUBSCRIBE TODAY

OVERSEAS EDITIONS

SPECIAL ISSUES

TODAY'S NEWSWEEK

FOCUS

ARTSCOPE

LIVE TALK

SITE INDEX

Featured Advertiser

MY TURN

FamilyHeroes

MARKETPLACE

Online Shopping

WASHINGTONPOST.COM

BRITANNICA.COM

SEARCH THE SITE

QUICK QUOTES

GET QUOTE



(Gary Moss)

Behind the Myth

Changes: the view from Bill Gates's head. [Submit Questions Now](#) for a live talk with Steven Levy, Wednesday at noon E.D.T.

Holbrooke: Mission Difficult

The new U.N. ambassador is headed for the Balkans. He has his work cut out for him.

Oklahoma City Syndrome

Mental health experts find a high incidence of postdisaster psychiatric disorder among victims of the 1995 bombing.

Unsafe Cybersex

Did online chat sessions lead to an outbreak of venereal disease?

Cars: Hot Wheels

America discovers a new generation of sleek, supercharged sports cars. They're sure not for kids.

Technology

A Web service takes the pain, and the paper, out of bill payments

Stock Watch

Dow 11,283.30 -16.46 Nasdaq 2,752.37 +32.80

Your Portfolio

Market Update

MY TURN

FamilyHeroes

Every family has its story... *Tell yours here.*

Perspectives

"I wouldn't be surprised; I know we used to have money."
—Imelda Marcos, widow of former Philippine leader Ferdinand Marcos, answering questions about a secret Swiss

Today's Features

Television | [Turmoil at ABC](#)
Jamie Tarses wins an 11th-hour reprieve. But for how long?

Law | [The Cocaine Question](#)
A legal expert explains why it's time to debate drug-use penalties

Politics | [The Gift of Fame](#)
Warren Beatty's new script calls for the star to highlight

Photo Gallery

This Week: Turkey's Tragedy



(Corbis-Sygma)

Top News

washingtonpost.com

Last updated: 9:14 p.m. EDT

[Fed Raises Rates 0.25 Percent](#)

[Prosecutor: Sheinbein Pleading Guilty to Murder](#)

[Whistleblower Already in Private-Sector Job](#)

Photo Op



Ray Lustig - The Washington Post

Fed Raises Rates: Federal Reserve Chairman Alan Greenspan and his policymakers today raised short-term interest rates a quarter-point.

[Judge Blocks Ohio School](#)

Newsweek attempts to satisfy both common screen sizes with this home page: At 800 pixels wide, you see everything (as depicted here), and at 640, you still see the main part of the page and only miss the rightmost column with secondary news. Even the page logo is designed to work at both screen sizes. This is admittedly a clever design, but I ultimately recommend against this approach. Users with 640-pixel screens will want to know what they

are missing and will often be forced into horizontal scrolling—one of the most hated interaction techniques in a web browser. Also, users with any other size screen will be in trouble, for example, when using WebTV (smaller than 640) or when using a big PC monitor with several windows that are sized to, say, a width of 700 pixels (which would cut right down the middle of the rightmost column of this home page).

Splash Screens Must Die

I have discussed the home page as if it were the first thing a new user would see upon entering a site. And that's how it *should* be. Unfortunately, some sites employ totally wasteful and useless splash screens, which simply slow down the user as he or she is attempting to reach the home page.

The theory behind splash screens is that they can set the stage for the home page by showing some kind of welcome message or possibly simply the name or logo in isolation without the distractions of the navigation elements on the home page proper.

In reality, splash screens are annoying and users click off them as fast as they can. It is much better to design a single home page that unifies the situational identity message with a display of some useful news and directory information. Content itself can be used to tell users where they are and what the site is about.

One of the few appropriate uses of splash screens is for sites that need to filter users and warn certain visitors against the content that will be found on the actual home page.



XXX-banners specializes in the production of adult site banners.

The following sample material contains adult content .

If you are offended by nudity, are not of appropriate age to view adult content or live in an area where such viewing is illegal please exit now.

If you are a surfer looking for a good sex site [Click Here](#).

EXIT

ENTER

XXX-Banners is listed in the following webmaster resources:



www.xxx-banners.com

What possible benefit is derived from forcing the user to look at the splash screen first? Some users may just give up in desperation. Very few people are interested in having their every click turn into a "mystery of the Internet," where they have to ponder what might be next instead of simply being told where they have arrived.



www.tigerlily.com

The Home Page Versus Interior Pages

The most prominent design element on the home page should be the name of the company or the site. The name does not necessarily have to be the *biggest* design element, but at least it should be in the upper-left corner of the screen or some other place where it is easy to spot. Additionally, the site name should be repeated on *all* interior pages because users may enter the site at any page, not just the home page. People who come from search engines or who follow links from other sites need a clear and simple way to tell at what site they have arrived. At the same time, interior pages need to focus more on specific content and less on providing a general welcome statement or an overview of the site. These two goals should be reserved for the home page.

There is a conflict between the need to accommodate people who may enter at any page and the need to restrain general information and top-level navigation aides to the home page. The resolution to this problem depends on how often you expect people to enter the site on low-level pages, and on how distinct and famous your site is. If the site is instantly recognizable to most users, then don't bother putting a lot of general jazz on the interior pages. Simply have a single, consistent link to the home page from every page. I recommend placing this link in the upper-left corner of the page, which is also the preferred placement of the site name and/or logo. Of course, sites in languages that are read right-to-left should use the upper-*right* corner of the page for this purpose.

The important point is to make the home page into a landmark that is accessible in one click from any interior pages on the site, no matter how people entered. On all interior pages, the logo should be clickable and linked to the home page. Unfortunately, not all users understand the use of the logo as a link to the home page, and it will take a while until this convention is fully established. So for the next few years, it will also be necessary to have an explicit link named "home" on every page.

Sites that are less recognizable may need to provide a small amount of additional identification on every page. They should also make their name or logo larger than needed on more famous sites.

Deep Linking

It is an erroneous strategy to force users to enter the site on the home page. So-called *deep linking* enables other sites to point users to the exact spot on your site that is of interest to those users. A website is like a house with a thousand doors: lots of ways to enter. A very welcoming place, indeed.

With a single front door and all other entry points locked, users will be dumped at the home page without really understanding how your site relates to their goals or their departure point. This is true because the home page can never be as specific or helpful to a particular problem as the actual page that describes the product or answers the question. One point against you. Then, you force users to learn your navigation system and the quirks and conventions of your site before they can get to the place they want to go. Second point against you. Any new customers left at this point? Probably not.

Much better to allow deep links. In fact, you should *encourage* deep links, which is what the affiliates programs in e-commerce are about.

Affiliates Programs

An affiliates program is a way to pay for inbound traffic. If Site A links to Site B, then B will pay a small referral fee for those users who follow the link. Most current affiliates programs pay commissions only for users who end up buying something on the destination site,

but in principle it would be possible to have a layered commission structure and pay more for users who actually purchase and less for users who simply visit but don't buy anything (under the theory that they may return later and buy something).

Metaphor

Metaphor is sometimes over-used in web design. Maybe the greatest weakness of metaphors is that they seem to entice designers to be overly clever and push the site in directions that seem fun and appropriate within the metaphor but leave users' real goals behind. Users don't live in the metaphor world; they live in the real world.

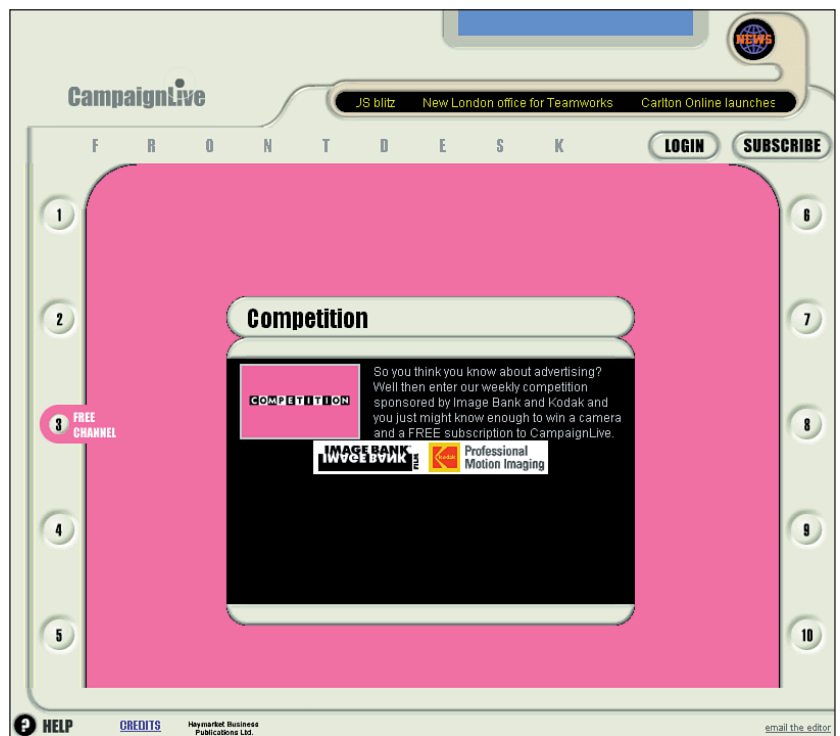
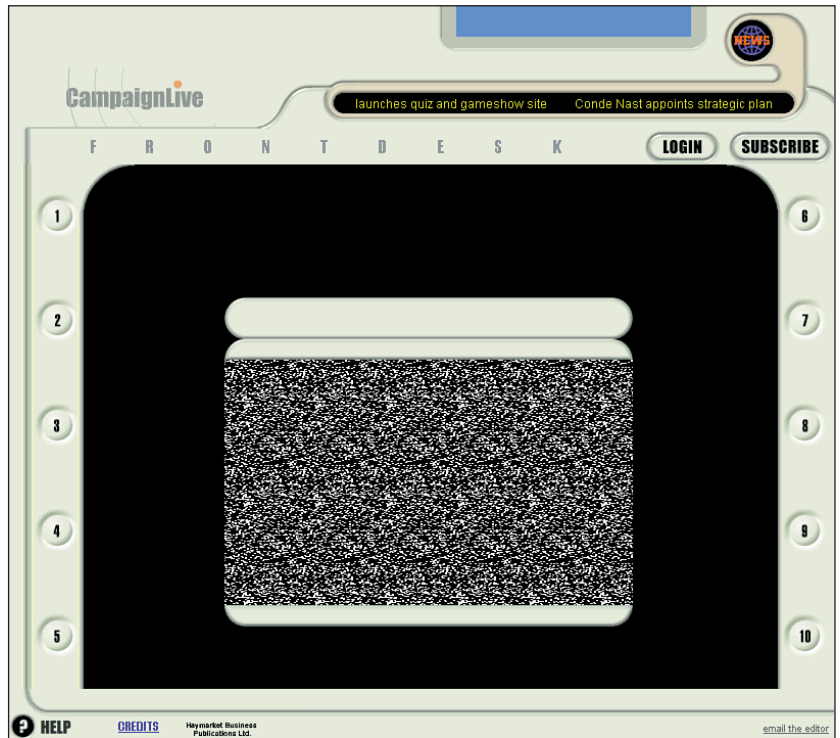
That being the case, it is usually better to be very literal and describe each interface element for what it is and what it does rather than trying to make everything fit into a single metaphor.

This said, metaphor can be useful for two reasons. First, metaphor can provide a unifying framework for the design that will make it feel like more than a collection of individual items. Second, metaphor can facilitate learning by allowing users to draw upon the knowledge they already have about the reference system.

For example, using a "shopping cart" metaphor for e-commerce immediately makes users understand the basic functionality. You can place products in the shopping cart where they are kept ready for purchase but have not been bought. You can place multiple products in the same shopping cart. You can remove items from the shopping cart as long as you have not yet paid. And you can take the shopping cart to the checkout line.

Shopping carts also highlight the weaknesses of metaphor. Knowledge of the reference system would indicate to users that the way to buy five copies of something is to repeat the action of placing a single item in the cart five times over. Also, the way to remove objects from the shopping cart would be to place them back on the shelf. In contrast, most e-commerce shopping carts allow users to edit the number of an item they want to buy and to remove an item by buying zero copies. This latter action is a well-known usability problem and is often done wrong.

(Facing page) A television channel metaphor used for navigation is cute but useless. Instead of showing static when the user first approaches the page, it would be better to show a summary of what can be done here. And although the use of numbered channels for choosing options may be metaphorical, it has very low usability. It is impossible to predict what a given number will correspond to, and it is hard to remember where to go back for information you have already seen. Channel numbers are bad on television as well and work only because stations have spent huge amounts of money in an attempt to brand something as impersonal as the number Four.



www.campaignlive.com



www.iflyswa.com

The 1995 design for Southwest Airlines was highly metaphorical and survived until about mid-1999, at which time it was replaced by a much more literal design. Even though the old design tried to give the feeling of an airport check-in counter, the new design looks more like an airline site. And from a usability perspective, trying to actually do anything is much easier in the new design. The old design clearly highlights one of the main downsides of metaphor: that it often does not extend well enough to cover all the necessary features of a system. In this case, the designers wanted to include a message from the Chairman (often a bad idea, but let's accept it for now) and had to accommodate this link by hanging his picture on the wall. True Chinese Embassy design.

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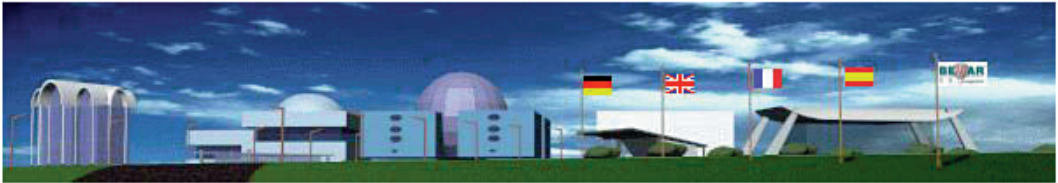
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www.iflyswa.com

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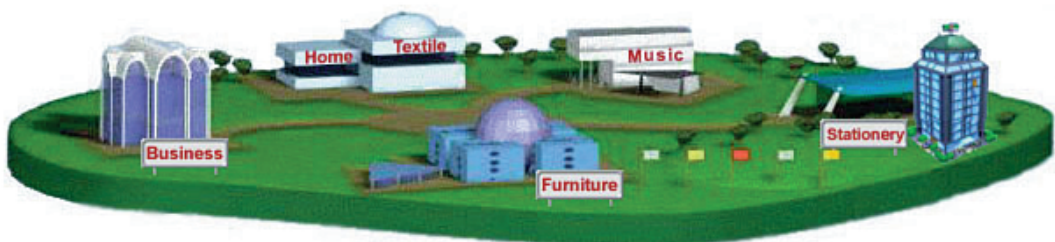


With Flash 2.0

BemarNet Management is inaugurating a completely new concept in the use of the internet for international trade, blending the virtual with real-time services through the use of real-time offices in each country that has been licensed to a responsible Country Partner.

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We have taken the technology of the internet to the next level, by adding the human intervention so necessary for international commerce. BemarNet solves this problems by having human representatives in every country where it does business, giving businesses what they need most ... world - class technology and a human face.




www.bemarnet.es

Geographical metaphors are almost always bad, except when dealing with geography. Here, we have the virtual fairground and the virtual business center high-rise. On the facing page, we have moved to the third floor of the business center (where the transport companies have their offices).

- ✓ HOME TEXTILES
- ✓ FURNITURE FAIR
- ✓ GIFTS & STATIONERY
- ✓ MUSIC TRADE FAIR
- ✓ SAVE MONEY
- ✓ MARKETING
- ✓ PRESS RELEASE
- ✓ REAL ESTATE
- ✓ WEB SITES
- ✓ HOW TO BE EXHIBITOR
- ✓ OFFER & DEMAND
- ✓ BUY On-Line
- ✓ INFO@BEMARNET.ES
- DIRECTORY - INDEX**

← Second Floor
THIRD FLOOR
Fourth Floor →



demasiado

Buscar

Selecione país

▶ [Transnatura, S.A.](#)

International transport by road, air and sea. Fair services all over the world. Customs agent. Service door to door. Storage, "picking and distribution". Insurance agent.

