

Design for Change

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In his fascinating book, [How Buildings Learn](#), Stewart Brand explores the inevitable evolution of buildings over time and the shocking lack of planning for change by building architects.

"Between the world and our idea of the world is a fascinating kink. Architecture, we imagine, is permanent. And so our buildings thwart us. Because they discount time, they misuse time. Almost no buildings adapt well. They're designed not to...But all buildings (except monuments) adapt anyway, however poorly, because the usages in and around them are changing constantly."

While obvious differences exist between physical buildings of bricks and mortar and the less concrete structures we call Web sites, the inevitability of change over time is a shared characteristic. With Web sites, it just happens faster. Over the course of six months, changes to any given Web site might include the following:

- revised the graphical identity to please the president of the company (who finally "discovered" the Web)
- modified the navigation bars based on user feedback
- redesigned the whole site to take advantage of tables and [frames](#)
- added several sections of new content
- reverted to a non-frames based design after death threats from frustrated users

Unfortunately, many Web sites are not designed with change in mind. Like engaged couples planning for their wedding day, designers are often so focused on "the opening day" that they forget that the real value of the site to its owners and users will be determined in the days and months and years that follow.

The problem with this approach is that the costs of maintaining and changing a site over time can rapidly come to dwarf the initial design and development costs. As these costs

mount, site owners can become change averse, allowing the site to become increasingly stale over time. Thus, owners and users and ultimately site designers all suffer from the development of change-hostile Web sites. And so, Web site designers should strive to create Web sites that are able to grow and adapt gracefully over time.

Planning for Expected Change

Some changes to a Web site are predictable. Dynamic content will need updating. Some existing content areas will be modified or removed. New content areas will be added. Designing for these changes is a team effort, involving aspects of architecture, graphic design, and technical design.

Architecture

A site architecture should anticipate growth. In brainstorming sessions with clients, the architect should explore areas of potential growth for the site and the company. It is important to focus on the long term vision, not the short term situation. Architects should aim for a broad and shallow rather than narrow and deep architecture, since it is easier to add layers than branches to a hierarchy.

At the back-end, file and directory names should be chosen carefully, with the understanding that over time many different people may need to traverse the directory structure in search of the appropriate file to edit.

An architect should create and maintain a set of **blueprints** that map out the site. These blueprints can be invaluable in determining the best way to implement changes and in understanding the site-wide implications of those changes.

Graphic Design

Designers must strike a balance between aesthetic appeal and ease of modification. Over time, new menu items will be added and page titles will be changed. Much redesign can be avoided by building room into graphical menus and navigation bars for additional options or simply by using textual menus.

One useful rule of thumb is to avoid building page titles into graphical headers beyond the second level of the site hierarchy. The time and money that can be saved by avoiding the need to involve graphic designers in every page addition and title modification typically outweigh the slight aesthetic sacrifice.

Technical Design

Programmers can help us to avoid trapping dynamic content in static HTML pages. By storing content in database format and converting it to HTML "on the fly," programmers can ensure greater flexibility and ease of maintenance. A well designed content database will permit site wide changes (e.g. changing the company's phone number on all pages) and facilitate the development of maintenance interfaces.

For dynamic content areas, building maintenance interfaces that permit distributed information management by non technical staff can drastically reduce maintenance costs. The same person that sends out press releases for the company to news agencies should be empowered to publish those releases on the company Web site.

The content database can also provide the foundation for developing a revision control system that prevents people from simultaneously editing the same file and keeps track of who made which changes to which files when and why. If you've got a lot of people involved in maintaining a Web site, this can help to coordinate their efforts (and hopefully avoid person X from having to strangle person Y for writing over all of the changes she just made).

Planning for Unexpected Change

On the Web, unexpected change is a way of life. The technology, the software, the users, and the competition are constantly becoming more sophisticated. Brief periods of rapid evolutionary change are quickly followed by paradigm shifts and revolutionary change. Planning for the future in this environment is difficult to say the least.

It is important that site designers help their clients to understand the dynamic and chaotic nature of this environment. Companies that enter the Web with the expectation of a one time development cost and an immediate return on investment are very likely to

be disappointed. Instead, companies need to embrace the development and maintenance of their Web site as a continual learning process. When companies view Web site development as an opportunity for organizational learning rather than a get rich quick scheme, a number of strategies become apparent.

Budget for Change

Companies should avoid "blowing their wad" on the first Web site development cycle. Much will be learned by developing and launching the Web site that can be applied to future iterations of the site. It is important to have the money available to implement those changes when the time comes.

Get Involved and Collaborate

Companies that pay Web design firms to deliver a plug and play Web site are missing out in a big way. So are the design firms. Only by working together are site owners and designers able to tap the tremendous opportunity for learning about this medium and the ways in which it can be used in support of business goals.

Open Communication Channels

The Web site provides an excellent opportunity to develop learning relationships with customers. Site owners and designers should make sure they provide ample opportunity for user feedback. It is important to develop policies and procedures for responding to the ensuing questions and suggestions, so that customers are not ignored.

Measure Usage

In addition to considering what users say, it is critical to observe what they do. Who is visiting the site? Where are they coming from? Which sections do they spend most time in? How many qualified leads are generated? With a little creativity, it is possible to track all of these variables. By establishing these feedback loops, Web site designers can create support for continual evolution of the site, based upon user suggestions and behavior.

Future Hindsight

In "How Buildings Learn," Brand goes on to discuss the notion of "evolutionary design." He explains that the process of evolution operates by hindsight rather than foresight. "Evolution is always away from known problems rather than toward imagined goals," and notes that building architects should learn from nature. He concludes that one strategy is "to make the building responsive to future hindsight - perpetual later reappraisal and adjustment."

It appears that Web architects would also do well to learn from nature and strive to build sites that are responsive to future hindsight.