



How to Create a Website: Guiding Principles



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Foreword

It is among UNESCO's utmost priorities to promote universal access to information and to contribute to the strengthening of communication and information capacities. This manual has been written to provide guidelines for developing websites for the Asia region. Theories, principles, strategies and techniques are offered in this manual based on decades of experiences of those who have developed websites that delivered and met users' expectations. They are also products shaped from words of wisdom generated from in-depth research and evaluation or documentation on the process of website development and maintenance.

Many materials in various forms, content orientations and presentations have been produced on website development. How different is this manual from the rest?

Rather than provide the technical step-by-step procedures for creating a product, or how to produce a multimedia shockwave animation, an html file, an online form, or optimize a heavy graphic, usually found in many manuals and handbooks, this manual offers guidelines that are based on lessons learned and good practices. For example, in making a site more appealing visually and artistically, principles and lessons learned are given rather than the actual process of designing a visually appealing website. Instead of demonstrating how to configure the server or upload a website on a platform, it provides criteria on what server or operating system to choose that will work. Instead of showing how to set up a web-based database and install a scripting language, it explains what are the different database software in the market and their advantages and disadvantages as well as what scripting language works on which server environment to provide better basis for planning and development. This way, the manual provides more solid foundation and conceptual grounding that hopefully, will ensure a far more sound approach towards the development of technical skills.

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Secondly, rather than presenting generalizations, it offers a focus. The guidelines are meant to assist those who are planning to develop websites that deal with silk road programmes and activities. One will notice in particular that examples given to illustrate or concretely elaborate the myriad of principles and techniques, revolve around contents of silk road projects. However, the added value though is that the manual's guidelines can serve as blueprint or guidepost for any topic that need to be delivered through the World Wide Web.

UNESCO's orientation in providing intellectual inputs into any developmental endeavours is manifested in this manual. It is hoped that the manual will provide a ready-to-use toolkit for website developers who want to learn how to develop websites that work, and more specifically, in setting up sites on silk road cultural programmes.

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Introduction

The manual offers four major chapters.

Chapter One: Planning Your Website

This is aimed at assisting website managers and developers in planning a well-thought out website. To be able to achieve this, the chapter first lays out the definition, principles and importance of the planning stage and planning techniques. Then the elements of planning a website are offered which contribute towards a website that responds to user needs and the goals and objectives of an organization. These elements include definition of audience, determining user requirements, formulation of measurable goals and objectives, drawing up a content outline, and determination of how information will be collected and updated. Selecting the most appropriate software products and tools to create, implement, update and evaluate the effectiveness of a website are part of the planning process. Planning also involves making decisions concerning various required resources to support the operation and development of a website.

Chapter Two: Webpage Design and Development

When designing and developing a user-friendly website, there are four essential elements to focus on and these are the major sub-sections that comprise this chapter:

- ◆ First, the artistic and visual/graphics components first seen by visitors on the screen.
- ◆ Second is the content, the words, the text and the information that constitute the reason why users visit the website.
- ◆ Third is the structural component, not entirely visible, that supports the visual design and which makes the website navigable and accessible.

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- ◆ And fourth, is the standard web technology that supports and ensures the functionality of the website.

Chapter Three: Advertising and Promoting Your Site

With over 150 million websites competing for the users' attention and visibility in various search engines, there is an important need for more systematic and carefully thought-out promotional strategies that will promote a tripling of visits to websites. This section offers some principles of website promotion and a host of promotional techniques that will promise increases in access and visits.

Chapter Four: Assessment and Evaluation

Assessing and evaluating a website should be part and parcel of the entire process of website development and maintenance. Building a website's reputation for quality, comprehensiveness, and user service can help increase its value in the audience's perception. A continuous process of defining what value means to the users can help to improve a website. This section offers a shopping list of indicators for measuring the usability, value and quality of a website, more specifically in the areas of content, design, usability, navigability and searchability and interactivity.

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Planning Your Website

Planning Your Website

Definition, principles and importance of planning stage and planning techniques

Planning as a process paves the way for the development of a well thought-out website. It involves careful preparation of various elements that contribute towards a website that responds to user needs and the goals and objectives of an organization. These elements include definition of audience, formulation of goals and objectives, drawing up a content outline, and determination of how information will be collected and updated. Selecting the most appropriate software products and tools to create, implement, update and evaluate the effectiveness of a website are part of the planning process. Planning also involves making decisions concerning various required resources to support the operation and development of a website.

Well thought-out plans help you to balance effectively what your users want and what your website development resources will allow. The plan should outline costs, allocate resources and emphasize the priorities and competitive advantage of your site.

Principles of website planning

The Web has been in existence for a sufficient number of decades and has thus generated a wealth of experiences and lessons learned. These have been evolved into tested principles and guidelines by many website developers.

These principles arose from issues and problematic situations dealing with the nature of website development. Thus, in planning and developing a website, it is important to take into consideration the different nature of the web in order to achieve your goals and strategies. The following characteristics describe the Web:

- ◆ One cannot control how the users access a website and use information found in it. Though ideally accessing a website should start from a homepage, users can also enter at any given point, not necessarily from the home page. Thus, a website has no true "top" and it is not always correct to design a website from a home page or from the top.
- ◆ As far as browser display is concerned, a website planner has no way of knowing what kind of browser will be used by your clients. Some users might be using a text-only browser, whereas others might use the most current graphical browser that supports extensions to HTML. Thus different users with different browsers will see different displays and if a browser does not support rich graphic file, then this graphic will never be seen.
- ◆ Linking into and out of the Web is also another element that is difficult to control. Usually, when you make a link to an external resource or website, the quality of that link is beyond your control. This link could move without your knowledge making it invalid and stale. Users following a stale link from a document will encounter an error message and will not get the information that the developer had originally intended for them to access.
- ◆ The permeable and borderless quality of the Web works to the advantage of a website developer who creates information structures that are independent and self-contained. For example, a website developer can work on individual pages or one part of the site without necessarily affecting the others and yet if these parts being worked on are linked to some other pages, the updates made to them can also automatically apply to the other linked pages. This will of course take place successfully if a sufficient number of navigational and context cues exist in these pages.
- ◆ The Web is a dynamic place where changes can be posted or uploaded in seconds at any part of the site anytime or all the time, compared to print-based materials. This enables a



website developer to update certain parts of the website to meet the most current information needs of the users. For example, mistakes can be corrected right away; outdated texts can be updated right away; an organization which disseminates daily or weekly news updates can have a page that contains current headlines that are updated throughout the day. Stocks and shares announcements can also display the current rates throughout a day or hour by hour.

- ◆ The interactive quality of the Web provides opportunity for users to participate and get engaged in some actions or tasks called for in the website. This requires that the website developer should know accurately what the information needs of the users are and customize the interactive features according to these needs. This way, motivation from users is ensured to fully participate in the interactive features of the website. Another value of this feature is that it also transforms the user into a producer, meaning the user can also become a contributor of content creation.

Principles and Guidelines

Based on the various issues and experiences that have been raised and addressed in centuries of website development, the following principles are given below ("The following material is excerpted/adapted with permission from John December's Web Development site available online at <http://www.december.com/web/develop.html>")

A. User behaviour - To address the porous quality of the Web, it is possible to plan to build a website with different entry patterns, using navigational cues, web publicity, and other design strategies. During the planning stage, however, it is important that website developers identify first the general model of user behaviour at which they are aiming to change or respond to.

Possible planning models for user behavior follow:

- ◆ **Guided.** For users who enter through the home page, this is a useful model for a website that is aimed at telling a sequential story or explaining a series of concepts, as it guides the

user through a sequence of pages. The designation of a home page tends to support this model, which often starts the user from the "top" of the website. A guided model for user behaviour requires a design of the links of individual pages to support a guided (but not necessarily linear) path.

- ◆ **Cued.** This model provides the user with many cues for choices of links to follow, with the expectation that the user should be prepared to choose from them with minimal guidance. This model is more common for websites containing complex information which are stored into databases where keywords being searched branch out into many locations to retrieve information.
- ◆ **Floating.** This model might be most appropriate for entertainment or play websites, where the user is encouraged to explore links in a decentralized way. The different links are not necessarily related under one unifying topic or umbrella and each can be accessed without affecting one another. Thus, each of the sub-sites could be a stand alone.

B. Users' browser and display - When making explicit choices about which level of browser display to support, a website planner takes many decisions concerning website specifications to guide designers and implementers. Setting these limits is crucial, particularly when the intended audience is known to have only a certain level of capability for accessing the website.

Thus the following solutions can be considered to address the problem of browser incompatibility:

- ◆ **Text.** Place all essential information in text (or in the ALT fields of images in a document) so that a user with a browser can access it.
- ◆ **Graphics.** Allow for graphics to play a major role in transmitting important information. In particular, image maps might be used extensively for information selection. This choice would make this information unavailable to users with non-graphic browsers.
- ◆ **Forms.** Place some important communications functions within forms.



- ◆ **Hypermedia.** Place some information in multimedia, perhaps including movies, sounds, and images.
- ◆ **Virtual Reality (VR).** Place some information in VRML.

C. Links into and out of the Web - In order to address the problems of stale, broken or dead links, the following principles can be considered:

- ◆ **No links out.** This means no links will be made from the Web to resources that are not under the direct control of website developers. As a benefit, the developers have absolute control over resources that are the destination points of links in a website. This strategy might work best for websites that contain only information pertaining to a single organization that are self-sufficient and need not enrich itself with other related information. However, the users might be shortchanged.
- ◆ **Buffer layer.** In order for the website not to lose its users too soon to the outside web, the website planners could designate that there will be no outside links closer than three links away from the home page or designated core group of web pages. In this case, the home page constitutes the core set of pages, and there are at least three links between a page within this core set and a link outside the Web.
- ◆ **Centralized out.** In this option, to prevent users from leaving the web pages before they find the information just because of external links are found everywhere, a single page can be designated to contain all the external links. This page could be found at the end of the document or each sections.
- ◆ **Free exit.** This approach does not impose any restrictions and allows individual page developers to determine when outside links should be made. This is the most flexible option, but it might send users out of a website quickly.

D. Multiple user roles. Involving users actively in information creation and dissemination is more and more being tried out by many websites. However, for quality control, this involves careful definition of the policy for and purpose of user-provided information.

E. Porous quality - These multiple-use information components reduce production and maintenance costs because information creation and update can take place in a single location within the Web, and the updates can benefit all the links where this information is referenced.

G. Dynamic quality - This quality forces the website to regularly update its content in order to meet user needs. This quality of the web cannot be maximized if the web developer does not systematically plan content updating. However, the level of updating depends on the kinds of information you offer. Stable information might require no updating. Other information might be valid for periods of time - perhaps years or months - and might require only periodic updating. The key is for Web planners to identify the updating needs of a website's information.

H. Interactive quality - Planning for interactivity involves a careful process of audience identification and analysis in order to develop interactive features that attract and sustain full participation.

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Elements in website planning

There are a number of elements to consider when undertaking the planning process.

1. *Planning institutional or organizational policies of a website*

To enable website developers to set implementation goals and provide sound organizational support to their work, organizational policies and administrative issues that are bound to arise during the course of developing, deploying, and using information on a website should be defined. These policies include the following:

- ◆ Policies must be set out to identify the processes, products, and responsibilities for website



development. This provides the basis and framework for making sure that the blueprint is carried out effectively. Policies set the standards and define the content, scope, budget, schedule and technical aspects of the website.

- ◆ Policies must be developed to state the mission or purpose of a website (or a larger system of websites) in an organization. You have to identify first the mission of the organization and how the website will support this mission. The mission statement can then define content and serve as a guideline to determine appropriate content and appropriate allocation of resources. In order to support or reinforce what already exists, find out if the organization has already an overall communications campaign and place the website development process within the context of this campaign.
- ◆ Within this overall organizational communications campaign, you should differentiate what goals and activities can best be achieved using the Web vis-à-vis other media or channels of communication. You should be able to determine what is the value that can be provided by maintaining a website and which communication tasks are best left to the other media.
- ◆ After a role is defined for an organization's website communications tasks, the next step in website systems design is integrating the website into the existing communications infrastructure of the organization. An organization might have an Internet domain name with an email address, or it might have an online communications network systems in place, such as the Intranet, gopher or FTP. An organizational Web can be integrated with your existing Internet information systems.
- ◆ Policies and guidelines on developing a collection of Web-based information in a particular topic area should also be drawn up to keep the website consistently updated and maintained in a timely manner, i.e., who should be responsible for updating and which sources and resources to tap to obtain updates from; use of experts to help advise on the quality and value of information resources; seeking collaboration with others in shaping information collection; setting a vision

towards making the collection serve the interests of users; conducting advocacy and promotional activities as well as regular evaluation and assessment on the use of website content.

- ◆ Policies on legal and ethical aspects about what information to place and use should be drawn up too. These will include statements about appropriate use for intended and unintended audiences. Intellectual property, information-dissemination, and copyright policies must be set so that users and developers know the boundaries of information use.
- ◆ Policies should state how the training needs of website developers as well as local and client users will be addressed.

2. Identifying the target audience and assessing audience profile and needs

A user-centered website only happens if it is based on user interests and requirements. Before creating a website, it is important to know who your users are. It would be very difficult to develop an effective and user-centered website without information about the users. For example, if your defined audience is not restricted to policy makers or high level authorities, building a website that features mission statements, philosophies and goals, project descriptions and organizational charts may not be what your users need. Perhaps, what your clients need are practical information, how to's and best practices or innovative strategies that they can readily use in their day-to-day work.

Why is defining user goals and building a user-centered website so important? Users who easily find what they are looking for will place their trust in the services that you provide. They will enjoy their visit to your website, add it to their favorite bookmarks, suggest the site to friends or co-workers, and return for a visit in the future.

- **Defining your audience**

As much as you may wish it, your site will not appeal to everyone. A plan to reach a large



audience, defined as "everyone interested in silk road" is very broad. Although a website has been successfully created and has reached a wide audience, it would be unrealistic, especially if the organization does not have the expertise or resources to support it. Your best bet is to choose a particular segment of population and focus your efforts on attracting and engaging these users. Begin by exploring these questions: Who is likely to be interested in the content that you will provide? For example, if you want to build a website that will promote intercultural dialogue and exchange of cultural heritage of the Silk Road regions, your target audience will first of all come from the Silk Road countries and those in charge of cultural heritage preservation, restoration and archiving in each country. They could be policy makers, researchers, educators, historians, archaeologists, and the like. If you add another objective aimed at collecting contributions of case studies and documents to digitize and archive the region's cultural heritage, both tangible and intangible, in order to preserve and promote digital exchange of information, your target audience will expand to include archivists, librarians, information specialists and digital experts. Note that a website may target multiple and overlapping audiences rather than just a single group.

During the brainstorming stage, it would be wise to first draw up a comprehensive list of your full range of potential users. Then ask which of these user groups are you equipped to serve and provide information to on a regular basis. In the example above, if your site is only starting to build your network, advocate for support, and raise funds, then your user groups can start with policy makers and administrators from international, government and non-governmental organizations engaged in cultural restoration and preservation as well as some relevant donor agencies. As you expand your objectives to include the collection of information and documents and building of databases, your primary audience will expand to include researchers and practitioners at the working level of the hierarchy. Of the remaining list, which potential users are most likely to have access to the Web? This

question will become less limiting as Web access becomes more universal, but you will need to consider it in your near-term planning. Audience definition will influence every aspect of your website's design (IBM. "Web design guidelines". http://www-306.ibm.com/ibm/easy/eou_ext.nsf/publish/572)

For example:

- ◆ Language - which languages will best serve your audience, the appropriate levels of complexity and formality?
 - ◆ Placement - where will you advertise your URL and what keywords will you include so that your site will turn up in your target audiences' search results?
 - ◆ Approach - will your site be playful or scholarly, pictorial or language-oriented?
 - ◆ Input and output media - will you largely use oral or visual, or both?
 - ◆ Participants - who will participate in user testing, focus groups, task surveys?
- **Determining user requirements**

What does your target audience want from your website? The most direct way of finding out is to ask them or, at least, to ask some representative members of the group. This can be done through the following ways:

- ◆ **User feedback** - Install a feedback form on appropriate pages of your site that is easy to fill out and send. User feedback can be an extremely valuable way to recognize problems with website content or design, e.g., unable to find what users are looking for, etc.
- ◆ **Surveys** - Online surveys can give you user feedback on what users want or need from a website or how well an existing website is working for them
- ◆ **Usage statistics** - Usage statistics can give you information about who is accessing your site and what type of information they are accessing. By analyzing the access log files



on usage statistics, you will know the keywords or phrases that users type in your search box. This will help you formulate your keywords and consider buttons or link titles.

- ◆ **Other traditional ways** - These include focus groups or discussion groups during meetings, training and workshops, or through formal and informal interviews.

If the responses from various groups point in divergent directions, offer varying contents tailored to the needs of each group.

- **Knowing your clients' technology environment**

Determine what equipment and software your users will use to view your site. You may need to know what browsers they are using. Do they have Java support? What are their connection speeds? What are the capabilities of their workstations? Do they use special software such as screen readers? The client environment is typically very heterogeneous; the various hardware and browsers your audience may use can lead to many variations in your beautiful site design. At present, there is no perfect solution to this issue, but you may choose from the following approaches:

- ◆ Have the server test client capabilities and make necessary adjustments. For example, determine the browser run by individual users, and send only data appropriate to that browser.
- ◆ Provide users with options. For example, let them choose to view your content with or without frames.
- ◆ Design to a certain standard and accept the fact that not everyone will be able to use your site. For example, you may decide not to support older versions or less capable browsers.
- ◆ Design to the lowest common denominator. This will greatly limit what you can do, but you can be sure everyone will be able to view your content.

3. *Determining and formulating your goals and objectives*

Those who decide to build a website have a reason or reasons in their mind. These reasons could have been generated by policy or by the executives of the organization, or they could have been brought about by a project or by practitioners implementing the projects, or they could have been due to user demand to access information easily. There have been many instances when a website started off with contents that were meant to support the goals and objectives of the executives of the organization. But as time went by, the contents started to go in a different direction, posting information that were responding to actual but unarticulated user needs. As a result, the web pages became confusing as the contents were not synchronized and unified. One lesson learned here is that the formulation of a website's goals and objectives should always involve everyone involved in the development especially the users themselves.

- **Set measurable goals and objectives**

The statement of goals, purpose or objectives serves as a driving force throughout the process of website development. The statement of purpose helps you to decide on what information about the audience should be gathered and maintained, as well as on the website's presentation. State your website's purpose in measurable terms so that you will be able to analyze your accomplishments and determine the level of your achievement. Goals can help you develop content and set priorities for your website's development.

Examples of goals are:

- ◆ Increase visits to your site by 100 percent by the second year;
- ◆ Expand your database with digitized documents on silk road, running up to 300 documents, by the end of the year; and



- ◆ Set up your international network with an initial membership of 10 organizations, increasing two-fold after the second year.

Usability and system performance are particularly important areas in which to set goals. Establishing goals and periodically checking your progress against them help you understand what works and where further improvements are needed. Without a statement of purpose, there is no basis for evaluating whether a particular website is operating effectively. A website without a clear purpose also produces confusing and vague content and messages.

- **Generic goals from the point of view of an organization**

Below are some examples of generic goals that organizations creating a website can consider:

- ◆ **Increase user satisfaction**
Providing information and services to your users seven days a week/24 hours a day can increase user satisfaction.
- ◆ **Broaden audience reach or market**
Websites can increase your market by reaching out to people you're your region and around the world.
- ◆ **Increase awareness**
Websites can increase public awareness of your databases, products or services.
- ◆ **Reduce the cost of producing printed media**
The cost of printing a publication can be very expensive. Sometimes by the time a publication goes to print, it is already out-of-date. The potential audience reached is determined by your 'mailing list'.

◆ Reduce technical support staff

The website is a good place to provide technical support to users. As the technology changes, the information is easy to update or expand. The website is a cost-effective and cost-saving way to distribute user-specific technical support.

● Guidelines for formulating measurable objectives

The following guidelines have been adapted from Hilliard, Ralph. "Defining your primary goal and audience". <http://www.davetew.homestead.com/gettingstarted.html>

1. *There should be one primary goal.*

It is possible to have secondary goals but it is important to have one primary goal because that is your beacon, your cornerstone in the design. Giving your users the information they want and need is critical to the success of a website. To create a user-centered website, identify a goal that is common among your users. Although user groups have different goals, selecting a common goal and using that as guide to your website development can be very productive.

2. *The goal or purpose should be specific; list only those that are attainable.*

For example, the purpose, "***promoting cultural exchange on Silk Road***" is very general and will not help much in identifying your website's possible contents. You could make it more specific by re-stating it this way: "***promoting cultural exchange on the restoration and preservation of cultural heritage on Silk Road through the use of new digital technologies***". This is more specific. It tells you that what you should place on your website are techniques and strategies for collecting information and documents and digitizing them in order to help restore and preserve cultural heritage on Silk Road. It also helps in devising ways to promote exchange and discussion.



3. *The purpose should be inseparable from the primary audience.*

The primary goals listed so far are missing at least one element, that is, audience. A primary goal and the primary audience are inseparable. The purpose statement contains the audience identification within it. Audience identification is a part of the statement of purpose because so much of the "what is this supposed to do?" question about a website revolves around the specific audience mentioned in the website's statement of purpose. Let's add a primary audience to the definition we have so far.

"Promoting cultural exchange on the restoration and preservation of cultural heritage on Silk Road among policy makers and researchers through the use of new digital technologies"

We have added our audience, "policy makers and researchers". Yes, it is quite acceptable to be this specific. You can always approach wider audiences at a later date after you have been successful with smaller ones. Instead of approaching your website as a blank canvas that you have to creatively fill, you have a very specific course of action.

● **Some examples of website purposes**

Following are some sample purpose statements that contain many of the points outlined in the preceding list. Notice that the more complete the statement of purpose, the easier it is for users to answer the question, "What is this for?" when visiting the website.

- ◆ "The purpose of this center is to serve the needs of researchers, students, teachers, and practitioners interested in computer-mediated communication (CMC). This center helps people to share resources, make contacts, collaborate, and learn about developments and events." - (from the Computer-Mediated Communication Studies Center <http://www.december.com/cmc/study/center.html>)

- ◆ "The purpose of this server is to provide access to a wide range of information from and about Japan, with the goal of creating deeper understanding about Japanese society, politics, industry, and, most importantly, the Japanese people." -from the Center for Global Communications home page (<http://www.glocom.ac.jp/index.html>)
- **Statement of objectives should follow statement of purpose**

The objectives list defines a website's specific goals. Based on the purpose statement and audience definition of a website, you can list the specific information, communication, or activity objectives that your website will support. ("The following material is excerpted/adapted with permission from John December's Web Development site available online at <http://www.december.com/web/develop.html>")

After a developer plans the website's purpose, its audience and what should be known about the audience, the next step is to combine all these information in order to arrive at a specific statement of website objectives. A statement of objectives is much more specific and lengthy than a statement of purpose. A statement of objectives clarifies the specific outcomes and information that will implement the website's stated purpose. The statement of objectives expands on general descriptions provided in the statement of purpose. An important difference exists however. Although the statement of purposes might remain constant, the statement of objective might change as new information about the domain or audience becomes available.

An example of a **purpose** is as follows: "**to provide access to a wide range of information from and about Silk Road**".



The **specific objectives** could include:

- ◆ *Establish a discussion forum among policy makers, researchers, historians, academic staff, and so on to discuss the criteria for selection and collection of documents on Silk Road.*
- ◆ *Develop digitized database of documents on Silk Road searchable through various entry points.*
- ◆ *Provide ordering and service information.*
- ◆ *Provide submission forms to enable users to post their contributions online.*

Another example is:

- ◆ *Purpose: Help people share resources.*
- ◆ *Objective: Provide a list of resources with links to the following: major on-line collections of CMC-related material, bibliographies, academic and research centers related to CMC, and online journals.*

4. *Developing your website content*

- **Start with needs assessment**

There are a number of approaches to develop website content. One way is to undertake a needs assessment survey directly asking your potential users what subjects they are interested in and would therefore like to see in your site, and what information they want, including type, form and presentation format and frequency of updates. A second way is to compile the responses to questions that you commonly receive from your users. The people within your department who have the most contact with your users should be involved in this process. The key questions to ask are:

- a. What are the questions that you hear most often from your users?
- b. What suggestions have you received?

- c. What types of complaints do you get?
- d. Are your users ever confused or frustrated about your services or products?
- e. Is there anything that you need to explain over and over again to your users?
- f. Is there any topic that you wish your users were more informed about?
- g. Do you have information from paper documents that you would like to include in the website? Can someone provide you with an electronic document so that you do not need to type in the information?
- h. Do you have paper forms that you would like to include in the website? Instead of simply converting them into images, which are not accessible to all users, you should consider putting them in web form.
- i. Do you have information stored in a database that can be added to your webpage? CGI/Perl, PHP, ASP, Cold Fusion, MySQL, and other technologies can be used to place information from a database on your website. It speeds up development and makes information easier to maintain.

Source: The University of Arizona, "Planning a website-web style guide at the University of Arizona" <http://uaweb.arizona.edu/styleguide/planning.shtml>

- **Determine site content**

After determining the information needs of your users, the next step is to identify the content of the website and outline the different topics of the entire site. If some contents are readily available, note within an outline the location of each pre-existing section and identify the strategies for gathering them.. Key questions include: Are there specialized databases to which developers must gain access? Is there an existing store of on-line material that will serve as basis for user information? Assign areas of missing content to appropriate team members and



remember to include their content-creation time in your schedule. Site content tends to fall into three categories:

- ◆ Initial - what must be there when the site is published
- ◆ Core - what information will remain there through refreshers and redesign
- ◆ Transient - temporary items

The depth and breadth of site content will also depend on user requirements. Do you want the depth to be sketchy, adequately informative or substantively and intensively detailed? Should the breadth be broad, comprehensive and complete or selective to start with? Perhaps it will be wise to first identify the initial information needs of users and develop the content from there. As the website is visited by more people who can provide feedback on the lack of depth and breadth of your site, then further investigation of information needs should provide the basis for its broadening and becoming more detailed and complete. This issue can be addressed also by prioritizing the list of topics that are included in your content and those that are considered important can be substantively built first and the lesser priority topics to follow.

- **Plan on how to collect information**

After determining the site content, how can it be obtained? This stage is not as easy as it sounds. Oftentimes, the information you want to post are already available on other sites and you come across many websites which have links to other sites' electronic documents and therefore mostly contain secondary information that can be found elsewhere. If you want your site to offer value added information, there is a need to collect primary information and analyze, synthesize and repackage secondary information available elsewhere to provide new and fresh views of the subject. This will also save the users' time and effort in accessing and reading this wealth of voluminous information from individual websites.