▶ [Indigo Online](#)

INTERNATIONAL: measures/weights.
SHIPPING: abbreviations

▶ [The Chartering Handbook](#)

▶ [FSU Freight \(HK\) Limited](#)

▶ [Everything about Shipping](#)

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▶ [Cempaka S.L.](#)

International Transport Services

▶ [Arnedo Medina Valencia, S.A.](#)
"ARMESA"

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▶ [Aduana USA](#)

Servicios de aduana en Estados Unidos

▶ [WCO Home Page](#)

World Customs Organisation

consigue dos altavoces para tu equipo multimedia

GRATIS



Enter your e-mail address if you want to be notified when new companies are added to this page

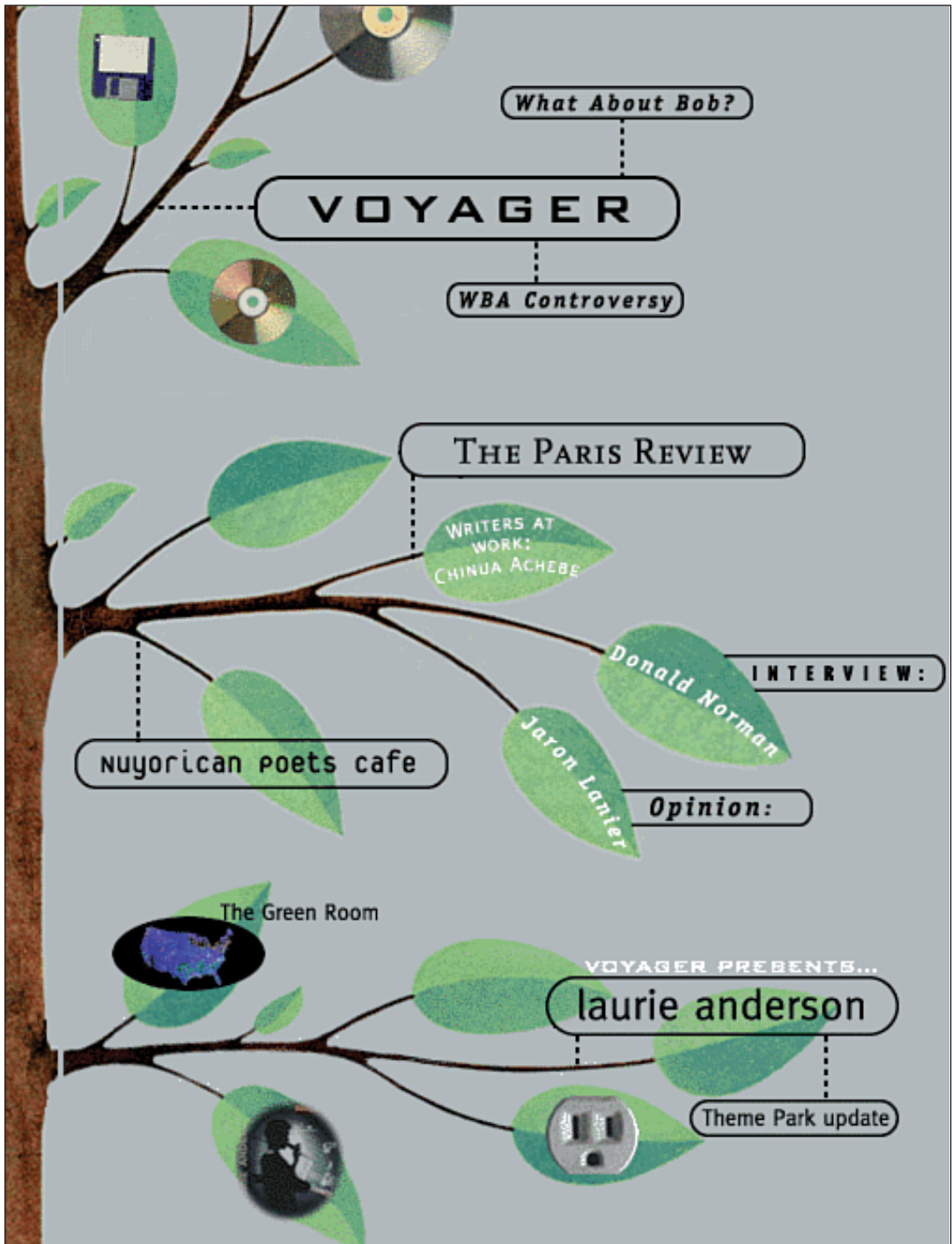
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The navigation system includes links to the second floor and the fourth floor, but try to guess what might be there. These floors host business services and software companies, respectively, but why these firms should be placed closer to transport companies than, say, telecommunications companies (17th floor) is anybody's guess. And moving from software to telecommunications is pure hardship: "walking" up from the fourth floor to the 17th floor. At least the exercise will be good for you.



www.voyagerco.com

In 1995, the CD-ROM company Voyager used a tree metaphor to structure its navigation interface. Although somewhat cute and possibly acceptable given its artistic ambitions and “green” leanings,

this is neither an informative way of utilizing the available screen space nor a helpful structure for the information. Why are certain things on the same branch? You are left to guess.




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[STORE RESUME](#)
[RESEARCH COMPANIES](#)
[MY MONSTER](#)
[VISIT OUR ZONES](#)
[JOIN CHAT](#)
[FOR EMPLOYERS](#)

QuickSearch

Enter Keyword:

[go](#)

August 26

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Headlines

This Week's Poll

Does a personal home page help a job search?

- ☐ Yes - I have one and it gets results.
- ☐ Yes - but it has to be specifically built for the job search.
- ☐ No - I have one and it doesn't help.
- ☐ I don't have a personal home page but I think I need one.
- ☐ I don't need a personal home page.

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www.monster.com

Just imagine the potential for metaphor run amok on The Monster Board: the Monster's Lair (secrets of job search), Left-Over Bones (jobs that have been on the system some time), Haunted House (employers in trouble), and Loch Ness Monster (overseas jobs). Given the name, the site exercises remarkable restraint and limits itself to a funny drawing that gives the site some personality. One can always

argue whether a name like "Monster" works for a site that's not about monsters, but it definitely is memorable and makes the site stand out in a crowded field of names such as CareerPath, CareerWeb, Career Central, Career Connector, Career Exposure, Career Avenue, CareerMart, CareerSite, CareerExposure, CareerExchange, CareerCity, Career Shop, and so on.

Alternative Terminology

Eric Davis, an information architect with Resource Marketing, performed a usability test of shopping cart terminology in 1999. The draft design featured the term “Shopping Sled” because the site, which sold winter sports products, had a desire to stand out and avoid standard terminology. The result? Fifty percent of users did not understand the Sled concept; the other 50 percent said that they figured out what it meant because it was in the same location as a shopping cart would be. They knew that you had to add to *something*, and the only something that made any kind of sense to add to was the Sled.

The lesson: Don’t try to be smart and use new terms when an existing term has been standardized and is known by users.

Shopping Carts as Interface Standard

Shopping carts are now so common on e-commerce sites that they have morphed from metaphor to interface standard. When users encounter a web shopping cart these days, they don’t think of a physical supermarket as the reference system. Instead, they think of all the other websites where they have seen shopping carts. Once something becomes sufficiently widely used, it becomes an interface convention and people simply know what to expect.

The standardization of shopping carts is good and bad. The benefits come from consistency, which is even stronger than metaphor as a learning tool. In fact, the user doesn’t have to learn *anything* as long as an interface element behaves exactly like the user is accustomed to. At the same time, shopping carts are an inappropriate interface for many applications, and yet designs are forced to use a shopping cart because that is what users expect.

Navigation

The Web is a navigational system: The basic user interaction is to click on hypertext links in order to move around a huge information space with hundreds of millions of pages. Because the space is so vast, navigation is difficult, and it becomes necessary to provide users with navigational support beyond the simple “go-to” hyperlinks.

Navigation interfaces need to help users answer the three fundamental questions of navigation:

- Where am I?
- Where have I been?
- Where can I go?

Where Am I?

The most important navigation question is probably “Where am I?” because users will never stand a chance of understanding the site’s structure if they don’t understand where they are. If you don’t know where you are, then you also don’t have the ability to interpret the meaning of the link you just followed.

The user's current location needs to be shown at two different levels:

- Relative to the Web as a whole
- Relative to the site's structure

You need to identify your site on all of your pages because they form a subset of the Web as a whole. All web pages are much the same from the user's perspective; they share interaction techniques, they are downloaded (slowly) from the Internet, and they have relatively similar layouts. These similarities are in fact good because they allow users a measure of transfer of skill from one site to the next. My usability studies show that users complain bitterly when a site tries to use navigation interfaces that are drastically different from the ones they have come to expect from the majority of other sites.

The Web as a whole dominates the user experience because users tend to view no more than four to five pages at a time at any individual site. The potential downside is that users will not know what site they are on unless you tell them. Thus, navigation rule number one is to include your logo (or other site identifier) on every page. The logo should have consistent placement (preferably the upper-left corner if the page is in a language that

Navigation Support in Browsers

At a minimum, web browsers need to have better support for structural navigation. They should have features for moving up one or more levels in the information architecture from the current page as well as features for visualizing the relationship among the pages visited by the user. Special features should be available for moving to the next and to the previous elements in a sequence of objects (which is different from the Back button found in browsers, which doesn't move to the neighboring object but instead to the previously seen object). Also, links should differ, depending on whether they stay within the current site or point to another part of the Internet.

It would also be helpful to have integration between the client-side knowledge of what the user is doing and the server-side knowledge of

the site's structure. An active sitemap might highlight the user's current location as well as visualize his or her trail through the site. And, of course, the search could be integrated with this sitemap and show the main areas of the sites that match the user's current query.

Internet-wide search engines should be integrated with the browser to permit searches that are limited either to sites that the user likes or to specific pages that the user has already seen. How often do you attempt to find something that you *know* you've seen on the Web? Well, if you could only tell the search engine this, the search problem would be drastically simplified (any individual user will typically have seen no less than a few thousand and, at most, a million pages out of the billions that are available).



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AT&T • (AT&T HOME) •• (HELP • SEARCH) •• (WRITE TO US) •• (AT&T SERVICES) •

www.att.com

(Facing page) This page does a good job of letting users know where they are at three levels:

- They are on the AT&T site, as indicated by the logo in the upper-left corner, which doubles as a link to AT&T's home page. (I would have eliminated the duplicate icon in the lower-right corner, especially because it's the wrong color.)
- Within AT&T, they are in the section about EasyCommerce Services.
- Within EasyCommerce, they are on a page about Global Alliance Marketing.

The natural flow of the user's eye from the top supports an understanding of the hierarchical relation between these three levels of location.

Unfortunately, the icon bar toward the end of the page does not highlight the user's current location. The "GAM" icon should have been drawn larger, rendered in a different color, made to pop from the background, or in some other visual way indicate that it represents the current choice from the list.

It is also confusing that there are two search buttons (actually, there are three search buttons if we count the textual copy of the icon bar, but most users will be used to seeing the icon list and the textual list as being identical).

reads left to right) and should be made into a hypertext link to the home page so that users can get to your home page from any other page.

Location relative to the site's structure is usually given by showing parts of the site structure and highlighting the area where the current page is located. It is also important to have a clear main headline for the page that states its name or main content in a glance. Finally, the page title in the HTML header definition should be used to generate a meaningful name for each individual page so that users can locate it easily in their bookmark list if they bookmark the page.

Where Have I Been?

Because standard web technology is state-less, it may be hard for page designs to directly address the "Where have I been" question, because the site doesn't know without resorting to cookies or other user-tracking measures. Luckily, some of the few useful navigation mechanisms in current web browsers provide some assistance with this question. The Back button takes the user directly to the previous page, the history list includes a list of recently visited pages, and hypertext links are shown in a different color if they point to previously visited pages.

I recommend not changing the standard link colors because users will only understand the meaning of the link colors if they are kept the same. I tested many sites with non-standard link colors where the users ended up not understanding what links they had already followed.

Knowing what links lead to previously visited pages is useful for two reasons: It helps users learn the structure of the site, and it prevents them from wasting time going to the same page many times.

Where Can I Go?

This question is answered by the visible navigation options and any other links on the page. In addition, assuming that the user has acquired some understanding of the site's structure, the user may have a general idea of other, currently invisible, places to go. Because it is impossible to show all possible destinations on all pages, it is obvious that a good site structure is a major benefit in helping users answer the "Where can I go" question.

What do you call a design team
that calls the Internet its LAN?



Our company was
founded in Kansas City,
but our design team
logs in from around the
world: from Dublin, Ireland
to a dairy farm in Vermont.

We collaborate
and communicate on
the Internet better than
many companies might
in a single office complex.

Living on the Net
has taught us what it
takes to communicate
ideas with little more than
a modem and a dream. Isn't
that what you're hoping to do?

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www.neuromedia.com

(Above) Overly subtle indication of the user's current location. The navigation bar itself should highlight the current section, but instead, a cute icon (a fish) serves this function.

(Facing page) Here's a nice example of highlighting the user's current location on the site. Note how the use of standard link colors for the links to neighboring pages makes it very easy for the user to see where he or she has been already. In this example, the user has already visited the "introduction" page as well as the "portfolio" section of the site.

INFORMATION: visioning

REALITY FANTASY

Visioning purposely ignores realistic technical and budget limitations and tries to imagine unrealistic, futuristic, "what if" scenarios. Why? Because one of these scenarios might suggest new and different kinds of solutions to a particular long-term communications project.

For example, let's say that we wanted to create a healthcare-oriented corporate web site and were looking for a central metaphor to use to help users orient themselves to our site.

We might envision using things like a single cell or the entire human body, a bathroom medicine cabinet or a basic first-aid kit, a huge hospital or just a simple pharmacy as organizing models for our ultimate "what if" site. Cross-referencing the inherent features of each model with a list of long-term goals for the project might lead us to conclude that the hospital model offers the best structure to mimic. Thus we might also consider using the pharmacy model in the short-term as an early evolutionary phase of the project, creating a situation where the simpler pharmacy model expands over time to become a virtual hospital.

People propose, science studies, technology conforms.

—Donald Norman;
Things that Make Us Smart

We might not be able to predict the future, but we can make it seem intentional.

welcome

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www.tbid.com

Xerox WorkCentre XD100 Digital Copier / Laser Printer

Overview

P C S F



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Print Speed 8 ppm black,

Max. Paper Size 8.50 X 14.00

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Collation Type N/A

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Everything you want in a copier, including a printer

Key Features and Benefits

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- Digital Copying
- 8 ppm Printing
- 10 Copies per Minute
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These products have a price that is identical or close to the price for the product you are viewing.

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www.xerox.com

(Left) Pull-down menus like the one called “site navigation” in this screen cause many usability problems because users can’t see the full set of choices without having to take explicit action. I prefer having a small enough set of global navigation options that they can be shown at all times. Another problem with this site is the very small and non-standard placement of the company name.

This product page provides an interesting example of local navigation in the form of see-also links to similar products under the heading “Quick Compare.” Too frequently, web navigation operates on the assumption that users will go directly to the exact destination they need. In fact, users will often arrive at something that is approximately right, but not exactly right. Without local navigation to similar products, users then have no choice but to start all over again and hope for better results next time.

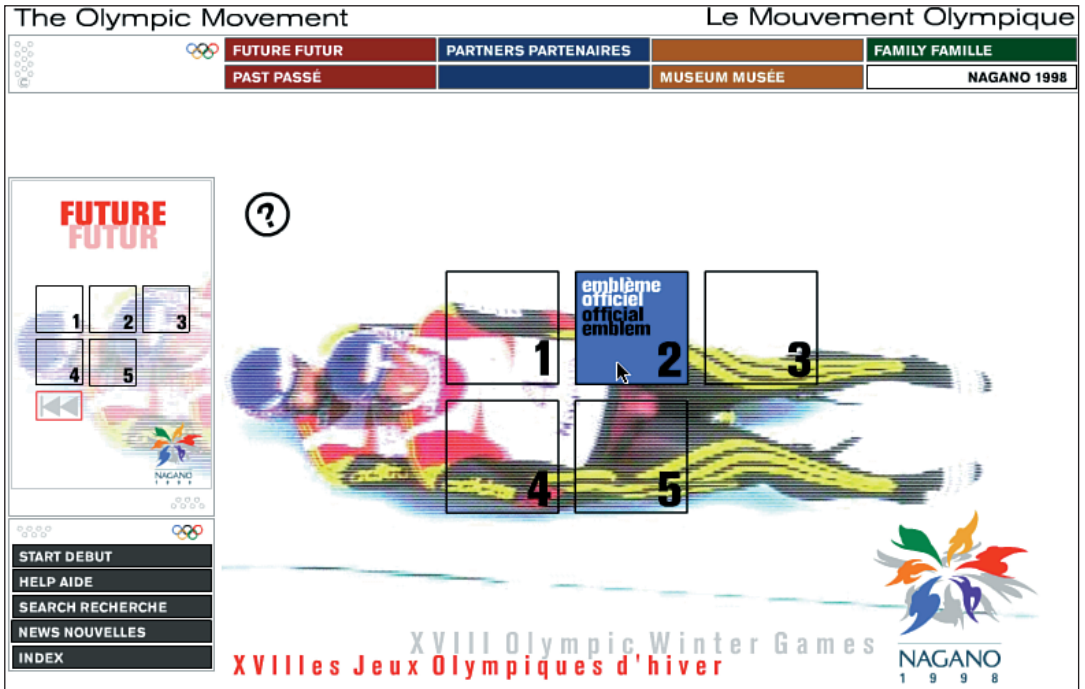
The Quick Compare feature in this example could have been improved with an indication of the underlying navigation dimensions that cause the products to be different. In other words, help users understand *why* and under *what conditions* they might be interested in the various other products. Listing the price provides one such dimension (if you can’t afford the current product, then it’s easy to find a cheaper one), but it is not clear what the other main differences are among the products. I could imagine that one printer might be the one to click on if you need color and another might be the choice if you print a lot of copies every day, but with the current design, users don’t know—nor get any help in deciding—what direction to move in if they want to leave the current page.

