

# Managing Collaborative Efforts on the Web

## CAUSE '96

December 5, 1996

San Francisco, California

Noam Arzt, Ph.D.  
Executive Director, Administration  
Director, Information Technology Architecture  
Information Systems and Computing  
University of Pennsylvania  
Philadelphia, PA 19104  
arzt@isc.upenn.edu  
URL: <http://nextb.dccs.upenn.edu/noam.html>

Linda May, Ph.D.  
Director, Planning  
Information Systems and Computing  
University of Pennsylvania  
Philadelphia, PA 19104  
may@isc.upenn.edu

**Abstract.** The World Wide Web is a useful tool to make University planning, governance, and other collaborative projects more open. The Web can widen the audience, get materials into the right hands faster and with less trouble, and create a self-documenting history. At the University of Pennsylvania, the Web has been used for just these purposes for several years. This paper will serve as a tutorial for any college or university member who wants to use the Web to manage a committee or project. It includes examples from a technology planning task force, a restructuring team, and a collaborative research project. The tutorial focuses on opportunities, tactical mechanics, and traps to avoid. It also explores the social and practical dynamics of managing a project so publicly.

The overheads for this paper as presented at CAUSE '96 can be found at <http://nextb.dccs.upenn.edu/noam/cause96/>

# Managing Collaborative Efforts on the Web

The World Wide Web is a useful tool to make University planning, governance, and other collaborative projects more open. The Web can widen the audience, get materials into the right hands faster and with less trouble, and create a self-documenting history. At the University of Pennsylvania, the Web has been used for just these purposes for several years. This paper will serve as a tutorial for any college or university member who wants to use the Web to manage a committee or project. It includes examples from a technology planning task force, a restructuring team, and a collaborative research project. The tutorial focuses on opportunities, tactical mechanics, and traps to avoid. It also explores the social and practical dynamics of managing a project so publicly.

## Exploring the benefits

The advantages of managing a project on the Web are substantial:

**Increased openness.** Campus planning efforts are often accused of not being collaborative enough. Using the Web removes many of the *technical* barriers to a more open environment and lets a project concentrate on lowering the cultural and political barriers.

**Faster, easier distribution of materials.** One of the most time-consuming aspects of running a project is producing and distributing reports and other materials. Web documents—in contrast to paper ones—are accessible the instant they are placed on the server and permit easy update and correction. Timely access to information—within the team and beyond—can mean the difference between a so-so project and an exceptional one.

**Wider audience.** Constituencies, on and off campus, need information about a project and channels for input. With Internet access proliferating in the community at large, a project can reach government officials, alumni, trustees, and community representatives—as well as students, faculty, and staff.

**Self-documenting history.** Colleges and universities are living, learning institutions. An incrementally growing Web site is an easy way to build a living history of a process or project.

## Three example projects

The three projects below use the methods that will be described in this tutorial.

**Network Architecture Task Force** (<http://www.upenn.edu/computing/group/natf/>)

This technology planning effort has been managed on the Web since its kickoff in April, 1994. Meeting agenda, notes, planning documents, and vendor information are contained in this Web site for examination and comment. For information about the project, see presentations from CAUSE '94 (<http://nextb.dccs.upenn.edu/techarch/natf/cause94.pdf>) and CAUSE '95 (<http://nextb.dccs.upenn.edu/noam/cause95.html>).

**Restructuring Computing across Penn** (<http://www.upenn.edu/restruct/>)

This campus-wide restructuring effort began in the fall of 1995 and continues to evolve—as Penn rethinks the way computing support is organized, delivered, and funded. Another CAUSE '96 presentation describes this restructuring effort (<http://www.cause.org/conference/cause96/track3/cnc9623.html>).

**New Jersey Comprehensive Immunization Program** (<http://www.cip.upenn.edu/cip/>)

This sponsored research project, which develops software for immunization tracking, has been using the Web to facilitate collaboration among three academic institutions, state and local government, and public and private health care sites.

## **Taking advantage of the Web**

The World Wide Web is a strikingly flexible tool—really an umbrella for a set of tools and capabilities. Web sites used for collaboration can make use of these features and tailor them to their needs.

**Accessibility.** Access to information is key to collaborative efforts. Access, however, is a complex political, social, and practical issue. Outcomes may not be ready for full public scrutiny. Different constituencies may need to be consulted or informed in a particular order. Type of information, or its packaging, may need to vary by audience. The Web provides a flexible environment to accommodate needs such as these.

Flexible Web security, for example, is an answer to some of these needs. Password protection can be used for some or all of a Web site. Encryption can be used where the risk of interception on the network is to be avoided. Sites can be secured to prevent access from all or part of a specific campus, or from everywhere *except* a campus. A common scenario is a project Web site with a public section for general viewing and a private section for project participants. The public section might be secured from off-campus access (depends on subject matter and sponsor's requirements) and the private section is usually password-protected. Material can move from private to public as appropriate, or some material may never move into public view.