One way of starting content collection is by listing potential sources of information and the resources available from them. Information can be usually collected from the following:

- ◆ Your own organization's publications, research, reports, and staff papers;
- ◆ Partner agencies' information products that are accessible to the public
- ◆ Related research which operates databases of research
- ◆ Libraries and information centres' holdings and databases either online or offline
- ◆ Experts, specialists and consultants papers or research
- ◆ Online depositories of digitized documents
- ◆ Post-your-article submit buttons

Building a website can be a two-way street. While you do not want to post a site full of blank pages, you should expect that visitors to the site may want to reciprocate by providing you with information as well. Posting short articles of research reports on Silk Road heritage could motivate readers to experiment and send you their paid articles and research as well.

● Update the contents

There should be plans for updating and maintaining information. It is not enough to define and acquire information. Some time-dependent information are bound to lose their usefulness. How will they be updated? Who will update the information? What will be the costs of updating and maintaining information? The level of attention paid to information acquisition and maintenance varies a great deal according to the purpose of the website itself. A news service website should be updated on an hourly or daily basis. In contrast, the frequency of updating a website that contains new knowledge will depend on the length of time needed to generate new knowledge. For example, it may take some time to update a database of research or project descriptions.



Other important considerations at this stage is the need to decide on who will own the information or to whom it should be copyrighted - is it to the organization, the author, or all the contributors? What standards are to be followed for publishing and who should decide what can be published? This could be handled by an editorial committee and by a website editor with responsibility for ensuring the quality of content. The committee can draw up publishing standards based on existing standards and set up policies concerning frequency of updating and posting new information.

5. *Planning support system and technology*

A) *Setting up the production team*

Systems planning means involving people who are key to the success of your website. They key questions to ask yourself are:

- ◆ Will your website production team be composed of in-house people, outside contractors, or a mix of the two?
- ◆ Who will manage the process?
- ◆ Who are your primary content experts?
- ◆ Who will be the liaison to external contractors?
- ◆ Who will function as long-term webmaster or senior website editor?

As in publishing, website development requires the work of a team composed of different kinds of people with different skills. Working together is crucial to success. In the past when website development was just starting, it was not uncommon for a single generalist (mostly an IT person who knows the technical aspects of website development) to serve as webmaster and sole developer of a website. Today the trend favours a team approach, in which people with a variety of specializations work together to produce a website. In fact, while the most important person in the early years was the technical staff (the web server administrators and implementers of HTML), the attention has now shifted to content developers and producers. Eventually, the focus may shift toward creative information producers.

Types of people making up a website team

The following types of people make up a website team

Planners. Planners develop strategies for website development, producing the blueprint that will identify the mission, goals, objectives, target audiences, content, and various other elements that make up a website. The planner is often the administrator or initiator of a website project itself and in many cases may be considered leader of a website team. They also oversee the monitoring of the progress of a website and its strategic growth, making improvements in the process.

- ◆ **Website writer and editor** - To maintain consistent editorial, graphic design, and management policies, there is a need for one person to act as writer and editor of the overall website. The website editor's duties vary based on how the site is maintained. Some editors do all the work of maintaining site content, relieving their co-workers of the need to deal directly with web page editing. Other editors coordinate and edit the work of many contributors who work directly on website pages. If different groups of people contribute to site maintenance, the site editor may choose to edit pages after they are created and posted to avoid a bottleneck in the communications process. In the case of high-profile public pages or pages with very important content, the editor vets these before they are posted in public. In addition to maintaining editorial quality, the editor should ensure that the content reflects the policies of the enterprise, is consistent with appropriate, local use policies, and does not contain material that violates copyright laws.
- ◆ **Designers.** Designers are responsible for creating the physical appearance of a website, including the development of graphics, images and other tools that will make the website pleasing. Beyond this, they are also responsible for hypertext and hypermedia organization and design. A website designer should have all the technical skills of an implementer, a strong sense of the website's objectives and audience, and a thorough feel for the Web and the Internet as a new medium.



- ◆ **IT specialists or Technical Managers.** IT specialists or technical managers include information architects and computer programmers. They possess skills to create HTML, CGI scripts, or Java applets based on the design and specifications of a website. CGI scripts and Java require skills in computer programming, coding and software engineering techniques. Implementers need to create software that is dependable and easy to maintain.
- ◆ **Promoters.** These people are basically from the communications, public relations and media fields. They are skilled in public relations, advertising, and marketing issues in relation to the Web. Promoters employ various modalities for promoting a website and are responsible for increasing visits to the site.

B) Building the technology and system support aspects

This is a very important element in website planning as both technical and system support provide the backbone for the operation and maintenance of your website. Some key questions are as follows:

- ◆ What web creation or authoring tools will you use or should you opt for a web content management system?
- ◆ What browsers and operating systems should your website support? (Windows, Macintosh, UNIX, Linux, Netscape Navigator, Internet Explorer); minimum version supported.
- ◆ What are your major considerations to ensure good web server support?
 - * Shared or dedicated hosting
 - * Choose an appropriate website name or domain name
 - * How much disk space for storing different parts/files of your website
 - * Will you need an email account and how will the host configure this for you?
 - * Will you have FTP access and can you create your own FTP accounts?
 - * What are your data transfer and bandwidth requirements?
 - * How much bandwidth do you need and how much can the host offer you and at what cost?
 - * Does it support all basic file types?

- * What scripting magic does the server offer?
- * What kinds of databases will you set up and what kinds of database applications do you require?
- * Can your host provide support for your multimedia requirements?
- * Will you require 24-hour, seven-days-a-week support and maintenance?
- * Will you need statistics on users and site traffic?
- * Is your server log analysis in-house or outsourced?
- * Is the search engine suitable for your content?
- ◆ Will you go for static or dynamic HTML (HyperText Markup Language) and advanced features?
 - * Will you go for static or dynamic pages?
 - * What applications do you need for implementing dynamic web pages?
 - * Do you need the following applications for dynamic pages (JavaScript or vbscript required, Java applets required, Style sheets required, Third-party browser plug-ins required, Special features of the UNIX or NT server environments required, Special security or confidentiality features required)
- ◆ Will you set up databases and which application will you choose?
 - * What software or application will you use in building your online databases?
 - * Will you need contribution, search and retrieval from databases?
 - * What user log-ins are required to enable entry into any site area?
 - * Are questionnaires required?

Details behind these questions are dealt with in Chapter Two on Website Design and Development

6. *Planning the information and organizational architecture and design*

Before embarking on actual production and development, it is important that the design and organization and information architecture of the website should be planned with the website team. These will include the following:



- ◆ Content specifications - content outline and how the various parts will be organized
- ◆ List of databases to be set up - how many, for what purpose, what will be the content and how will they be searched
- ◆ Design specifications - the page grid, page design, and overall graphic design standards, basic interface design
- ◆ Navigation scheme and interface - should the trail or path through the different parts of the site be centralized from homepage, hierarchical, linear, cued, global, local, etc
- ◆ Site structure, site map or diagram
- ◆ Prototype of pages, thumbnails
- ◆ Interface design sketches

More details are found in Chapter Two

7. *Budgeting*

Website creation and maintenance are work in progress and thus require careful budgeting. Lack of budget can result in a static and stagnant website that will incur loss of visitors. The following are some key considerations when budgets are allocated for website development and maintenance (Lynch, Patrick and Horton, Sarah. Web style guide. <http://www.webstyleguide.com/type/align.html>)

- ◆ Salaries and benefits for short-term development staff and long-term editorial and support staff
- ◆ Hardware and software for in-house development team members
- ◆ Staff training in web use, database, web marketing, and web design
- ◆ Outsourcing fees
 - * Site design and development
 - * Technical consulting
 - * Database development
 - * Site marketing

- ◆ Ongoing personnel support for site
 - * website editor or webmaster
- ◆ Ongoing server and technical support
- ◆ Database maintenance and support
- ◆ New content development and updating

8. *Drawing up a schedule*

The time duration for website development varies depending on the level of sophistication and complexity of the design and content. Whatever the size and scope of the website, it is a must to set up a schedule. As has been said previously, website development is an ongoing process and if your organization wants to set up a website that is absolutely complete, then you can never finish the process and will create unnecessary delays in publishing your website and uploading on your server. Thus, create a schedule that provides time for planning (including the time it may take to obtain permission to use other organization's content), designing, producing, testing and iterating. Validate the schedule with members of the team. Schedules help a team focus and they can use the target dates to revisit their progress and determine if they will meet or beat their schedule.

The following is a sample schedule detailing specific checkpoints throughout the development process. Your schedule might vary depending on the size of the site that you are developing. Below is an example adapted from the IBM."Web guidelines" http://www-306.ibm.com/ibm/easy/eou_ext.nsf/publish/599

Rollout

As has been said previously, a website may already be published without first completing all the content and parts. You may choose to publish your site in stages, beginning when all your initial content is ready. The rest of the contents and parts can follow at the second, third and fourth stages. The important thing is to plan the rollout systematically so that the users can more or less



expect regular updates of the site and references to information that are not yet available can be prevented.

It is also advisable to have alternative or contingency plans just in case the promised content or information does not come through. A few articles or graphics that have been scheduled for submission could get delayed or might never materialize. These will hold up publication of the website. Decide which content is critical and manage that closely. Consider alternative content that may be substituted, if necessary, or plan for ways to drop some content without ruining the structure and purpose of the site.

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The University of Arizona, "Planning a website-web style guide at the University of Arizona".

<http://uaweb.arizona.edu/styleguide/planning.shtml>

"Process Planning: Web Style Guide." <http://www.webstyleguide.com/process/plan.html>

Webpage Design and Development

Webpage Design and Development

When designing and developing a user-friendly website, there are four essential elements to focus on:

- ◆ First, the artistic and visual/graphics components first seen by visitors on the screen.
- ◆ Second is the content, the words, the text and the information that constitute the reason why users visit your website.
- ◆ Third is the structural component, not entirely visible, that supports your visual design and which makes your website navigable.
- ◆ And fourth, is the standard web technology that supports and ensures the functionality of your website.

Although developing and structuring a website and publishing print-based media follow similar/common principles and guidelines pertaining to design, creation, assembling, editing and organisation, there are marked differences between webpages and printed pages. These differences arise from the fact that webpages are presented on a computer screen. For one thing, typefaces on a computer screen are at a much lower resolution than those found in printed materials. In the main, magazine and book typography is rendered at 1200 dots per inch (dpi) or greater, whereas computer screens rarely show more than 85 dpi. Also, individual webpages can only deliver limited amounts of information because the usable area of typical computer screens is smaller and therefore users have to scroll down to read the entire text.

Also, you will never know how your font or graphic will look on the user's screen as the complex interaction of the web browser and server and the operating system of individual computers affects

the presentation of each line of text, headline, and font and type. For example, computers with out-of-date browsers or those that have designated different sets of font preferences may encounter the problem of missing fonts.

The following guidelines for developing and producing websites are classified under the four elements and are aimed at addressing the issues described above.

I. Artistic and Visual Elements

Visitors' first impression of your website is influenced by visual elements and messages communicated to them. Apart from a consideration of visual elements, the "look" you want to create is of course dependent on your website's objectives and content. To start with, the website's look should spring from the corporate style and design of your overall promotional campaign or strategy, making use of the same logos, organisation colours, graphics, pictures, and so on. Your website design should also create visual logic and strike an optimal balance between visual sensation and graphic information. Dense text without the visual impact of shape, colour, and contrast will certainly discourage users from visiting your website, much less read pages full of text that are difficult to read, particularly on relatively low-resolution screens of personal computers.

On the other hand, one can get carried away using flashy web graphics, including fancy background patterns and animations that may not only be unnecessary but could also slow download time. A professional approach is to pay more attention to accessibility and fast download speed rather than a fancy look.

Guidelines

The following are guidelines to achieve efficiency and accessibility in your design



1. Create a strong visual hierarchy

The major purpose of graphic design is to guide the reader's eye through the page, calling attention first to the large masses of shape and colour with contrasting elements, then leading him/her to identify and focus on specific/most important information, finally letting the user read individual words and phrases. Thus, the graphic design should highlight the most important elements first and organise content in a logical manner in order to create a strong and consistent visual hierarchy.



Eyes first on large masses of shape and colour with contrasting

Then eyes scan headlines and section sub-heads

Finally text details are read

2. Create design grids to bring order to the pages in order to achieve a strong visual hierarchy.

As mentioned in guideline no. 1, a website that haphazardly mixes graphics and text with unbalanced and inconsistent design scheme will not only decrease usability and legibility but also reduces the readers' confidence and interest.

To achieve good balanced design and visual hierarchy, the first step is to establish a basic layout grid. This will serve as the graphic "backbone" which will guide you how you will locate your various major blocks of information and graphics as well as where you will place your major screen titles, subtitles, and navigation links or buttons so that your users will see a pattern and unified look. With this, you can create a template that allows you to plug in text and graphics without creating a new design each time for every page. This will produce a consistent and logical screen layout.

Margins play an important role in creating a logical visual hierarchy. They separate the main text from other page elements. They also create a structured look and establish a contrast between areas on the screen that contain graphics and text and the open space around them. By using the same structured look in a consistent manner, a unified look and a visual hierarchy are created throughout the website.

There are various ways of creating margins in your text blocks. Left-justified, centred, right-justified, and justified text are the alignment options available on the Web. Among these, research has shown that the best solution for most layout situations is left-justified text blocks and headlines (Lynch, Patrick and Horton, Sarah. Web style guide. <http://www.webstyleguide.com/type/align.html>). Why is this so? Briefly below is a comparative description of the other types of margins



- **Justified text**

Justified alignment creates solid boxes that look formal. One disadvantage in using this is the difficulty in making fine adjustments on low-resolution computers. Web browsers are unlikely to offer automatic hyphenation, sacrificing the readability of documents.

- **Centered and right-justified text blocks**

Centred and right-justified text blocks are difficult to read. While the normal way of reading is from left to right, text in this type of alignment is read from right to left. It is also much harder to scan ragged left margins because the eye needs to search for the beginning of each new line as the text is read.

- **Left-justified text**

Left-justified text is the most legible option for webpages because the left margin is even and predictable and the right margin is irregular. This is easy to scan. Furthermore, it is easier to space words in the middle of the text area because adjustments are made at the end of each line. The "ragged" right margin also adds variety and interest to the page without interfering with legibility.

Justification of headlines

In the same way, titles and headings over left-justified body text should also be flush left. Centred headings pair well with justified text, but justified text should not be used on webpages. Centred display type contrasts with the asymmetry of the ragged right margin of left-justified body text and produces an unbalanced page.

What was the Silk Road?

The "Silk Road" refers to a series of routes that crisscrossed Eurasia from the first millennium B.C.E. through the middle of the second millennium C.E. The best known segment of the Silk Road began in the Chinese capital of Chang'an (Xian), diverged into northern and southern routes that skirted the Central Asian Taklamakan Desert, converged to cross the Iranian plateau, and ended on the eastern shores of the Mediterranean in cities like Antioch and Tyre.

By the 4th century B.C.E. when Alexander the Great crossed the Indus River into Central Asia, Chinese silk had already found its way to the Mediterranean. Important periods for the Silk Road were the Chinese Han dynasty (206 B.C.E.-C.E. 220), the Chinese Tang dynasty (C.E. 618-907), and the Mongol Khanate (13th and 14th centuries). The Mongols, who ruled a vast empire, safeguarded a northern Silk Road land route that crossed the Eurasian steppes.

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Right justified



3. Promote familiarity in the design - avoid complex design

What is familiar to the users makes for readability and usability. Highly unusual and "creative" designs and sophisticated homepage metaphors could turn off users who are unfamiliar with these and are unwilling to spend extra time deciphering and decoding these images. Thus, interface metaphors should be simple, familiar, and logical. For example, a book or a house is a more familiar image compared with abstract, stylised and vague figures.



Familiar images and metaphors like heart, electronics, clothing, jewelry



Unfamiliar metaphors

4. Promote consistency in design

Apart from the need to be immediately familiar to users, your website should maintain consistent patterns. This means that throughout the website, the readers should find the same basic layout grids, graphic themes, editorial conventions, and hierarchies of organisation.

As with documents formatted on a word processor or as with brochures, newsletters, or newspapers formatted using a desktop publishing programme, your website should be consistent in its use of graphic images and elements and in its choice of typefaces, headings, and footers.

For example, a drop cap in the first letter of the first paragraph of a section should be repeated in succeeding sections. Link-colours should be consistent throughout the webpages, the same with typefaces and background colours. Consistency can also be achieved by establishing a graphic theme throughout the website, using a set of navigation buttons and a navigation banner, choosing appropriate types and sizes of fonts and headings, maintaining inter-paragraph spacing, and so on.



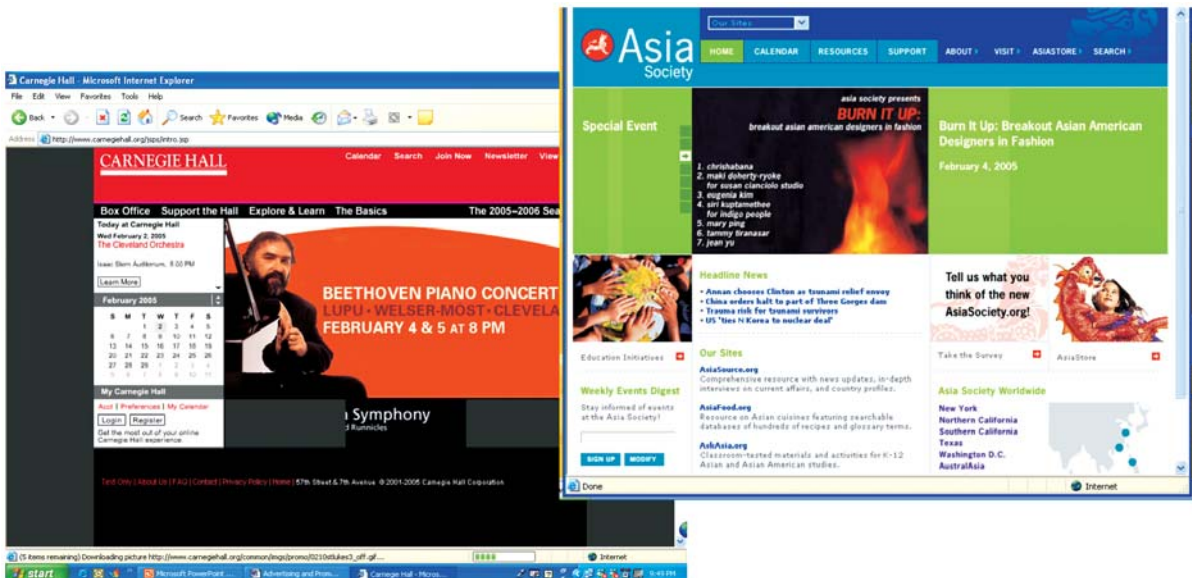
Three UNESCO homepages dealing with Education for All, primary education and secondary education. Note that they have consistent layout grids, i.e., three columns, same logo, same navigation bars, same graphic themes and hierarchies or organisation of content. Creates unity, familiarity and produces a corporate look.



Consistency can be achieved by creating a layout grid and a template, using the same style for handling text and graphics and applying it throughout the website. Repetition creates a familiar graphic identity that produces a corporate look, making your website easy to remember. Users become comfortable in exploring your website, confident that they will find the information that they are looking for because there are familiar and consistent signposts to guide them.

5. Use contrast to draw reader's attention

A page full of straight text, undifferentiated in its presentation with no cues, images and graphics to break the monotony repels readers. On the other hand, an excessively decorated webpage



Contrast is shown in the use of fonts (bold, regular, small and large size), blocks in different colored backgrounds, different sizes of headline fonts, use of white space and coloured backgrounds.

that is laden with graphics and images cry for attention, downgrading the importance of the substantive parts of a website. The key principle is to strike a balanced contrast between the visual elements and the information or content, while providing a sense of organization.

There are many ways to achieve contrast. There can be visual contrast between fonts and between text blocks, headlines, and the surrounding white space. For example, the text can be in one font type, while bigger and bolder fonts can be used for headlines and sub-headings. The gray effect of dense text can also be broken with the use of text boxes set against coloured backgrounds and graphics. Using white space in one area to balance another area that is full of text can also produce good contrast.

5. Ensure that your design does not interfere with accessibility

A website is generally considered a visual medium and because of this the development of a website usually starts from the design angle, often overshadowing the importance of accessibility. Very often, preoccupation with the development of better-looking designs results in the use of large images, proprietary media formats and complex page layouts that are difficult to access and download, especially by users who only require clean HTML or use text-only browsers and whose computer facilities cannot access complex sites. Fortunately, recent developments in HTML creation now offer more visual controls that enable designers to create structured and navigable websites without resorting to various "tricks".

6. In case of complex and hard to access design, always provide a fallback or alternate version

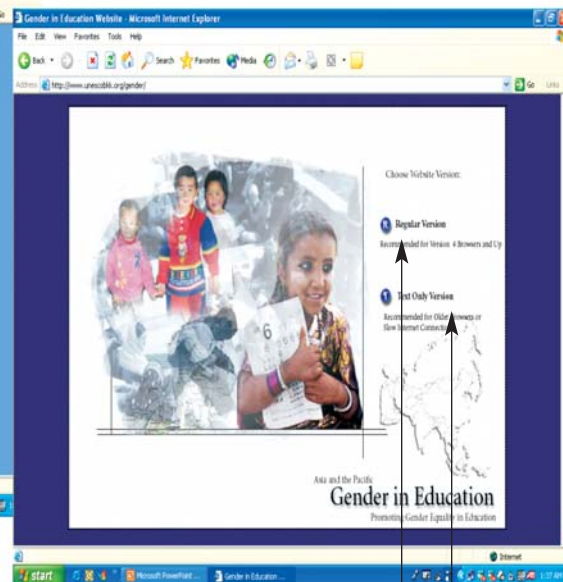
If your website's presentation uses not only text but graphics and multimedia features as well, be sure to provide an alternate, or fallback, version especially for those who have no capabilities to receive graphics and images.. This means allowing the site content and presentation to transform under different conditions. For example, those users without graphics capabilities can still



understand the function of graphics on your pages by building an alternate text descriptions, a capability that HTML provides. Users with text-only browsers or those who have turned off image display will still see the alternate text in place of the visuals. Blind users using specially designed software will hear (via synthesized speech) the alternate messages you supply along with your graphics ("ALT" attributes in HTML) and so will not completely miss the content of your pictures and graphic navigation buttons. If you use graphic menu systems for navigation, these text-based alternate menus offer an important aid to users who cannot see your graphics.



United Nations website indicating a text version



UNESCO gender website giving two versions: regular and text versions

7. Use Cascading Style Sheets (CSS) to style your webpages to promote accessibility

Your content can be made more accessible if you use Cascading Style Sheets (CSS) to style your pages. With CSS-styled pages, users can easily individualise formatting to Web documents. For example, a page designed using blue text against a green background, presents a problem for users with blue-green colour blindness because they may not be able to distinguish the text easily as the contrast between text and background may not be great enough. If the colours are set via a style sheet, users can set their browser preferences to override your settings and can apply their own style sheet to the page instead. With CSS-styled pages, the user can transform Web content into a format that addresses their requirements for accessibility. (Lynch, Patrick and Horton, Sarah. Web style guide. <http://www.webstyleguide.com/type/css.html>).

8. Design your website to the lowest common denominator of current computing and network technology

Generally, website developers, compared with the average reader, have better equipment that aid them in their work and encourage them to design sophisticated websites. This is of course ideal and impressive, but the problem is that the majority of users may not have the best equipment, current software, or good Internet connection to access information-rich websites. In such a situation, the advice is this: do not design for your machine, design for your average reader.

There are a number of strategies to ensure as much compatibility in the computer technology available to the developer and the reader. First, make sure that content areas are within the horizontal area of the screen; always check your page designs on typically sized display screens (800 x 600 pixels). Usually this will limit the width of your page layouts to no more than 760 pixels. Second, it is known that users with slow modem connections usually turn off the image display in their browsers. Try turning off graphics in your web browser and look at your pages. Are they still intelligible and navigable? Do you use ALT statements for every graphic? Do you use blank ALT



statements (ALT="") to hide irrelevant graphics or spacer graphics from text-only browsers? (Lynch, Patrick and Horton, Sarah. Web style guide. <http://www.webstyleguide.com/page/dimensions.html>)

Third, try not to cater to only one browser technology or browser plug-in. For example, there are websites that announce on their homepage (while it is being downloaded), "This site is optimised for Internet Explorer 5.5 and Macromedia Flash 5". This is the design for readers using major browsers released during the past two years. If you have to depend on proprietary browser plug-ins, try to position the material that is dependent on the plug-in deeper within the website. This is where the reader presumably will already have committed to your content and may not mind the bother of having to download a plug-in to see special features.

9. Ensure page and graphic safe areas

Most display screens used are 17 to 19 inches (43 to 48 centimeters) in size and most are set to display an 800 x 600-pixel screen. This condition is usually ignored by many website developers in developing their sites and as a result, there are websites where the right margin of the text cannot be seen on the screen. Because a computer screen is typically smaller than a typical book page, the width of the page text and graphics should not extend beyond the areas that most viewers see on their 18 or 19-inch display screen. Webpage text and graphics that exceed the width dimension of the regular display screens will force many readers to scroll both horizontally and vertically to see the full page layout. Many readers consider this laborious and tedious.

Another common problem when page layouts are too wide and do not fall within the typical size of computer screens is that users lose several words down the right margin when they print the webpage text of the concerned document. Many users are unaware of the "fit to page" option provided by current browser versions to resolve printing problems by scaling the page contents to fit the standard paper width. Many of them resort to reducing the font size and as a result the text becomes too small and the document is unreadable.

To address these problems, ensure "safe areas" in your website. The graphic safe area dimensions for printing layouts and for page layouts designed to use the maximum width of 800 x 600 screens are shown below.