There are three kinds of hypertext links that can be used on a page:

- *Embedded links* are the traditional underlined text that indicates that “more stuff” is available about some topic that is discussed in the body text.
- *Structural links* are links that systematically point to other levels of the site structure as well as to siblings or children in a hierarchy. It is important to have the same structural links on all pages so that the user will understand what structural navigation options to expect. Of course, the exact destinations pointed to by the structural links will be different from page to page. Therefore, it is often better to use link anchors that name the specific destinations in addition to giving the generic structural relationship between the current page and the destination page. For example, it is better to have a link that reads “Up to Widget Product Family” than a link that simply reads “One Level Up.”
- *Associative links* are used to give users “see also” hints about pages that may be of interest to them because they are similar or related to the current page.

It is usually best to represent links as underlined text, keeping the standard link colors of blue for links to unvisited pages and purple for links to pages the user has seen before. Everybody learns the meaning of this convention the first day they are on the Web, and there is simply no doubt that underlined text means “click here.” Because underlining now has a strong perceived clickability affordance, it is best not to underline any text that cannot be clicked.

Usability problems are also associated with links that have any form other than simple, underlined text. Pull-down menus and graphics should be used for navigation only with great care because they don’t behave in the standard manner of underlined text. In particular, they don’t turn purple if they link to places the user has already seen.



www.olympic.org

One of the most useless navigation aids I have seen on the Web. The user clearly has five different possibilities, but there is no way to know what the possibilities are without rolling the mouse over each of the buttons. Maybe the Olympic Committee wants to ensure that the nerds get some minimal exercise by moving their mouse around. (Wow, I feel my right bicep bulging already.)

A navigation interface needs to show all the available alternatives at the same time so that users can make an informed decision as to which option will satisfy their needs best. Not only is it annoying to have to move the mouse around to see the options, it is outright user-hostile to require users to keep the previously seen options in their short-term memory while they consider additional choices.

The final touch of death in the Olympic navigation design comes from the panel on the left part of the screen. This panel supposedly allows users fast access to the main navigation options on later screens, but only if they happen to remember that a blue square stands for "official emblem." Not exactly a particularly natural color association, so users would be forced to study this website for hours to commit the color scheme to long-term memory if they were ever to use it efficiently. And one thing we really know about the Web is that nobody is sufficiently devoted to a site to go through a special training class to use it.

The Olympic Movement

Le Mouvement Olympique

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	PAST PASSE			NAGANO 1998

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XVIII Olympic Winter Games

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www.olympic.org

Site Structure

No matter what navigation design you pick for your site, there is one common theme to all navigation: All it does is visualize the user's current location and alternative movements relative to the structure of the underlying information space. If the structure is a mess, then no navigation design can rescue it. Poor information architecture will always lead to poor usability.

Most sites have a hierarchical structure with progressively more detailed levels of information. Other sites have a tabular structure in which pages are classified relative to a number of attributes or parameters. For example, the 1996 Olympic Games site classified events pages relative to their sport, their data, and their location, so users could, if they wanted, see all pages related to soccer or all pages related to events in a certain city. A linear structure makes sense for Web-enabled applications that are a progression of steps.

The two most important rules about site structure are to have one and to make it reflect the users' view of the site and its information or services. It may seem obvious to have a site structure, but many sites evolve without any planned structure and end up in total chaos as a collection of random directories without any systematic relations among different parts of the site. A second common mistake is to have the site structure mirror your organizational charts instead of reflecting the user's view. Users should not have to care how your company is organized, so they should not be able to deduce your organizational structure from the structure of your website. Admittedly, it is easiest to distribute responsibility for the site to divisions and departments according to already established chains of command and budget categories, but doing so results in an internally centered site rather than a customer-focused site.

The site structure should be determined by the tasks users want to perform on your site, even if that means having a single page for information from two very different departments. It is often necessary to distribute information from a single department across two or more parts of the site, and many subsites will have to be managed in collaboration between multiple departments.

The Vice-Presidential Button

A classic sign of a mismanaged website is when the home page has a button for each of the senior vice presidents in the company. Remember, you don't design for your VPs; you design for the users. Therefore, it will be quite common that you can't tell VPs where "their" button is on the home page.

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A linear information structure is often a warning sign for bad usability because the Web is inherently non-linear in nature. Users don't want to have to step through all the site elements one at a time. In this example, it is hard to imagine a user scanning through a list of 753 films in alphabetical order. It would be better to have a set of alternative structuring principles available, including a way to sort by quality (review) rating and a way to filter out certain types of films. Even if an alphabetical listing is the best that can be done, at least abandon the numeric links to jump around the list. It makes sense to jump to films starting with the letter G, but not to jump to film number 451.

(Facing page) In April 1998 *The Christian Science Monitor* experimented with a site structure and navigation interface that mirrored its printed newspaper. Users would page through reduced pictures of actual pages from the daily paper and could click on the image of an article to get the full text displayed in the right half of the window.

The main problem with the design is that it is extremely slow to navigate. Each of the page miniatures is about 60 KB, taking about 20 seconds to download over a 28.8 modem. We know that 10 seconds is the absolute maximum response time for getting web pages before users rebel; optimal navigation requires even shorter response times.

Navigating between pages is done through a pop-up menu that lists nothing but page numbers. Because users do not know what articles are on what page, they are left guessing and are relegated to jumping to pages at random. It would have been better to provide a menu of section titles or main headlines. For example, it would be more meaningful to go to "Food Section" than "Page 14", assuming that the food articles were on page 14. Page numbers make sense in print, where users flip through a physical product, but on the Web, everything is equally far away (one mouseclick). Thus, a site structure should rarely be linear.

Furthermore, the *Monitor* design did not allow users to get a quick overview of the current news or focus their attention on parts of the paper that were of particular interest to them. It was a purely linear navigation system that was made almost useless by the slow speed of "turning the page." While viewing a page, it was not possible to read subheads, decks, bylines, or any of the other short but important components of a story design that help people decide what to read.

After a user did manage to find an article of interest, then the design failed again because only half of the window was available to display the actual article, thus necessitating more scrolling than usual and making the text harder to scan. Also, the use of frames made it difficult to bookmark articles of interest or to email URLs of recommended stories to friends and family (otherwise, a great way for a website to grow usage through social interaction).

As an example of hierarchical structure, a corporate site may be divided into high-level categories such as product information, employment information, and information for investors. Because the home page is the top level of the hierarchy, these main categories form the second level of the structure. The product information might again be divided into different product families (the third level of structure), and each product family would be divided into information for the individual products (the fourth level of structure). Finally, each product may have pages for specifications, pricing and configuration options, customer case stories, and service information (the fifth level of structure).

Consider a page with pricing and configuration options for the SuperWidget product. This page belongs to five levels of the site structural hierarchy:

1. The company's website (as opposed to being at some other site)
2. The "products" category (as opposed to, say, employment info)
3. The Widgets product family
4. The SuperWidgets product
5. Pricing and configuration

Importance of User-Centered Structure

In one e-commerce project I worked on, the draft home page had three ways of getting to the products: one search function and two navigation schemes, both of which were presented as simple lists of choices. One navigation scheme was structured according to the way most users think about the domain; the other scheme was structured according to the way many of the manufacturer's own staff members thought about their product lines.

Results from usability testing showed that the success rate was 80 percent when people used the navigation scheme structured according to most users' mental model and only 9 percent when using the navigation scheme structured according to the company's internal thinking.

Conclusion: The second navigation scheme was dropped from the design, even though this

pained some of the project members. The second scheme had its advantages for those people who used it correctly, but it led most users into trouble, so it did more harm than good.

Comparison of the two success rates of 80 percent and 9 percent leads to the conclusion that user-centered information architecture had about nine times as high usability as internally oriented information architecture. Of course, the exact difference between the two approaches will vary from project to project, but the difference is often large. We're not just talking a few percentage points here; we're talking about the difference between success and failure for anybody trying to sell anything on the Web.

My preference is to show all five levels in the navigation user interface because they are all useful in trying to understand the user's current location. Even better is a design that also shows alternative choices at one or more of the levels; such alternatives make it clear to users not just what they are seeing but also how it should be interpreted in relation to the other options on the site. Also, of course, listing alternatives makes it easy for users to go directly to one of the alternatives if it should prove a better match with the user's needs.

In my example, listing the alternative choices on the fourth level of the site structure would show the user that the Widget product family contained MiniWidgets and WidgetClassic in addition to the SuperWidget. If the user wanted a MiniWidget, he or she could then go directly to the relevant product page and navigate from there to the relevant pricing and configuration page.

Breadth Versus Depth

Currently, the most common navigation design is to list all the top levels of the site, often in a stripe down the left side of the page as was done in the original design of news.com. The benefit of this breadth-emphasizing design is that users are constantly reminded of the full scope of services available on the site. This is particularly useful for users who do not enter at the home page but go directly to a page deep within the site. Although this is a benefit, I do find it excessive to dedicate 20 percent of an interior page to a listing of top-level options, all of which can be accessed from the home page at the cost of a single additional click.

The colored stripe serves a dual purpose as a site branding mechanism, which makes it easy for users to recognize that they are on this particular site. Thus, the stripe doubles as a kind of logo to help users identify their location relative to the Web as a whole.

Whereas news.com had a breadth-emphasizing navigation design, the useit.com navigation bar is completely depth-emphasizing. It shows the full hierarchical path from the home page down through all the levels to the current page. Thus, users get a full sense of their current location relative to the site structure, and they can jump up to any

The navigational apparatus in the original design of news.com included three elements: a list of top-level destinations down the left side, a list of current news stories down the right side, and a list of related stories at the bottom. These latter cross-references are very helpful and enable users to find stories they might have overlooked originally. I am less pleased with the extensive space used to provide links to unrelated current news. I would have preferred to list the related stories at the top of the right column because that would maximize the likelihood that users will see these links. If a user was sufficiently interested in the topic of the current article to have chosen it from the table of contents, then it is very likely that the user would also be interested in reading some of the related stories. This is true even for users who find out that they are not sufficiently interested in the details of this specific story and therefore never scroll to the end of the page.

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FCC confirmations blocked

By Courtney Macarinto

October 24, 1997, 5:55 p.m. PT

The confirmations of all four nominees to the [Federal Communications Commission](#) were held up today by Sen. [Conrad Burns](#) (R-Montana), who wants the agency to revamp telephone and online "universal service" rates for rural areas of the country.

In a statement issued late today, Burns said he has temporarily blocked [Senate](#) approval of the nominees because he is "concerned" with FCC chairman nominee William Kennard's position on universal service. Under provisions mandated by last year's federal telecommunications reform, the FCC is required to provide schools and low-income and rural areas with advanced phone and Net services, which is subsidized by states, the federal government, consumers, and telecommunications companies.

According to Burns, the current commission's plan has put 75 percent of the governmental burden on states, which he claims could lead to higher phone rates. Although Kennard promises to keep rates low for local phone and cable service, as the FCC's general counsel, he worked on the plan that was approved this May.

"I am working with congressional leaders and Mr. Kennard to resolve these concerns quickly," Burns said in the statement. "I strongly believe that it was not the intent of Congress that the structure of the universal service fund lead to higher phone rates. A 25-75 split is unacceptable."

Burns indicated one solution he may support is an [appropriations bill](#) amendment introduced by Sen. [Ted Stevens](#) (R-Alaska), which calls for the FCC to reexamine whether Internet service providers should contribute to universal service. The Stevens amendment also requires that ISPs pay a per-minute access charge to phone companies for connecting ISP customers to the Net via telco switch centers.

The online industry successfully fought the same provisions earlier this year when the agency held hearings on universal service.

If his amendment is not passed, according to sources, Stevens also has threatened to block the nominations, which require a unanimous Senate vote for confirmation.

On October 8, a Senate committee approved Kennard's nomination, along with those of Michael Powell, chief of staff of the Justice Department's antitrust division; Harold Furchtgott-Roth, chief economist for the House Commerce Committee; and Gloria Tristani, a member of the New Mexico Corporation Commission.

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Nordstrom to spin off Internet subsidiary

By Troy Vibration
 Staff Writer, CNET News.com
 August 24, 1999, 6:25 p.m. PT

update Department store chain Nordstrom announced today that it is creating an Internet subsidiary in partnership with Benchmark Capital.

The Seattle-based retailer will invest \$10 million in cash in its new [Nordstrom.com](#) subsidiary, which will take over the company's Internet and catalog businesses. Nordstrom will own a majority stake in the new subsidiary. Benchmark Capital, which will invest \$15 million in the Internet arm, will have a minority stake in Nordstrom.com, as will Madrona Investment group.

One of the first outgrowths of the deal will be a new shoe site, which Nordstrom.com representatives dubbed as the soon-to-be "world's biggest shoe store." The site, located at [Nordstromshoes.com](#), will offer some 20 million pairs of shoes by the holiday season this year, the company said. Nordstrom said it offers only 200,000 pairs of shoes through its current Web site.

Quote Snapshot
 August 24, 1999, 1:01 p.m. PT
Nordstrom Inc. [LWN](#)
 31.6250 -0.1250 -0.39%

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Rapids, Iowa. Company representatives estimated catalog sales at roughly \$200 million last year.

Although the Nordstrom.com's distribution will be separate from that of its parent company, customers will be able to return goods to any Nordstrom store, Schwartz said. Having this tie in to Nordstrom's physical stores means that unlike most e-commerce customers, Nordstrom.com's customers will have to pay a sales tax on items they buy on the site, Schwartz and Gurley acknowledged.

But Gurley said the benefits from connections to the physical stores will outweigh the tax drawback. "It certainly hasn't made it to be an impediment to business so far," he said.

Benchmark's e-commerce plays
 Gurley, who will join Nordstrom.com's board of directors as part of the agreement, said Benchmark's deal with Nordstrom differs from the investment firm's failed relationship with Toys "R Us. For one thing, unlike the Toysrus.com pact, though which the two sides never signed a final contract, Gurley said the deal with Nordstrom has already closed and will take effect immediately. And Nordstrom.com has a management team in place; Toysrus.com management team still hasn't come on board.

Gurley said that Benchmark might consider deals with other brick-and-mortar businesses in the future, but because of the fallout from Toysrus.com, the venture fund would be cautious. The Nordstrom deal attracted Benchmark because of Nordstrom's strong brand, its attention to customer service, and that it has a direct sales operation in place for its catalog business, Gurley said.

"To the extent that we can find other situations that have these elements, we will do them," Gurley said. "I think it's rare enough."

Nordstrom launched its Web site in October 1998. Company co-president Dan Nordstrom, 36, who currently heads the retail division, was named chief executive of the new subsidiary.

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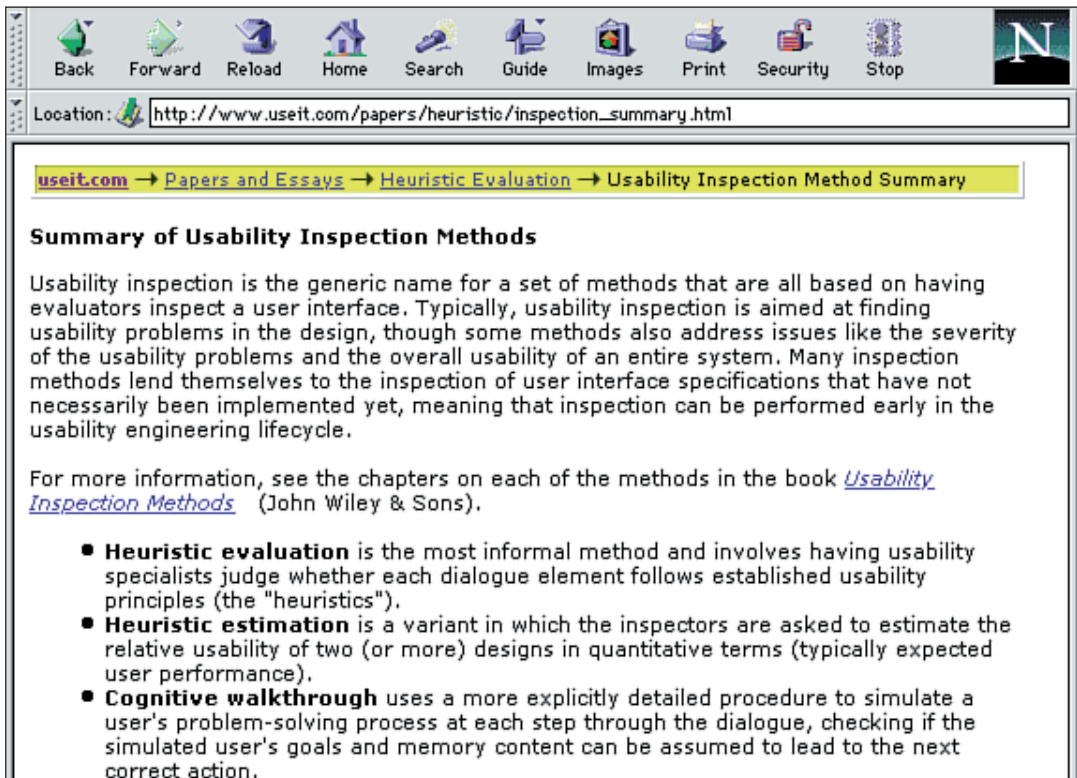
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desired higher-level page in a single click. This navigation support scheme is often called *breadcrumbs* after the *Hansel and Gretel* fairy tale.