Running a project on the Web, however, raises issues of organizational culture for which there are no technical fixes. The social dynamics of public vs. private discourse can get muddled if you're not careful. Is the Web site primarily for the team—a switchboard central from which to run the project? If so, team rules ("family" rules) apply. Is the Web site, in contrast, a public relations and publishing arm of the project? If so, public rules apply. And things can get schizophrenic if you try to do both. The Web site can feel too public for the family. (Maybe it's too soon to "share.") Or it can feel too inbred and insular—or mundane—to the public.

**Multimedia capability.** Another key feature of the Web is full multimedia capability. Many forms of graphics, diagrams, full-motion video, and audio are now supported—and personal computers are growing in multimedia capability at leveling prices. These

multimedia features may be overkill for some campus projects, but just right for others (for example, those involving space or physical plant).

With any project, audiences will have different styles and preferences for absorbing information. With the broad audience a project Web site is likely to attract, you may want to present key information in graphic as well as text form.

This combination of multimedia capability and the evolving social rules of access to information on the Web make project Web sites a new and different experience. All this is both a challenge and a source of excitement—and adds unpredictability to the way a project will roll out and be understood. Periodic assessment is especially important for projects that are managed on the Web.

### **A sampler of contents**

The content of a Web site will reflect the needs of the project. Sample contents are described below. The key is to start small and let the material grow over time.

**Framing material.** This might include the charge to the committee or task force, objectives, scope, and the process the group will use to complete its tasks. This material itself may evolve collaboratively—and can serve as a good first step in using the Web as a facilitating tool.

**Background material.** This can include home-grown material and links to documents or sites elsewhere. It's an easy way to bring vendors and other outside partners up to speed before a visit or meeting. Background documents can be scanned as images if electronic versions are not available.

**Products and reports.** Formal papers, reports, or conclusions have a natural place on a project Web site—and Web technology is conducive to producing these materials collaboratively. Hypertext Markup Language (HTML) (see section below) is especially good for the rapidly changing, incremental nature of early drafts.

**Housekeeping.** The Web is a good place to build timetables and agendas and make them as accessible as appropriate. Some projects make all their agendas and minutes public in real time. Sometimes it's more appropriate to keep this information in a protected area accessible to project participants (and perhaps sponsors).

**The public record.** Even if meeting notes are made available, there's usually a separate need for brief updates and news bulletins. These help the more casual viewer or peripheral participant track the project.

**Sponsorship and membership.** Constituencies need to know who is involved in a project—in order to hold members accountable and to channel comments constructively. It's useful, therefore, to document membership, with links to individual or organizational home pages for richer profiles.

## Getting started

Getting started is mostly a matter of beginning *somewhere* and having the discipline to continue. Don't be paralyzed by the need to get it perfect the first time; expect the site to grow and change. Incremental, real-time adjustment is a strength of these technologies.

**Settle on a voice.** If the Web site is primarily a publishing arm, the voice will need to be public. If the site exists primarily for the team itself, the voice can be private—more elliptical, chattier, more appetite for the mundane.

**Organize the site.** Take time to lay out the site, especially when more than one person will be involved in its upkeep. Try to think from the point of view of your audiences. (What will *they* want to know—and how will they want to learn it?) Recognize that security will likely affect the physical placement of a document on the Web server. But physical location has little to do with the viewer's experience of the navigation links.

**Training.** Get the training you need as the custodian of a Web site. Equally important is to educate your audience on the purpose and approach of the Web site. (How often, for example, can they expect new material to be posted? Is this the only official record?)

**Roles and responsibilities.** The Web is conducive to collaboration at many levels. Different people can build different pages of a Web site in a fairly organic way. Draft after draft of individual documents can be circulated for review with a simple posting to the server. Sections of documents can be written or maintained by different people and on different servers. As with other collaborative efforts, you'll need to make roles and responsibilities clear from the beginning.

## Traps to avoid

A few tips, from hard-earned experience, on what to avoid:

**Too much process, not enough product.** It's easy to fall into this trap, especially at the beginning when there *is* no product. Later, things never seem quite ready for prime time, and it's tempting just to continue documenting process. Your audience, however, is looking for the *results* of your efforts.

**Has to be perfect or it's not worth publishing.** In the world of hard-copy project reports, changing a document after the fact is difficult. On the Web, however, changes are easy. This feature can be a great asset coupled with a strategy that says it's more important to make information available in some form than to agonize over perfection.

**Too ambitious, too hard to keep current.** Don't be so ambitious that you can't live up to your communication and documentation plan. Trim back the site rather than let it languish.