Graphic "safe area" dimensions for layouts designed to print well:

Maximum width = 560 pixels

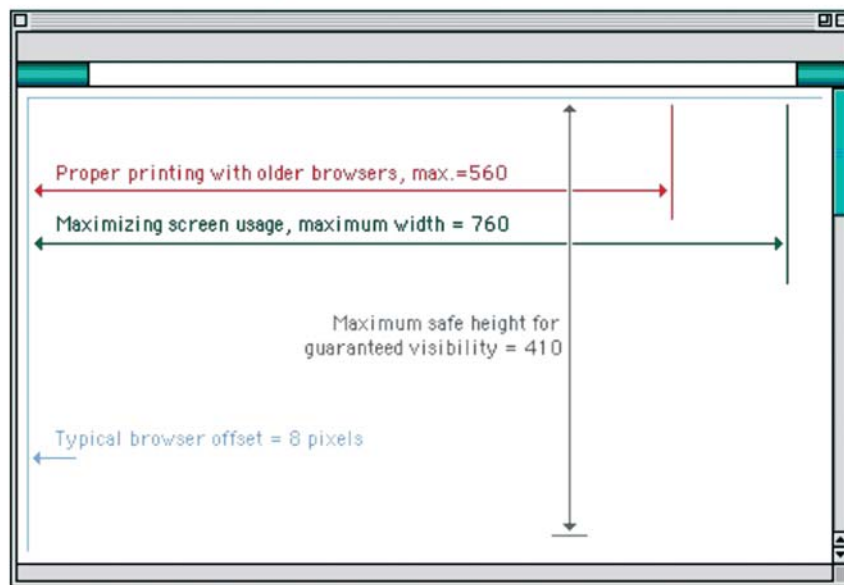
Maximum height = 410 pixels (visible without scrolling)

Graphic "safe area" dimensions for layouts designed for 800 x 600 screens:

Maximum width = 760 pixels

Maximum height = 410 pixels (visible without scrolling)

GRAPHIC SAFE AREAS FOR 800 X 600 SCREENS



Source: (Lynch, Patrick and Horton, Sarah. Web style guide. <http://www.webstyleguide.com/page/dimensions.html>)



10. Determine the appropriate webpage length but keep to two screens, if possible.

Users become confused apart from being annoyed when they have to scroll down a document that spans several screens and basic navigation bars and menus disappear from the screen. This is the fastest way of losing visitors to your website. What is the appropriate length of a page? As a rule of thumb, it is ideal to create webpages with content running no more than two screens that carry navigation aids at the top and bottom. But it is not as simple as this as page length can also depend on the relationship between the page and screen size, taking into account the content of the document, the bandwidth available to the readers, and whether they are expected to browse the content online or to print or download the document for later reading.

In general, you should favour shorter webpages for:

- ◆ homepages and menu or navigation pages elsewhere in your website,
- ◆ documents to be browsed and read online, and
- ◆ pages with very large graphics.

In general, longer documents are:

- ◆ easier to maintain (content is presented in one piece, not in linked chunks). Website managers do not have to maintain as many links and webpages with longer documents and users do not need to download multiple files to collect information on a particular topic,
- ◆ often easier for developers to organise and for users to download,
- ◆ more similar to the structure of their paper counterparts (i.e. not chopped up), and
- ◆ easier to download and print.

If a webpage is too long and/or contains too many large graphics, users with slow connections require long periods of time to download. The computer could crash, causing the page to display and print improperly. (Lynch, Patrick and Horton, Sarah. Web style guide. <http://www.webstyleguide.com/page/length.html>)

11. Give information in small chunks or create vertical zoning

Further to fitting long documents within the two screens or keeping them short for easy scanning, saving and printing, divide the document into chunks of no more than one to two printed pages' worth of information, including graphics or figures. Transfer secondary information to other sites

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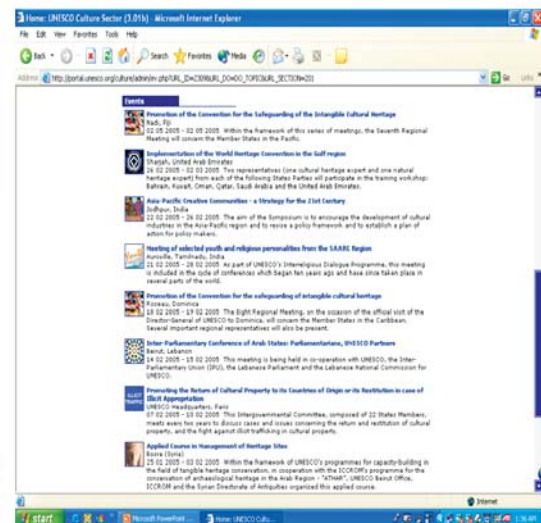
OSH, southern Kyrgyzstan, and the FERGANA VALLEY, Uzbekistan - A constant smirk is imprinted on his face. In his black-padded traditional Uzbek cloak, black boots, white skullcap and sporting an incipient beard, Alisher (not his real name), a young man in his mid-20s, is either despondent, extremely self-assured, or both. He is not rural *madrasa* fodder: he is college-educated, and had no need for a religious school education. But he is unemployed nevertheless. In many ways, just by the power of his faith, he is more lethal than a suicide bomber. Alisher is a member of the Islamic movement Hizb ut-Tahrir (HJT). From the point of view of a repressive Central Asian regime like Uzbekistan's, he is a terrorist. If that is the case, he is the model of the terrorist of the future.

The entire article has been divided or chunked into 5 parts. Each part can be accessed by clicking on the sub-heads. Chunked information can be printed in whole as well



and use hypertext links to access secondary information from the primary page. It is also possible to provide a link to a separate file that contains the full-length text presented as one page so that the reader can print or save all the related information in one step.

When chunking information, make sure that the most important or priority information is found at the top of the page as this is the only area that is sure to be visible to all users as the page loads. While a printed material can show whole pages, even two-page spreads in one instance, webpages can only show part of the entire information one screen at a time.

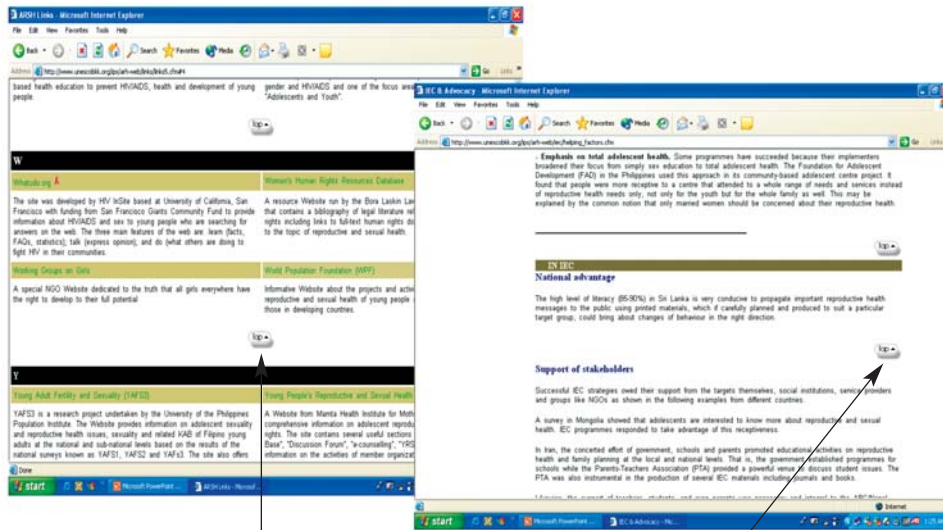


Notice that the top page or first screen on the left hand side is much denser with information and links than second screen because that is the only area that is sure to be visible by all users.

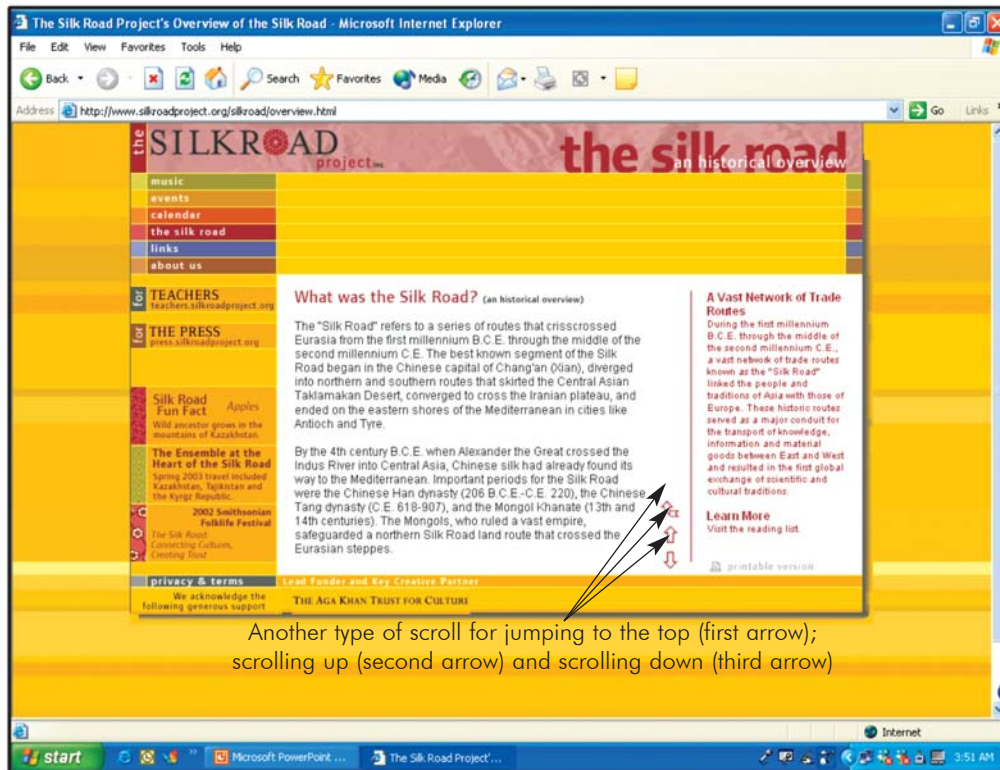
Most webpage designs can be divided vertically into zones with different functions and varying levels of graphics and text complexity. For example, content on the second page or second screen should be independent from that found on the first page. Second page content could be denser or could have more graphics for navigation. Thus, webpage layouts should be regarded not as one unit but as different units, each with its own visual and functional zones.

12. Ensure easy scrolling for long pages

The scroll bar slider on the right hand side helps to slide down documents from one screen to another or to navigate the entire length of a document. Sometimes the scroll bar is difficult to use because its size is fixed and it does not show the entire length



Jump to top buttons help the users to navigate without having to scroll far to find a navigation button



of a document in relation to what is currently on the screen. Another problem is the quick change in display when the scroll bar is moved even slightly, thus disorienting the user as to where he/she is in relation to the entire document and risking the possibility of missing sections of a particular webpage. To avoid these weaknesses of the scroll bar, make long pages friendlier by positioning "jump to top buttons" at regular intervals down the page. Thus, there is no need to scroll far to find a navigation button that quickly brings the user

back to the top of the page. All webpages that are longer than two vertical screens should have a jump button at the foot of the page.

13. *Ensure a line length that is comfortable for reading*

For print materials, columns with 30-40 characters per line are considered ideal. However, this is difficult to achieve on a computer screen because of its low resolution and also because the lines of text on most webpages are far too long for easy reading.

It may not be easy to predict the best and exact character count because of the way different browser software and operating systems display type sizes. There are a number of ways to ensure a comfortable line length. First, use invisible tables (BORDER="0") to limit the text line length to about 50 to 70 characters per line. More specifically, when designing a fixed width layout, use page layout tables with text cells no wider than about 365 pixels. If 12-point Times New Roman type is used, this cell width yields lines that are about 50 characters long, averaging about nine to 10 words per line. This achieves the best balance between space efficiency and legibility. If you choose a flexible layout approach, use CSS leading controls to increase line spacing to 15 or 16 points. (Lynch, Patrick and Horton, Sarah. "Web style guide." <http://www.webstyleguide.com/type/lines.html>)

14. *Choose typefaces and sizes that are legible, easy to read, able to enhance your message and make it look elegant.*

Every computer comes with a default operating system that has fonts and typefaces already installed so that webpages can be viewed in the font specified in the user's browser preferences. Apart from what is already available in the resident default fonts, one can also use the FONT tag to set the type in particular documents. A better option is to consolidate text formatting in style sheets using CSS fonts.

Here are some guidelines in choosing typefaces.



Guide

- ◆ Choose typefaces that are legible on the screen. For example, Times Roman may be legible on paper but owing to the poor resolution of computer screens, its size could look too small and its shape could appear irregular. Screen legibility is most influenced by the x-height (the height of a lowercase "x") and the overall size of the typeface.
- ◆ A serif typeface like Times New Roman (the default text face in most web browsers) offers average legibility on computer screens. A moderate x-height. Times New Roman is a good font to use in text-heavy documents that will probably be printed rather than read on the screen. The compact letter size of Times New Roman also makes it a good choice if you need to pack a lot of words into a small space.
- ◆ Georgia and Verdana are typefaces that offer excellent legibility for webpages if your aim is to read directly from the screen. However, the exaggerated x-heights and heavy forms of these fonts look massive and clumsy when transferred to the high-resolution medium of paper.
- ◆ Traditionally, a serif face such as Times New Roman or Georgia is good for body text, while a sans serif face such as Verdana or Arial provides a good contrast for headlines. Generally, text-laden webpages are set in Times New Roman as it creates a reasonable balance between density of information and overall legibility. Most readers expect a serif font for long blocks of text and find Times New Roman comfortable to read off-screen from paper printouts. Various studies purport to show that serif type is more legible than sans serif type and vice-versa. Type legibility can only be judged truly within the context of a particular situation and the appearance of text on the screen as users read it.
- ◆ You may use either a variation of the serif font or a contrasting sans serif face for the display type. It is safest to use a single typographic family and vary its weight and size for display type and emphasis. If you choose to combine serif and sans serif faces, select fonts that are compatible and don't use more than two typefaces (one serif, one sans serif) on a page.

Serif

Times Roman:	Legible
Georgia:	Legible

Sans Serif

Arial:	Legible
Verdana	Legible

Type size

Unlike the print medium where layout and type are fixed, webpages should adapt to meet users' needs. For example, low-vision users can adjust the type of documents that they want displayed to a size that they find legible. Adjustments executed by the viewer can mess up page layouts that have been designed with specific type sizes. However by using the CSS, you can set font sizes with the use of the FONT tag as CSS offers many methods for setting type size.

Here are some guidelines for choosing type sizes as recommended by the web:

- ◆ The W3C recommends to let users set the base font size in their browser and that all variations should be set using the "em" unit. An "em" in the web context is the same as the font height that makes it a relative unit and is therefore flexible.
- ◆ Be aware that because monitors display at different resolutions, a 12-point type on one screen could approximate a 14-point type on another. Remember that the specified point size is not necessarily the same point size that will be actually displayed on a user's monitor.

Example: H1 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 14 pt}



P {font-family: Georgia, "Times New Roman", Times, serif; font-size: 12 pt}

- ◆ If the integrity of your layout depends on specific type sizes, the most dependable option right now ? until there is better CSS support ? is to use pixel units in your style declarations. Text defined using pixels will be the same size regardless of the browser's default font size and resolution settings.

Example: P {font-family: Georgia, "Times New Roman", serif; font-size: 12px}

15. Use display type to achieve emphasis and engage attention

When you see a webpage full of solid body text, you find it difficult to scan for content and identify important points. To make your page readable and easy to scan, use display type. For example, if you want to draw attention to your headlines or sub-heads, use bold and larger-size fonts. If you want to highlight book or movie titles, use italics. Caution: Do not over do the use of bold and italicised text as this can confuse and distract users. Italicised text is less readable on the screen.

Here are some examples of how display type can be used:

- ◆ Italics: Because its shape contrasts from the body text, this is used to differentiate and emphasise unique words or phrases, such as quotes, foreign words, book titles, and so on. However, use italics sparingly as the readability of italicised text is much lower than Roman text, especially due to low screen resolutions.
- ◆ Boldface: Bold fonts stand out because they are darker than the rest of the text. They are normally used for headlines, sub-headings, captions, and so on. But avoid using bold fonts everywhere as they could be distracting and could take attention away from the rest of the text.
- ◆ Underlining: Underlining words could cause confusion because in web production "underline" represents a hypertext link. Underlining words to represent a hyperlink is done to help users with

monochromatic monitors as well as to assist those who are colour-blind in identifying links within the text.

- ◆ Coloured font: Coloured fonts create contrast and style in the text. They can be used to highlight section heads and captions. However, be sure not to use the default colours (i.e. blue and violet) that stand for hypertext link.

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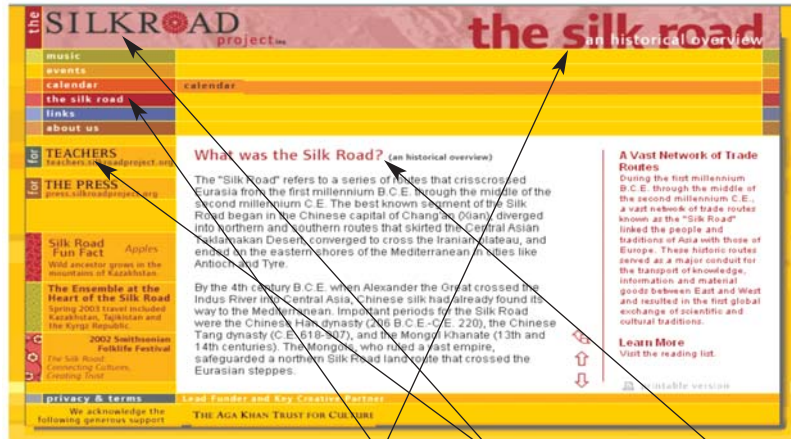
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"Education is not the filling of a pail, but the lighting of a fire"
-William Butler Yeats

Use of italics for quotation and banner

WHAT'S UP? Speak Up!
Games and
Digital Life



This site uses a combination of some words all in lower case all upper case, and a both lower and upper case.

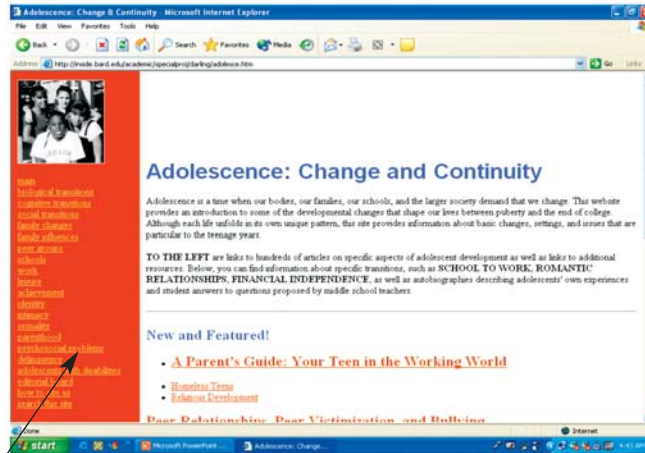


Inconsistent hyperlinks that are confusing because blue text, black text, purple text, white text, red images, yellow text are all clickable

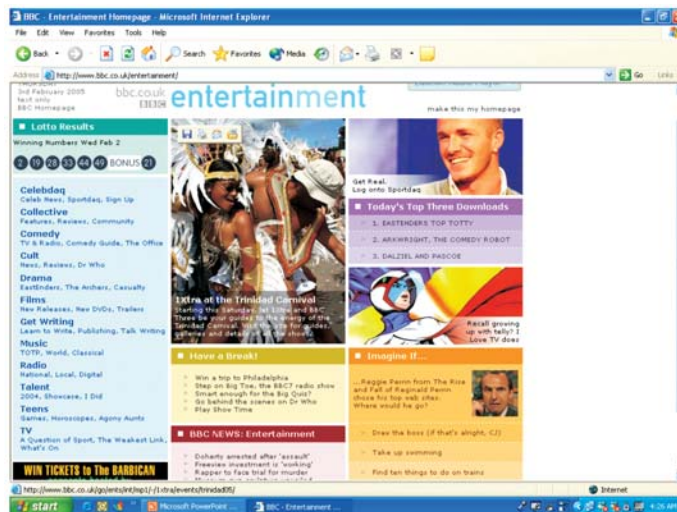
16. Use colours and highlighting appropriately and sparingly.

Very often, using many different colours on the screen makes the screen look busy and users end up not finding anything. Colours should be used to draw attention not to discourage it. Here are some guidelines to achieve this:

- ◆ Use bright colours for items that users should notice. The rest should come in neutral and black and white colours.
- ◆ When using colours for background and text, choose a background that does not interfere with the text or other information on the page. Do not use backgrounds that obscure the text or colours that are hard to read, as for example using dark text against dark-coloured background or light on light. Dark-coloured text on a light-coloured background is easier to read than light-coloured text on a dark-coloured background. For instance, do not use white text on a yellow background, or black text on a solid red or blue background. These combinations do not give enough contrast between letters and backgrounds. You need 90% contrast between foreground and background to be able to read clearly.
- ◆ Use appropriate colours for webpage illustrations. If your illustrations are in solid colours, stick to the 216 standard colours found in a typical web palette. These are the colours that will look the same on all types of computers and web browsers. If you plan on using colour gradients or blends, test how they will look first with your screen set to only 256 colours, although in fact only a few people use 256-colour screens. On this type of screen, images with blended colours can look very muddled, unattractive, and indistinguishable. If your illustrations look bad at this low resolution, try a different colour blend that is less harsh. (For instance, instead of a gradient of red to blue, try a gradient of green to blue).
- ◆ Your illustrations should match the colours of other graphics in your website layout: masthead, sidebar, buttons, icons, image maps, and so forth.



Orange background obscure the text and there is not much difference in colour tones between the text and box colour.



Though this site uses many different colours, the colour combination is done tastefully and with harmony and do not interfere with text legibility and readability

17. Make sure that graphics are used for a purpose and do not overload the website.

Resist the temptation to overload your website with too many graphic images. It is acknowledged that graphics can enhance the text by helping in visualising messages and improving communications by conveying information more efficiently than words. Some examples of graphic images are navigation buttons, image maps, logos, bullet points, mastheads, divider lines, background images, photos, text graphics for headings, and so on.

Below are some caveats in using graphics:

- ◆ Use graphics only when it serves a function, rather than just to decorate a website and make it "look cool." Graphics overload unnecessarily increases the download time of webpages and can be costly as the concerned website risks losing potential users.
- ◆ Unnecessary graphics distract readers from the message and delay the transfer of webpages. It is advisable to keep the size of webpages and graphics, as well as the total number of graphics on a page, as low as possible.
- ◆ Make sure that all graphic images on your website are complementary in terms of colour, typeface and special effects. For example, there should be one colour that is repeated in all the navigation buttons, mastheads, bullet points, and dividers. This colour could be picked up from the logo to produce a unified and harmonious look.
- ◆ For a truly professional-looking website, the minimum set of graphics on the webpages should include navigation graphics, a logo, bullet points, and mastheads. Remember, graphic images are primarily used to enhance the function of webpages. If graphic images considerably increase the web pages' download time, either size down the graphic images and replace them with smaller images, or replace them with HTML default bullets, horizontal rules or coloured heading text.
- ◆ The general rule is to keep webpage size between 40 and 60K. Graphic designers, photographers, architects, and programmers will find that a 75K webpage have a relatively fast download time on a 28.8 Kbps modem



18. Using special effects should not interfere with your website's accessibility.

What are special effects? These can be animation, music, multimedia, video, and so on. More and more websites are using special effects to compete for attention or show off technical expertise. However, website developers sometimes get too absorbed with their desire to jazz up their websites, forgetting that their users might not have the capability to access or download these special effects. There is also the possibility of irritating the users. Ultimately, designers who apply advanced technology to make their websites look cool can alienate the very customers whom they are trying to attract.

Here are some tips on the use of special effects:

- ◆ Special effects cannot cover up for a lousy design and poor content. Before even thinking of adding special effects, ensure that your website is easy to read, navigate, and find, and is consistent/coherent in design and is quick to download. If this is the case, special effects can be added.
- ◆ If the special effects require the use of plug-in to hear your audio or view your animation, anticipate losing your users. Users are easily discouraged from entering or navigating websites that entail downloading plug-in that is time consuming and which they may not even know how to apply.
- ◆ While the use of animation or music can be impressive in the beginning, it can become annoying once the users gain familiarity with it and it starts to interfere with their search work on your website.
- ◆ Special effects lengthen a website's download time. To prevent overloading a page, spread special effects by dividing a page into many sub-pages and assigning specific effects per page. This will greatly increase download speed and visitors will know what to expect when they go to a special effects page.

II. Content

It is imperative that what your potential clients see when they arrive at your site is professional and well thought out. In short, the content must be impeccable. The last thing a potential user wants to see when viewing your site is poorly written text with lots of grammatical and typographic errors. Take the time to scrutinise your website content as a professional editor would, making certain to correct any error that might ineffectively promote your site, or diminish your professional image.

Developing the content - where to get ideas

One way to begin developing content is by compiling comments, ideas, and responses to questions that are commonly received from users, as well as from professional colleagues who have the most contact with your users. They should be involved in this process. What is a good source of information to develop a digital Silk Road website? Because the website's basic aim is to collect, digitise, restore, and disseminate digitised documents to promote the exchange of cultural heritage in the Silk Road region, its contents should focus on historical and cultural studies and documents coming from different countries in the region. For example, content ideas can be generated from the following key questions:

- ◆ What suggestions have you received from your colleagues? Perhaps they have suggested further research on the cultural heritage of the Silk Road region in order to expand existing knowledge base on the topic. Your website can set up a section on research studies that will store future research studies as well.
- ◆ What questions do you hear most often from your clientele? Are your users ever confused or frustrated about your information, project output, and services? What type of complaints do you get? For example, is there a complaint that your website focuses too much on one or two countries. If so, your website content should expand and include other cultural heritage documents emanating from other countries.



- ◆ What information do your colleagues need to support their day-to-day activities? Your target audience for this website are professionals who manage and run archives, libraries or information centres and who need to digitise cultural heritage documents and present them in an electronic format. Perhaps, they need guidelines and training on how to safeguard, preserve, restore and digitise documents on the Silk Road region, as well as on how your website can serve as a platform for online training while also providing an online manual of guidelines to develop their skills in these areas.
- ◆ Do your colleagues produce documents that can be converted into an electronic format and uploaded on the site? Acquire these documents and set up a searchable database of electronic papers and articles on your website.
- ◆ Which of your programme's objectives and activities need to be supported with information? Information is useful in the following areas: use of technology in digitising documents, system of collecting information, training on safeguarding, preserving and restoring Silk Road cultural heritage documents, and so on.
- ◆ What kind of information already exists in similar websites and what gaps can your website fill? If other websites and databases already contain complete documents on particular countries, focus your website on other less-researched countries. Or if most websites already cover tangible information on cultural heritage, focus on intangible information.
- ◆ What recommendations and suggestions have you received from meetings and seminars? Many seminars and meetings have dealt with the Silk Road region and their reports will serve as a good start for identifying existing content and information gaps that need to be filled.
- ◆ What feedback on your various activities has been received from participants? Start collecting feedback, formally and informally. Formally, feedback is collected through questionnaires and focus groups, while informally it can be obtained through discussions, conversations and short interviews.