A breadcrumb navigation list has the benefit of being extremely simple and taking up minimal space on the page, leaving most of the precious pixels for content. After all, content is king, and my usability studies show that users tend to ignore navigation options and look directly at the page body when they go to a new page. Breadcrumbs are useful only for hierarchical information architectures because they require nested levels of progressively smaller subsites. But for such structures, the list of all the higher levels truly shows the context of the current page and helps users understand it, and it also helps users quickly move away from the page if it was not the right one.

The navigation bar from my own site shows the user's current location relative to a hierarchical structuring of the site's content. Note how much easier it is to read the human-authored hierarchy outline in the breadcrumb trail than having to decode a URL and its directory names in the browser's location field.



www.useit.com

(Following page) Two different implementations of breadcrumbs from Looksmart (the 1997 and 1999 designs, respectively). Neither is perfect. The old design is cleaner and makes it very clear how the various elements in the breadcrumb trail are related. Placing a > mark between each name implies a hierarchy or sequence between the elements. In contrast, the elements are separated by a — mark in the newer design. This character does not have nearly the same connotation of hierarchy. On the contrary, the breadcrumb trail looks too much like a simple listing of alternatives that do not have a structure. Unfortunately, the old design did not list all the navigation levels and elided the upper levels, which were accessible by clicking on the somewhat obscure triangle glyph. The new design has the advantage of listing all the levels in the navigation hierarchy that are above the current location, from the very top (World) to the name of the current page (Usability). Of course, it is a mistake to make the name of the current page into a hypertext link; never have a link that is a no-op and points right back to the place the user already is.

The LookSmart design combines depth and breadth by showing many levels of navigational hierarchy (depth) and listing all the alternative options for each level (breadth). The main downside of this approach is that it takes up a lot of space on the screen. Thus, a combined depth-breadth display is probably more suited for a dynamic presentation that abandons simple HTML. Dynamic HTML can be used to combine permanent visibility of all the levels (depth) with a temporary pop-up of the alternatives (breadth) on any given level when the pointer is over that level's name.

A final example is Sun Microsystem's page template, which provides navigational breadth at both the highest and lowest levels of the site structure. Top-level breadth is shown across the top of the page which lists all the high-level categories on the site. Low-level breadth is shown down the left side with links to all the content at the level of the current page, including a few associative links to "see also" material. Finally, the design provides a small amount of depth by indicating the names of some (but not all) of the levels of structure above the current page.

I would recommend use of this elaborate set of navigation mechanisms only for very large sites with highly heterogeneous content. (Currently, I would classify sites with more than 10,000 pages as "very large.") Sites with fewer pages will be easier to use with a simpler navigation design. Even the largest sites will be better off with simpler navigation if their content is so homogeneous that users can easily understand the structure of the information. For example, a site with the collected financial filings of all public companies in the United States could have a very simple structure to support navigation in hundreds of thousands of documents because they all had similar attributes.

Unfortunately, some sites combine quite disparate material—and lots of it—and so end up with a complex structure that needs a lot of navigation support. This is often the case for large companies with multiple product lines that address different customers.

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Sausage Software Demos

Creators of the Hot Dog HTML editing package, provide downloadable versions of their range of HTML convertors and editors.

HTMgen32

Freeware, object oriented generator/editor for Win95. No knowledge of HTML required for this Explorer type interface.

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Microsoft Guide to Usability

Extensive overview and checklist of what designers need to consider in making a web site fully usable. Peruse table of contents for navigating.

Seven Deadly Signs of Web Usability

Drue Miller of Vivid Studio outlines the top don't do's when considering web usability in the design process. Featured on Netscape's DevEdge.

www.looksmart.com



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Fisheye view of four levels of site content from the 1997 LookSmart design. A fisheye presentation provides progressively more detail at levels closer to the user's current focus of interest. In this example, I was interested in HTML tools for web design, and a click on that option would give me a list of the tools. But the display provides additional breadth by also showing me the other types of web design tools discussed on the site. Stepping up one level takes us further from the user's current interest, so less breadth is provided. The third column indicates that more information is available about other Internet-related issues, but these topics are not described in as much detail as the web design tools. Going one step farther up, the second column lists other computer-oriented topics, but this level is described at a very coarse level of granularity.

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www.looksmart.com

The 1999 LookSmart design provides only a fisheye view of three levels of content. The very top level is not shown at all, and the second level is shown only by the headline "Internet." There is no way to find out that the current top-level category is "Computing" or what the other second-level categories might be within Computing. I prefer the 1997 design over this one. (As an aside, why would anybody run an advertisement for "brand-name bargains starting at \$7" without telling us what brands or what types of products are being sold? I can't imagine many people being attracted by the promise that some unknown thing can be had for \$7.)



Inktomi

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Search Engine

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Inktomi Search Partners


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Launched May 1998
Partner: Wired Ventures, Inc.
Home Location: United States
<http://www.hotbot.com>



Launched July 1998
Partner: Yahoo!
Home Location: United States



Launched May 1998
Partner: Snap!
Home Location: United States
<http://snap.com>




Partner: Microsoft Corporation
Home Location: United States

www.inktomi.com

Fisheye navigation support at Inktomi. The graphic at the top of the page clearly shows that we are looking at its search engine product (and that the other products are the traffic server and the shopping engine). Within this set of product pages, we are currently looking at the partner, and there is a simple way to jump to the other five pages about this product.

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Hardware And Networking

Desktop Family

Sun™ Ultra™ 4000 Creator3D Workstation

Product Overview



Sun Ultra 4000 Creator 3D workstation provides unbeatable price/performance for high-end visual computing.

- Multiple processors.
- Multiple monitors.
- On-chip multimedia technologies.
- High-speed interconnects.
- Accelerated graphics.
- High-bandwidth networking.

Add it all up and you get super computer performance for simulation, modeling, analysis, design automation, medical imaging, animation, and more.

Visualize Affordable High-Performance

We call this merger of advanced technologies UltraComputing™, and these workstations take it to a new level of power and capacity. Ultra 4000 workstations offer fast, realistic graphics at a price that is equally realistic.

www.sun.com

Sun's standard page design is embedded within an L-shaped navigation template with elaborate navigation support. It is instructive to look at the two different ways the navigation features are supported in two different versions of the design.

The 1998 design of the navigation system provided several levels of hierarchy. The choices on the highest level were listed across the top, the current

location is stated with two levels of nesting in the second horizontal bar, and choices at lower levels are given down the side. The search box is shown immediately below the logo: a prominent location, but one that turned out to be used relatively rarely by other sites as they started to add search boxes to their pages later in 1998 and 1999.

- Hot Desk Architecture
- Features & Benefits
- Specifications
- Enterprise Server Software
- Interconnect
- Technical Information
- ISV Solutions

Related:

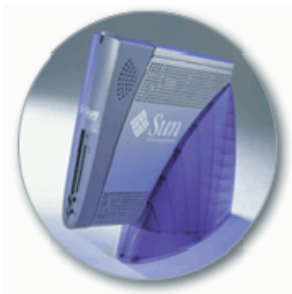
- White Papers

SUN RAY™ 1 ENTERPRISE APPLIANCE


[Event Rebroadcast](#)

The ideal appliance solution for enterprise workgroups.

- [Easy to use, easy to administer, easy to like](#)
- [Your work is always there -- when you want it, where you want it](#)
- [Your data is safe](#)
- [Improved productivity and lower costs go hand-in-hand](#)



Are you looking for centralized administration and a rich user experience? Look no further. The "plug-and-work" [Sun Ray™ 1 enterprise appliance](#) requires no client administration or upgrades while at the same time putting the power of the server on your desktop. On top of that, you get the unique capability of "[hot desking](#)" -- the ability to instantly access your computing session from any appliance in your workgroup -- exactly where you left off.

The Sun Ray 1 enterprise architecture is made up of the appliance itself, [Sun Ray enterprise server software](#), and Hot Desk technology. The first true appliance for the Service Driven Network, the Sun Ray 1 enterprise appliance is ideal for your enterprise workgroup environment's business-critical applications - including customer management, call centers, training and education, government, financial services, and ERP -- and never needs upgrading.

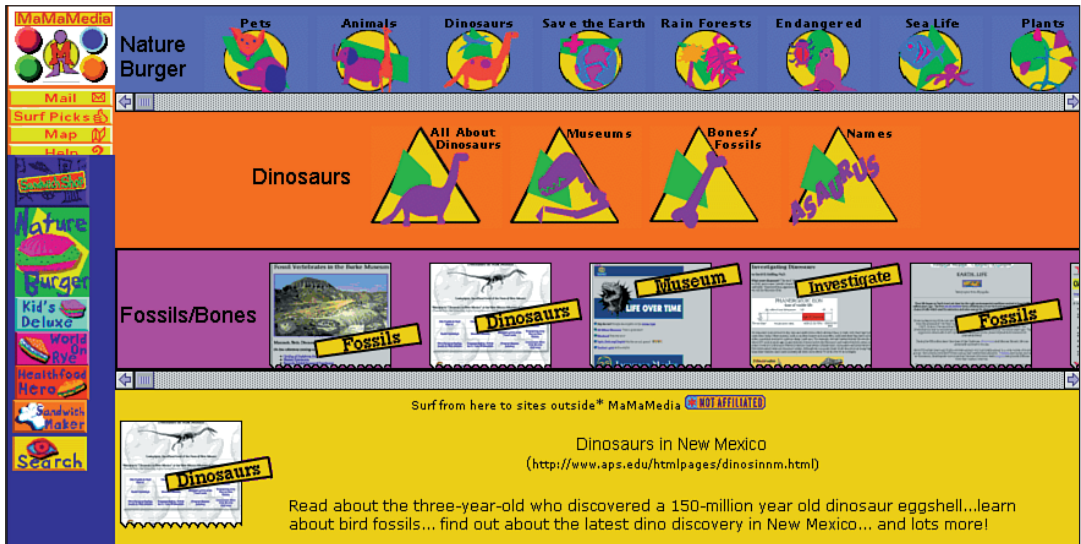
Easy to use, easy to administer, easy to like.

With Sun Ray 1 enterprise appliances, you get a greatly simplified environment that offers the benefits of client-server computing without the costs of maintaining fat clients. So you can gain greater control over your desktop -- significantly reducing purchase, service, and support costs, while still securely accessing your favorite applications. In fact, you can access applications on

[www.sun.com](#)

The 1999 design is much simplified from a graphics perspective and with respect to download time. The top-level choices are mainly relegated to a drop-down menu, although the most important ones are still shown across the top. The current location is now shown in a breadcrumb trail, which has the advantage of showing all the levels (partic-

ularly good for a deeply nested article like the one in the figure) but has the disadvantage of not showing the neighboring alternatives. Finally, the lower-level choices continue to be shown down the side. The search box has been moved to the upper right: a location that started to become a convention during 1999.



www.mamamedia.com

Fisheye view from the children's site
MaMaMedia.

The User Controls Navigation

In traditional user interface design, the *designer* can control where the user can go when. You can gray out menu options that are not applicable in the current state, and you can throw up a modal dialog box that takes over the computer until the user has answered the question. On the Web, however, the *user* fundamentally controls his or her navigation through the pages. Users can take paths that were never intended by the designer. For example, they can jump straight into the guts of a site from a search engine without ever going through the home page. Users also control their own bookmark menu and can use it to create a customized interface to a site.

Web designers need to accommodate and support user-controlled navigation. Sometimes you can force users through set paths and prevent them from linking to certain pages, but sites that do so feel harsh and dominating. It is better to design for freedom of movement and flexible navigation that supports many different ways of moving through a site. Get over it. The user holds the mouse, and there is nothing you can do about it.

Desktop Printing

Xerox desktop printers and multifunction systems are designed to meet the needs of individual users or a small group of users in a shared environment.

How to Use

Use this table to view and compare these products based on their functions and key features. The table currently displays key features based on the primary function of these products (e.g. printing). To see key features of these products based on their additional functions, click one of the four function tabs below. To compare products according to one of these features (e.g. price), click a feature and the table will re-sort. Select an individual product for more detail.

PrintingCopyingScanningFaxing							
Product	Price \$	Print Resolution (dpi)	Print Speed	Max. Paper Size	Print Technology	Networkable	Collation Type
Xerox DocuPrint XJ6C P C S F	\$130.00	600 x 600 dpi B/W 600 x 600 dpi Color	5 ppm B/W 2 ppm Color	8.00 X 14.00	Xerox Color Inkjet	N/A	N/A
Xerox DocuPrint XJ6C P C S F	\$200.00	1200 x 1200 dpi B/W 1200 x 1200 dpi Color	8 ppm B/W 4 ppm Color	8.50 X 14.00	Xerox Color Inkjet	N/A	N/A
Xerox DocuPrint P8 P C S F	\$300.00	1800 x 600 with image enhancement, True 600 x 600 dpi B/W only	8 ppm B/W only	8.50 X 14.00	Laser	N/A	N/A
Xerox WorkCentre 450cp All-in-One P C S F	\$300.00	600 x 600 dpi B/W 600 x 600 dpi Color	7 ppm B/W 2 ppm Color	8.50 X 14.00	Inkjet	N/A	N/A
Xerox DocuPrint P8e P C S F	\$349.00	600 x 600 dpi B/W only	8 ppm B/W only	N/A	Laser	Not Available	N/A
Xerox WorkCentre XE80 Digital Copier / Laser Printer P C S F	\$460.00	600 x 600 dpi B/W only	8 ppm B/W only	8.50 X 14.00	Laser	N/A	N/A
Xerox WorkCentre XE82 Digital Copier / Laser Printer P C S F	\$460.00	600 x 600 dpi B/W only	8 ppm B/W only	8.50 X 14.00	Laser	N/A	N/A

www.xerox.com

Users always request easy ways of comparing products or other items discussed on a site. As long as information is restricted to individual product pages, it is hard for users to form an overview of the space and to understand where they should go. A comparison table is a nice way to reduce the amount of navigation and allow users to go straight to the one or two products they are really interested in.

[Find Your Car Now](#)

[Sell Your Car Free](#)

[New Car Info](#)

[Finance And Insurance](#)

[Reviews & Info](#)

[Find A Dealer](#)

Decision Guide

[Help](#)

[Home](#)

Decision Guide

Compare Cars

[Remove](#)



1999 Mercedes-Benz E430 4-Door Sedan 4.3

[Remove](#)



2000 BMW 540i 4-Door Sedan 4.4

[Choose Another Car](#)

This color highlights information you might find important.

General Information

Model Year	1999	2000
Car Type	Sedan	Sedan
Number of Doors	4-doors	4-doors
Seating Capacity	5	5
Model	E430	540i
Manufacturer	Mercedes-Benz	BMW
Country of Manufacturer	Germany	Germany
Origin of Assembly	Germany	Germany

Price

MSRP	\$51,300	\$51,100
Dealer Invoice	\$44,630	\$46,150
Destination Charge	\$595	\$570

Fuel Economy



The 1999 Mercedes-Benz E430 4-Door Sedan 4.3 gets at least 10 percent more overall miles per gallon than the 2000 BMW 540i 4-Door Sedan 4.4.

City Mileage	19 mpg	18 mpg
Highway Mileage	26 mpg	24 mpg
Fuel Tank Capacity	21.1 gallons	18.5 gallons

Safety

Safety Features

Anti-Lock Brakes	Yes	Yes
Driver-Side Airbag	Yes	Yes
Passenger-Side Airbag	Yes	Yes



These cars come with passenger-side airbags. Children in rear-facing car seats should not be placed in the passenger side unless the airbag can be disabled.

Traction Control	Yes	No
------------------	-----	----



This electronic control system prevents drive wheels from spinning on a low-traction surface by automatically applying brakes or reducing engine power.

Child Safety Locks	No	Yes
Integrated Child Seat	No	No
Child Seat Anchors	Yes	Yes

Also, a traditional application is an enclosed user interface experience. Although window systems allow application-switching and make multiple applications visible simultaneously, the user is fundamentally “in” a single application at any given time, and only that application’s commands and interaction conventions are active. Users spend relatively long periods of time in each application and become familiar with its features and design.