**Site no longer fits the project.** It's useful to take stock once or twice a year to see if the Web site fits the current stage of the project. Housecleaning may be all you need—or you may want to reframe the site entirely. Don't be afraid to remove material that is no longer relevant, or move it to a clearly identified archive.

**Substitute for face-to-face outreach.** Don't be lulled into thinking the Web site can be your only, or even your major, form of public outreach. A passive Web site is no substitute for the active work of consulting and informing. It is, however, a valuable adjunct; people can get the background and context they need and can pursue it to the degree they are interested.

**Wait to be found.** Finally, you can't sit back and wait for your Web site to be discovered. You need to keep reminding people it's there and give them new reasons to check it out.

### **File types—and trade-offs**

Three basic types of files can be used to build documents on the Web: Hypertext Markup Language (HTML), Adobe Acrobat, and graphics (GIF or JPEG). Each of these formats has strengths and weaknesses, but all three will likely be used together to assemble a project Web site. (This discussion does not include file types necessary for sound, full-motion video, three-dimensional rendering, or other special uses.)

**Hypertext Markup Language.** HTML is the native file type of the Web. Much like old-style typesetting, it consists of plain text with special embedded symbols which are interpreted by a World Wide Web viewer and control the presentation of the document. HTML documents are easy to create. They can be constructed in small pieces as separate files, even by separate authors, and assembled to present an idea. An added strength of this modularity is the ability to assemble the HTML file pieces in different ways to create multiple views of the same material. Multimedia objects such as graphics, Acrobat files, and even video and audio can easily be integrated into an HTML document.

The HTML format also has weaknesses. Modular documents created as many small HTML files can be inconvenient for users to print. Similarly, long documents that make it easier for users to print can be difficult to view on the screen. This basic trade-off needs to be considered for each document.

**Adobe Acrobat.** Acrobat is a standard format developed by Adobe Corporation. Acrobat files are essentially images of material that originated in another form—word processor, graphics, anything that can be printed. Acrobat files keep the look and feel of the original document (including color), are compact in size, and easy to print. Acrobat files cannot be altered by the person viewing; the integrity of the original document is maintained even after the Acrobat file is distributed. Acrobat files can be viewed on most popular computers (Windows, Macintosh, Unix), and can be viewed in conjunction with most World Wide Web browsers. Advanced features are supported—for example, the ability to put an actively linked URL in the midst of an Acrobat document.

Acrobat files are most appropriate when a document already exists in non-HTML form or when preserving a particular look and feel is important. Acrobat documents can easily be integrated into HTML documents. There are some limitations, though. Preparing a document in Acrobat format involves several steps and additional software from Adobe. The entire Acrobat file has to download before it becomes visible on the screen. And documents formatted for a standard letter-size page (or bigger) may be difficult to view on some desktop monitors (especially smaller monitors, or those set to a low resolution).

**Graphics files.** Pictures, diagrams, or drawings can be presented in various formats, such as GIF and JPEG. Many Web sites use graphics to present basic navigational choices ("image maps"). While some people prefer to absorb information visually, for others graphics make a good *supplement* to text. But choose your graphics well; gratuitous ones are something of a nuisance. Useful as graphics files can be, there are limitations. Some Web browsers are not equipped to display graphics. Communications lines or equipment may be too slow to display the graphics well.

All these file types should be in a site manager's bag of tricks. Basic documents can be laid out using HTML, supplemented by Adobe Acrobat files and graphic images where appropriate.

**Authoring tools.** Tools are becoming available that make creating Web documents easier and easier (reviews below).

*MacUser* review

([http://www.zdnet.com/macuser/mu\\_0197/features/pagebuilders/wysiwyg.html](http://www.zdnet.com/macuser/mu_0197/features/pagebuilders/wysiwyg.html))

*PC Computing* review

(<http://www.zdnet.com/pccomp/features/fea1096/sub3.html#jump1>)

*PC Magazine* review

([http://www.pcmag.com/iu/features/1520/\\_open.htm](http://www.pcmag.com/iu/features/1520/_open.htm))

Net Scout review

(<http://www.cs.wisc.edu/scout/toolkit/latest/index.html>)

TechWeb review

(<http://techweb4.web.cerf.net/tools/html/html.html>)

Carl Davis's review

(<http://homepage.interaccess.com/~cdavis/editrev/index.html>)

ComVista Internet Solutions listing

(<http://www.comvista.com/net/www/htmleditor.html>)

CNET reviews

(<http://www.cnet.com/Content/Reviews/Compare/11htmls/>)

## Wrap-up

The tools and techniques described here can be used by any project that is looking for a flexible, adaptive way to manage collaboration. At the University of Pennsylvania, these techniques have been used to manage a variety of projects, from collaborative research to campus-wide planning efforts.