- ◆ Is there anything that needs to be explained to your users over and over again? Is there anything that you wish your users were more informed about? An example of a "must" part of your website is having to impress upon your clientele the need for them to join your knowledge base creation and expansion and to submit their documents voluntarily.
- ◆ Do you have information stored in a database (bibliographic information, collection of articles and news, inventories of research or directories, and so on) that can be added to your webpage? CGI/Perl, PHP, ASP, Cold Fusion, MySQL, and other technologies can be used to place information from a database on your website. Technology use can speed up website development and make information easier to maintain. The sources could be archives of cultural heritage, museum holdings and databases, national libraries, special collections, exhibits, and so on.

Creating site content

Based on your audience profile and information needs, outline the content of your site to meet those needs. If some of the content are readily available, note within the outline their location. Assign areas with missing content to appropriate team members and plan how to collect them, remembering to include their content-creation time in your schedule. Website content tends to fall into three categories:

- ◆ Preliminary - What should be there when the site is published
- ◆ Nucleus - What information will be considered as mainstay or permanent through future updates and redesigning
- ◆ Temporary - What information should be updated or replaced from time to time

Content writing: tips of style writing for the Web

In writing for the Web, the following facts should provide a good start (Nielsen, Jakob. "Writing for the web". <http://www.sun.com/980713/webwriting/>)



- ◆ 79% of users always scan; only 16% read word-by-word
- ◆ Reading from computer screens is 25% slower than from paper
- ◆ Web content should be 50% the size of its paper equivalent

Research studies reveal that web users generally prefer writing that is concise, easy to scan, and objective in style rather than promotional. By being concise, scannable, and objective, a website makes the processing of information faster and more efficient. Concise text contains less information to process, scannable text calls attention to key information and objective information prevents unnecessary questions regarding the credibility of the source. (Morkes, John and Nielsen, Jakob. "Applying writing guidelines to web pages". <http://www.useit.com/papers/webwriting/rewriting.html>, 1998)

In short, writing for the web is not the same as writing for print material because text is read differently on the web. As it is harder to read on a computer screen than on paper, users resort to long computer printouts. The longer the document, the more extra effort is demanded of the human eye and brain, thus slowing down readers. Apart from technological and physical factors, another significant barrier is behavioural. It has been observed that users exhibit some impatience when they view a page on the screen. They do not read instead they scan. They look at headings and subheadings first before they scan for hyperlinks, images, keywords, and bulleted lists. They jump around, scrolling and clicking the browser's "back" button.

To address the challenge of maintaining readers' concentration on a web document, the following guidelines in writing for the Web are offered

Length

- ◆ Be succinct: write no more than 50% of the text you would have used in a hardcopy publication

- ◆ To keep your copy short, use less of adverbs and adjectives than would be normally found in print
- ◆ Keep to the point and use hyperlink to provide additional information or further explanation seems
- ◆ Keep sentences short. Long sentences decrease reading speed and comprehension
- ◆ Avoid complex sentence structure. Never use two sentences with colon or semi-colon when one simple sentence would do. Use short paragraphs of no more than 8 to 12 lines, shorter if possible.
- ◆ Break down long text by presenting some information through a bulleted list and thus reduce the amount of text. Or break the information by identifying different ideas and displaying them separately
- ◆ Avoid unnecessary content like lengthy welcome messages and mission statements on the homepage
- ◆ Go through the site again and delete one half of the words again.

Language readability and grammar

- ◆ Follow a consistent writing style, e.g., voice, grammar, and notation throughout your site. Always spell-check before uploading your site.
- ◆ Using objective language by simply stating the facts and avoid boasting or using exaggerated language
- ◆ Limit technical and complex terminology and use clear, easy-to-understand language instead..
- ◆ Use short and simple words for faster reading and understanding and conservation of web space.
 - * Poor Example: solidarity
 - * Better Example: unity



- * Poor Example: somnolent
- * Better Example: sleepy
- * Poor Example: subsequent
- * Better Example: following
- ◆ Use acronyms sparingly and only where the user already knows them as a word.
 - * Example: U.N UNESCO.
- ◆ Eliminate unnecessary words as they distract from the main message and takes time to read.
 - * Poor Example: This database employs software called WINISIS that uses keywords to help you locate digitized documents and multimedia materials that are relevant to the various aspects of silk road project, specific to countries in the silk road region, specific to the period, specific to the subjects covered by the project, up-to-date and accurate through various access points such as searching through author index (AI), subject index (SI), country index (CI), and keyword index (KI)
 - * Better example: WINISIS locates digitized and multimedia documents that are relevant, country-specific, time-specific, subject focused, up-to-date and accurate through various access points such as author, subject, country and keyword indices.
- ◆ Write in the active voice as it is easier to follow.
 - * Poor Example: Information can be accessed by clicking the search button
 - * Better Example: Click the search button for information

Scannability

To achieve text that can be easily scanned, the following instructions are helpful:

- ◆ Chunk long text into several paragraphs: one idea per paragraph.
- ◆ Organize text so that the hierarchy is no deeper than four levels, preferably two or three levels only. More than three levels will discourage users from navigating further.
- ◆ Make the text on a page stand alone as users tend to enter a website from all access points, not necessarily from the homepage

- ◆ If possible design a page without scrolling. This means placing all important information at the top of the page and from top left to bottom right (for left-right reading countries) and position information according sequence of use, frequency of use, and importance.
- ◆ Use the inverted pyramid, with the most important and interesting points (could be the conclusion) appearing in the first paragraph and making subsequent paragraphs contain more details. The word count should be half (or less than half) than in conventional writing.
- ◆ Highlight keywords using, for example, hypertext links, bold text or colour contrast to catch the reader's eye and to emphasize key ideas.
- ◆ Use frequent and meaningful and catchy sub-headings in your text to break the monotony and immediately convey what the section is all about
- ◆ Use bulleted and numbered lists as they draw attention to important points with following specifications
 - * Use numbered lists when the order of entries is important.
 - * Use unnumbered lists whenever the sequence of the entries is not important.
 - * Limit the number of items in a single list to no more than nine.
 - * Generally, limit lists to no more than two levels: primary and secondary.
- ◆ Use a contents list at the top of a long page, linking to the appropriate part of the article.
- ◆ Use a summary of the article, either on the same page or a page linking to the actual article.
- ◆ Use 'pull quotes' in larger text in a margin or within the article itself.

Hypertext structure and use of hyperlinks - writing to be accessed

- ◆ Create hyperlinks to contents that have been chunked into separate pieces of information. This will ensure that while text had been cut short, the depth and breadth of the content have not been sacrificed. Hyperlinks can be used to provide supplemental information like definitions of terms and abbreviations, reference information, and background reading.



- ◆ Hypertext by topic or sections rather than segmenting a long linear story into multiple pages. This enables readers to only access the topic they are interested in and download those pages for later reading.
- ◆ Don't use a hypertext link if the information can be succinctly presented on the current page.
- ◆ Don't mention that you are providing links at all. Use a description of the information to be found in the link, or perhaps the link address.

Use of keywords and meta tags

- ◆ Use trigger words as these help users to find what they are looking for. Thus, triggers should reflect what your users would commonly expect to find. They should not be cute or witty, not too short or too lengthy. They should stand out for users to notice and should be meaningful to them. They should be a part of the hyperlink.
- ◆ When users link to a page from a search engine, they should know immediately how the page relates to their query.
- ◆ Apply keywords meta-tag sin every page of your site to promote searchability and accessibility. Include synonyms and generic terms used by users or competing organizations to describe the topic of the page
- ◆ Create a list of common terms or controlled vocabulary for your subject area and make sure that each of these terms is added to the keywords meta-tag for related pages and is used consistently
- ◆ Only use keywords that describe the main topic of the page and refrain from using words peripherally related to the topic
- ◆ Write for each page a title tag of no more than 60 characters, with the first word of the title being the most important description of the page. More specifically:
 - * Make sure that the first 40 characters describe the topic of the page.

- * Do not begin a title with a generic term ("Welcome to") or an article ("The").
- * Give different titles to different pages through pages about the same topic can start with the same words but should end with words that explain the difference between them
- * Titles must be written in mixed case. In rare cases, a single keyword could be emphasised by using UPPERCASE.
- ◆ Provide a short summary for each page in a description meta-tag for search engines to include. The descriptions should be 150 characters or less. They should make sense when read completely out of context of the site. They should tell the users what the page is about and should not be in an exaggerated or promotional language

Other characteristics that should be found in your content

Apart from the above cited qualities which facilitate accessibility and scannability of your content, below are more characteristics that should be followed when writing for the web:

Credibility

- ◆ Be objective and avoid using "boastful or exaggerated language. This will be the fastest way to lose your websites credibility.
- ◆ Add hyperlinks to quality sites with supporting information of their quality and credibility
- ◆ Put all important information to show credentials of your site such as author, producer, co-sponsors, and their email, telephone, fax and postal address. Include the names of Advisory Board members or reviewing agency that ensures quality of information and any award that the website has received from reputable organisations
- ◆ Update pages regularly. Statistics, numbers, and examples all need to be recent or credibility suffers.
- ◆ Do not use humour that may be strange for some countries.



Breadth and depth of information

- ◆ As much as possible aim to cover information on various themes and sub-topics, areas and dimensions of the topic of your website. No pages should be incomplete and left under construction for a long period.
- ◆ Strike a balance between the importance of being complete and substantive and the need not to overload
- ◆ Avoid too many unnecessary details that distract user attention from the main message or cause them to lose interest.

Accuracy and correctness

- ◆ Avoid political, cultural and ideological biases. The author should not present his/her own opinions and biases as facts and should take care that the text is politically correct, does not discriminate any groups of persons and does not attack traditions and beliefs.
- ◆ Make sure that information is not only factually precise but should also show evidence of its accuracy. For example, the content should indicate that information is supported by research. Sources of factual information should be clearly listed so they can be verified. To check out the accuracy and correctness of a site, cues can be used. Some examples include displaying the date of updating, information source/author, board of peer reviewers or advisers and means to gather and review information.
- ◆ Establish some mechanism to ensure quality control of content.

Currency

- ◆ Update information regularly and indicate dates of update to show evidence of their currency
- ◆ Send announcements of updates to users to inform them that the website is being updated regularly

Ethical considerations

Watch for any unethical, illegal and obscene information which may have been inadvertently included on your site. Check links that connect to outside information which may present unethical or inappropriate content. As you have limited control of inappropriate information which may be placed on other linked websites, it is a good practice to regularly check out your links. Carry out this check before deciding on which outside links should be included.

III. Structural Component

Surveys have shown that the most important thing about a website for the user is the ability to find what they are looking for easily. The rule of thumb is to access content using no more than three mouse clicks away from the homepage. Web surfers are generally impatient and will want to quickly find out what they are after. And to find information easily, the key factor is to develop a user-friendly navigation system to prevent users from getting lost. The fastest way of losing your visitors is to have a poorly functioning navigation scheme. A good navigation design will provide well-marked signs to help users know where they are on the site vis-a-vis the homepage or other pages they are in; where they can go from every page and how to get there; and provide some information about every section. A good design also provides some information about each section.

To ensure a good navigation structural layout, use a hierarchy charts and flow diagrams to model the site structure and develop a navigation approach that is simple, intuitive and fast.

This section deals with two aspects related to navigational structure, the first being the structural scheme and the second being the navigation tools.

Structural scheme

In developing an easy-to-follow navigational structure, the best way is to make a diagram using the flow-



chart technique. A flow diagram defines the site structure or architecture, identifies all pages within the site, and shows the pathways linking each page. Its purpose is to organize the development of the site to enable users to navigate all corners of the site without hassles. Navigation throughout a web site simply means going from one place to another by clicking on elements that operate as links. Those elements can be words or phrases embedded in the text, graphics such as drawings or pictures, and even different types of animations. When you click on a link, you can access additional information that can be contained in the same page, another page within the same site, or in a completely different site. The important thing is there should be a logical flow of content and relationships with the various parts.

In making the flow diagram, it is helpful to organize the different parts of the site into layers, the primary layer consisting of the major core contents and then branching out into second layer consisting of secondary information that support the first layer and so forth and so on. This strategy will also help you plan out what files should be placed in directories and sub-directories in your server.

Make an itemized list of each page's contents such as text, images, sounds, video and audio clips, image maps, animated GIFs, Java applets, downloadable items, controls such as print buttons, and all links. Organize your list into categories that distinguish those items that will appear on every page versus on certain groups of pages or on individual pages only. For instance you may have a link to your home page on every page, and a print button only on certain pages.

Below are descriptions of examples of these various navigation structures. The choice of a scheme to use will depend on your objectives. Do you want a neat entry point where you want users to enter your homepage and from there lead them to the different sub-sites on a cascading manner? Or do your site contain many equally important sub-sites that are independent from one another for which your users can access from different entry points?

a) Portal navigation

A portal means a single door or gateway that leads you to an array of sites. It is a collection of links to other sites. For example, a portal on statistics will contain links to various websites and online databases that offer statistics on various areas: socio-economic, census, population, health, media, ICT, women demographics, business consumption, and so on. It is a good scheme when you do not want to develop your own content and you just want to serve as a platform for other websites on a particular topic of interest. If you want to build a portal for Silk Road cultural information, all you have to do is to collect all the existing websites on the topic and organise them according to various areas or aspects of Silk Road culture.

The structure is unidirectional emanating from a homepage where all the links are grouped according to topics. Visitors can access most features of the site from one page. They should be





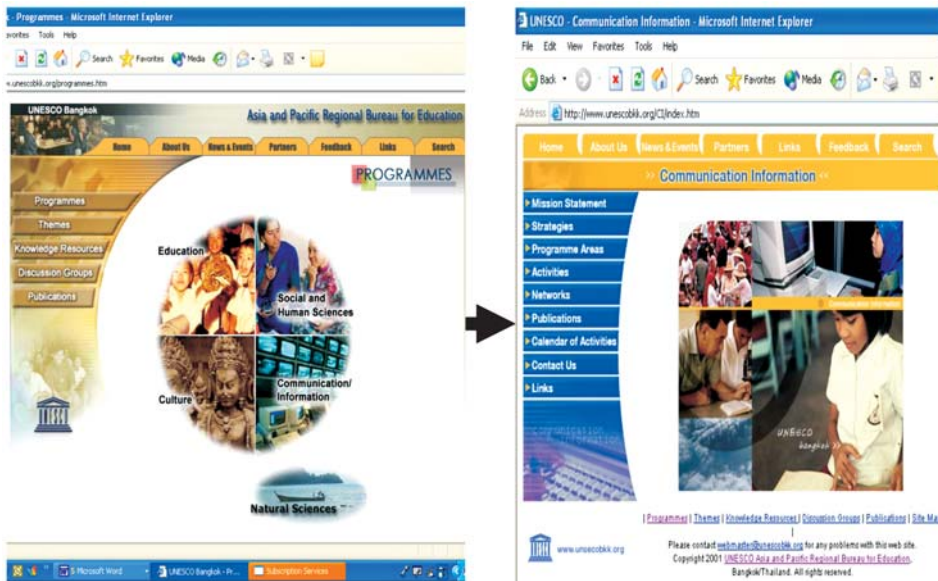
database driven to ensure efficient searching. This scheme requires heavy maintenance, considering that it is database-driven and that information from various linked websites are constantly changing and requires frequent updating (Hilliard, Ralph. "Choosing the navigation structure that meets your needs". <http://www.prowebitemanagement.com/articles/navigationstructure.html>)

The best example of a portal which is a one-stop shop for links to all kinds of sites and services) (mail, shopping, weather, news, entertainment, products, etc.) on an equal basis supported by an efficient search engine

Portal on environment which groups topics by different aspects on ecology and offers hundreds of links for each aspect

b) Hierarchical navigation

When you have large amounts of content and complex bodies of information, information hierarchies present the best way to organise your website. This scheme is useful for an organisational site in which the homepage contains a listing of the different departments or sections of the organisation. As you click on each department, it brings you to the second layer that contains the objectives, scope, target audience and activities of this department. If you want to find out more about these activities, click on one activity, bringing you to a third layer that contains detailed information about this particular activity. In short, everything starts from the homepage and branches out into cascading levels, providing primary information followed by secondary and tertiary information and so on. This can also be used for thematic presentations where a theme can branch out into sub-themes or topics and each sub-theme is followed by specific thematic activities and so on.





This homepage of UNESCO Bangkok programme start with the different units of the organization, namely, education, social and human sciences, culture, communication and information and science. As you click on each unit, for example, the communication and information unit shown on the right side, it connect to a second layer describing the different sub-parts of the unit such as its missions statement, strategies, programme areas, activities, networks, etc. These sub-parts are more or less the same in other units as well. The third

Homepage or first layer

Second layer

Third

layer further describes the contents of each of these sub-parts and down the line. The hierarchical layering of the site is very explicit.

This is another hierarchical site where the homepage carries the major sections of the site (music, events, calendar, the silk road, links, about us) and as you click on each section, such as the silk road section as shown above, it brings you to a second layer that contains the contents of the cited section such as the map for example and as you click on the map brings you to a third layer showing the map.

c) Multi-directional site-wide navigation

Some websites do not necessarily want to give information on a hierarchical basis. Instead, content can be accessed laterally or vertically anywhere on the site. It supports the principle of a free flow of ideas and responds to the need of users to enter a site from various access points depending on their interests and requirements. It is characterised by many links inward and outward of the site. For example, a cultural heritage site on Silk Road can consist of sub-sites that describe artifacts found in different Silk Road countries. These in turn are directly linked to one another and to the homepage, as well as to outside websites that are linked to it too. A thematic site can have various independent sub-topics that are criss-crossingly linked to one another without necessarily having to go through the homepage. In other words, a sub-site can be directly linked upward or sideward or downward to other sub-sites. This can be confusing for some users especially those who want to have a good understanding of a particular topic and would like to concentrate on it instead of being led to a wide range of information not directly related to the topic. It is good for sites that run virtual libraries, electronic knowledge centres, media resource, directories, as well as for sites that are highly diversified.



<http://www.bbc.co.uk/?ok>

This site contains different sites (news, weather, entertainment, health, radio, TV, etc.) that are independent of one another and can be navigated from many directions. It improves flexibility by

enabling lateral and vertical movement within a site, without necessarily going through the main homepage.

d) *Linear navigation or sequential navigation*

Linear or sequential navigation is the simplest navigation structure. It is uni-directional and all links follow one straight line like a visitor being led down one road instead of being diverted through a network of sub-roads along the way. One does not have any choice but to follow the information in a sequential manner. Sequential ordering may be chronological, a logical series of topics progressing from general to specific, or alphabetical, as in indexes, encyclopedias, and glossaries. Examples include accessing a database where you identify your keywords first from a controlled vocabulary, after which you key in your keywords to start the search. Thus search results are generated. Another example is an online educational site where you are asked to follow modules and each module requires you to follow one step after another in order for you to obtain your score. (Hilliard, Ralph. "Choosing the navigation structure that meets your needs". <http://www.prowebmanagement.com/articles/navigationstructure.html>)

Examples could be accessing a database where you identify your keywords first from a controlled vocabulary and after which you key in your keywords to start the search and this is followed by the search results being generated. Another example is an online educational site where you are asked to follow a self-instructional modules and where each module require you to follow one step to another in order for you to get your final scores.

In websites which provide a little more complex information, the linear approach can still be used but for some of the pages, they could branch out into sub-pages whose only links or connections are to the originating page, not to other pages.



Search page where you enter your keyword to search

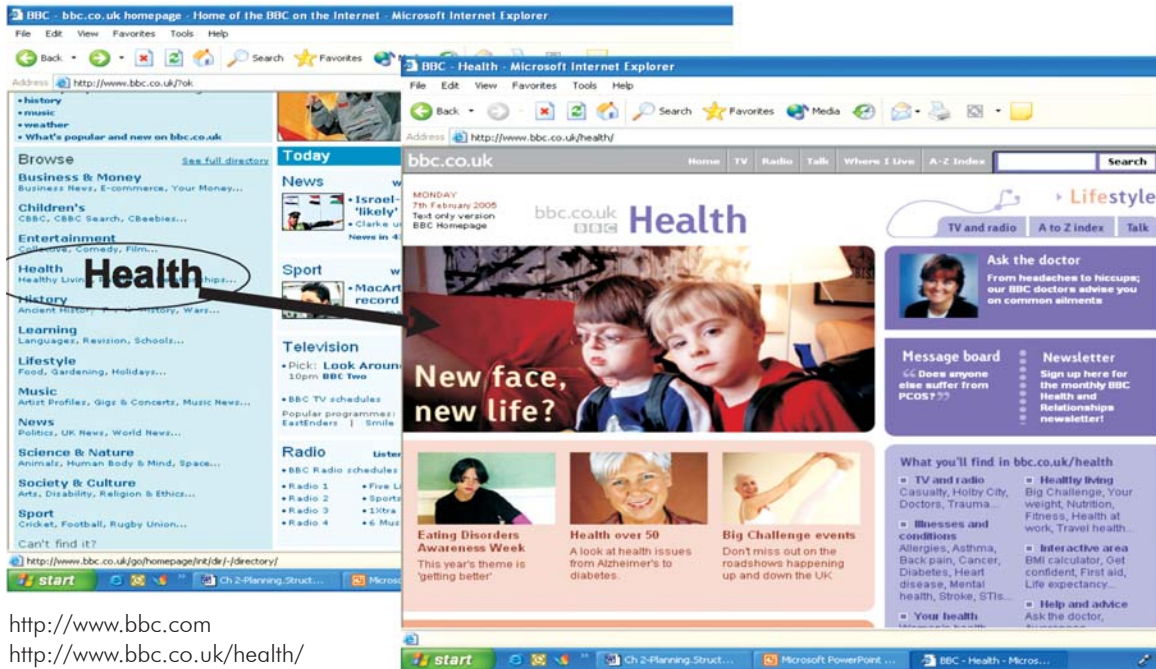
The keyword generates search results of links.

As you click on a link, it brings you to a profile page.

The profile page has a link to its homepage

e) Local navigation

This scheme, as the name implies, is concentrated and isolated in one part of the entire website and functions independently from the rest. In its own location, it has its own collection of webpages with its own navigation system that links its webpages without necessarily going to the mother website. For example, a discussion forum can have its own stand-alone site with its own platform or software for operating the forum. The site can also expand to other themes and sections on its own without linking these new additions to the homepage. However, the entire site by itself should have a link back to the mother homepage as well as to exit from it.



The main homepage contains various links to sites dealing with different topics. When you link to one of the thematic topic, in this case, "Health", it brings you to a robust site on Health that has its own collection of webpages that could expand further on its own without affecting the main site. It could be a stand-alone site which has its own navigation structure and search engines.

f). Global navigation

Wherever you are on the website, global navigation will provide landmarks to tell where you are in the bigger picture. These landmarks are the same from page to page. A global



navigation structure is one that does not change from page to page as it remains the same "globally" across your site. For example, your main navigation menu on the homepage is also found on every page of the website. This gives consistency to the site and allows quick access to any section

<http://www.unescobkk.org/gender/gender/index.htm>

Wherever the users are in the website on Gender in Education (<http://www.unescobkk.org/gender/gender/index.htm>), the main navigation menu remains the

same giving them global or overall content structure that enables the users to know where they are in the bigger picture.

Guidelines in making your website navigable:

Below are some specific instructions to make your website navigable:

1. Make sure that navigation tools are an integral and prominent part of the website

Many studies have shown that users ignore navigation tools. (Eklund, Thomas. "Ask both what your site can do for you and what you can do for your site: addressing site content and navigation structure development". Project Developer <http://www.marketgetter.com/ar2CND.html>). 2005. These studies show that "users look straight at the content and ignore the navigation areas where they scan a new page. Users are goal-driven and look only for one thing they have in mind. If a page does not appear relevant to a user's goal, he or she clicks the back button and leaves the page quickly, ignoring all the navigation tools available on the page." This finding suggests that navigation should be made an integral part of the website or the main content itself which users can easily see. If navigation tools are separated from where the eyes focus on they will definitely be ignored. Some examples are placing a search button away from the main content or tucking a bar and banner away. Some even suggest that trigger words built into the content perform better as a navigation tool rather compared with menus or bars that are usually found on the side. It is important to place navigation tools on the path of the user's navigation flow.

2. Provide direct access

Users want to obtain information using the fewest possible steps. Design your site hierarchy so that information is only a click or two away (three at the most) from the main menu pages. Studies have shown that users prefer menus that present at least five to sub-sections or seven links and that they prefer a few screens of choices to many layers of simplified menus. It is also important to allow access to the rest of your site from anywhere in the website. This could be achieved by placing a



"home" link on every page; placing navigation bars at the top and bottom; or having menus that are few in layers.

3. Provide navigation guide both at the site and page level.

Navigation problems can occur at both site and page levels. At the site level, there may be difficulties in identifying your present location with reference to other sections and pages as well as in finding specific site areas. At the page level, the difficulties may deal with finding specific information, poor interface in page layout that sometimes results in missed information. As a site expands in content and number of sections, the more complex it is to navigate and therefore the more imperative it is to construct an efficient navigation scheme. Similarly, as a page becomes more saturated with contents, the simpler the page structure should be. (Eklund, Thomas.. "Ask both what your site can do for you and what you can do for your site: addressing site content and navigation structure development". ProjectDeveloper <http://www.marketgetter.com/ar2CND.html>). For every page on your site, put some basic navigation tools such as: a) a "Home" link in the upper left corners; b) link up to the first page in each subsection on every page; c) authors and date on each page; and d) add links with meaningful titles, not just "back" and "next" buttons.

4. Provide clear and consistent navigation aid

As you surf from one webpage to another, the lack of clear navigational aid oftentimes makes you confused as where you are within the overall organization of information. But if there are clear, consistent icons, graphic identity schemes, menu bars, and summary screens everywhere, they guide you in looking for information and makes you feel that you are not wasting your time. How do you achieve clarity and consistency in navigational aid? Here are some tips. Ensure consistency by keeping the "home" link in the same place on each page as well as keeping the menu items in the same place. All of your hyperlinks should be clear to your visitors. Graphic images, such as buttons or tabs, should be clearly labeled and easy to read. Too flashy colours, backgrounds, textures, and

special effects on your web graphics may get into the way of clarity and readability on your web graphics very carefully. Link colours in your text should be familiar to your visitor (blue text usually indicates an unvisited link and purple or maroon text usually indicates a visited link), if possible. If you elect not to use the default colours, your text links should be emphasized in some other way e.g., boldfaced, a larger font size, set between small vertical lines, or a combination of these. (Navigation: an often neglected component of web authorship. <http://jerz.setonhill.edu/writing/e-text/navigation.htm>)

5. *There should be no dead-end pages*

Dead-end pages are webpages that link to nowhere. There are times when you click on a hyperlink and instead of giving you the website, it gives you an "error" or "cannot be found" message. There are also cases when a sub-site may not link you back to where you came from. All webpages should have, at the very minimum, a link back to the main homepage. Dead-end pages should never appear in your website.