On the Web, users move between sites at a rapid pace, and the borders between different designs (sites) are fluid. It is rare for users to spend more than a few minutes at a time at any given site, and users’ navigation frequently takes them from site to site to site as they follow the hyperlinks. Because of this rapid movement, users feel that they are using the Web as a whole rather than any specific site. Users don’t want to read any manuals or help information for individual sites, but they do demand the ability to use a site on the basis of the web conventions they have picked up as an aggregate of their experience using other sites. In usability studies, users complain bitterly whenever they are exposed to sites with overly divergent ways of doing things. In other words, the Web as a whole has become a genre, and each site is interpreted relative to the rules of the genre.

Traditional GUIs are also part of a whole, of course, and it is advisable to follow the vendor’s design style guide because in the balance between individual design and the whole, the scale tips in favor of the whole for web designs. At the same time, we don’t have any established web design style guide that can dictate how designers should use their interface vocabulary to build sites that fit this whole. I am a strong proponent of getting an official set of web design conventions; but as long as we don’t have one, my advice to web designers is to design to fit in and to acknowledge that your site is not the center of the users’ universe. Users are going to move between sites, and we have to make it easy for them to use each new site as they go.

Help Users Manage Large Amounts of Information

Web navigation is a challenge because of the need to manage billions of information objects. Right now, the Web “only” has about a billion pages, but around 2005,

(Facing page) Dynamic comparison tables are a great way to enhance user control over a large and complex information space. By allowing users to list side by side the exact cars they are thinking of buying, the site can even highlight the most important differences or features that a buyer should pay attention to when contemplating these cars. I don’t think I would have highlighted passenger-side airbags when comparing two cars that both have this feature.

Design Creationism Versus Design Darwinism

With traditional GUIs we had the luxury of an initial phase of slow research and development at leading companies. Many years passed between the invention of ideas such as windows, menus, and icons, and the introduction of mass-market products. Much in-house experimentation was done by responsible user interface experts like the many researchers at Xerox PARC and Bruce Tognazzini at Apple. As a result, bad ideas were rejected, and good ideas were codified into guidelines before any GUIs were inflicted upon the average computer user. A GUI style guide was a carefully coordinated creation where the best ideas reinforced each other to form a pleasing and usable whole. In contrast, the Web is developing as we speak, and experiments happen on the open Internet with us all as test subjects—not in a videotaped usability lab. The result is a much harsher Design Darwinism, where ideas crash and burn in public. Eventually, the best design ideas will survive and bad ones will decline because users will abandon poorly designed sites.

there will be 10 billion pages online that can be reached from any Internet-connected device. Current user interfaces are simply not well suited to deal with such huge amounts of information. Virtually every current user interface is more or less a clone of the Macintosh user interface from 1984 (which again was a close copy of research at Xerox PARC in the late 1970s and early 1980s). The Mac was optimized to handle the few documents that an individual user would create and store on his or her disk. Even the PARC research was mostly aimed at office automation where the main goal was to support a workgroup and a few thousand documents. The Web, in contrast, is a shared information environment for millions of users (soon to be hundreds of millions of users) with incredibly many more documents.

Web browsers are applications in the style of the currently dominant UI paradigm, so they are inherently ill suited for the task of browsing the Web. Consider, for example, how a pull-down menu (even with pull-right submenus) is an extraordinarily weak way of organizing a user's bookmarks. Calling the menu "favorites" instead of "bookmarks" does not change its fundamental limitations.

Current software is extremely weak at addressing the Web's navigation problems, meaning that the designers of web *content* have to help solve the problem. Actually, the problems in navigating an information space as large as the Web are probably so hard to solve that we will need all the help we can get, both from better software *and* from better-designed content.

The Web's early days were dominated by simplistic hyper-text links: Everybody pointed to everybody else in a very unstructured manner. In fact, it was quite common to have *very* long lists of recommended links without much in the way of explaining *why* the links would be of interest to a user. The assumption was that the Web was so interesting and the users so curious, that they would check out all the links and be grateful the more links they got.

Long hotlists have certainly become less prevalent. Now, there is a renewed appreciation of the value of *selective linking*, where links have added value because they have been carefully chosen by an author to be the best or most relevant to that author's audience.

Microsoft

back to employment opportunities

Information

benefits interviewing regional highlights
microsoft culture event calendar

Here is a list of locations where our Microsoft recruiters will be in the next few months.

Current Recruiting Calendar

Society of Women Engineers	June 25 - 26	Albuquerque, NM
----------------------------	--------------	-----------------

To meet with us at one of these events, please [email](#) your resume to us in advance. Please indicate which event you are interested in on your resume. Qualified candidates will be contacted prior to the event for initial interviews.

www.microsoft.com

The top row of black buttons is standardized across the site and provides a clear sense of site-identification relative to the rest of the Web as well as an easy way of getting to the home page and to the search page. I would have preferred a more prominent placement of the search button, which seems somewhat lost between a series of less-important buttons. The real problem with this page is the highly confusing, second-level navigation bar. The layout of the five options under "Information" makes it look as if the local information space has two tracks, each with its logical sequence of pages. The current page is highlighted (good), but it's strange that it's the successor to "Microsoft culture" and not to "interviewing" because it concerns the scheduling of interviews. In general, a flow chart layout should be used only when the information space is in fact structured as an ordered sequence.

The "back to" link is a valuable navigation aid that allows user to easily move up a level, but the key phrase "employment opportunities" is rendered as a typographic mess that is inconsistent with the rest of the site, making it difficult to read the second-most-important word on the page, "employment." (The most important word on the page is obviously the site name, although there is no need to clutter up the navigation bar by listing it twice.) The page wastes an opportunity to serve its audience better: A link to the home page for the Society of Women Engineers event would have been very helpful to a potential recruit who was thinking of showing up to meet with the Microsoft recruiters.

One final issue is that I snapped this screenshot three days *after* the end of the Society of Women Engineers conference. Sites need to have procedures in place to remove outdated information immediately.



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Berst Alert

FRIDAY, AUGUST 27, 1999

Just-Add-Water Web Stores

Jesse Berst, Editorial Director
ZDNet AnchorDesk



[Go to Page 2 >](#)
[Web Store Resources](#)

My boss is coming to town next week. First time he's actually graced our doorstep. And in a lot of ways that's a good thing. Nothing like being 3,000 miles from corporate headquarters.

There are millions of small businesses and Web entrepreneurs who think the same way. They like their independence. They don't mind being 'small' -- long as they're in control of their destiny.

But you know what I think? I think they dream of the day the CEO of Amazon.com or CDnow acknowledges their presence. The day they're no longer just a niche site with a small but loyal following. New technologies and new product offerings make it easier than ever to be a cyberstore. Some companies will even do all the work for you -- and put your name on it. I'm not here to give you an exhaustive list -- I've linked more resources on Page 2. But here are ways the just-add-water storefront trend is shaping up:

All-in-one-kits: Affinia.com just launched a service enabling any Web site to quickly and easily create a customized shopping portal with products relevant to their audience -- for free. Site owners go to the Affinia site, choose products they want to promote from a database of over 1,000 merchants, pick a site design template they like -- then wait for their portion of the sale proceeds to arrive. The transaction processing, shipping and customer service chores are all handled by the merchants. [Click for more.](#)

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www.anchordesk.com

(Facing page) Jesse Berst's AnchorDesk places links to related, longer stories in the right margin. The left rail is dedicated to site-wide navigation, following a fairly common convention. Users will often overlook the left column completely (except if they deliberately want to locate a different part of the site). But the links on the right are a great way for Berst to recommend additional articles that are relevant to his current topic.

Future Navigation

We need to stop thinking of navigation as being the responsibility of either the browser or the server in isolation. Instead, it needs to become a shared responsibility of the client, the server, and shared resources such as proxy servers.

So, for example, I would expect the server to send a sitemap definition in XML to the client so that the browser can integrate it with maps of other regions of the Web frequented by the user and then generate a customized navigation map for that individual user. This map could then be annotated with quality ratings downloaded from a proxy server that kept track of what pages and/or sites the user's colleagues had found useful in the past. You could imagine a map of places to go that had been color-coded according to how many other users had found each area useful.

Sitemaps are becoming somewhat of a cliché. All users say they want sitemaps, and we even know from hypertext research that overview diagrams help users find information faster, so I am not opposed to sitemaps. But current sitemaps do not seem to help users much. For example, they lack the one feature that any mall-goer knows to be essential for a map: the “you are here” indicator. Many sites seem to design their sitemaps as a simple list of all their stuff. A better solution would be a dynamic sitemap that indicates the page from which it was accessed and that has ways of highlighting information of interest to specific user populations.

Reducing Navigational Clutter

We obviously cannot represent every single information object in a navigation UI (given that there are so many). Instead, designs must employ a variety of methods to reduce the clutter. Some useful methods are:

- **Aggregation** (showing a single unit that represents a collection of smaller ones). This can be done quite easily within a site (indeed, the very notion of a “site” is one useful level of aggregation, as are various levels of subsites), but it may be harder to aggregate across sites.
- **Summarization** (ways of representing a large amount of data by a smaller amount). Examples include the use of smaller images to represent larger ones and the use of abstracts to represent full documents. We need ways of summarizing large collections of information objects.
- **Filtering** (eliminating entire wads of stuff we don't care about). Collaborative filtering and quality-based filters are particularly useful (for example, only show stuff that other people have found to be valuable).
- **Truncation**. Cut off everything except the first initial parts of the information and let users click a “More...” link for the rest.
- **Example-based representations**. Instead of showing everything, show some representative examples and say something like “3 million more objects.”

Avoid 3D for Navigation

Every few months, the trade press reports a new technology to navigate websites in three dimensions. In particular, we see a lot of designs where users have to fly through a three-dimensional space in order to navigate. Most of these systems hurt users more than they help, for several reasons:

- Navigating a 3D space is in fact unnatural for us humans. It is much easier to learn to move on a surface than in a volume.
- Input and output devices are both 2D (typically a mouse and a screen), so the so-called 3D interfaces are in fact *projections* rather than true 3D, meaning that movements and manipulations are indirect and awkward.
- Information space is n -dimensional, where n is a very big number, so there is no inherent reason why a mapping to 3D should be any more natural than a mapping to 2D.

- Much of the information is hidden when the user has to fly through a 3D space, so it may in fact be harder to get an overview (which is the primary purpose of a navigation aid).
- None of these 3D interfaces have been subjected to user interface evaluations to measure whether users can perform any typical navigation tasks any faster than with a simpler 2D design. These designs may make for cool demos, but they never seem to actually help any real users perform any real tasks.

The bottom line is that 3D is no magic bullet that makes the navigation problem go away. Even if somebody makes a 3D interface that works, we still have the fundamental problems of structuring the information in a way that makes sense to the users and matches what they want to do.

Subsites

Web users need structure to make sense of the many and varied information spaces they navigate. The fundamental nature of the Web does not support any structure beyond the individual page, which is the only recognized unit of information.

Single pages are obviously not sufficient as a structuring mechanism, and from the early days of the Web, I have advocated an emphasis on the site as an additional fundamental structuring unit. Because a single click can take the user to the other end of the world, every page needs to provide users with a sense of place and tell them where they have landed.

Explicit recognition of the site as a structuring mechanism is important for web usability, but most websites are much too large for the site level to provide the only structure. Much information can be hierarchically organized, and so an explicit representation of the hierarchy can be added to

the top of the page to provide additional context and navigation options. For example, the intranet for the hypothetical BigCo company might have the following list of the nested hierarchy leading to the home page for the Stockholm office:

BigCoWeb -> Sales -> European Region ->
Sweden -> Stockholm Office

Each of the elements in the hierarchy list should be made a hyperlink to the appropriate top page for that level of the hierarchy. Note that the name of the lowest level of the hierarchy (here, Stockholm Office) should not be a link when displayed on the top page for that level.

However, even the lowest-level name should be made active when displayed on a leaf page on that top level.

For information spaces that cannot easily be hierarchically structured, the subsite can be used as a helpful additional structuring mechanism. Subsites can also be used in hierarchical information spaces to give particular prominence to a certain level of the hierarchy, which is used as the subsite designator.

By *subsite*, I simply mean a collection of web pages within a larger site that have been given a common style and a shared navigation mechanism. This collection of pages can be a flat space, or it can have some internal structure, but in any case it should probably have a single page that can be designated the home page of the subsite. Each of the pages within the subsite should have a link pointing back to the subsite home page as well as a link to the home page for the entire site. Also, the subsite should have global navigation options (for example, to the site home page and to a site-wide search) in addition to its local navigation.

Subsites are a way of handling the complexity of large websites with thousands or even hundreds of thousands of pages. By giving a more local structure to a corner of the information space, a subsite can help users feel welcome in the part of a site that is of most importance to them. Also, a large site will often contain heterogeneous information that cannot all be squeezed into a single standard structure, so the capability to have subsites with somewhat different look-and-feel can provide an improved user experience. A subsite is a home environment for a specific class of users

or a specific type of usage within a larger and more general site.

There is a tension between the desire of the subsite designer to optimize fully for the specific needs of local information versus the need for consistency across the entire site. Subsites should definitely not aspire to become independent sites with no relation to the parent site of which they are part and which should provide them with context and richness.

A good example of a subsite done right is ZDNet's AnchorDesk. AnchorDesk provides a platform for the respected computer industry commentator Jesse Berst to discuss current events in computing and pull together recommended links to additional information from across the rest of the Ziff-Davis site. The AnchorDesk subsite uses human editing as a guide to an otherwise overwhelming information space and has value-added use of hyperlinks to provide the foundation for the commentary.

Search Capabilities

My usability studies show that slightly more than half of all users are search-dominant, about a fifth of the users are link-dominant, and the rest exhibit mixed behavior. The *search-dominant users* will usually go straight for the search button when they enter a website. They are not interested in looking around the site; they are task-focused and want to find specific information as fast as possible. In contrast, the *link-dominant users* prefer to follow the links around a site. Even when they want to find specific information, they will initially try to get to it by following promising links from the home page. Only when they get hopelessly lost will link-dominant users admit defeat and use a search command. *Mixed-behavior users* switch between search and link-following, depending on what seems most promising to them at any given time, but they do not have an inherent preference.

Despite the primacy of search, web design still needs to be grounded in a strong sense of structure and navigation support. All pages must make it clear where they fit in the larger scheme of the site. First, there is obviously a need to support those users who don't like search or who belong to the mixed-behavior group. Second, users who do use

Don't Search the Web

For unknown reasons, many websites feel compelled to offer a search-engine feature that allows users to choose whether to search the current site or the entire Internet. This is a bad idea. People know where to find a web-wide search engine; these sites are the most used services on the Web. There is no need to clutter up your interface with one more option that has so little utility.

Micro-Navigation

In addition to moving across the expanse of the site, users also need to move around inside a local region of the site. They even need to be able to move between the pages that constitute a single “package,” such as an article with sidebars or a product page.

search to get to a page still need structure to understand the nature of the page relative to the rest of the site. They also need navigation to move around the site in the neighborhood of the page they found by searching. It is a rare case that a single page holds all the answers, so normally users also want to see related pages.

Search should be easily available from every single page on the site. Search-dominant users will often click on a search button right on the home page, but other users may move around until they become lost. Once that happens, you don’t want them to have to search for the search, so it should be right there on the page. This means *any* page because you can’t predict when users will give up navigating and look for the search button.

Sometimes, special areas of a site are sufficiently coherent and distinct from the rest of the site that it makes sense to offer a scoped search that is restricted to only search that subsite. In general, I warn against scoped search because our observations have shown that users often don’t understand the structure of sites. It is quite common for users to believe that the answer is in the wrong subsite, meaning that they will never find it in a scoped search. Other times, users don’t realize where they are and what scope they are searching, so they may think that they are searching the entire site or a different subsite than the one they are actually in.

In contemplating a scoped search option, designers should have a strong bias in favor of avoiding scoping. If the site in fact has subsites that necessitate scoped search, then all scoped search pages must do two things:

- Explicitly state what scope is being searched. This should be indicated at the top of both the query page and the results page.
- Include a link to the page that searches the entire site. Again, this link needs to be on both the query page and the results page. On the results page it should be encoded as a link saying something like “Didn’t find what you were looking for? Try to extend your search to the entire Foo.com site.” Following this latter link should activate the global search with the same query as used for the scoped search, and it should take the user directly to the results page for the expanded search.

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[Search](#)



Search

You can search through Bill's speeches and articles using the form below.

Search ☒ All Text ☐ Speeches ☐ Columns

How many search results do you want listed?



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Last Updated Wednesday, January 29, 1997

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www.microsoft.com

At first sight it may seem strange to consider Bill Gates' speeches and columns to be a subsite, but considering his many fans (and opponents) it is actually quite likely that many users will be interested in finding Bill-quotes. This subsite search is well-designed in most ways: It is clear that it is searching a subsite, and the subsite is well-defined. I doubt any users will try to use this page when searching for a workaround to the latest Excel bug.

I only have two problems with this page. There should be an explicit link to searching the full Microsoft site, and the type-in box should be wider to encourage users to enter more terms. The top navigation bar does include a button for global search, but considering the many occurrences of the word "search" on this page, I would have preferred an explicit link located in the content of the page. Very few users will look above the colored "Bill Gates" bar.