Make sure all pages in your site have at minimum a link back to the main "home" page or, better yet, a home page link along with links to the other sections of the site.

6. *Ensure speedy downloading of pages*

Research has shown that with most computing tasks, the threshold of frustration is about ten seconds. Users get annoyed with long delays in accessing webpages. If the majority of your users are using dial-up modems in connecting to the Internet, think twice before posting a huge bitmap graphics on your site. Perhaps, this will be regarded more favourably if your users have access to high-speed DSL or cable modems to access the web. Because it may take another five years or more before many home users can have access to high-speed web connections, it is advisable to be conservative when loading your site with web graphics.



7. Provide reliability and functional stability in your design

Good websites are characterised as interactive when links within and outside your website abound. Designing your site to be highly interactive requires commitment to its regular upkeep. All links should be checked frequently to make sure that they are working properly at all times. Information changes quickly on the Web, not only on your site but in other sites with which you have external links. After the site has been established, you will need to check that your links are working properly and that their content remains relevant. This is what functional stability means.

8. Provide visual feedback

Visual feedback confirms that an action initiated by a user has been completed. This can be achieved by the following: i) a button is made to look pushed-in when a user clicks on it; ii) colour changes from blue to red; iii) graphics expands after they have been visited or clicked.

9. Provide navigation cues

This means helping the users learn where and how to navigate. Users may know that they have to click to navigate but do not know where or how. A good navigation scheme should enable the users to recognise that this is a navigation aid by its mere appearance. For example, to guide the users where to click, the following can be used: mouse pointer changing into a pointed hand to indicate that there is a link, coloured and underlined text, and differences in size to establish a hierarchy between links.

Navigational tools

What are the functions of navigation tools? They are used for splitting pages, in-page navigation, flipping pages sequentially, accessing information about specific pages, chapters, and overviews, directing to related links, and navigating through the branches in a website hierarchy.

Below are some descriptions of selected navigational tools:

- **Text Links**

Text links are faster to download than graphic links and can serve as a keyword as well. To make it less boring, you can place a text link near a graphic image, such as a side bar. As a rule of thumb, use blue text to indicate an unvisited link and purple or maroon text to indicate a visited link. These are familiar to everyone. If you choose not to use default colours, emphasise your text links in some other way: boldfaced, a larger font size, set between small vertical lines or square brackets, or a combination of these.

Examples

- ◆ Home link on every page is usually put on the top left of the homepage to bring you back to the homepage wherever you are.
- ◆ Breadcrumb trails are a special type of navigation bar, featuring a hierarchical row of links, each of which represents a "node" (a point at which the reader makes a decision). As the user goes deeper in the site, the breadcrumb trail shows the closest direct path back to the homepage.
- ◆ Trigger words are words that are embedded within a given page or text and which represent the main ideas and contents covered in the text. They are hyperlinked so that when you click on them, they connect to more pages of information dealing with the clicked word.
- ◆ Titles, sub-titles, captions, blurbs, slogans.
- ◆ Navigation bars help visitors find what they want. They show the overall site bar containing the main sections of your site. The main site navigation is constant and remains the same no matter what page they are in. Keywords are used for each section.. One can use tables as navigation bar.
- ◆ Menu bars are similar to navigation bars except they deal more with the second layer information. While navigation bar cover the major sections of the site, menu bars provide the details of the navigation sections. While navigation bar is horizontal, a menu is vertical,

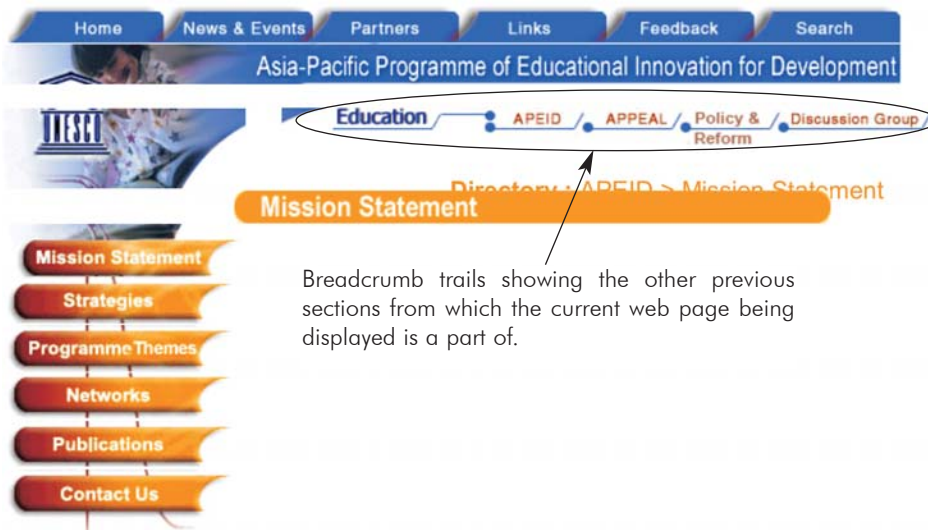


but there's little functional difference between them. But I would use the term "menu" to describe a navigation unit that changes to reflect specific options available to the user.

- ◆ For example, if you click on the main navigation bar dealing with the topic, Silk Road Culture, it will give you the following options: music, places, handicrafts, and so on. When you click on music, it gives you a sub-menu dealing with different types of music found in the region, This second layer information is the menu bar.
- ◆ Page jump links to sections of a single page instead of having to resort to the arduous task of scrolling down long pages, usually represented by the word Top.
- ◆ Site map offers links to the different sections and sub-sections of your site, including individual pages. All of these sections and pages are represented by the topics or words that are made clickable.



"Home" is found in all pages of this site



Breadcrumb trails showing the other previous sections from which the current web page being displayed is a part of.

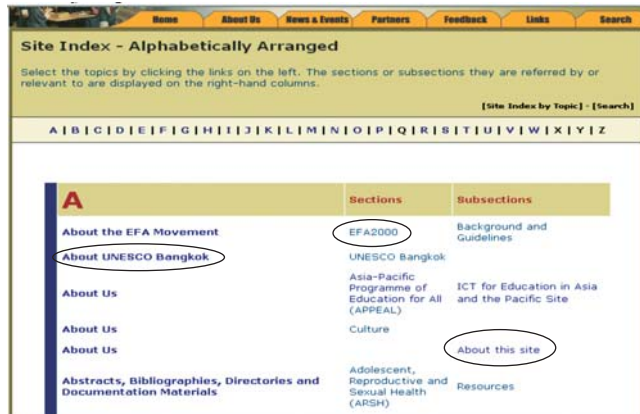


Navigation menu/bars with clickable words



The screenshot shows the UNESCO Bangkok website layout. On the left is a dark blue navigation menu with links like 'About Us', 'News and Events', 'Programmes', 'Themes', 'Knowledge Resources', 'Publications', 'Partners', 'Links', 'UNESCO Headquarters', 'UNESCO Field Offices', and 'Job Opportunities'. Below this is a 'Feedback' section with an envelope icon. The main content area features a header with 'UNESCO Bangkok' and 'Asia Pacific Regional Bureau for Education'. Below the header are three columns: 'Social & Human Sciences', 'Culture', and 'Communication Information', all under the 'Greater Mekong Sub-region Cluster Office'. A 'HIGHLIGHTS' section contains three items: 'UNESCO's response to the Tsunami', '4th Session of the World Commission on the Ethics of Scientific Knowledge and Technology - COMEST, 23-25 March 2005', and 'Workshop for Adaptation of the Teacher Training Manual on HIV/AIDS Prevention Education in the School Setting in China, Indonesia and in Viet Nam, March 2005'. To the right of the highlights is a 'LATEST E-BOOKS' section with three book covers: 'The 9th UNESCO APED International Conference on Education: Educational Innovations for Development in Asia and the Pacific', 'INFOSHARE SOURCES AND RESOURCES BULLETIN', and 'Impact of Incentives to Increase Girls' Access to and Retention in Basic Education'. A 'Feedback' section is also visible at the bottom left. Arrows from the caption point to various titles and sub-titles throughout the page.

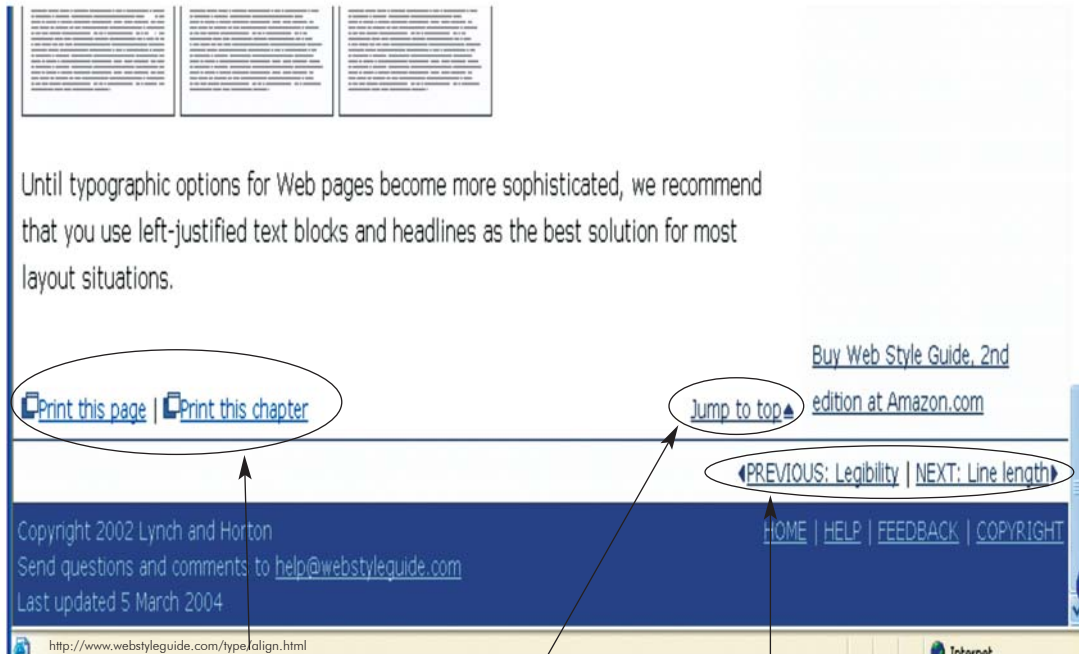
Hyperlinks applied to titles, sub-titles, captions, blurbs



All listed text sites on this index are hyperlinked to enable you to enter the various pages of the website



Trigger words embedded within a text



Icon to represent printing function; jump to top text link; and breadcrumb

- **Graphic images - navigation buttons**

Although graphic links take more time to download than text links, they look more appealing and provide more visible landmarks for navigating. They also add personality to your website. In general, you should keep the navigation buttons' file size to between 1K-5K in file size and dimensions between 60-165 pixels in width and 25-60 pixels in height. Examples are navigation bars, buttons,

Examples

- ◆ Home link represented by a logo - this replaces the text "Home"
- ◆ Navigation buttons to top and bottom -image links to different parts of the site or they accompany text links as well that help navigate a sequence of pages
- ◆ Icons - such as arrows to bring you back, forward and to the top (jump buttons) or represent metaphors of specific topic or text files (for example an icon of book leads you to a bookstore; a picture of a highway brings you to Internet; a shopping bag represent purchases, etc.)
- ◆ Logos- graphics that represent an organization or a project or an activity that are used to link to their particular information.



Home link represented by a logo



Navigation button to bring you to the top

Director Yo-Yo Ma	the traditions of the Silk Road..."	<i>Caravan</i> 2000 commission, Javanisih Gultev	
Next Season's Calendar Announced	The Silk Road Ensemble will continue to tour and perform in the 2003-2004 season.	<i>Dervish</i> 2000 commission, Franghiz Ali-Zadeh	
Siemens Artists-in-Residence Program	Learn about artists in the program!	<i>Habi-Sayagy (In Habi's Style)</i> , Franghiz Ali-Zadeh	
privacy & terms	We acknowledge the following generous support	China	
	Lead Funder and Key Creative Partner	<i>Blue Little Flower</i> arr. Wu Tong, Chinese Traditional	
	THE AGA KHAN TRUST FOR CULTURE	<i>Fusion</i> 2000 commission, Xiaoyong Chen	
		<i>Mido Mountain</i> arr. Wu Tong, Chinese Traditional	
		<i>Moon Over Guan Mountains</i> 2000 commission, Zhao Jiping	
			<p>novus rarus. Cross-cultural—Western classical pieces that reflect the theme of cross-cultural exchange. Inspired by—works inspired by the Silk Road Project.</p> <p>Artists & Composers Learn more about the artists.</p> <p>printable version</p>

Navigation arrows that bring you to the top, scroll up and scroll down



China
Southeast Asia
South Asia
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War and Terror

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Asian Economy
Global Economy

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Nov 25, 2003

Series by Pepe Escobar **PART 6**

Peaceful jihad

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OSH, southern Kyrgyzstan, and the FERGANA VALLEY, Uzbekistan - A constant smirk is imprinted on his face. In his black-

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ASIA-PACIFIC CREATIVE COMMUNITIES - A STRATEGY FOR THE 21ST CENTURY: JODHPUR, INDIA, 22-26 FEBRUARY 2005

In cooperation with UNIDO, the World Intellectual Property Organization, the World Bank and the Asian Development Bank, UNESCO and the Indian National Trust for Art and Cultural Heritage (INTACH) will convene a Senior Expert Symposium in Jodhpur, India, between 22 and 26 February 2005. The aim of the Symposium is to encourage the development of cultural industries in the Asia-Pacific region and will involve reviewing a...

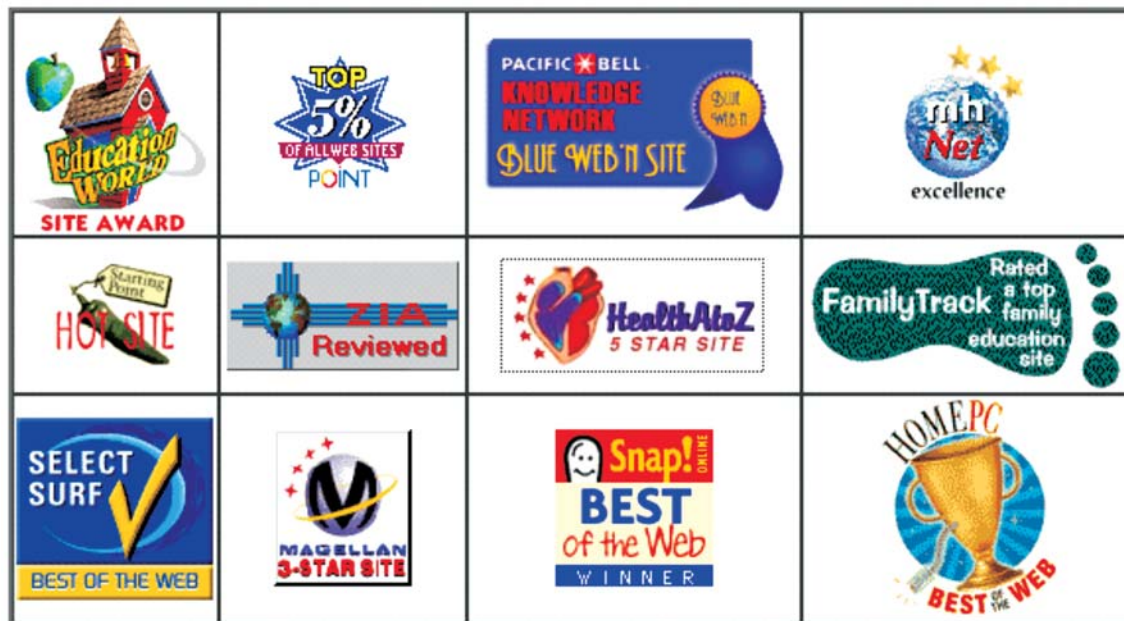
SUBMISSIONS FOR THE 2004 HERITAGE AWARDS NOW BEING ACCEPTED

The awards programme recognizes the achievement of the private sector and public-private initiatives, in successfully restoring structures of heritage value in the Asia-Pacific region. A new awards category is being launched in 2005: the Jury Prize for Innovation for newly-built structures which demonstrate outstanding standards for contemporary architectural designs that are well integrated into historic contexts. Complete programme information is available at heritageawards programme website. The deadline for receipt of materials is 30 April 2004.

Images of logos that represent different cultural projects which are hyperlinked

Previous page

Next page



Hyperlinked buttons

- **Graphic images - image maps**

An image map represents different parts of your website and you gain access by clicking on different areas on that image. For example, it can be used to represent the different parts of your website and by clicking on the different areas of that image, it allows you to have direct access to those parts. Sometimes a single image map is quicker to download than multiple navigation buttons. However, create a simple image map because an elaborately designed image map could slow down the download.

- ◆ Site map - instead of displaying the different parts of the website using text hyperlinks, this map uses graphics or buttons/icons that represent visually the different parts of the website



- ◆ Geographical map - shows the different parts of a country or a regional map showing the countries in the region that are clickable and links you to more information about each country.
- ◆ Thematic map- also uses a geographical map but instead of linking to the country profile, it links to information dealing with specific topic that describe the situation in those places. For example, it could describe the HIV/AIDS incidence in the region or within a country of density of male/female population within a place.

Using image maps in web page design by Grantastic Designs - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.grantasticdesigns.com/imagemap.html>

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Image maps and web page design

An **image map** is a single graphic image that allows users to access different web pages by clicking different areas of the graphic image. On our web site, we use an image map as a means of site navig the top of our page.

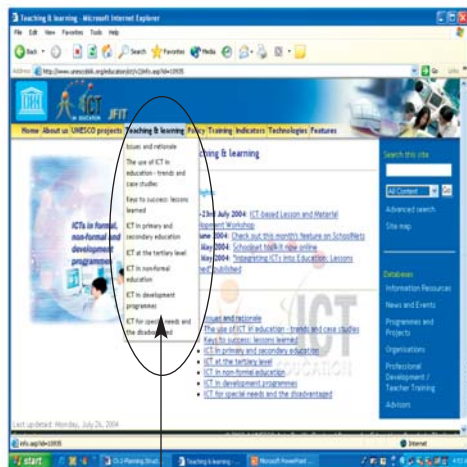
An image map can either be a GIF or a JPEG. The navigation buttons on this web page are GIF image following graphic image is a JPEG image:

Image maps that link to the five sections of the website, e.g. logos, print designs, websites, flash and banners

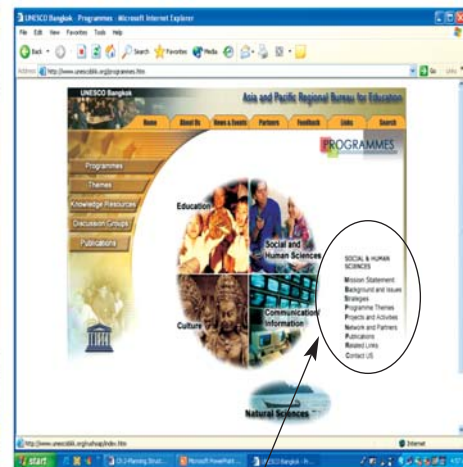


it is important that before you design your drop down menus, check on first the specific scripting language available on your server (Eklund, Thomas.. "Ask both what your site can do for you and what you can do for your site: addressing site content and navigation structure development". ProjectDeveloper <http://www.marketgetter.com/ar2CND.html>)

- ◆ Sliding Section map- this is most suitable for long pages because it allows accessing any section on the site from any point on the site. Instead of text you may prefer using gif's because the appearance is smoother and gif's are browser independent.
- ◆ Scrolling navigation bar- Java-based, this tool is a recyclable sliding text banner that scrolls vertically and advertises site's content and helps to draw attention to selected topics. Relevant part of the site can be accessed directly from the scrolling text.



As one clicks the main navigation menu, a drop down box appears that shows the content of the clicked section that enables access to the different parts



Sliding text banner that scrolls vertically and announces the site content


● Dynamically generated URLs

A dynamically generated navigation scheme, such as pages generated in a search function, is best used for web sites that have databases. These are search menus that generate search results. Examples are search functions where you type in your search words and will help retrieve information from a bibliographic database, virtual library holdings, statistical database, research inventories, music, video and CD stores, etc. In other words, dynamically generated URLs help users find the product or services that they are looking for very quickly as well as contribute data and information to build, expand and update databases

- ◆ Search engines
- ◆ Order forms
- ◆ Contribute forms
- ◆ Membership forms

A search form with multiple search commands, by theme, by type, by country and by language

INFORMATION RESOURCES Move to ...

 This database contains various types of information resources such as article, research report, policy paper, speech, book, newsletter, journal, website, videos, database, etc. on the use of ICT in various aspects of education such as policy and strategy, programmes, use of ICT in primary, secondary and tertiary schools, curriculum development, professional development, research and evaluation, etc.

[Add your Information Resources](#)

You can select the following options for searching

- [View all Information Resources](#)
- [View the latest entries](#)
- Search by
- Search by
- Search by
- Search by

If you want to combine search phrases and words using the Boolean operators (and, or, not), please use the search boxes below:



An online form for membership application

An online form for contributing data to a database of projects

IV. Web Technology

Technology is a most important element in website planning as both technical and system support provide the backbone of the operation and maintenance of your website. Some key questions to raise here are as follows:

- ◆ What web creation or authoring tools will you use or should you opt for a web content management system?
- ◆ What browsers and operating systems should your site support? (Windows, Macintosh, UNIX, Linux, Netscape Navigator, Internet Explorer; minimum version supported)
- ◆ What are the elements needed to have good web server support?



- * Shared or dedicated hosting
 - * Right site name or domain name
 - * Amount of disk space for storing different website parts/files
 - * Email account and its configuration by the host
 - * FTP access and ability to create your own FTP accounts
 - * Data transfer and bandwidth requirements
 - * Appropriate bandwidth and how much can the host offer and at what cost
 - * Ability of bandwidth to support all basic file types
 - * Scripting magic offered by the server
 - * Kind of databases to be set up and kind of database applications required
 - * Support provided by the host to your multimedia requirements
 - * Provision of support and maintenance for 20-24 hours, seven days/week
 - * Statistics on users and site traffic
 - * Outsourced or in-house server log analysis
 - * Suitability of search engine to your content
- ◆ Do you favour static or dynamic HTML (HyperText Markup Language) and advanced features?
 - * Choice between static or dynamic pages
 - * Applications needed to implement dynamic webpages
 - * Need for the following applications for dynamic pages (JavaScript or vbscript, Java applets, style sheets, third-party browser plug-ins, special features of UNIX or NT server environments, special security or confidentiality features)
 - ◆ Will you set up databases and which application will you choose?
 - * Choice of software or application to build online databases

- * Need for contribution, search and retrieval from databases
- * Need for user log-ins to enter any site area
- * Need for questionnaires

A. Operating system to support

Which server software or platform should you use?

When choosing a platform, consider continuing developments in web platform technology alongside current assessments and evolutions in your scope of applications. While it is important to make the right choice from the start, to save on expenses and prevent problems associated with switching server technology, it is also useful to have an open mind and to explore cross-platform applications in order to enjoy the benefits of latest changes in technology.

Below are some criteria to consider when choosing the operating system and server (adapted from, Daly, P.G. "Choosing the right web platform for you". http://www.intranetjournal.com/articles/200411/pij_11_12_04a.html Copyright 2002 Jupitermedia Corporation, All Rights Reserved)

- A. **Costs** - what are the upfront and future costs and can these be easily integrated into the existing systems and environment in the organisation?
- B. **Performance** - is it reliable and fast? Is it easily available?
- C. **Maintainability** - is it easy to set up and maintain and what special skills are needed to maintain and administer the platform?
- D. **Security** - how secure are the settings out of the box? Who is monitoring known and potential vulnerabilities and how do you protect your systems from them?

Based on these considerations, the following major operating systems and server will be examined:



Web platform	Microsoft Windows	Open source-Unix, Linux
Characteristics	<ul style="list-style-type: none"> ● Operating system-Windows XP ● Windows server- IIS (Internet Information Server) ● framework - .NET, ● Web client- ASP.NET ● Languages used are ASP, XML, Visual Basic. ● Relational database access-ADO.NET 	<ul style="list-style-type: none"> ● Web server-Apache/Tomcats ● Framework- J2EE ● Web client-Java Server Pages ● Languages- Java, PHP, Perl, and XML ● Relational database access-JDBC
Cost	<ul style="list-style-type: none"> ● Costly for upfront and ongoing maintenance as it will entail initial licensing fees and ongoing and upgrade costs ● Offers a lot of functionalities and bells and whistles that make your site attractive 	<ul style="list-style-type: none"> ● Free of charge, no upfront and ongoing licensing costs ● Can download more free software that are easy to maintain ● Some costs needed for maintenance and upgrades such as support from third party vendor like Red Hat Linux ● Cross platform compatibility is high
Performance	<ul style="list-style-type: none"> ● Its wide popularity speaks for itself (despite what critics say) ● It is efficient and user-friendly because of the rich features, architecture, and 	<ul style="list-style-type: none"> ● Smaller overhead ● Offers flexibility because one can pick and choose from tools and add on to the system

Web platform	Microsoft Windows	Open source-Unix, Linux
	<p>infra-structure which in turn require some significant overhead</p>	<ul style="list-style-type: none"> ● More stable and reliable because it does not have too many system resources to support and maintain compared to Windows-run machines, which needs all these systems to update and interpret the GUI. interface
Maintainability	<ul style="list-style-type: none"> ● Initial set up is more user-friendly and faster but need to be aware of default settings, more strict maintenance because of frequent updates and unexpected security patch releases ● Strong technical background is needed in maintaining the platform because it is GUI-run 	<ul style="list-style-type: none"> ● Initial set up and maintenance requires strong technical staff because weeding through the open source documentation and configuring the tools requires a significant amount of technical savvy ● Cumbersome text-based commands are used as opposed to Graphical User Interface (GUI) used in Windows machine.