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Jakob Nielsen: Designing Web Usability

Global Search

The default for a search engine should be to search the entire site. Users don't necessarily realize what part of the site they are currently on, so if the search defaults to only searching the current subsite, they may think that they have searched the entire site or even that they have searched a different subsite.

Advanced Search

Boolean search should be avoided because all experience shows that users cannot use it correctly. We have studied many groups of users who have been given tasks like this:

You have the following pets:

- cats
- dogs

Find information about your pets.

Almost all users will enter the following query:

cats AND dogs

In our studies, users typically do not find anything with this query, because our test site does not include any pages that mention both animals. Upon encountering a “no hits found” message, the vast majority of users conclude that there is no information available about these pets. Even experienced programmers will normally use the erroneous query. The main difference is that when the geeks get the null result, they typically say, “Oh, yes, I should have used an OR instead of the AND.”

Unfortunately, most users have not been taught debugging, so they are very poor at query reformulation. This is why I recommend minimal use of scoped search and no use of Boolean search in the primary search interface. Advanced search is fine if offered on a page *different* from the simple search. The advanced search page can provide a variety of fancy options, including Boolean, scopes, and various parametric searches (e.g., only find pages added or changed after a certain date). It is important to use an intimidating name like “advanced search” to scare off novice users from getting into the page and hurting themselves. Search is one of the few cases where I do recommend shaping the user's behavior by intimidation.

In general, computers are good at looking at long lists of stuff and remembering whether any alternative words exist that should be searched for. Users are notoriously bad at this exact same task, so it is pretty clear what a well-designed search system should do. The system should perform spelling checks (both for user queries and for document terms), and it should offer synonym expansion.

AnswerBook2 · Personal Library · Search Results

install AND printer
☒ Personal Library ☐ Complete Library [Tips](#)

Results of search across personal library for: **install AND printer**

Solaris 2.6 Software Developer AnswerBook Vol 2

Solaris X Window System Developer's Guide

[Installing and Managing Fonts](#)

To improve your search results:

- Try different words
- Try the same words, but select **Complete Library**
- Try a more advanced search... [Tips](#)

install AND printer
☒ Personal Library ☐ Complete Library [Tips](#)

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docs.sun.com

(Above) Sun's *AnswerBook2* web-based documentation interface uses scoped search: Each user can set up a so-called personal library with a list of those parts of the large information space that normally is of interest to them. By default, the search uses this personal library as the search scope. In this example, only one, and not very promising, hit was found for the user's search.

Below the list of search hits are suggestions for how to improve the search. We tried many different placements for these instructions, and the one just below the search hits proved to be the best. When users get to this part of the page, they're motivated to read about ways to improve their search. Without the instructions, many users overlooked the option to search the complete library and so never found any information that was not within their initial search scope.

(Facing page) To get this page, the *AnswerBook2* user has repeated the search, but this time with the search scope set to the complete library. Many more hits were found, including many good ones in the System Administrator collection. Apparently, the problem the user wanted to read about (installing printers) was considered a system administration task by the designers of the documentation. Because the set of online documentation is a structured information space, the search results list can present the search hits in context, which makes it obvious to the user that most of the promising hits are in the System Administrator collection.

The use of book icons (and indeed the very name of the online documentation) indicates a book metaphor that is emphasized by terms such as "personal library." In general, book metaphors are probably not the best for hypertext, but it is a good match for this particular information space, which is highly structured with all information about a certain domain made into a "book."



Search

☐ Personal Library ☒ Complete Library [Tips](#)

Results of search across complete library for: **install AND printer**



Solaris 2.6 System Administrator Collection Vol 1



System Administration Guide



[Managing Printing Services](#)



[Managing Fonts](#)



[Planning for Printer Setup](#)



[Adding a Network Printer](#)



[Setting Up a Print Server](#)



Font Administrator User's Guide



[To Install Fonts](#)



Solaris 1.x to 2.x Transition Guide



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[How This Guide Is Organized](#)



[Transition Information for Users and System Administrators](#)



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Solaris 2.6 Software Developer AnswerBook Vol 2



Solaris X Window System Developer's Guide



[Installing and Managing Fonts](#)



Solaris 2.6 on Sun Hardware AnswerBook



SunVTS 2.1 Test Reference Manual



[spptest Error Messages](#)

The screenshot shows the Barnes & Noble website's search interface. At the top, there are navigation tabs for Books, Music, Software, Magazines, and Bargains. Below these are links for Advanced Search, Browse Subjects, Top Picks, Gifts, and Computer Books. A search bar is present with a dropdown menu set to 'Title' and a 'Search' button. On the left sidebar, there's a 'Refine Search' button and a section titled 'Narrow my results by these available options:' with links for 'New and Forthcoming', 'all formats', and 'all prices'. The main content area displays 'Book Search Results' for the query 'Nielson, Jacob'. It states that there are no exact matches but found 13 titles. The first result is 'Usability Engineering' by Jakob Nielsen, published in October 1995 for \$34.00. The page also includes a 'Re-sort' option and a link to buy the book or read more about it.

www.bn.com

Barnes & Noble's search engine conducts a spelling check on the user's query terms when it doesn't find any matches. In this case, the user could misspell my name (which is done very frequently) and still find my books. As an interesting aside, note that this spelling correction also handles cases where the user spelled the name correctly but the site had a spelling error in its database.

The Search Results Page

The search results page should have a sorted list of hits with the best hits at the top. Some search engines list search scores next to the hits, but because users don't understand how these scores are computed they are essentially meaningless. As long as the best hits are at the top, users can easily start scanning the list from the top and will automatically see the most important hits first without wasting time trying to interpret search scores.

The search results list should eliminate duplicate occurrences of the same page. In particular, it is quite common to see the default page in a directory listed multiple times with slightly varying URLs. On many servers, the following three URLs will point to the same page:

```
http://www.foo.com/bar
http://www.foo.com/bar/
http://www.foo.com/bar/index.html
```

Even though these URLs are distinct in principle (that is, they *could* point to different pages under certain conditions), they should be unified and listed only once in the search results listing. It is very confusing for users if they click on different links and get the same result.

Search systems should also explicitly recognize quality in addition to relevance when prioritizing search hits. For example, if the site has a FAQ about the user's query term, then the FAQ page should be listed on the top of the results page even if other pages have higher relevance scores. After all, it is likely that a FAQ is of higher quality with respect to answering the user's questions. It would also be possible to build up a database of quality ratings for each of the pages on the site relative to each of the more popular search terms. For example, every time users follow a link from a results list to a page, they are asked how well that page satisfies their search, and the ratings are then saved and used to prioritize the results list for future searches.

Traditionally, the chunking unit for web search has been the page. In other words, the search output is a list of pages that match the user's query. Unfortunately, most of these lists of pages have no indication of the relation between the pages that were found. It would be better to structure the search results relative to the structure of the site. For example, if many pages were found within a single subsite, then it might be better to cluster all these hits into a single entry on the search results page. Sometimes, it may even make sense to chunk the search by larger units than the pages. For example, an advanced search of a site with many distinct subsites could initially use the subsites as the chunks and list those subsites that, taken as a whole, were good matches for the user's query. The user could then search these subsites further.

(Following page) MaMaMedia integrates a structural overview into its search results pages. When doing a search on the term "bird," the user retrieves pages both about birds as animals and about birds as pets (as well as pages about dinosaurs). The difference in emphasis between the different pages is made clear while the child is still on the search results lists, thus eliminating the need to spend time going to some pages only to read about the wrong topic.

Page Descriptions and Keywords

Some of the Internet-wide search engines show the author's abstract of the page instead of trying to generate their own summary text. In general, I favor this approach because humans are still better than computers at deciding what a page is really about and at writing readable text. The page abstract is contained in a META tag with the

[Mail](#)
[Surf Picks](#)
[Map](#)
[Help](#)
[Romp](#)

check it out!

The curtain's up on **Showtime Combo**

Type in the topic you want to search for websites about...

Searching on the keyword(s) **bird**.
Found 7 sites:

		<p>Nature Pix</p> <p>Harry Bowden- Nature Photographer</p>
		<p>A Great Site!</p> <p>Sandy Creek Nature Center</p>
		<p>Bird Images</p> <p>Photovault Bird Master Page</p>
		<p>Dinosaurs</p> <p>Dinosaurs in New Mexico</p>
		<p>PetStation Birds</p> <p>PetStation Bird-Barn</p>

www.mamamedia.com

Use a Wide Search Box

Most search engines provide more precise results when the user enters more words in the query. And yet users are notorious for entering very short queries. Maybe the search engine design shares part of the blame. Jussi Karlgren and Kristofer Franzén from Stockholm University conducted a small experiment where they had students use the same web-site with two different text entry boxes for the search engine. On average, the students entered 2.8 words per query when using the version of the site with a small text box, but when using a design with a much larger text entry box, the students entered 3.4 words on average.

This result makes sense from a usability perspective for two reasons. First, users don't like to enter something they can't see, so they will be reluctant to type any more than the number of characters that are visible at any given time in the text field. So, even if the entry field scrolls, people will often not type longer queries than it can hold. Second, the very size of the query box sets some expectations regarding the probable size of the query string.

name "description" in the page header. The format for these abstracts is

```
<META NAME="description" CONTENT="This is a summary of  
the content of this page">
```

Deciding the best length of a page abstract for a search-results listing is a trade-off between providing a good prospective view of the possible destinations and providing an overview of the full set of alternatives; long abstracts are better at allowing users to assess each individual page but make it more difficult for users to compare destinations without excessive scrolling. In almost all cases, some form of abstract is necessary because the page titles alone are not sufficient to allow users to guess what the pages are truly about.

Page abstracts should be kept short. Most search engines display only the first 150 or 200 characters of the description text, so it is best to stay below this limit when writing pages for the open Internet. Even if you are using your own search engine, it is still best to have very short abstracts because users are more likely to scan the abstracts than to read them in full.

In addition to descriptions, it is also common to add a list of keywords in a META tag in the page header. Typically, the keywords are not displayed in research results lists but instead are used only to determine the relative ranking of the retrieved pages: A page is assumed to be mainly about the terms included in its keyword list.

The keywords list should include both simple terms (e.g., "bus") and compound terms (e.g., "double-decker bus") because users search surprisingly frequently for multi-word terms. In pre-Web search studies, we used to find that users were overwhelmingly most likely to enter single-word queries. For example, in a study of a traditional online documentation system, Meghan Ede and I found that 81 percent of the users' queries consisted of a single word. Maybe the overwhelming amount of information on the Web has forced users to be more precise in their queries. Whatever the reason, single-word queries are not quite as common as they used to be. In 1997, I analyzed 2,261 queries from WebCrawler and 24,743 queries from www.sun.com. In both cases, I found substantially more two-word queries as well as longer queries.

[Search Tips](#)
[Search Options](#)

[Click Here!](#)

Top 40 matches by website

[View by Document](#)

[www.useit.com](#)

- 83% [Designing User Interfaces for International Use](#) [\[More Like This\]](#)
- 80% [Jakob Nielsen Biography](#) [\[More Like This\]](#)
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[www.world-ready.com](#)

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www.excite.com

Sites are an important unit of hierarchy on the Web, so clustering search hits by the site they belong to is a great way of making users see the forest for the trees of pages in their search results. In this example, I would probably have sorted [www.world-ready.com](#) above [www.useit.com](#) because it would seem to be more important to have 50 percent more pages about the query than to have whether the highest scoring page on the site scores 83 or 82.


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- [Why should I buy a computer monitor when a TV is less expensive?](#) [Hardware, 1997-05-01]

www.zdnet.com

Clustering also works for searches within a single website, although the structuring mechanism obviously needs to be different. For example, results could be structured by subsite or by category as done in this example from ZDNet. Also note the

use of shortcut links to the most important areas of the site of interest to the user's query. I am less enamored with the advertising search box: Even though it is clearly marked as an ad, it intrudes too much on the user.



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Yellow Pages Search

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[Digital Library Design for Organizational Usability Rob Kling and Margaret](#)

Elliott Computing, Organizations, Policy and Society (CORPS) Department of Information and Computer Science and Center for Research on Information Technology in Organizations

www.infoseek.com

Note how pages that provide human-written descriptions make it much easier for the user to determine whether the page is of interest. Compare, for example, the first and second hits on this page: The first hit is represented by Infoseek's automatically generated summary of the page, and the second page is represented by a real abstract. Also note on this page how the search engine tries to identify a few alternative phrases that might be used for query reformulation. I searched on

"usability," so the suggestion to search for "user interface" would most likely be helpful and would find pages that were missed by the original search. Obviously, the system's capability to find relevant alternatives is limited, as shown by its second suggestion, "Computer science institutes in Georgia." (Even though there is one such institute that does usability research, there are much better alternative queries.)

Distribution of the number of terms used in search queries in a traditional, pre-Web system and in two web search engines.

	Pre-Web Search	Webcrawler	www.sun.com
1 word	81%	43%	46%
2 words	14%	35%	32%
3 words	4%	13%	15%
4 words	1%	6%	5%
5 words or more	0%	3%	2%

Even though the profusion of material on the Web has encouraged longer queries, it is still true that the vast majority of queries are one or two words. Such ultra-short queries made up more than three quarters of the searches in my sample. The lesson for web designers is the need to use focused and highly descriptive keywords in your META tags, because keyword searches are the way most users will find you. Also, you need to add keywords for all the main synonyms for your topic. In particular, add alternative keywords for any terms used by your competitors to refer to the kind of product you are selling. For example, a page about hard disks should have the acronym DASD as a keyword because many traditional IBM customers will be used to calling disks DASD (direct-access storage devices).

It is unfortunate that people tend to use short searches because search engines are better at finding relevant pages the more information they have about the user's needs. Typically, the way to provide more information about your needs involves specifying additional search terms, including synonyms or alternate phrases. Doing so is hard, and people are notoriously bad at thinking of synonyms. Also, of course, natural laziness encourages users to type as little as possible. Because of these problems with traditional keyword search, search engines need to take on more of the responsibility for allowing users to enhance their searches.

See What People Search For

Several of the major Internet search engines have a service where you can view random samples of the queries entered by other users. It is quite interesting to spend a few moments to look at the ways people phrase queries and try to estimate what they might be trying to find. Searches provide first-hand insights into users' wants. (The Webcrawler service I used to collect the statistics discussed in this chapter is at <http://webcrawler.com/cgi-bin/SearchTicker>.)

In addition to looking at people who search the open Internet, you should also study the search logs from your own site search. Any terms that occur frequently in your search logs obviously represent information that many users want to get but have trouble finding on your site.

Search Destination Design

When the user follows a link from a search results listing, the destination page should be presented in context of the user's search. Doing so requires use of a document management system that can construct dynamic pages that change presentation depending on the user's specific search. In principle, destination pages should adapt to the user's search in all cases, but in practice, it is normally only feasible to do so for searches from the site's own search engine. Users who arrive from Internet-wide search engines like Infoseek will probably get static pages because of lack of integration between the site and the search engine.

The most common way to enhance a search destination page is to highlight all occurrences of the user's search terms. By doing so, users can more rapidly scan the page to pick out those parts of the page that describe the topic of interest. Helping users find their search terms on your page also makes it faster for them to assess why the search engine included the page in the results listing and whether the use of the search terms on the page is relevant to their needs.

(Facing page) In my opinion, Infoseek has the easiest interface for expanding the user's search with related terms. The search engine selects a small number of related terms, meaning that the user will often take the time to read them and consider whether they would be useful search alternatives. Also, repeating the search with a new term is a simple matter of clicking the desired term. Unfortunately, the desire to highlight the advertisement has led to a large distance and a visually intrusive interruption between the user's search term (here "web usability") and the suggested related topics. Many users are probably going to overlook the related topics because they tend to disappear in the clutter in the upper and left parts of the page.

Integrating Sites and Search Engines

It would be pretty easy to integrate sites more closely with search engines. If search engines would agree on a standardized method for encoding the user's query terms, then many sites would probably make the effort to serve programmatically defined pages that highlighted occurrences of the query term.

It should also be possible for search engines to present search results in a more structured manner if they download sitemap definition

files and use them to derive the structure of each site's information space. If, for example, a given site has five pages with hits for a given query, and four of these hits are in one closely related set of pages, then the search results list should probably list two hits for the site. The group of four pages should be represented by a single reference to the center, or most important, of the pages (with an icon indicating that the hit represents a cluster of pages).



Infoseek Home

infoseek®

BigYellow
Yellow Pages Search

UPS
UPS**Services

You searched for **Web usability**

Sites 1 - 10 of 4,661,025



The All in One
Webserver Appliance

→ **CLICK HERE!**

[Click here](#)

news center

[Intergraph Announces
Solid Edge Version 3.5,
Sheet Metal Design
Tools Deliver
Unprecedented Usa](#)

smart info

[People & Business
Stocks/Companies
Street Maps
Shareware/Chat
Desk Reference
Infoseek Investor](#)

company capsules:

[E&D Web, Inc.](#)

[Continental Web
Press, Inc.](#)

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big yellow

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☒ Search **only** these results ☐ Search **the whole Web**

Sites 1 - 10 of 4,661,025 [Hide Summaries](#) [next 10](#)

[webhci List Archive: ideas for Web usability symposium at CHI 97](#)

ACM List Archives webhci List Archive ideas for Web usability symposium at CHI 97 Keith Instone (instone@cs.bgsu.edu) Thu, 16 May 1996 14:01:17 -0400 Messages sorted by: [date] [...