Web platform	Microsoft Windows	Open source-Unix, Linux
Security	<ul style="list-style-type: none"> ● Potentially less secure out of the box than its open source counterparts and a playground for hackers ● Requires a lot of time and attention to install the latest security warnings, updates and patches 	<ul style="list-style-type: none"> ● Very few security holes because of scrutiny of talented programmers but need a talented administrator to stay on top of things

B. Web server support

Web hosting

Web hosting refers to a service that allows you to upload and store a site's HTML documents and related files on a Web server to make it available for public viewing via the Internet. Many websites are run by a web host. Rather than invest in expensive server, hardware and software to run your own website, you pay a hosting company to house your site on their own secure server, enabling you to use their high speed network, expert monitoring and support and state-of-the-art technology. For a monthly fee, the web host also provide the necessary maintenance and updates. Because of this, you have to choose a good web hosting to get value for your money.

Why do you need to choose a good host? When your host has problems, then you also inherit these problems. When your host is down, you will not be able to access your email and FTP. Worse still, email messages could be returned to the sender, giving your visitors the conclusion that the site no longer exists. Very often the host experience unscheduled downtimes but if these are anticipated, the host should inform you in advance so you can make alternative plan, Otherwise, it should compensate you in some ways for any downtime over and above that scheduled.

Here are some things to consider in choosing a good web support (Wise, Rosemarie. "Complete guide to hosting -parts 2". <http://www.sitepoint.com/article/complete-guide-hosting-2>. 2002.)

1. Shared or Dedicated Hosting?

There are three main types of server plans available from hosting companies. What you will choose will depend on the current and future needs of your site. It is therefore a good idea to know the types of plans available, as well as the advantages and disadvantages of each.

● *Shared or Virtual Servers*

This allocates you a limited amount of space on a server that is shared with other sites. Typically, you are given a quota of around 50 Mb (this varies from host to host) which is often more than enough for a site. While this may be the cheapest option, there are weaknesses. First of all, ASP, PHP and Perl are not often available on shared or virtual plans due to security and stability issues. Secondly, the speed is slower because you are sharing one server only. If you foresee that your site will expand, and get busier and complicated, then you should consider a dedicated server.

● *Dedicated Servers*

This means that the server is running and supporting only your website and no other sites share the facilities with you. Setting up a dedicated server for your site has many advantages. There is no need to compete with others in the use of resources. This is good if you are maintaining many databases. It also allows you to house more than one site and gives you the freedom to install and build your own components and modules.

● *Co-location Servers*

This is similar to having a dedicated server. The difference is that you buy the hardware and set the server up yourself, and then rent the space in the data center and connections to the Internet. This



requires high technical skills as the burden for installing the server is on you. Co-locating your computer is often far more expensive than simply renting a dedicated server from your host, and it can also be more time consuming.

2. Right site name or URL (Uniform Resource Locator)

A good web support also means assisting you to get a good domain name. Certainly, the more catchy and easy to remember the name, the more successful your site will become. So how do you choose a good name or what is technically known as Uniform Resource Locator (URL) for your site?

Here are some tips for choosing the domain that works

- *Good extension*

The right kind of extension will of course depend upon your content and the organisation running the website. Business and commercial sites will naturally use .com. Using .net will work best for technology-related sites. They are usually employed when non-governmental groups or profit-making organisations put up sites that are oriented towards development, information, education, technology or a mission. However, if the same topics or concerns are maintained by international non-profit organizations such as the United Nations or a national organisations, then the most appropriate extension is .org. A website run by a national government entity will have to use the extension .gov. For a website on the Silk Road project, use .org or .net. If your site is also meant for country consumption, then use a local-based domain, i.e. www.silkroad.pak.org (refers to country Pakistan). However, if you are aiming at an international audience, then go for .net or .org.

- *Short*

Domain names can be of any length up to 67 characters. Short domains are easier to remember, easy to pronounce, look more professional and have less chance of being mis-typed by potential

visitors. Two word domains are probably fine -- three at the most. If you have a really long domain it will just be confusing, especially if the words are not capitalised. However, if a longer name will prove more descriptive than a shortcut name, then by all means use it as long as it is under 67 characters. For example, using a short www.digslkroad.org might not be as effective as using www.digital.silkroad.org. The longer version is easier to spell, type and remember. They are also easier to search as they represent an existing keyword already. In other words, go for shorter ones if they are meaningful and searchable but if longer ones are more effective, then go for them.

- *Easy to spell*

If you want people to remember your domain, this should be easy to spell. For example, do not use "unnatural" spellings, like replacing S with Z. Also, be careful about using double letters as your user might spell your domain name with one of these letters only. Avoid using dashes in your domain name if possible. Keep to a maximum of one dash and, if at all possible, none. Domain names can only use letters, numbers, and dashes. Spaces and symbols are not allowed. Also, domain names are not case-sensitive.

- *Descriptive*

Your domain name should be your website name. Naming a site after its domain name is important, for the simple reason that when people think of your website, they'll think of it by name. If your name is also your URL, they'll automatically know where to go. For example, when people think UNESCO, (www.unesco.org), they don't have to wonder what URL to type into their browser to get there. A site on Silk Road route could be www.silkroad.org . But many websites have names that do not represent the names of the owner but use non-descriptive brand names. Though many of these have become popularly recognized through massive advertising campaign, it's better to have an instantly-recognisable name rather than spend millions to tell people to recognize the brand name.



● **Keywords**

An interesting use of domain names has now begun to appear: keywords. To give an example, for a website on silk road digitized documents, the domain name `www.digital.silkroad.com` will ensure high search engine ranking because of the use of the keyword "digital" silkroad.

Pre-test

When you have settled on several available name choices, pre-test its acceptability on your colleagues and target audience. You may have chosen a name which you believe is perfect for you but could be too hard for other people to remember. For example, is your domain easy to say? Is it hard to spell? Do you have to explain why you chose the name?

Register

After you have given a domain name to your site that is easy to remember, spell and type, register it quickly. Otherwise, some other people might beat you to it and you will end up with a second choice name or a name that you are not happy about.

3. Disk space

All hosting accounts offer a certain amount of disk space that you can use to store your files. You have to estimate well (not to underestimate or overestimate) how much space you will need for each of your various tasks such as for your email box, web files, databases and log files in order to help your host meet your disk space requirements effectively. Your host may also offer to include additional files in your quota.

4. Email accounts

Email accounts are a common feature of hosting, particularly if you host a domain. Some hosts will give you control over your mail configuration (such as choosing between POP3,

forwarding, aliases and autoresponders), putting restrictions on mail activities (for example, the number of accounts or maximum size of mail boxes) on the server side. Other hosts will do all the set up for you.

5. FTP access

Another thing that is offered by a web host is FTP access. FTP programs allow you to upload files and to edit and delete your content on the server much more quickly than using a Web-based interface. Some web host allows you to create your own FTP and will let you act like a mini hosting company, where FTP accounts that you create take users to a special folder specifically for their files. These are kept separate from your main files. Other hosts will allow you to create FTP accounts in which you can define exactly which folders the user has access to, and exactly what they can (and can't) do with them.

6. Data transfer

How many kilobytes do you need for your data transfer and the associated bandwidth size? These are important to calculate because there are many problems associated with calculating data transfer and bandwidth requirements that can result in unexpected costs. For example, how do you account for cached pages and images? What size unit does the host use for their calculations, and how can your bandwidth limit affect the quality of your hosting? Units of measurement also vary among hosts such as the calculation of how many bytes make up per kilobyte.

7. Bandwidth and the quality of hosting

The amount of bandwidth that your host will offer you is important especially when you are hosted on a shared server and where there is another site which is bandwidth-intensive. The larger the number of sites hosted on a server, the more likely they are to compete with each other for



available resources, including bandwidth. This is why you may notice a reduction in server response times during busy periods, or during a sudden peak in traffic at a busier site on a server that you share. If you intend to host downloads or multimedia files on your site, it's worth shopping around for a host that offers plenty of bandwidth, data transfer, and a good level of redundancy in its connections to the backbone.

8. File support

Can your web host support the various files you upload on your site? You would assume all Web hosts have the capability to support the basic file types that are essential to the running of the most basic Website. But sometimes this is not what happens. You cannot just upload a file to a server and simply expect it to work first time. For example, you may want to use a file type other than what are recognized such as HTML, JPEG and GIFs. If the server does not recognize this file type, it uses its default action to open the file or download it which is not the way you like your file to appear. Therefore, it is a good idea to test how your server handles these various file types before you go uploading anything that contains potentially sensitive content or source code.

9. Scripting language

Scripting language are applications that enables you to run your dynamic contents and interactive pages like databases search forms, feedback forms, order, contribute, online forums, shopping carts, etc. Not all scripting language run on the same servers. Some server and scripting language work together better than others. So let's look at the more common scripting language and discuss how they're affected by various server environments.

- ◆ **Perl** - Perl has been around long enough to have wide support across many server platforms. Out of all the possible scripting languages available today, Perl is the most frequently supported by hosts that offer scripting capabilities. Unless you utilize system or server specific modules, your use of Perl should not restrict your choice of host.

- ◆ **PHP** - Most PHP hosting facilities are provided on *nix systems that run Apache such as the UNIX system. PHP comes in two types: you can install it as an Apache module (which is great if you have Apache) or you can run it as a stand-alone CGI application. PHP is not as well supported as Perl across the operating systems, although it is supported by all the major players in hosting. But because it is an open source, it has been exposed to a wide audience and thus spurred its recent growth.
- ◆ **Active Server Pages (ASP)** - ASP started off as a Microsoft invention and was limited to the Microsoft IIS server family until Chili!Soft ASP, Instant ASP and the Apache ASP module came into the market. So if you are hosted on IIS, then for sure you can run your ASP scripts.
- ◆ **Front Page Extensions** - Although it is not fully a scripting, FrontPage Extensions do offer some basic CGI interaction on sites. While they are associated with the Microsoft FrontPage series, they are not limited to Windows servers. FrontPage Extensions are merely an extension of the FrontPage program. The files, when installed on a server, allow the program to interact with the server; it can upload your entire Website without your knowing anything about FTP.

10. Database support

More and more websites run databases or are run by a database software. This is because they facilitate creation and storage of dynamic content and pages. There are a number of databases which you can consider but your selection will depend on your purpose or what you want to store on your databases and how information should be retrieved. Here are some examples of these software:

- ◆ **Flat-file databases** - the simplest databases are flat-file databases, consisting of a single file, or group of files in a format known by those that wish to make use of them. They can perform without any scripting language.. However, they are difficult to use as relational



database and since no functions are available, all manipulation has to be done by the language being used.

- ◆ **MS Access and MS SQL** - these two Microsoft database offerings are usually confined to use with ASP pages on a Windows server, but can, with the correct Open Database Connectivity support, also run on Unix, Apple Macintosh and OS/2 systems. Microsoft Access is more suitable for small databases with low traffic. Heavy usage will result in slowing down the speed of a site. MySQL can be built to work with most modern systems by compiling the source code. Performance of MySQL is greatly affected by performance of the system: and the stability of the operating and file systems.
- ◆ **Oracle** - Oracle can be configured to run on a multitude of platforms and operating systems and has proven to be very scalable and reliable. It has the capacity to handle extremely large amounts of data and can be typed directly to the file systems. Being a relational database, it makes data management easier. However, high cost has restricted its use with low-cost internet applications and less easy to configure.

11. Multimedia support

If multimedia backing is important to your site then you need to get a high level of support from your web host. Only big web host with complete set of resources that offer large bandwidth can run all of your multimedia files. A low-end host cannot do it. Below are the various kinds of multimedia which need support from a host:

- ◆ **Flash and Shockwave Animation** - these presentations can be described as an interactive image which are usually just a single file that can be downloaded to your computer before they're started. This can prove to be a problem if you don't want your visitors to be able to store copies of the presentations on their

computers, since the full presentation is likely to be downloaded before it can serve its purpose.

- ◆ **Synchronised Multimedia Integration Language (SMIL)** - SMIL is a language that allows greater flexibility in the presentation of audio, video, text, animation and graphics. You can repackage and combine the media so that you do not need to create separate clips for each different version of a presentation. SMIL enables users to select viewing options when they're made available (for example to allow for their slow download speed or choice of language).
- ◆ **Streaming Media** - When your website includes a live web cast, for example, a video presentation or an audio interview, streaming media support is essential. Such bandwidth-intensive features also require that you put your site on a dedicated server. For a server to be able to stream media data, it needs to have at least one of the three recognized protocols installed: a) User Datagram Protocol (UDP), b) RealTime Streaming Protocol (RTSP) or, c) RealTime Protocol (RTP). The main difference between these protocols and others such as HTTP or FTP is that they will carry on streaming the data regardless of whether a packet was lost in the transmission.

How much? How Fast?

You must remember that including multimedia files in your website will require a lot of bandwidth and data transfer. It's not uncommon for audio and video clip files to top a megabyte. Your bill for data transfer will explode if there are frequent requests for large files by your users. It's always a good idea to find out what the additional transfer costs will be on top of your quota as well as whether your host has good quality expandable bandwidth that can cope with your expanding multimedia files and growing user requests.



C. Deciding whether to go for static or dynamic pages.

In modern webpages today there are two kinds of sites. There are static pages and dynamic pages. Static pages are simply ordinary HTML-constructed which are fixed. They are simple text files that are displayed by your browser upon request. Static pages are easily read by search engine spiders. An obvious example of a static page is an old style HTML document whose appearance and form remains the same when uploaded and downloaded. What is posted on the server and seen on the browser is the same for everyone that access the file. The only way to change a HTML page is to upload a new or updated version in its place.

A dynamic web page is any web page which has content that is changed by a program or script at the time the page is requested. They are typically the results pages that are returned when a user submits a web form. Common examples of dynamic pages that are those generated from counters, guest books, online forums, feedback forms, database search forms, online shopping carts and Content Management Software. Dynamic pages are typically written in various scripting languages or technologies such as ASP, PHP, Perl or JSP which make the site interactive. Thus the webpage that contain web scripting are called dynamic pages. Dynamic pages are produced with the use of scripting language. Database software are also needed in websites with dynamic pages to store, process and enable searching. Be sure to ask the host their charges for adding database and web scripting features in your site.

Choosing which type to go for

So what will you aim for - a static website or dynamic site? There are many advantages and disadvantages for both as presented in. (Geodsoft. "Dynamic versus static web content": WebTechnology.. <http://geodsoft.com/book/basics/dynstat.htm>. 2002)

Type of pages	Advantages	Disadvantages
Static pages	<ul style="list-style-type: none"> ● Quick and easy to put together, even by someone who doesn't have much experience. ● Ideal for demonstrating how a site will look. ● Cache friendly, one copy can be shown to many people. 	<ul style="list-style-type: none"> ● Difficult to maintain when a site gets large. ● Difficult to keep consistent and up to date. ● Offers little visitor personalization (all would have to be client side).
Dynamic pages	<ul style="list-style-type: none"> ● Offers highly personalized and customised visitor options. ● Database access improves the personalized experience (as opposed to using just client side cookies) ● Scripts can read in data sources and display it differently depending on how it is run. ● Can create the illusion of being updated regularly using time and date sensitive routines (or even randomisers) to display pre-written text. ● Searchable 	<ul style="list-style-type: none"> ● Personalized pages are not very cache friendly. ● Requires a basic minimum knowledge of the language being used, and thus initial setting up can be difficult ● Scripts need more consideration when uploading and installing, particularly to *nix servers. ● More expensive because you usually need to pay a little extra for database and web scripting feature to be added to your hosting fees.



Type of pages	Advantages	Disadvantages
	<ul style="list-style-type: none"> ● Low maintenance and easy to update and backup. All you need is the template and the backup of database ● Compared to ordinary HTML pages where you need to produce thousands of pages (which are both labor and time consuming!), you can produce an unlimited number of articles and you will only need a database, the web application and one HTML template to store and display the information. 	

D. Setting up databases and choosing the right software

As mentioned in the section on web hosting, more and more websites are running databases to make their website interactive and dynamic. Databases are required if you want to include a searchable bibliographic, numerical or textual collection of files in your site. You might want to put up directories of organizations and projects or inventories of research studies or policies dealing with the cultural heritage in the silk road region. To make more efficient storage, sorting out and searching of contents in these directories, setting up searchable databases is the right way to go. But how do you create one and what kind of database and corresponding software to choose from? The answer to these usually start from what your objectives are for setting up the database, what

kinds of information you want to store, how do you want them to be searched and what kinds of results would you want to your users to retrieve from them.

Below are some examples of databases and their

- ◆ **A dynamic and flat- file databases** - The simplest databases are flat-file databases, consisting of a single file, or group of files in a format known by those that wish to make use of them. Due to their simple and predictable format, they can be made to work with any scripting technology that is capable of reading and parsing the file (after some programming). Each line is either one field entry, or is split up by a common delimiter into several field entries.
- ◆ **MS Access and MS SQL** - These two Microsoft database offerings are usually confined to use with ASP pages on a Windows server, but can, with the correct Open Database Connectivity support, also run on Unix, Apple Macintosh and OS/2 systems. Access is simply a scaled down version of Microsoft SQL, although it does not tend to scale as well in terms of simultaneous connections or function support. If you intended to use a Microsoft solution for a large or busy database then you should go for Microsoft SQL. Microsoft Access is more suitable for small hobby sites or low traffic business sites where it is less likely to suffer heavy usage, which would slow down the speed of a site.
- ◆ **MySQL** - While current versions of MySQL are optimized for use on *nix platforms in particular, MySQL can be built to work with most modern systems by compiling the source code. Performance of MySQL is greatly affected by performance of the system: the stability of the operating and file systems, and support for multithreading having the largest impact.
- ◆ **Oracle** - Oracle can be configured to run on a multitude of platforms and operating systems and has proven to be very scalable and reliable. More information are found under web hosting.



Kinds of Databases	Advantages	Disadvantages
1. Flat-file database	<ul style="list-style-type: none"> ● Offer full control of the way the data is stored and accessed ● Are both platform- and scripting language-independent ● Can prove fast to implement and use for small straightforward data sets. ● Their data is human readable when viewed in standard text editors. 	<ul style="list-style-type: none"> ● They do not scale well, as all data needs to be read to perform a search. ● They are not well suited to concurrent data access, which makes them susceptible to corruption. ● You need to know about a particular flat-file database's structure before you can use it. ● They are difficult to use as a relational database; more data duplication is likely. ● No functions are available, so all manipulation has to be done by the language being used.
2. MS Access and MS SQL	<ul style="list-style-type: none"> ● Relational databases make data management easier. ● Both have support for an image data type. ● MS SQL allows access across servers hosting the same databases. 	<ul style="list-style-type: none"> ● Software licences required to be able to edit and use these databases. ● Access can bring down entire servers if not used correctly. ● Difficult to use in non-Windows environments (support for ODBC needed).

Kinds of Databases	Advantages	Disadvantages
3. MySQL	<ul style="list-style-type: none">● Software is open source, so it's free to use and widely available.● It's a well-used database solution, so stability is well tested and documented.	<ul style="list-style-type: none">● More difficult to use for those new to databases.● Arguably not truly rational using Codd's rules.
4. Oracle	<ul style="list-style-type: none">● Good all-round support for many features despite its low cost to use.● Various sizes of text and binary data types offer better optimisation for database design.● Relational database makes data management easier.● Has data types that can write directly to the file system.	<ul style="list-style-type: none">● High cost has restricted its use with low-cost Internet applications.● o Vast configuration options may require a well-trained database administrator



Kinds of Databases	Advantages	Disadvantages
	<ul style="list-style-type: none">● Has the capacity to handle extremely large amounts of data.● Highly configurable database server.● Relational database makes data management easier.	

E. Choosing the right authoring and editing tools to create your site

Another technology issues you have to consider is the choice of authoring and editing tools to create your site. In short, how will you create and present your content and web pages in such a way that they are not only readily accessible but also readable?

Below are some descriptions of strategies and tools required in creating your website (Kyrnin, Jennifer. "Web design/HTML". <http://www.webdesign.about.com>)

1. HTML

Hypertext Markup Language (HTML) is the most popular technology used to create web sites. HTML provides important web elements such as web page title, headings, hyperlinks, bullets, buttons, backgrounds and bars, graphics, tables, frames, and meta tags. An HTML document is an ASCII document that contains a minimum set of HTML tags that define the essential document structure plus

any number of optional tags that are designed to describe the document's structure or appearance. The tags always start and end with paired angle brackets, < >. Between the angle brackets or angle bracket slash combination is text that identifies the specific HTML tag. Each tag in some way affects the presentation of the document in a browser. Where the tags are paired, the contents between the tags are affected in a predefined manner. HTML-based text is the only information you can be sure that everyone can read. You can write HTML in MS Word or you can use the tools on your hosting provider.

Types of HTML editors

They come in two types: text editors and "what you see is what you get" (WYSIWYG HTML) editors.

- **WYSIWYG HTML Editors**

"What You See Is What You Get" or WYSIWYG HTML editors are very easy to install and use. Beginners start out with a WYSIWYG editor because they can get a new Web page up quickly. Developers can concentrate more on how the page looks than on how the HTML looks, allowing for more creativity to take place. Specific tasks such as creating table are faster to do by using a visual layout for a table compared to a text editor where you have to type out all the tags. Furthermore, these tags need to be validated to ensure that your work can be displayed on the screen while with WYSIWYG editors, tags are automatically done for you so you can focus on the design rather than on the laborious tagging.

While it is a help that you do not need to know HTML to put up a web page and it gives you more flexibility in your design, WYSIWYG editors don't result in pages that are better looking. Furthermore, WYSIWYG editor is product specific. If your organization does not want to use that software product anymore, you have to start all over again learning a new one. It could also be difficult to make pinpoint adjustments on the tags as you have to go to option menus and other complex locations to find and edit them. You also rely heavily on the mouse to position elements.



Examples of WYSIWYG HTML editors are Dreamweaver, Microsoft FrontPage, GoLive, Netscape Communicators, and others.

- **Text HTML Editors**

Text editors provide a lot of control and speed for Web developers. Web pages created under text editor are faster to edit and download faster. Using them enable you to learn HTML and having these skills will make you more marketable as it is not product specific. The downside though is that using text editors require steeper learning curve as it requires you to know both HTML and the text editor functions. A beginner might find it difficult to use first. Some people find text editors more difficult to design pages in because they can't visualize how the page will look from just the HTML

Examples of text editors are HomeSite, Notepad, Vi and others.

Benefits of HTML

- ◆ Loads quickly (exception: Netscape waits for all table contents to load before displaying any of the parts)
- ◆ Can be learned and implemented easily (easy-to-use HTML editors are available)
- ◆ Can be augmented with sound, video, Java applets, and scripting languages such as JavaScript and VB Script

Limitations of HTML

- ◆ Provides only limited control over the way your page will be displayed, and over the appearance of text
- ◆ Is not programmable and offers only limited response to user interaction events

There are more and more sites which help offer ready-made authoring and editing tools to create your website as well as the space for hosting site. Some examples are included below.

<http://www.webspawner.com>

WebSpawner provides a free, quick and easy-to-use system for creating webpages. The template is simple and fast? great for beginners. It guides you through the content entry process and automatically generates a professional-looking? webpage. Enhanced packages and other services are also available, but there is no obligation.

<http://geocities.yahoo.com/>

Geocities offers free pages, charging for add-ons such as email accounts. The space provided is only 15MB, but they do offer two different building tools for a variety of needs. A separate set-up fee is required, however, even in the case of a paid package purchase.

<http://www.fortunecity.com>

Fortunecity provides a number of options for website creation and hosting, as well as domain name registration services? and search engine submittals. Their free pages are somewhat limited, however, excluding most features and requiring large outside company ads. Additionally, the side panel tool layout makes for slow loading.

<http://www.homestead.com/>

Homestead offers a variety of packages that utilize their proprietary software. The sitebuilder is based on a drag-and-drop functionality, which can get somewhat confusing for the beginner. While the number of choices is great, it can take significantly longer to create a website here than on other sites. Optional add-ons include e-commerce and design and marketing services.



For the user who seeks a one-stop shop, Homestead takes care of the details, but can be limiting for those who would like to make all of their own website decisions. No free pages are offered, but there are discounts for certain lines of business.?

<http://www.tripod.lycos.com/>

While the Tripod-Lycos main site layout is overloaded with distracting amounts of information, Tripod does offer different page-building tools that cater to the different types of users, including an HTML builder for those with programming knowledge and a File Manager to manage and upload files. They also provide tutorials for those interested in learning more about coding and graphics design. Free trial membership is provided with the understanding that you will upgrade to a premium package.

Source: Simeon, Judith. "Finding the best website creation tools for your needs". http://www.webhostingsources.com/articles_judithsimeon.htm. 2003

2. Cascading Style Sheets (CSS)

Cascading style sheets provide a template that layouts and specifies how elements are positioned on the page. It structures the visual style of your page elements, through a style sheet, like where the headers, paragraphs, lists should be located and how they should look like; how to set margins, to position text and images on the page relative to one another, to hide and show elements, and to stack elements so they overlay one another. In theory, style sheet positioning should provide full proof design control that ensures visually appealing and legible web pages. In practice, however, the current browser inconsistencies have rendered style sheet positioning not as efficient as expected until new technology corrects this weakness. Though the W3C specifications for style sheet positioning contain most of the tools needed for good design, Microsoft and

Netscape do not have the appropriate technology to accurately implement them, so that properties such as borders and margins display quite differently from browser to browser. Because of this, only a handful of properties of the use of CSS can be implemented consistently by different browsers.

How do you then reconcile your desire to preserve the document structure dictated by your style sheet and to design an attractive and functional webpages? First, you can use layout tables for designing your page if you need to be flexible in order to cater to the different needs of your diverse target audiences. If you need to complying to standards is a must, use style sheet positioning for page layout, but keep your layouts simple and be ready to accept variability across browsers and platforms. Second, do not use proprietary HTML tags, such as those specific to Internet Explorer or Netscape Navigator. This means using "plain vanilla" HTML to describe document structure and CSS to define visual layout. Thus strict consistency is not observed for the pages and instead allows for flexibility between platforms and browsers. (Lynch, Patrick and Horton, Sarah. "Web style guide" <http://www.webstyleguide.com/page/layout.html>)

Benefits of Cascading Style Sheets

- ◆ Provide greater control over layout and typographic properties
- ◆ Provides efficient control over large document sets by allowing site designers to control the graphic "look and feel" of thousands of pages by modifying a single master style sheet document.
- ◆ Offer more formatting options than plain HTML tags and extensions.
- ◆ Separate content from layout and presentation, which makes the development of a web site more efficient and flexible as in addition to using content markup that reflects the logical structure of the information, it allows freedom to specify exactly how each html tag will look.
- ◆ Facilitate consistency of appearance
- ◆ Manage conflicts in style sheet specifications among documents, groups of documents, and user browser set-ups by using a "cascade" or system of preferences



- ◆ Allow users to override your font style, size, and color attributes with ones of their own choosing, which is especially important for users with vision impairments
- ◆ Allow style changes selectively
- ◆ Can be used in conjunction with JavaScript to provide features that give users a richer sense of interactivity
- ◆ Allow elements to be positioned efficiently, eliminating the need for memory-intensive transparent GIFs; files are smaller and open more quickly

Limitations of Cascading Style Sheets:

- ◆ Require more time to learn and implement than other features of HTML
- ◆ Are not supported by older browsers
- ◆ Are supported in different ways in the new 4.0 browsers (some CSS features do not appear in IE 4.0, and some do not appear in Netscape 4.0)

3. Website Content Management Systems (CMS)

Nowadays, more and more websites are being set up using a content management system or CMS. This system is more holistic in the sense that it provides a one-stop platform for developing the various aspects of your website from content creation to database development to graphics and various programs used in managing the content of websites.

What is CMS?

A content management system (CMS) is a software package used to organize and create content in a collaborative manner. It is specifically designed to manage a website and allows those who are involved in setting up, updating and maintaining the website to have direct access to its different parts so they could work on them individually. The system provides simple and non-technical way of working on and updating the content like using a Word

application. You do not need to know html to enter your content. You just enter plain text and the CSM formats it using its style rules. Thus, you need not pay so much attention on the technology aspect of it and let you focus your text instead. Many of the commands use in entering, adding new pages, deleting old ones, editing, saving information are the same. Because it provides templates, it ensures applying the same page layout and appearance across the site. (Robertson, James."Why every small website needs a content management system". http://www.steptwo.com.au/papers/cmb_needcms/index.html)

Typically, a CMS consists of two elements: the content management application (CMA) and the content delivery application (CDA). The CMA element allows the content manager or author, who may not know Hypertext Markup Language (HTML), to manage the creation, modification, and removal of content from a website without needing the expertise of a Webmaster. The CDA element uses and compiles that information to update the Web site. The features of a CMS system vary, but most include Web-based publishing, format management, revision control, and indexing, search, and retrieval. (Content management system. http://searchwebservices.techtarget.com/sDefinition/0%2C%2Csid26_gci508916%2C00.html 2002)

Its features are:

- ◆ **Web-based publishing** - the package helps inexperienced content authors to create or modify Web content and produce higher-quality output by offering ready-made and approved templates as well as wizards, tools and software aids. It also allows creation and updating of content by authorized individuals without having to go through a central web master. For example, if a website has many sections and each section is maintained by different people, they can go directly to their respective sections and create and update contents. Documents and other forms of information can be disseminated by authorized individuals



- ◆ **Format management** - data can automatically be converted into formats suitable for Web publishing such as HTML or PDF. Different electronic documents can be transformed into a unified or common format for easier access and sharing, even by third parties. .
- ◆ **Revision control** - the revision control feature allows content to be changed, revised and updated to a newer version or restored to a previous version. Revision control also tracks any changes made to files by individuals.
- ◆ **Indexing, search, and retrieval** - this package has a built-in tools and software for indexing, searching and retrieving. This is done through a CMS system which indexes all data within an organization using keywords, headings, graphics, and other elements.. Individuals can then search for data using keywords, which the CMS system retrieves.

Two factors must be considered before an organization decides to invest in a CMS. First, an organization's size and geographic dispersion must be considered especially if an organization is spread out over several countries. For these organizations, the transition to CMS is more difficult. Secondly, the diversity of the electronic data forms used within an organization must be considered. If an organization uses text documents, graphics, video, audio, and diagrams to convey information, the content will be more difficult to manage.

Why use SCM instead of html or text editors?

A content management system makes life much easier in many ways:

- ◆ You are no longer dependent on the web designers making changes for you because it provides web access to web page content owners directly. In most organisations, the Web Developers don't write the content for the pages. They simply put it up in a format that is Web ready. With a content manager, the content owner can access the parts of the site that they own and publish them, often directly to the Web site or staging server.

- ◆ Changes can be made any time they are needed, day or night as it allows faster updates of web pages. This is increasingly important as your organisation comes to rely on the website as a communications channel. The content owner could make the change directly, and bypass the work order completely. Or with some content management systems, the requestor could submit the request through the content management tool, and it would be sent to the content owner to approve.
- ◆ All the technical details are simply handled by the CMS, allowing anyone to manage and update the site as it provides an easy-to-use interface where content owners don't need to know HTML
- ◆ Multiple staff can keep the site up to date, instead of being restricted to just one person. The CMS will track who is doing what, avoiding potential confusion. In short, it creates accountability, as most content managers can track logins and changes to various pages within the site
- ◆ You can even ensure that each staff person can only update the sections of the site they are responsible for. Management software can sometimes be set up with user accounts, and access rights. This means, that some pages may only be editable by specific accounts. And changes that are made to the Web site are tracked and often using change management tools, it is possible to back out of a change that was made in error.
- ◆ The CMS ensures that all the pages are consistent in design, and will build all the menus and other navigation for you. Thus it ensures standardization. This means that there are certain areas of Web pages that cannot be changed by the content owner. For example, the information in the right-hand column, or anything above the title or below the bottom of an article cannot be changed. Because these cannot be changed, this guarantees more standardization across the entire site.
- ◆ The many other powerful features of the CMS allows the site to grow in sync with your organisation.



F. Building interactivity

Interactivity is what makes the web come alive. Interactivity happens on a website when the users are able to send back information to a web server or information provider and participate in tasks calling for manipulation by the users. Thus, Bulletin Boards, forums, counters, blogs, feedback and contribute forms, order forms, search forms, and web content management software are all web applications which require the users to participate and send back information.

Interactivity includes a Web browser's capability to support an interactive forms feature of HTML, image maps, interfaces with gateway programs, Java applets, and electronic mail or other communications links among people or information services. Thus, technology such as response forms, auto-responders, email links, and bulletin boards allow your web visitors to interact and provide immediate feedback to you via your website. Interactivity are made possible by using scripting language described above (Perl, ASP, PHP, Java, etc.)

How do you make your website more interactive? There are many tools to ensure that your users participate in your website and become an active user. Below are some of these:

◆ Guestbooks

When you want to gather feedback or comments on how your users assess your website, the guestbook is an appropriate tool to use. Guestbooks are framed in such a way that your users can air their views and give their opinions on the different parts of your website as well as suggestions on how to improve the site further. These opinions include negative and critical comments as well for which you do not have any control on. If you do not want to be influenced much by comments that could be unfair or too critical, then guestbook is not useful for you or vice versa. So you have to decide if it is worthwhile to set up such a service.

◆ Newsletters

There are two ways that your users become involved in your newsletter. First is when they subscribe to become part of your mailing list so that they receive the electronic newsletter regularly. The hosting service will provide you the script to build the mailing list. By logging in to access your website, the newsletter becomes interactive. The second way is by encouraging the users to contribute their news to your newsletter. This can be done by installing a "Contribute" box where the users can either type in their news or attach their news and hit a button to submit online. These two ways encourage the building of rapport and relationship with your readers.

◆ Forums

These are virtual meeting-places for where people with common interests, work and goals where they can meet and undertake interactive communication, exchange of ideas and collaborate. All valuable post, experiences and exchange of information are stored in the forum archive (database) which can be easily searched, sort and uncovered by using the database search function. Members add their contact information to build a database for easy access by members who want to contact each other. Unlike in mailing list, discussion is much easier to control as they are threaded and placed in specific categories specified by the author of the forum. For those who do not have time to visit the forum, they are notified through email and interaction can also take place by email alone. The discussion forum is almost always guided by a moderator who generate key issues to discuss, facilitate continuous discussion, and decide when to delete foul language and unacceptable messages. This service can become truly interactive with the help of a good moderator.



◆ Chat rooms

Chat rooms are similar to discussion forums, except that they are real-time. This means that individuals can meet up and chat with each other like they were having a conversation in real life. This is real interactivity in motion.

Let's take this example. Your Silk Road project needs to collect materials and documents dealing with various artifacts and need to identify where the appropriate sources are. Those who own or have in their possession these artifacts can be invited to join the chat session to share their knowledge and information. You can in fact hold a weekly chat on this topic or other topics that the group would like to discuss about concerning the setting up of a digital library on Silk Road artifacts. Members can answer questions and give advice, thereby asserting their knowledge and expertise. Discussion topics can revolve around questions such as: Where do you think these artifacts are found and what documents exist dealing with these artifacts from different countries? How do you access and get hold of copies? Is there a price for these documents? How do you ensure a regular exchange of information?

◆ Surveys

By placing an online survey somewhere on your Website, usually on the home page, you can get quick feedback from your visitors. Surveys can be aimed at gathering feedback on the acceptability and usefulness of your site and how to make it more user-friendly; ; obtaining suggestions on the development of a new section on your site; gathering opinions and comments on certain hot issue of the day; taking votes on controversial proposals; getting feedback on acceptability of some products; and so on. Use it as a form of audience research. More details on online surveys are found in Chapter Four.

◆ **Contribute to databases**

Many websites now offer online databases of information that can be searched and browsed interactively. Users can even contribute data into them. Examples of searchable databases include library or bibliographic database of books; catalogues, database of articles; directories of organizations; inventories of projects and research; etc. To help site owners to expand and update the databases, they can also invite their users to contribute records or entries into these databases by posting the document through a "Contribute" box run by a scripting language. Maintaining databases and updating them regularly can be time consuming and labour intensive. Databases that are run by scripting language such as Coldfusion, ASP, PHP, etc. are made easier to maintain and operate interactively.

◆ **Blogs**

A blog is an online personal journal or diary that is updated regularly. It started as online places for people to write their day-to-day activities. It is a place where one can express one's ideas, feelings, concerns and issues to the world. It is a place to where thoughts and passions can be shared through a collection of postings and short and informal write-ups. Bloggers have the opportunity of reaching hundreds or even thousands of people each and every day and getting feedback in return, making this an interactive online vehicle. (BlogBasics. Step One: "Introduction to blogging". <http://www.blogbasics.com/blog-tutorial-1-1.php>)

Privacy and security

Sending back information to the web server or information provider runs the risk of the information becoming known or being read by others. Some people snoop on the flow of data traffic through the network. Thus, filling out and submitting represent large issues for privacy and



security for users. For example when you fill out and submit a form online, you often provide private or personal data . Security methods such as encryption can be ensured by the server to see to it that information travel through the network safely. Make sure that your server has the capability to integrate security and privacy protection systems into the browsers as well as the explicit use of encryption methods.

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Advertising and Promoting Your Site

Advertising and Promoting Your Site

More often than not, the task of promoting websites is not carried out in a comprehensive manner. Web developers tend to think that the task is finished once a website has been uploaded and opened to the public. It is assumed that site visits will happen automatically once a site exists in cyberspace. Many believe that it is enough for commercial search engines to generate interest and create traffic to websites free of charge. Those who are more proactive enlist their sites in various search services, hoping that doing so will increase traffic to their websites. However, with over 150 million websites competing for visibility in various search engines, there is an important need for more systematic and carefully thought-out promotional strategies that will promote websites more effectively. Those who do not take things for granted launch systematic promotional campaigns that result in a tripling of the number of visits to their sites. Promotion is the process of helping a website achieve strong visibility among online and offline communities through systematic publicity campaigns. Promotion also entails establishing relationships or linkages with other websites, making use of a systematic strategy that is based on various marketing models for promoting websites.

Principles of website promotion

Below are some overall principles that should be duly considered prior to discussing different ways of promoting a website. ("The following material is excerpted/adapted with permission from John December's Web Development site available online at <http://www.december.com/web/develop.html>")

1. The following main goals are worth considering in your promotional campaigns:
 - ◆ To keep users informed of your website's purpose, contents, offerings and services.
 - ◆ To attract users' interest by letting them know how the site meets their needs.
 - ◆ To alert current Web users of latest updates and new developments.

Remember that a Web presence means more than just creating a homepage as it requires sustained commitment to make a website serve its audience.

2. Always draw your promotional strategies from the purposes and stated objectives of a website as well as the profile and information needs of the target audience. Drawing up the objectives and information needs of the target audience will be key to successful website promotion. Knowing for example how to reach your target audiences will help you to decide where to place your Web releases. Website promotion means increasing the site's halo or its built-in links, giving potential users a way of locating other websites. Note that increases in visits and links are not always measured in terms of increases in numbers as quality is even a greater consideration. Reaching the target audience, not necessarily everyone on the Web, is the primary goal.
3. Publicity timing should be planned well. If a website's "grand opening" is announced prematurely, that is before all pages are completed and files could be accessed, there is the risk of losing the potential audience before they could even be enlisted. The web server itself might have to go for some testing before the website is widely released to the public. It is advisable not to announce a website until it is completed and is ready to make a good first impression. Of course, a website is never "final" because it is constantly evolving. Therefore, it is advisable to decide first of all on the objectives that must be met and to have the website in place and fully tested before its public release.



4. Do not over-publicize or make too many announcements that could saturate and tire the audience. Do not send announcements or alerts for every minimal change made to the website. Frequent publicity should be done for more specific audiences. For general audiences, the best strategy is to announce only the "big stuff" so as to have maximum impact.
5. Although a site may be intended to reach specific target audiences, it is also useful to promote it to the whole Web community or to the general public for several reasons: it allows the entire Web community to benefit from the information or to use it; it paves the way to reach the target audience or to spark interest in the subject among a sub-group of the general Web audience; and it also serves as a public announcement of a particular website's existence so that indexers can scan and evaluate it and include it their indexes and resource lists.
6. Do not place announcements of your website in sites where it does not belong. Irrelevant announcements in subject-specific fora or sites are not acceptable to users. For example, while a variety of subject-specific newsgroups and mailing lists exist, choose only the most appropriate fora for publicizing your site. Placing a silk road announcement in a health forum will create dissonance among the users and might be counter productive.
7. Announcements should be short, concise and selective. Focus on details that matter instead of providing exhaustive lists of your website's offerings. Do not clutter your announcements with too many links to other sources of information otherwise users might lose their way in your site. In short, select only major links to the most important information sources instead of linking to many pages.

"The preceding material is **excerpted**/adapted with permission from John December's Web Development site available online at <http://www.december.com/web/develop.html>"

Promotional techniques

Having elaborated on the principles upon which promotional strategies can be based, our discussions will move to specific techniques that should be considered so as to achieve greater visibility and encourage visits to your website:

1. Direct Email

Direct email is the most effective way of promoting your website and stimulating traffic. For one thing, it goes directly to the email box of users and could be difficult to ignore if done creatively. Additionally, the effectiveness of direct email lies in the fact that the recipients of your message will read the subject line, if it is catchy. A catchy subject line can guarantee that a large number of recipients will open your message. For example, which of the following email subject lines will you open?

"Silk Road Archives News" or

"Never-before Accessed Silk Road Artifacts Now Digitized"

The success of direct email also depends on the email list that you have compiled. As a start, include only those who are in the same area of work and interest. Build your email list as subject-specific as possible, starting from your immediate partners, associates, clients, and donors who have been actively involved in your programme. Later on, expand the list by sending emails to solicit recommended names and contacts. Another excellent way of expanding your list is by installing a "recommend a friend" function right on the site. This is a combination of email technology, online fora and user interface that makes it as easy as possible for users to forward your site's address to their friends. Another time-saving strategy is to borrow or rent targeted email lists that are already compiled and are used by related organizations.



When writing an email message, write different announcements or updates in separate paragraphs and introduce each one by using a catchy sub-headline or heading. Very often the user quickly scrolls down the screen and if the announcements are too dense and undifferentiated, the reader might not immediately see what is of high importance to them. Each paragraph should be short and concise - no longer than three sentences and should be linked to the original full document for more information. Use words that entice the user to action in order to read on. The example shown below differentiates from one piece of announcement to the other and is described only in one or two sentences with links for more details.

Information Knowledge and Management (IKM)
Announcement end of August 2004
UNESCO Asia and Pacific Regional Bureau for Education

ANNOUNCEMENT

Upcoming Events

Regional Peer Review Workshop

A Regional Peer Review Workshop on the Teacher Training Manual for HIV/AIDS Prevention Education in the School Setting will be held from 21 to 24 September 2004 in Pattaya, Thailand. Participants will share their knowledge and experiences on HIV/AIDS/STI preventive education and steps will be taken towards finalizing the manual, funded under the JFIT-project 'Strengthening and Expanding the Provision of HIV/AIDS Life Skills and Preventive Education in Teacher Training Colleges.' <http://www.unescobkk.org/hivaids/features.html>

E Books

Exemplars on Best Practices in Teaching and Learning Science and Mathematics

Bangkok: UNESCO Bangkok; Diliman Quezon City: University of the Philippines, National Institute for Science and Mathematics Education Development. 2003,239 p.





This book is a collection of exemplars developed by a group of selected elementary and secondary science and mathematics teachers. It showcases teaching practices that provide opportunities for students to learn science and mathematics in an interactive and stimulating environment. <http://www.unescobkk.org/ips/ebooks/documents/exemplars/index.htm>

Development of Innovation Teaching-Learning Materials for Science and Mathematics at the Basic Educational Levels

Bangkok: UNESCO Bangkok; Diliman Quezon City: University of the Philippines, National Institute for Science and Mathematics Education Development. 2003, 29p.

This report is the result of a National Writing Workshop on Best Practices in Teaching and Learning Science and Mathematics, held 4 - 8 August 2003, under the project: 'Development of Innovative Teaching-Learning Materials for Science and Mathematics at the Basic Education Levels'. http://www.unescobkk.org/ips/ebooks/documents/exemplars_report/index.htm



HIV/AIDS in the GMS: Bulletin for Prevention Education in the Greater Mekong Subregion

This bulletin is published by the HIV/AIDS Clearing House of the UNESCO Asia and Pacific Regional Bureau for Education as part of the ADB-SEAMEO-UNESCO project on ICT and HIV/AIDS Preventive Education in Cross-border Areas of the GMS. It provides updates on progress in implementing the project, including project activities, latest happenings, feature articles, calendar of events, web and publication reviews. http://www.unescobkk.org/ips/ebooks/e_bulletin/HIV_AIDS_GMS_BulletinVol_1/index.htm

We would appreciate your feedback on the usability of the site and your help to make this site as comprehensive and relevant as possible. Thank you for your co-operation.

Mr. Gordon Johnston
Chief a.i.

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2. Traditional strategies

This means that the URL should appear in the following

- ◆ E-mail address
- ◆ Stationery
- ◆ Cards
- ◆ Books
- ◆ Product manuals
- ◆ Training and meeting brochures
- ◆ E-mail's signatures
- ◆ Calendar of events
- ◆ Print advertisements
- ◆ Radio and television advertisements
- ◆ Direct mail campaigns
- ◆ Business cards
- ◆ Press releases
- ◆ Posters and billboards

Nowadays, it is common to see printed materials that bear email and website addresses on the title page and even on the cover page of publications. Since most organizations publish books, journals, manuals and the like, they can benefit from their publications' wide circulation by printing website addresses in conspicuous sections. For example, the URL can be printed on the cover and title pages together with an email address. Stationery and envelopes can also bear email and website addresses in their letterheads. Greeting cards, invitation cards, congratulatory cards and postcards, produced by an organization for its clients are appropriate vehicles for promotion. Very often organizations that organize meetings, training, seminars and conferences print brochures or leaflets announcing the schedules or objectives and agenda of particular events. In the announcement brochures, it is very

important that email and website addresses are prominently displayed to enable potential participants to visit the site and read it in detail. Displays and exhibitions are also good platforms for exhibiting posters in your website. Regardless of the topic of your organization's display and/or exhibition, always include a poster or two of the website. In fact, producing ready-to-use sets of posters that describe the website's objectives and contents for use in any display and/or exhibitions can save time and costs. These sets of posters can always be incorporated in any exhibition held by your organization. Promotional gimmicks and give-aways produced by your organization, including hats, mouse pads, ballpens, stationeries, and so on can be effective vehicles for making your site more visible.

For example, include the website address in the editorial box of your newsletter. See below editorial box of the Adolescence Education Newsletter of UNESCO.

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Credit is given to **Dr Amara Soonthomdhada**, Programme Director, Institute for Population and Social Research, Mahidol University, Nakhon Pathom, Thailand, as source of the article "Mahidol offers graduate programme on population and reproductive health" (Adolescence Education Newsletter, Vol. 6, No. 1, June 2003). Credit is also given to **Dr Suwattana Warakamin**, Reproductive Health Division, Department of Health, Thailand, as contributor of the article "Friend Corner upgrades service standards" (Adolescence Education Newsletter, Vol. 6, No. 2, December 2003).

The Adolescence Education Newsletter is published twice a year (June and December) by the Regional Clearing House on Population Education and Communication of UNESCO Asia and Pacific Regional Bureau for Education with funding provided by UNFPA, under Project RAS5R105. Editors: **Carmelita L. Villanueva and Lichelle Dara Espada-Carlos**.

We welcome your comments, suggestions and contributions. Please address your correspondence to the Regional Clearing House on Population Education and Communication (RECHPEC), UNESCO Asia and Pacific Regional Bureau for Education, P.O. Box 967, Prakanong Post Office, Bangkok 10110, Thailand, Tel. (66-2) 391-0577,

Fax. (66-2) 391-0866, E-mail: rechpec@unesco Bangkok.org; ARSH website: <http://www.unesco Bangkok.org/ips/arh-web>



Below is another example of a booklet where the website address of the HIV/AIDS project is printed on the cover itself.



Another fast and easy way to promote your site is to install a "signature" in your email to help potential users get in touch with you. Most email programs, such as AOL, Netscape, and Outlook, allow you to designate a "signature" to appear at the end of every message that you send. Limit it to six to eight lines consisting of your organization's name, address, phone number, URL, email address, and a one-phrase description of your website content.

Here are some examples:

1. This is a signature in an email which includes website content descriptions in addition to telephone, fax, email information

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The announcement of the 51 products that received the UNESCO AHPADA Seal of Excellence for Handicraft Products in Southeast Asia (SEAL) was made on 18 August 2004. The 51 handicraft products from 8 ASEAN countries can be viewed and ordered online at <http://www.unescoykk.org/culture/craftseal> and <http://www.ahpada.com>. For more information, please contact: h.stanek@unescoykk.org

ASIAN ACADEMY FOR HERITAGE MANAGEMENT NEWSLETTER: the August Issue is now available in PDF format.

Visit www.unescoykk.org/culture/asian-academy to download your copy. To submit an event, article, or update for the next issue please contact asian-academy@unescoykk.org

Baltit Fort (Pakistan) has been honoured with the Award of Excellence in the UNESCO 2004 Asia-Pacific Heritage Awards for Culture Heritage Conservation. The three Awards of Distinction went to Lakhpat Gurudwara (India); St Ascension Cathedral (Kazakhstan) and the Church of Our Lady of Mount Carmel (Australia). Five Awards of Merit and eight Honourable Mention prizes were also announced. All winners and the Selection Panel's citations can be viewed online at www.unescoykk.org/culture/heritageawards. For more information, please contact: h.montira@unescoykk.org.



Another example which attach website addresses in the signatures

Dear Friends,

Please support the relief efforts in South Asia by donating to any of the aid organizations listed below.

These international aid organizations are accepting contributions for assistance that they or their affiliates will provide to help victims of the powerful earthquake and resulting tsunamis.

Please forward this message to anyone else that can help.

**International Federation of Red Cross and Red
Crescent Societies**

PO Box 372
CH-1211 Geneva 19
Switzerland
41-22-730-4222
<http://www.ifrc.org/>

UNICEF

333 East 38th Street
New York, NY 10016
1-800-FOR-KIDS
<http://www.unicef.org>

Action Against Hunger

247 West 37th Street, Suite 1201
New York, NY 10018
1-212-967-7800
<http://www.aah-usa.org>

**American Friends Service Committee
(AFSC Crisis Fund)**

1501 Cherry Street
Philadelphia, PA
1-215-241-7000
<http://www.afsc.org>

Direct Relief International

27 South La Patera Lane
Santa Barbara, CA 93117
1-805-964-4767
<http://www.directrelief.org>

Mercy Corps

PO Box 2669
Portland, OR 97208
1-800-852-2100
<http://www.mercycorps.org>

Oxfam International/Oxfam America

1-800-77OXFAM
<http://www.oxfam.org/>

Save the Children

Asia Earthquake/Tidal Wave Relief Fund
54 Wilton Road
Westport, CT 06880
1-800-728-3843
www.savethechildren.org
etc.

One final technique is to write to websites with calendar of events sections and to submit your event with your URL, to link to the event description.

3. Submitting to search engines and directories

Search engines can list your site even if you have not submitted it to them for listing. These engines send out what is known as "crawlers" or "spiders" all over the Internet searching for websites to index. They follow links from one website to the next, and if they come across your website via a link from another site, your website will be indexed.

Unlike search engines, Web directories will only index your site after you have submitted your website to be listed. You can submit your site to each of these directories manually or use one of the site submission services, thus saving you a lot of time. Once you have submitted your site, either a real person will come to inspect your site or a "crawler" will be sent to gather information about your site.

Using meta tags

How does the "crawler" or "spider" collect information about your site? It actually does not gather all the information that is presented in your site, but only gets parts of it, such as those sections that are presented within the meta tags found in your homepage and in the first 10 or 20 pages. These tags can contain information, such as the title and description of your site. But the most important meta tag that you can set is the keyword tag. This tells the search engine or directory what keywords best describe your website. When users enter one or two of these keywords in their searches, your website will show up as a result. Meta tags are explained in greater detail below.


A. Listing your site with search engines

As mentioned above, search engines send "spiders" to index the content of your website. There are many search engines available on the Internet, with more coming online every day. Although the



process of registering is very simple, it can consume a large amount of time. This is especially true when you consider that you will probably need to re-submit your site on a regular basis. Focus your attention on major search engines. Google, Yahoo, Excite, Infoseek, WebCrawler, Lycos, Alta Vista, and Hotbot probably account for 80 percent or more of all searches performed on the Internet.