100% <http://www.acm.org/archives/webhci/0009.html> (Size 10.3K)

[Report on the "Missing Link" Web Usability Symposium](#)

An earlier version of this is published as: The Missing Link: Hypermedia Usability Research & The Web. Buckingham Shum, S. (1996). Interfaces, British HCI Group Magazine, Summer, ...

100% <http://kmi.open.ac.uk/~simonb/missing-link/ml-report.html> (Size 47.4K)

["Missing Link" Web Usability Symposium](#)

HCI Grp logo A Symposium in Association with The British HCI Group & Special Issue of the International Journal of Human-Computer Studies The Missing Link: Hypermedia Usability ...

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[Alertbox: Jakob Nielsen's Column on Web Usability](#)

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www.infoseek.com



TIP: queries with two or more words match documents containing **ANY** of the words. You might get better results by using a more focused query, e.g., [Web +usability](#) or ["Web usability"](#).

Submit
Reset

Include/exclude a few words out of the following topics to refine your query: [Usability](#), [Functionality](#), [Interfaces](#), [Usable](#), [Users](#), [Interaction](#), [Testing](#), [Software](#), [Developers](#), [Windows](#), [Environments](#), [Enhancements](#), [Intuitive](#), [Prototype](#), [Ease](#), [Multimedia](#), [Evaluation](#), [Designers](#), [Platforms](#), [Client](#).

✗✓ Usability <input type="checkbox"/> usability <input type="checkbox"/> user <input type="checkbox"/> design <input type="checkbox"/> interface <input type="checkbox"/> designing	✗✓ Functionality <input type="checkbox"/> functionality <input type="checkbox"/> application <input type="checkbox"/> robust	✗✓ Interfaces <input type="checkbox"/> interfaces <input type="checkbox"/> graphical <input type="checkbox"/> gui <input type="checkbox"/> guis	✗✓ Usable <input type="checkbox"/> usable <input type="checkbox"/> prototyping <input type="checkbox"/> centered
✗✓ Users <input type="checkbox"/> users <input type="checkbox"/> tasks <input type="checkbox"/> task	✗✓ Interaction <input type="checkbox"/> interaction <input type="checkbox"/> hci <input type="checkbox"/> cognitive <input type="checkbox"/> human <input type="checkbox"/> factors <input type="checkbox"/> ergonomics <input type="checkbox"/> computer <input type="checkbox"/> ergonomic	✗✓ Testing <input type="checkbox"/> testing <input type="checkbox"/> test <input type="checkbox"/> tests	✗✓ Software <input type="checkbox"/> software <input type="checkbox"/> engineering <input type="checkbox"/> reliability <input type="checkbox"/> metrics <input type="checkbox"/> maintainability
✗✓ Developers <input type="checkbox"/> developers <input type="checkbox"/> developer <input type="checkbox"/> methodology <input type="checkbox"/> methodologies <input type="checkbox"/> development	✗✓ Windows <input type="checkbox"/> windows <input type="checkbox"/> applications <input type="checkbox"/> desktop <input type="checkbox"/> compatibility <input type="checkbox"/> microsoft <input type="checkbox"/> operating <input type="checkbox"/> dos	✗✓ Environments <input type="checkbox"/> environments <input type="checkbox"/> visualization <input type="checkbox"/> gvu <input type="checkbox"/> virtual <input type="checkbox"/> environment <input type="checkbox"/> surveys <input type="checkbox"/> reality	✗✓ Enhancements <input type="checkbox"/> enhancements <input type="checkbox"/> enhanced <input type="checkbox"/> improved <input type="checkbox"/> upgrade <input type="checkbox"/> version <input type="checkbox"/> release <input type="checkbox"/> versions <input type="checkbox"/> upgrades
✗✓ Intuitive <input type="checkbox"/> intuitive <input type="checkbox"/> compliant <input type="checkbox"/> easier	✗✓ Prototype <input type="checkbox"/> prototype <input type="checkbox"/> prototypes <input type="checkbox"/> iterative	✗✓ Ease <input type="checkbox"/> ease <input type="checkbox"/> product <input type="checkbox"/> flexibility	✗✓ Multimedia <input type="checkbox"/> multimedia <input type="checkbox"/> authoring <input type="checkbox"/> interactive <input type="checkbox"/> interactivity
✗✓ Evaluation <input type="checkbox"/> evaluation <input type="checkbox"/> evaluating <input type="checkbox"/> evaluations <input type="checkbox"/> nielsen <input type="checkbox"/> heuristic <input type="checkbox"/> jakob <input type="checkbox"/> evaluators	✗✓ Designers <input type="checkbox"/> designers <input type="checkbox"/> programmers <input type="checkbox"/> designer	✗✓ Platforms <input type="checkbox"/> platforms <input type="checkbox"/> platform <input type="checkbox"/> unix	✗✓ Client <input type="checkbox"/> client <input type="checkbox"/> relational <input type="checkbox"/> server <input type="checkbox"/> databases <input type="checkbox"/> database <input type="checkbox"/> servers <input type="checkbox"/> sql <input type="checkbox"/> odbc

www.altavista.com

AltaVista seems to overwhelm the user with too many options and alternative terms. Some expert users may appreciate this extensive listing of alternative search terms, but most users are likely to be scared away from the otherwise very useful

ability to rephrase their queries. I would have preferred a design with a smaller number of options that were linked to this huge table as an "expert search."



[Click Here for the HomeArts Network!](#)

[Search Tips](#) [Power Search](#)

[Select words to add to your search...](#) ☐ css ☐ stylesheets ☐ sheet ☐ hotmetal ☐ raggett
☐ wdl ☐ dsssl ☐ winmosaic ☐ thalia ☐ stylesheet

Top 10 of 1011064 matches.

[View Titles only](#) [View by Web Site](#)

89% SoftQuad: Products: HoTMetal PRO [\[More Like This\]](#)

URL: <http://www.sq.com/products/hotmetal/hmp-org.htm>

Summary: ..In my gigantic October 1995 column I recommended version 2.0 of this product. . If you're planning on linking to us from your site, please link to this page (<http://www>).

87% HyperText Markup Language (HTML): Workin... [\[More Like This\]](#)

URL: <http://www.w3.org/pub/WWW/MarkUp/MarkUp.html>

Summary: When a user clicks on a link, the URL of the page containing the link is passed to the server along with the requested URL. The W3C HTML 3.2 Recommendation defines conformance of HTML documents (web pages) and certain aspects of HTML user agents (web browsers).

87% Cascading Style Sheets [\[More Like This\]](#)

URL: <http://jaring.nmhu.edu/NOTES/cascade.htm>

Summary: Cascading Style Sheets (CSS) is a mechanism for allowing web authors and readers to attach styles including fonts, colors, etc. Authors can attach styles to their HTML documents whild readers may have their own personal style sheets.

87% Guide to Cascading Style Sheets [\[More Like This\]](#)

URL: <http://www.htmlhelp.com/reference/css/>

Summary: . Change the appearance of hundreds of Web pages by changing just one file. An introduction to the various kinds of selectors, pseudo-classes, pseudo-elements, and cascading order.

87% Cascading Style Sheets [\[More Like This\]](#)

URL: <http://jedi.dmu.ac.uk/JEDI/d3/node24.html>

Summary: <HTML> <HEAD> <TITLE>title</TITLE\$> <LINK REL=STYLESHEET TYPE="text/css" HREF="http://style.

Click on "More Like This" when you want a list of documents similar to a document you really like.

87% CGI.pm - a Perl5 CGI Library [\[More Like This\]](#)

URL: http://www-genome.wi.mit.edu/ftp/pub/software/WWW/cgi_docs.html

Summary: \$query->param('foo','an','array','of','values'); -or- \$query->param(-name=>'foo',-values=>['an','array','of','values']); This sets the value for the named parameter 'foo' to one or more values.

www.excite.com

Excite also provides a way to add synonyms. In this example, it would be useful to search for "css" if the user was interested in "cascading style sheets." More important, each search hit has a "more like this" link that performs relevance feedback and searches for pages that are similar to the one the user liked. In principle, it would be better to have a "find more like this" button on the actual destination pages, but doing so would require integration between the site and the search engine. In this figure, a reasonably subtle background color is used

to enclose the available search options and set them apart, leading to a less busy appearance than Infoseek or AltaVista. Putting the hint about the meaning of the "more like this" buttons into the middle of the search results listing is a rather unconventional design, but it does seem to work: The user's eye is caught by the change in background color and layout, and the matching colors lead to a unification of the hint with the main search area at the top of the page.



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HOME | ABOUT | HELP |

MONEY SHOPPING HEALTH TRAVEL ENTERTAINMENT COMPUTERS FAMILY

Ask a new question:



You asked: **Who wrote the Gettysburg Address?**

I know the answer to the following questions. Click the **Ask!** button next to the best one.



Where can I read the U.S. historical document

?



Where can I learn about the Civil War topic

?



Where can I find advice for writing ?



Where can I find an introduction to the American History topic

?

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I have also found these links through search engines:



9 matches by [WebCrawler](#)



10 matches by [Infoseek](#)



6 matches by [Excite](#)



4 matches by [AltaVista](#)



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www.askjeeves.com



10 results

Google Search

I'm feeling lucky

At least **477** matches for **Gettysburg Address**

Showing results 1-10, Search took 0.18 seconds

Clicking on a red bar searches for backlinks (citations).

[How do I interpret the results?](#)**The Gettysburg Address**

...The **Gettysburg Address** Delivered at **Gettysburg** on November...
...survey. Drafts of the **Gettysburg Address** Transcriptions of...
lcweb.loc.gov/exhibits/gadd/ [Cached \(3k\)](#)

lcweb.loc.gov/exhibits/G.Address/ga.html**Other Languages: Gettysburg Address**

...The **Gettysburg Address** The **Gettysburg Address** in...
...**Gettysburg Address** in Other Languages **Gettysburg**...
lcweb.loc.gov/exhibits/gadd/4418.html [Cached \(1k\)](#)

REASON: The Gettysburg Address

...The **Gettysburg Address** Transcriptions of Lincoln's...
...These images are of the **Gettysburg Address** in twenty-nine (29)...
lcweb.loc.gov/exhibits/gadd/gtran.html [Cached \(3k\)](#)

jefferson.village.virginia.edu/readings/gettysburg.txt

...THE **GETTYSBURG ADDRESS**: Four score and seven years ago our fathers...
[Cached \(2k\)](#)

The Gettysburg Address by Abraham Lincoln

...The **Gettysburg Address** by Abraham Lincoln "Fourscore and seven...
www.cs.indiana.edu/statecraft/gettysburg.html [Cached \(2k\)](#)

USA: Gettysbur address

...Lincoln The **Gettysburg Address** Text prepared for The...
odur.let.rug.nl/~usa/P/al16/speeches/gettys.htm [Cached \(5k\)](#)

Lincoln's Gettysburg Address

...Lincoln's **Gettysburg Address**, given November 19, 1863 on the...
...1863 on the battlefield near **Gettysburg**, Pennsylvania, USA Four score and...
libertyonline.hypermall.com/Lincoln/gettysburg.html [Cached \(2k\)](#)

www.google.com

Natural language search engines get much attention but are rarely great for usability. It is extra work for the user to formulate an entire question, and people prefer typing in a small number of keywords. Also, the search engines are not truly capable of understanding human language, so it is misleading to pretend that they do. In this example, asking the natural language question "Who wrote the Gettysburg Address?" on AskJeeves results in many hits that are relevant to the docu-

ment but not to the authorship. It would almost certainly be possible to find the answer to the question through one of the links, but it is easier to simply type the relevant keywords "Gettysburg Address" into Google because the answer is right on the results page in the title of two of the hits. Google places the full text of the Address as the first hit because it doesn't know that we were interested specifically in authorship.

Search
☐ This Book
 ☒ Personal Library
 [Tips](#)

Setting Definitions for Printers

Establishing definitions for the printers on your network is an ongoing task that lets you provide a more effective print environment for users. For example, you can assign parameters for all your site's printers to help users find where a printer is located, or you can define a class of printers to provide the fastest turnaround for print requests.

The **lpadmin** command lets you set all of the print definitions, while Admintool lets you set only some of them when you **install** or modify a **printer**. [Print Definitions Set With Admintool](#) lists the print definitions and shows whether you can assign the definition with Admintool.

Print Definitions Set With Admintool

Print Definition	Can You Set It With Admintool?
Printer name	Yes
Printer description	Yes
Printer port	Yes
Printer type	Yes
File contents	Yes, but with less functionality than the lpadmin command

docs.sun.com

Sun's *AnswerBook2* web-based online documentation highlights the user's query terms (here "install" and "printer") to make it easier for users to scan the rather long pages to find the sections that are of interest to them. The bottom of the page has an outline of related topics in the same region of the information space. Red circles are used to indicate the estimated relevance of each page relative to the user's current search query.

If you have a NEC® printer, look in the `/usr/share/lib/terminfo/n` directory for your NEC printer model.

```
$ cd /usr/share/lib/terminfo/n
$ ls
nor7900      nor7901      netty-Tabs   newhpkeyboard
nor7900-na   nec          netty-vi     nuc
nor7900i    net          network      nuoterm
nor7900i-na netronics    netx
nor7900iv   netty       newhp
$
```

The entry in this directory for NEC is included in the preceding example.

[Next Topic](#)

Other topics in System Administration Guide

- [Backing Up and Restoring Data](#)
- [Managing Printing Services](#)
- [Planning Printers on Your Network \(Overview\)](#)
- ➔ ● [Planning for Printer Setup](#)
- [Setting Definitions for Printers](#)
- [Selecting a Printer Type](#)
- [Selecting a File Content Type](#)
- [Working With Remote Systems](#)
- [Managing Terminals and Modems](#)

 [Complete Table of Contents for book](#)

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docs.sun.com

URL Design

Tim Berners-Lee has said that if he had known that the Web would be as popular as it is, then he might have thought harder about finding an alternative to the slash-slash part of the URL, which is particularly annoying when speaking URLs over the telephone. In principle, URLs are machine-readable code and should not have anything to do with user interface design. In practice, it is an unfortunate truth that URLs are exposed to users in many aspects of web usage, so we do have to consider them as a design issue.

Considering the popularity of the Web, there is no need to speak out the “http://” part of a URL when giving it over the telephone or when including it in a television commercial. Most companies simply refer to their website as `www.company.com` rather than `http://www.company.com/` (the syntactically correct

Compound Domain Names

How might one make up a domain name to refer to a website that has multiple words in its name? For example, a site for Jakob Nielsen might be called `jakobnielsen.com`, `jakob-nielsen.com`, `jakob.nielsen.com`, `jnielsen.com`, and many other combinations of the two words. (The underscore character is illegal in domain names, but hyphens are allowed.)

Creating compounds by using dots (e.g., `jakob.nielsen.com`) only works for a company that owns the primary domain (in this case `nielsen.com`, which is taken by the Nielsen ratings). And if you have the primary domain, then why make a longer and more complex subdomain for your website? I recommend using the standard “`www.`” as the prefix for websites because people know what it means and because having an address start with “`www.`” is a nice indication that you are talking about a website and not something else (it used to be the case that this goal required the use of a full URL, complete with “`http://`,” but these days, only very meticulous people bother doing so).

Thus, the three reasonable candidates are:

- Run the words together: `jakobnielsen.com`
- Use an abbreviation: `jnielsen.com`
- Use a hyphen: `jakob-nielsen.com`

Current mainstream practice on the Web prefers the first choice; simply run the words together to form a new “Internet word” for the domain name. In usability, the fact that most other people do something is reason enough to follow along because the most common practice is what users expect and find easiest to use.

Abbreviations work as an alternative for three or more words or when the result of running two words together would be very long and/or difficult to spell. My main recommendation is to run the words together if you are dealing with two reasonably short and easy-to-spell words.

Hyphens should be avoided because people often forget them, they can be mistaken for underscores, and they are rare (and thus a usability problem).

form). Although HTML purists deplore this abbreviated form of stating the name of a website, it seems perfectly acceptable to me, especially because almost all browsers add the missing protocol specification to the front and the missing directory specification to the end. The Web is now so ubiquitous that it is understood that anything starting with `www` and ending with `.com` (or `.uk`, `.de`, `.jp`, etc., outside the U.S.) is a website.

I recommend making both `company.com` and `www.company.com` aliased machine names for your web server. Currently, most users do include the “`www`.” when typing in URLs, but sometimes they forget. Also, when speaking URLs over the telephone, it is nice to avoid the very awkward-sounding “`www`.”

The most important component of a URL is the domain name (the machine name immediately after the `http://`). If users can remember your domain name, they can at least get to your home page, from which navigation and search are hopefully sufficient to allow them to find the page they need even if they don’t have the rest of the URL. Most companies try to get their company name as their domain name, and I would definitely advise anybody who starts a new company these days to pick a name that is available not simply as a trademark but also as an Internet domain. Having an obscure domain name is going to cost big time in lost customers. Good domain names that are easy to remember and easy to spell are the Internet’s equivalent of a Fifth Avenue real estate location in the physical world.

Fully Specify URLs in HTML Code

I do recommended using fully syntactically correct URLs in the hypertext links in actual HTML code. In particular, it is best to include the trailing slash for any URL that points to the default file in a directory. Most web servers can cope with a missing slash, but doing so typically requires the server to redirect the browser’s request from the abbreviated version to the correct version, and doing so takes time and adds to the response time delay. Thus, if you

want to refer to my Alertbox column in print, you would write the URL as

`http://www.useit.com/alertbox`

or even

`www.useit.com/alertbox`

If you wanted to include a hypertext link to the column in one of your web pages, the HTML should be coded as

```
<A HREF="http://www.useit.com/alertbox/">
Jakob Nielsen's Alertbox</A>
```

URL Guessing

At a recent Digital Kids conference, a fifth grader was asked how he found things on the Internet. His answer was, "I sort of experiment. I take things I like and put '.com' after them." Most adults do the same. In fact, it is quite striking in user testing how often people revert to URL guessing.

Our usability studies have shown that users rely on reading URLs when they try to decipher the structure of a site or the possible results of following a hyperlink. It would be preferable if browsers had better ways of making site structures explicit and of previewing the destinations of hyperlinks, but right now they don't, so users read URLs the way the ancients read cracked turtle shells: to divine a hostile environment with no known laws of nature.

Because we know that users try to understand URLs, we have an obligation to *make* them understandable. In particular, all directory names should be human-readable and should be either words or compound words that explain the meaning of the site structure. Also, your site structure should support URL-butchering where users hack off trailing parts of a URL in the hope of getting to an overview page at a higher place in the site hierarchy. Of course, it is better if users can navigate your site structure using your navigation buttons, but we know that a lot of users use URL-butchering as a shortcut: Such users should get reasonable results (typically a table-of-contents-like page listing the information available at the desired level of the hierarchy).

One day browsers, servers, and proxies will all include spelling checkers, but at this time users are doomed if they don't get every single character exactly right when typing a URL. Web designers can reduce the frequency with which users meet the dreaded 404 by making URLs easier to spell. Rules for easy-to-spell URLs are:

- Make the URL as short as possible (the longer the URL, the greater the possibilities for making errors).
- Use common natural language words as much as possible because users normally know how to spell these words.
- Use all lowercase characters. If you use MiXeD cAsE, some users are guaranteed to forget some of the caps and get errors (depending on the server). In general, you should never rely on the difference between uppercase and lowercase letters in a user interface because such a distinction is a sure prescription for frequent user errors. Confusing upper- and lowercase characters is a so-called *description error*. Because the two objects are almost the same and because the most

salient part of the description of the two objects (the name of the character) is exactly the same, users are very likely to confuse the two.

- Avoid special characters (anything but letters and digits) as far as possible. If punctuation is necessary, stick to a single character throughout all your URLs. Use all underscores or all hyphens, for example, but not a mix of the two.

Archival URLs

Links from other websites are the third most-common way people find sites (after search engines and email recommendations), so build your site to make it easy to attract inbound links.

Linkrot equals lost business, so make sure all URLs live forever and continue to point to relevant pages. Do not move pages around; instead, keep them at the same URL. It is very annoying for authors of other sites when their links either stop working or turn into pointers to something different because the original page has been moved and replaced by something new.

Content that changes on a regular basis is often stored under temporary URLs. Examples include the current issue of a magazine, today's front page for a newspaper, and the program for the upcoming version of an annual conference. You will often want to publicize virtual URLs that point to the concept of "CyberTimes front page," "this week's editorial," "list of keynotes at the next InternetWorld conference," and so on. In fact, users often prefer to bookmark such virtual pointers because they are interested in accessing the most current information whenever they visit.

Often, such topical content may be of long-term interest and should be archived under permanent URLs in addition to the temporary URL, which will be changed to point to new content on a regular basis. For example, I often want to link the readers of my online column to articles in online magazines, but of course I don't want to link to "the current week's editorial" but to "the editorial on overuse of animation." These two concepts may temporarily have the same URL, but it is much easier for me if I can use the permanent URL of the archived version as

Beware of the Os and 0s

It is dangerous to use the digit 0 (zero) and the letter O (uppercase o) in URLs because users often confuse the two. The lowercase letter o is less of a problem.

If you do need to use a 0 or an O in a URL, then you should establish an alias for the same URL with the erroneous character that points to the correct one. In particular, if reserving a domain name like box0.com, you should also buy boxO.com and have it forward hits to box0.com.

the link for my own HTML file. It would be a pain to have to update the link at a later date, and many authors forget to do so. Even worse, link-checkers will often not discover the mistake because the old URL continues to be valid. Rather, it simply points to new and irrelevant content.

The preferred way of dealing with virtual URLs is to pre-assign an archival URL to the page and have a method for communicating this permanent URL to authors of other sites who want to link to you. For example, <http://www.foo.com/current/editorial.html> could be the virtual URL that always points to the current editorial, and <http://www.foo.com/990207/editorial.html> could be the permanent URL pointing to the editorial for February 7, 1999. The permanent URL should be made active as soon as the page goes up, even if most users will be using the virtual URL to access it in the beginning. The reason to activate the eventual archival URL while the page is still current is that other sites that want to link to the page will get the ability to encode the permanent URL in their links and forget about it.

Whenever you reorganize a site or move files around for other reasons, you have to make sure that the old URLs continue to work. Old URLs should be kept functional for at least half a year, and preferably for two years or more.

Basically, there are two ways of communicating archival URLs to other authors. You can list the URL in a footer on the page (e.g., “<SMALL>the permanent location of this page will be <http://www.foo.com/990207/editorial.html></SMALL>”), or you can use a simple convention for generating archival URLs. Using a convention frees you from having an extra line on the bottom of your pages (which is good) but places an extra burden on people who want to link to you (which is bad and may cost traffic). Only use a naming convention if it is (a) adhered to consistently, and (b) very easy to guess from seeing one or two examples of older pages and their archival URLs. A good example might be the use of the publication date in the URL for a regular column.

Advertising a URL

To integrate your online presence and your real-world activities, all advertising and marketing collateral should come with appropriate URLs pointing to your website.

Any physical products should also come with URLs for their corresponding product pages engraved or stamped on the back. Making the URL part of the product ensures that users can easily get service without having to search the site. It also makes it easy for customers to recommend your product to new prospects, and it enhances the probability that they will return to your site when it is time to buy a replacement or make another new purchase.

Supporting Old URLs

Whenever you reorganize a site or move files around for other reasons, you have to make sure that the old URLs continue to work. Old URLs should be kept functional for at least half a year, and preferably for two years or more. In fact, people who have changed site structures long ago still report hits on URLs that are more than two years out of date.

Old URLs have a life of their own, living in users' bookmark lists across the world, in printed documents and email messages, and in other websites' outgoing references. Search engines often take half a year to update their databases and flush out old URLs.

The recommended way of dealing with old URLs is to set up a redirect from your server, which will cause anybody who tries to connect to the old URL to get redirected to the new URL instead. The HTTP protocol specifies two different types of redirect messages: code 301 and code 302. A 301 redirect indicates that the page has moved permanently, and this is the preferred message if this is in fact the case. A decent browser will automatically update its bookmark list if it receives a 301 message upon trying to retrieve a bookmarked page. Similarly, search engines should automatically delete the old URL from their databases and replace it with the new one when they get a 301. The 302 code indicates that the page has moved temporarily and should be used only if you want to revert to the original URL at a later date.

Y2K URL

It is common practice to use two characters for the year when referring to a date in a URL. I am guilty of doing so myself. Such URLs may cause Year 2000 problems and should probably be avoided in sites that use extensive amounts of software on the back end.



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www.us.pc.ibm.com

The above image is the result of going to <http://www.us.pc.ibm.com/ibmhome>, as specified in an IBM print ad that ran in the November 1997 issue of *BYTE* magazine. Based on the way the visual leveraged the company's redesigned online identity to achieve integration between print and Web, I would guess that this ad was effective at prodding potential customers into going to the URL mentioned in the ad copy. Unfortunately, the web page the ad pointed to had no relation to the product that was promoted in the print advertisement. Most users probably gave up at this point, resolving never to be tricked by another IBM ad again.

When you're looking for

a new computer or an enhancement to the one you have, here's a list of products that are perfect for your home.



Aptiva



ThinkPad



Options



Edmark



Crayola



World Book



Home Director

A determined user who is truly interested in the ad's fancy mouse may search onward, guessing that it would be described under the Products button. The above image is the result of clicking on that button. At least we now get to see the mouse, even though there is still no information about it. Clicking on the big mouse photo has no effect: a bad design mistake because many users click on featured objects. Some users may note that the graphic for the "Options" button looks like the large mouse image. In general, "options" is such a general term that it could mean anything, so it's a poor choice for a navigation term.

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(Above) This page has an inconsistent color scheme compared with the previous two, so some users may fear that they had been led astray to an unrelated part of the IBM site. A rushed or superficial user would notice the large bike photo and immediately hit the Back button to return to safe ground. A more careful user would finally notice an option mentioning the mouse and would click on it.

(Facing page) This page is <http://www.us.pc.ibm.com/ibmhome/scrollpoint>, which is the URL that should have been printed in the original print ad. A user who typed the actual URL in the ad would not get the desired mouse information until the fourth page. One nice aspect of this page: The center image has an appropriate use of animation to illustrate how one can use the mouse to manipulate a window.

Note, by the way, the inconsistent navigation feedback in this series of screens. In the first two images, the user's current location is indicated by flipping a triangle in the navigation bar and making the button text yellow. In the third image, no feedback is given to let the user know where the current page fits into the navigation space (leaving users stranded like this is the worst option). Finally, in this figure, the current location is indicated by flipping the triangle (a very subtle effect) without changing the color of the button text.



ScrollPoint Mouse

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▼ Intro

▶ Features

▶ FAQ

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Free yourself from scroll bars using the ScrollPoint mini-stick navigator! Scroll around web pages and large documents with fingertip ease.



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in any direction without
using scroll bars*

*Browse
web pages and long documents
with the touch of your finger*

Zoom
in and out quickly and easily*

Next Page ▶

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* Zoom operates in Microsoft® Office® 97 compatible applications

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User-Contributed Content

Some new-media pundits claim that the ability to engage the audience in a discussion with the staff of a website is one of the major benefits of the online medium compared with print and broadcast. Even though user feedback is very valuable for improving the design and direction of a site, I warn against trying to start a dialogue with your users unless you can devote substantial resources to doing so.

A small site that gets a comment or two per day should easily be able to handle a small amount of correspondence with its faithful and eager users. It's quite another matter for larger sites with millions of page views per day and a potential for thousands of messages. The staffs of such large sites could do nothing but correspond with individual users if they were to answer all email.

Instead of encouraging a large amount of two-way communication between your staff and your users, it is possible to invite the users to contribute to discussion groups on the site. User-created content is often quite popular, especially if it is linked off of specific stories or segments of the site. Some sites have general discussion areas, but they tend to degenerate into confusing free-for-alls.

Moderated discussions usually work best of all, but are obviously more expensive to maintain.

Applet Navigation

Whether implemented in Java or other languages, applets are ways of adding advanced functionality to a website by allowing users to interact with a real program and not simply with a bunch of text and links. Applets can be divided into two rough categories:

- **Functionality Applets.** These are independent mini-applications in their own right, with state transitions and multiple views (e.g., a tabbed dialog). Functionality applets often manipulate “real-world” data that exists separately from the web page, for example, allowing customers to manage their checking accounts, inventory control, and server administration.

(Facing page) Chat is almost always the worst way to add community to the Web. Even the entertaining visualization of the dialogue in ComicChat cannot disguise the vacuous nature of Internet chat. People simply don't have anything to say. And what they say isn't always appropriate for some audiences.

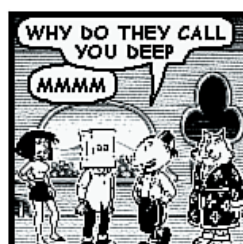
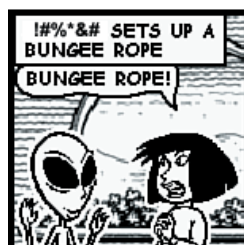
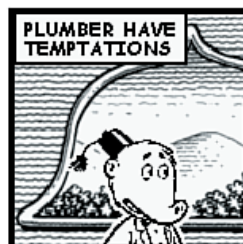
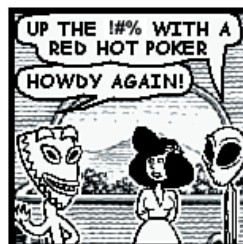
WISH YOU WERE HERE



bob



SpeedFreak



- **Content Applets.** These applets are tightly integrated with the content of a web page. Examples include site navigation controls (an active sitemap or outline flippers to expand and contract a hierarchical listing), active content (a model of an engine that can be rotated, animated, and otherwise manipulated in place), and minor functions (currency converters). Typically, running a content applet has no results other than changing the appearance of the current web pages.

Content applets should be displayed in a browser together with the web page they belong to; functionality applets should display in a new, non-browser window without any web navigation controls.

If functionality applets are displayed in a browser window, then users will invariably confuse applet interactions with browser interactions. Most seriously, users will frequently click the browser's Back button when they want to undo an action in the applet or return to a prior state or view. Of course, going back in the browser takes the user to the previous web page and kills the applet.

The problem is that the hypertext navigation metaphor is too strong as long as the user is within a browser window. Users simply cannot abstract from using the browser's commands to navigate, even when they are "supposed" to navigate within the applet. The only solution is to open the applet in its own window without any browser controls. Once the applet appears in another window, users stop thinking "Web" and start interacting with the applet on its own terms.

In the long term, the solution to this problem is to eliminate browsers and move to a completely integrated navigation system that unifies navigation between system states and information objects, and maintains a single navigation interface for all user actions no matter whether they are on or off the Web. After all, users should not have to care whether they are dealing with HTML or another data type or whether they connect to the Internet, to an intranet, or to local content on their own hard disk.

Functionality applets may include hypertext links back to the Web. Typical examples include help pages and an airline reservation system that enables users to read more about different types of aircraft. Such hypertext links

Double-Click

In principle, applets should follow current user interface standards, so there may unfortunately be cases where double-clicks need to be supported at this time. In the long term, however, double-click must die because it causes novice users great difficulties and because it conflicts with the single-click interaction style of the Web. The main reason for double-click is to allow two operations to be overloaded onto a single-button mouse. Designers of more recent multi-button GUIs have faithfully duplicated a weakness that was made necessary by limitations of an early, single-button GUI. Let's do better in the future. Content applets should be particularly wary of double-click because people will think of them as single-click web content.

should take the user out of the functionality applet and back to the web browser (while the functionality applet remains visible in its separate window).

A functionality applet that spawns its own window(s) should follow traditional GUI design guidelines, whereas a content applet that stays on the page should follow web design guidelines and principles for good information design.

Slow Operations

Applets that communicate back to the server should show a progress indicator while doing so. Progress indicators (often shown as percent-completed bars) are necessary in any user interface for any operation that has slow response times (more than 10 seconds). Applets that connect back to the server will often experience highly variable delays due to the weakness of the Internet. It is thus doubly important for the progress indicator to show the actual progress of the operation and its expected duration. For example, the progress indicator could show the proportion of a database that has been searched or the steps in a sequence that have been completed (while avoiding system-oriented terminology). Such progress indications may require a trickle of info from the server to the applet as it is servicing the request.

Applets also need a cancel button to allow the user to interrupt any slow operations. Interruptability is particularly needed for any server connections.

Conclusion

It is tempting to hope for a technological solution to the problems of site design: a great natural-language search engine that will allow users to find the exact page they want in a single attempt. Or the perfect document management system that will enforce design standards so that all pages have a unified look and feel, no matter what department they are from.

I am hopeful myself that the technology will get better, but the biggest issues in website usability still require manual intervention. A website will not feel like a unified whole unless all the designers and writers agree to actively work for the greater good of one face to the customer.

And no search can find pages that are poorly described or that don't have the information the user is looking for.

Information architecture is getting much lip service, and it is indeed a huge advance that many projects acknowledge that they need to *design* the structure of the navigation space and not simply let it evolve randomly. We still need more sites to base their information architecture on the customers' needs instead of the company's own internal thinking. Once this happens and people become better at writing good links that support navigation and good headlines that work in search engines, there is hope that users will finally be able to navigate the Web.

Today, the dominating web user experience is that *on the average, you are on the wrong page*. Users expect trouble on the Web and they expect to waste time looking at irrelevant pages before they find the one they want. This will hopefully not continue to be true. Once it becomes easier to navigate the best sites, users will revolt against the sites that make them spend most of their time on irrelevant pages.