Below is an example of a site submit form at Google

	<p>For Site Owners: Submit your site</p>	
<p>Home</p> <p>All About Google</p> <p>Advertise with Us</p> <p>Search Solutions</p> <p>Webmaster Info</p> <p>Submit Your Site</p> <p>Top of Form Find on this site:</p> <p><input type="text" value="googleabout"/></p> <p><input type="text" value="www.google.com"/></p> <p><input type="text"/> <input type="button" value="Search"/></p> <p>Bottom of Form</p>	<p>Share your place on the net with us.</p> <p>We add and update new sites to our index each time we crawl the web, and we invite you to submit your URL here. We do not add all submitted URLs to our index, and we cannot make any predictions or guarantees about when or if they will appear.</p> <p>Please enter your full URL, including the http:// prefix. For example: http://www.google.com/. You may also add comments or keywords that describe the content of your page. These are used only for our information and do not affect how your page is indexed or used by Google.</p> <p>Please note: Only the top-level page from a host is necessary; you do not need to submit each individual page. Our crawler, Googlebot, will be able to find the rest. Google updates its index on a regular basis, so updated or outdated link submissions are not necessary. Dead links will 'fade out' of our index on our next crawl when we update our entire index.</p> <p>Top of Form</p>	<p>Other Options</p> <p>Instant Ads on Google Create your own targeted ads using AdWords. With credit card payment, you can see your ad on Google today.</p> <p>Google AdSense for Web Publishers Publish ads that match your content, help visitors find related products and services - and maximize your ad revenue. Learn more.</p>
	<p>URL: <input type="text"/></p> <p>Comments: <input type="text"/></p> <p><input type="button" value="And URL"/></p> <p>Bottom of Form</p> <p>Need to remove a site from Google? For more information, click here.</p>	

Submitting your sites to search engines is usually done free of charge. On the other hand, some people opt to pay for targeted traffic, instead of putting in the time and learning the techniques to attract traffic from the search engines at no cost. Below are various steps in submitting your site free of charge to search engines:

Step 1: Choose Your Keywords

It is very important to come up with two or three main keywords that your users will likely type in to describe your subject scope. Each webpage that you want optimized should not contain more than two main keywords as using more than this number will reduce the chance of your getting the most highly targeted traffic possible. Do not think that by using extremely popular keywords your site will automatically achieve a high rank in the search engines. In fact, the greater the popularity of keywords, the higher is the level of competition among them. It is more advisable to choose less popular keywords for better results. What is a "good" keyword? A good keyword is one that has been the subject of searches numbering approximately 1000 times or more in a given month.

For example, let us imagine that we own a website called `digital-silkroad.heritage@org` which we would like to optimize using two main keywords. We look for good keywords and soon identify two ideal terms with which we can optimize the site: *"silk road cultural restoration"* (40,300 sites turned up) which was searched 1553 times in the previous month, and *"digitized silk road documents"* (220 sites) which was searched 2194 times also in the previous month. If we simply use "digital silk road", we will get 313,000 sites that include numerous commercial websites whose products are called silk roads and are engaged in digitizing various products not related to silk road.

Step 2: Find out keywords in current use by competing websites.

First find out how many sites are using the keywords that you intend to use. This can be done by performing a search of your main keywords using the search engine that you want to submit



your site to. Let us say, you want to start your search using the keyword "digital silk road". Within five seconds, you will be presented with a list of sites that you will be competing with in using this keyword. You will be surprised to learn that there are many unrelated sites using this keyword. This will enable you to review your choice and to understand better why and how they rank in the top 10 sites. Take a look at their source file (from the "View" option in your browser) and see what keywords they target. Do not copy them! The first two or three keywords listed represent the words that they focus on as they optimize their sites. The order in which sites list their keywords is important. Sites have the potential to attract the largest share of traffic depending on particular keywords.

Step 3: Write a title with at least two main keywords

The title is the URL or uniform resource locator of your site. This is what the search engine will first use to index the site and generate search results. For this reason, you should write an eye-catching title that should be related to your website's content or your products. Remove as many "filler" words from the title, such as "the," "and," and so on. The page title will appear hyperlinked on the search engine when your page is located. To obtain an even higher ranking in the search engine, make sure your title contains one or two of your main keywords. For example, the title of your site, digital-silkroad.heritage@org could read as:

Digital restoration and exchanges of cultural heritage in the silk road region.

Cultural heritage restoration in the silk road.

Silk road cultural heritage digital restoration and exchanges.

Step 4: Start your site description with main keywords

Many search engines include a description of your site below your hyperlinked title. This should describe the contents of the body text of the webpage, using the main keywords and key phrases

found on this page. If you include keywords that are not used on the webpage you could hurt yourself. Place those words at the top of the webpage, between the <HEAD></HEAD> tags, in a META tag in this format:

```
<META NAME="DESCRIPTION" CONTENT=" Increase visitor hits and attract traffic through submitting URLs, META tags, news releases, banner ads, and reciprocal links.. Your maximum number of characters should be about 250. Be aware that only the first 60 or so are visible on Google, although more may be indexed. Including one or two of your main keywords in the headline of your website description will also ensure higher ranking in the search engine. It is better to remove banners or other graphics at the top of your website, and to instead use a headline or brief description (around 200 words or so) of your website, mentioning your main keywords. For example, if you had originally planned to include a banner showing the map of the silk road route, you can replace this with "Silk Road Cultural Heritage: Digital Restoration and Exchange". As what you write there will appear in the search engine results, make sure that you write something interesting that compels your visitor to click on the link.
```

What is a possible site description for digital-silkroad.heritage@org? It is possible to start with the following:

Promoting effective digital storage, restoration and exchanges of cultural heritage residing in the Silk Road region

Step 5: Add content and more content

Content refers to speeches, reviews, articles, reports, tips, courses, and so on that are posted on your website. The text is more important than banners if you want your site to be



indexed more frequently. Again include one or two of the main keywords in every paragraph of your website's content. Take this approach to writing all your website's pages if you want to gain a higher rank in the search engines for these keywords. The more pages you add to your website, the more hits you can gain for a particular keyword. Search engines give a higher ranking to websites that offer many pages filled with high quality content. Check out your website statistics for a list of all the searches that your visitors type into different search engines to locate your site. If we check the statistics for digital-silkroad.heritage@org, we may notice that the site receives visitors who search using keywords for which you have not optimized the pages for (e.g. " silk road digital training"). To help us gain a better ranking for that keyword, we might create a mini-article (of around 300-500 words), starting each paragraph with the keyword, "silk road digital training".

B. Submitting Your sites to directories

In addition to search engines, directories are a good place to locate websites. What is the difference between the two in terms of sourcing for websites? While search engines normally accept almost any site or page that is submitted to them, without evaluating its quality, directories usually only accept sites that offer quality information. Because all sites submitted to directories undergo review, those that are of low quality rarely get accepted. While search engines list pages, directories list sites, thus only the front page of your site can be submitted to directories.

The most important directories that you can take into consideration are **Yahoo**, **Looksmart** and **DMOZ**, also known as Open Directory. These sites offer more visitor traffic.

Below is a submit site from the Open Directory Project at <http://dmoz.org/add.html>

DMOZ: Open Directory Project

Open Directory Project

How to suggest a site to the Open Directory

The Open Directory Project is a web directory of Internet resources. A web directory is something akin to a huge reference library. The directory is hierarchically arranged by subject - from broad to specific. The ODP is maintained by community editors who evaluate sites for inclusion in the directory. They are our experts, and all submissions are subject to editor evaluation.

We care a great deal about the quality of the ODP. We aren't a search engine and pride ourselves on being highly selective. We don't accept all sites, so please don't take it personally should your site not be accepted. Our goal is to make the directory as useful as possible for our users, not to have the directory include all (or even most) of the sites that could possibly be listed or serve as a promotional tool for the entities listed.

To keep the ODP running smoothly and to assist us in exercising our editorial discretion, we have set up policies for submitting sites for our consideration. We may reject, delete, or edit submissions that violate these policies or that we otherwise believe, in our sole discretion, should not be included in the directory. We may also reject, delete, or block other sites that we believe to be associated with a user who has violated these policies.

You should take a few moments to understand these policies and the steps to submit a site before you begin. Failure to understand and follow these instructions generally will result in the rejection of a submission.

Step One

Determine whether a site is appropriate for submission to the ODP:

- ◆ Do not submit mirror sites. Mirror sites are sites that contain identical content, but have altogether different URLs.
- ◆ Do not submit URLs that contain only the same or similar content as other sites you may have listed in the directory. Sites with overlapping and repetitive content are not helpful to users of the directory. Multiple submissions of the same or related sites may result in the exclusion and/or deletion of those and all affiliated sites.
- ◆ Do not disguise your submission and submit the same URL more than once. Example: <http://www.dmoz.org> and <http://www.dmoz.org/index.html>
- ◆ Do not submit any site with an address that redirects to another address.
- ◆ The Open Directory has a policy against the inclusion of sites with illegal content. Examples of illegal material include child pornography; libel; material that infringes any intellectual property right; and material that specifically advocates, solicits or abets illegal activity (such as fraud or violence).



- ◆ Do not submit sites "under construction." Wait until a site is complete before submitting it. Sites that are incomplete, contain "Under Construction" notices, or contain broken graphics or links aren't good candidates for the directory.
- ◆ Submit pornographic sites to the appropriate category under Adult. ===Submit non-English sites to the appropriate category under World.
- ◆ Don't submit sites consisting largely of affiliate links.

Step Two

Do a quick search in the directory at dmoz.org (the home of the Open Directory) to be sure your site isn't already listed. This saves everyone time.

Step Three

Identify the single best category for your site. The Open Directory has an enormous array of subjects to choose from. You should submit a site to the single most relevant category. Sites submitted to inappropriate or unrelated categories may be rejected or removed.

Note: Some categories do not have "suggest URL" or "update URL" links. These categories don't accept submissions, so you should find a more specific category for your site.

Step Four

Once you've selected the best category for your site, go directly to that category on dmoz.org and then click "suggest URL." Follow the instructions on the submission form carefully. Descriptions of sites should describe the content of the site concisely and accurately. They should not be promotional in nature. Submitting a promotional description rather than an objective, well written description may significantly delay your site from being listed or prevent your site from being listed at all. **Auto-submission software is (and always has been) a violation of this procedure. Sites submitted automatically are flagged and deleted after the submission is accepted, without notification to you.** Persistent automatic submission may force us to ban you from the dmoz site, so we can provide resources to real human beings.

Procedure After Your Site is Submitted

An ODP editor will review your submission to determine whether to include it in the directory. Depending on factors such as the volume of submissions to the particular category, it may take several weeks or more before your submission is reviewed. Please only submit a URL to the Open Directory once. Again, multiple submissions of the same or related sites may result in the exclusion and/or deletion of those and all affiliated sites. Disguising your submission and submitting the same URL more than once is not permitted. If a site you submitted has not been listed after a month, you may check its status at [the dmoz public forums](#).

Updating Your Site

If a site has been accepted for inclusion in the directory but you are dissatisfied with how the site is described or titled, you may go to the category where it is listed, and fill out the "update URL" form. If you are dissatisfied with the category in which your site is listed, you may send an e-mail to an editor for the category explaining your disagreement. Be polite and civil -- threatening or abusive behavior will not be tolerated.

If (but only if) you are dissatisfied with the editor's response, you may then use the "Feedback" link at the top of the page to "appeal" the editor's decision. Be specific concerning your disagreement (including why you believe the editor's response is inadequate). Comments made through the feedback link are reviewed by the ODP staff, who will make the final decision. Please do NOT send correspondence to Netscape, as that will only slow down and complicate the process. We take all feedback seriously and give it our thoughtful consideration. But please remember that we must exercise our discretion and make numerous judgment calls as to how to make the ODP as useful as possible -- no matter what decision we make, we may not always satisfy everyone.

Getting Your Site Into Portals and Search Engines Using ODP Data

If your site has been accepted into the Open Directory, it may take anywhere from 2 weeks to several months for your site to be listed on partner sites which use the Open Directory data, such as **AOL Search, Google, Netscape Search, Yahoo Search, and hundreds of other sites.** We make updates of the data available weekly, but each partner has their own update schedule.

Editorial Discretion

Please recognize that making the ODP a useful resource requires us to exercise broad editorial discretion in determining the content and structure of the directory. That discretion extends (but is not limited) to what sites to include, where in the directory sites are placed, whether and when to include more than one link to a site, when deep linking is appropriate, and the content of the title and description of the site. In addition, a site's placement in the directory is subject to change or deletion at any time at our sole discretion. You should not rely on any aspect of a site's inclusion in the directory. Please understand that an editor's exercise of discretion may not always treat all submissions equally. You may not always agree with our choices, but we hope you recognize that we do our best to make fair and reasonable decisions.

The Open Directory team welcomes comments and feedback about the directory generally. Please let us know what you think, and how we can improve the service. Thanks!

Additional guidelines by DMOZ are given below for those submitting from Asia



Finding the Proper Location for Your Site:

- ◆ Conduct a search of the Open Directory for a few keywords that relate to your site. The search results will serve up listings of different categories. Go to those categories and determine which one is appropriate for your site.
- ◆ Be sure to review the subcategory descriptions, if available, to determine whether your site is appropriate to that category or subcategory.
- ◆ Review the site descriptions of the entries in the category to which you intend to submit. Prepare your description in advance. Please do not just send us your META description.

Guidelines for submitting sites:

- ◆ Do not type in all capitals
- ◆ Do not include a list of keywords
- ◆ Do not include your products
- ◆ Do not write a sales pitch.
- ◆ The description should be a brief summary of the site's content.
 - * The description should be in English and in coherent sentence form.
 - * Do not include superlatives.
 - * Do not submit a list of keywords.
 - * Do not use unnecessary capitalization, or include HTML tags.
 - * Submit to only ONE category.
 - * Submit to the best category possible

Some generic guidelines

How do you go about submitting your site to directories?

Step One: First, find the category that best matches the topic of your site. To do this, browse through the directory or do a search on the keyword that best describes your site. Often the

directory will suggest a few categories that are relevant to your site and all you need to do is to choose the one that seems to be most accurate. For example, use the more precise keyword "digitizing silk road documents" rather than "digital silk road" which will turn up with unrelated sites. Second, carry out the submission process observing the directory's rules and instructions. These are usually displayed during the submission process. What will you submit?

- ◆ **Title** - In typical webpages the title describes the content. But to make indexing easier, the title should describe what is contained in a particular webpage. Make sure to include in your title important keywords for the webpage. Keywords used in the title that do not reflect the content of the webpage itself can be counterproductive. Limit the title to six to eight words. As mentioned above, Google only displays about 60 characters for searchers to read.

If possible, the title should include your most important keyword. Also, start with a letter that is near the beginning of the alphabet. "*Cultural heritage digitization in silk road*" is better than "*Silk road digital cultural heritage*" because many directories list sites in alphabetical order and getting listed near the top can boost your traffic from the directory. After you have entered all the information, remember to check it for any possible typos or spelling errors. Be extra careful with your URL as a typo in it would naturally result in your site never getting reviewed.

Keep the title short and focused, not general. Put the most important keywords where they can be seen easily. This is known as keyword prominence. Let us say the name of your web-based archive is Digital Silk Road and the content mostly deals with cultural heritage documents that have never been identified and indexed before, your choice of a suitable homepage title would be as follows:

Not *Digitizing silk road*

But *Digitising cultural heritage in Silk Road region*



- ◆ **Description Meta Tag** - The Description meta tag should be a one- or two-sentence description of your webpage content -- no more than 250 characters. When writing your description, do not fill it with words like 'best' or 'cheapest', and do not use ALL CAPITAL LETTERS. Write a short (15-25 words) description that accurately describes your site and try to make it read like an impartial review. Include important keywords in the description, written in a declarative sentence instead of a list of keywords. Having one or two of your most important keywords in your description often helps in locating your site when a user searches the directory instead of browsing through it.
- ◆ **Keywords Meta Tag** - You may have a Keywords meta tag too, but these days they are less useful for the purposes of scanning as they are often inaccurate. The best way is to write the Description meta tag in a keyword-rich manner. Then remove every word that cannot be found in a search and leave only important keywords (with no words repeated) -- a space separating each -- and put them in a Keywords meta tag.

Description Meta Tag	This database employs software called WINISIS that uses keywords to help you locate digitized documents and multimedia materials that are relevant to the various aspects of silk road project, specific to countries in the silk road region, specific to the period, specific to the subjects covered by the project, up-to-date and accurate through various access points such as searching through author index (AI), subject index (SI), country index (CI), and keyword index (KI) [a bit too long]
Keywords Meta Tag	WINISIS locates digitized and multimedia documents that are relevant, country-specific, time-specific, subject focused, up-to-date and accurate through various access points such as author index AI, subject index SI, country index CI, and keyword index KI [satisfactory length that includes ready to use keywords]

- ◆ **Headings** - Next come the headlines -- H1, H2, H3 in HTML-ese, from which keywords are also scanned. Headlines usually contain important hints concerning the content of the page. It has been found that writing with sub-headings facilitates scanning for meaning. For example, sub-headings may include strategic planning, resource mobilization, research on silk road, digital image processing training, local preservation and archiving, expeditions, exhibitions, and so on.
- ◆ **Body text** - In a good, typical webpage, the keywords found in the first and last paragraphs of the text often echo the keywords found in the title, meta tags, and headings. Together, if they are all congruent, they give important clues as to the real focus of the webpage. Fuzzy, general webpages that do not use the same keywords in the title, meta tags, headings, and body text confuse Spider.
- ◆ **ALT tags** - ALT tags give clues concerning each graphic or picture IMG tag. It provides a text description of the graphic or it represents the picture. If a graphic is not a repeat from other pages in the website, "Spider" takes note of this. Thus, it is important to make the graphic as specific and accurate as possible so that it gets registered.
- ◆ **Hyperlinks** - Hyperlinks are also scanned. For example, if some hyperlinked words read as *digitizing ancient silk road documents*, Spider takes note of this. If the file name of the URL that this hyperlink points to is *ancient-silkroad.documents.html*, that clinches it. Spider is now pretty sure that this webpage is about ancient documents. This finding will be included in the report on ranking recommendations.



Don'ts concerning submissions to directories

- ◆ Do not put too many frames as it is difficult to distinguish frames. To go around this, the programmer should be careful to use NOFRAMES tags properly in order to be registered.
- ◆ Do not include too many dynamically-generated webpages.

Be aware that some content management systems produce dynamic webpages. You can recognize these with question marks in their URLs followed by numbers. For example:

http://portal.worldview.org/ci/en/ev.php-URL_ID=?7277&URL_DO=DO_TOPIC&URL_SECTION=201.html

Overworked search engines sometimes stop at the question mark of long, complex URLs and refuse to go further. If the search engines are not indexing your middle pages, you might consider URL rewriting, paid inclusion, a site map, and targeted content pages. A long URL with a question mark in the middle, followed by long strings of numbers and letters, will be difficult to index. Indeed such dynamically-generated webpages can be indexed but it might take a long time. If you have dynamically-generated pages that are not getting indexed, here are some helpful tips:

- ◆ Ask your programmer to employ "URL rewriting" to simplify the URL for the search engine spider.
- ◆ Use a site map that gives HTML links to each of your product pages.
- ◆ Use paid inclusion for important web pages. Note: Google does not take paid inclusion at this writing, but Yahoo and some others do. Spending \$25 a year to get a product page indexed is a bargain, especially since a product page has the potential to earn thousands of dollars per year, if properly indexed.
- Do not construct a navigation system solely from Flash and JavaScript

JavaScript and Flash navigation buttons look great, but search engines cannot follow them. Supplement them with regular HTML links at the bottom of the page, ensuring that a chain of hyperlinks exists that can get from the front page to every page in your site. Spider can read the text contained in Flash, but cannot follow a navigation system constructed solely of Flash or JavaScript. Fortunately, there is an easy fix. At the bottom of the homepage include hypertext links to your sectional pages. Then on each sectional page provide links to the webpages in that section. This way Spider can find her way through the site.

- * Do not repeat keywords in meta tags or what is called, keyword stuffing.
- * Do not duplicate content on a number of webpages, such as might be used in a set of doorway pages
- * Do not hide text by displaying white text on a white background.

4. Sending electronic newsletter and press releases

Sending press releases and electronic newsletters are two ideal ways to create repeat traffic to your website. An electronic newsletter can have various functions: to increase traffic, to respond to users' information needs and interest, to disseminate information, to improve public relations, and to foster loyalty and generate site feedback. As part of the process, e-news is sent through user inboxes. Considering that an average Internet-savvy person gets over 50 emails a day, some questions that arise are as follows: which ones do I read, which do I save to read later, and which do I delete without opening? If your organization bombards prospects with information that they are not interested in, your newsletter will be quickly deleted and your subscriber lists will shrink. It is important to contact your users first and to study their preferences before sending e-news. Would they like to receive your electronic newsletter regularly? What is their preferred format, i.e. html, plain text, or pdf format. Never impose your own format as this may not be compatible with the users' browsers. E-news should be easy on the eye, well-designed and technically sound and should contain information of value to users. To gain and keep customers' mindset, make sure your e-news is trustworthy, balanced and offer added-value for maximum impact.

Find newsworthy events (such as launching an activity, a product or a free service) and send news releases to both print and web periodicals in your industry. The links to your site in online news databases could be maintained for years and retain some clout with considerable link popularity. However, opening or redesigning a website is seldom newsworthy these days. You may want to use a Web news release service. Online version of your press release could enhance link popularity.

5. Banner advertising

This involves placing your site's logo or banner in other sites for a fee. An example is placing your site in the Yahoo.com homepage. You can also get a free ride by placing your site banner or URL



or first homepage picture in other related websites that have the same goals, objectives and target audience. For example, the Silk Road Digital website can also be placed in the homepage of the UNESCO website which your audience can just click to access your site. There are a number of rules to follow when placing your banner in other sites. But first and foremost, one has to ask first what is the purpose of the banner. Is the aim to generate clicks and attract visitors to your site or is it for branding purposes? These tips are from a document entitled, Media College. "Tips for banner advertising" <http://www.mediacollege.com/internet/promotion/advertising-tips.html> Below is an adaptation from that article.

◆ **Target specific audiences**

Make sure that your site's banner is in websites that target similar audience needs and interest and are focused on the same subject areas, using very specific keywords to describe the site. As everyone knows, the more specific the keywords, the better is the performance of the search functions.

◆ **Catch attention**

There are a number of ways to do this. First, capture attention through the use of bright colors to attract users' eyes, resulting in higher response rates. Research has shown that blue, green and yellow work best, while white, red, and black are less effective. However, make sure not to overplay the use of bright colors or else your banner might become gaudy. Gaudiness is not always good and visitors could be put off by too much colour. Sometimes understatement works wonders. A subtle advertisement might actually set you apart. It is also effective to choose complementary colours and to keep the colour scheme constant throughout the banner. Using animation is another technique to capture attention as well as attract the right audience.

◆ **Try different banners**

Use a variety of banners and track their click-through statistics (i.e. the number of people who click them). Be systematic and find out which ones work best and concentrate on them.

◆ **Call to action**

Use prompt words, such as "Click here", "Click to Visit", "Visit Now", and "Free", which will stimulate the users to take immediate action. These will increase the likelihood of clicks and dramatically boost response. The Yahoo site often uses prompt words.

◆ **Make it obvious**

Although intrigue does work sometimes, the general rule is to make it obvious. Make sure the viewers knows exactly what the ad is for and what they can expect to happen when they click on it.

◆ **Be honest**

If you try to deceive people into clicking your ad, two things could happen:

(1) The viewers' first impression of your site will be that you deceived them, i.e. you cannot be trusted.

(2) The viewers' pointless visit to your site will have cost you in click-through rates, bandwidth and/or other resources.

◆ **Be specific**

It may help to limit your message to a particular area of your project. Instead of advertising your organization's name, advertise a direct link to a particular information, product, activity or special offer.



◆ Make the banner interactive

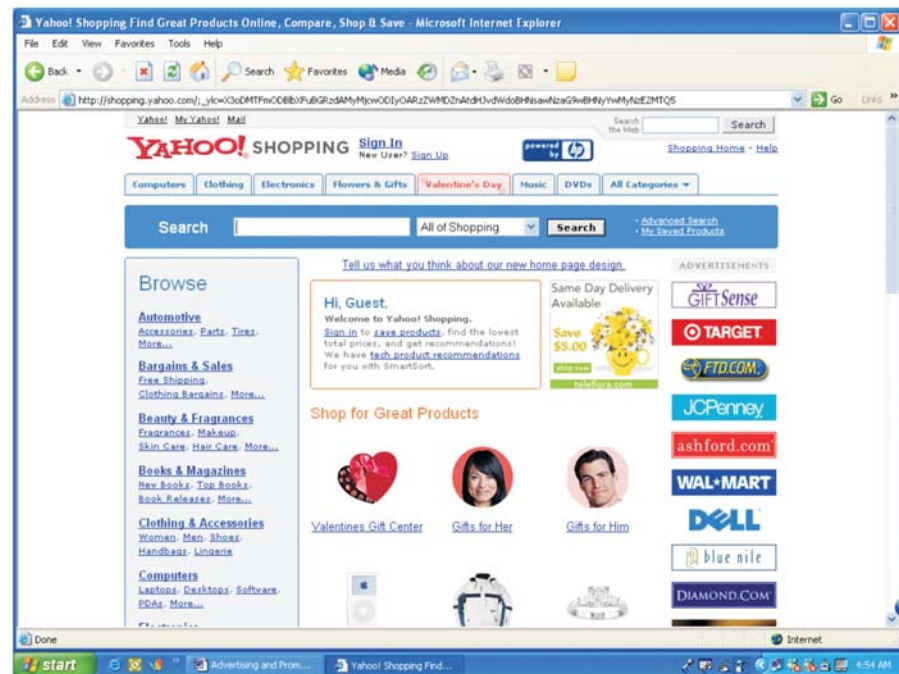
Interactive banners have been known to work well as they stimulate audience involvement. One technique is to make the banner look like you can click on individual parts, by adding buttons and other objects that users are familiar with. Plain *.gif ads might still be good for branding, but to get a higher conversion, think about multi-click flash ads, working cgi-forms and usable menus and scrollbars in html banners. Again, be careful not to overdo it.

◆ Change your banners

If the banners are going to be seen by the same people many times, keep them fresh.

◆ Keep the file size down

Most banners should be under 15KB if you want the users to stay and visit.



Examples of banner in a webpage

6. Posting to message boards, news groups and discussion lists

Utilize message boards, discussion groups and news groups to promote your website. You should of course identify and select only those that are frequented by people interested in the same programmes, activities, products or services. As fora, email lists and news groups are moderated or unmoderated. Whichever you choose, make sure to select those with related target audiences and similar subject areas.

There could be hundreds or thousands of electronic groups that will turn up in your search, but these should eventually be screened and reduced to a few focused ones that are worthy of your attention.

After you have identified certain target groups, monitor the discussions for a few weeks to get the feel of the group. Once you have a grip on what is going on in a particular group, start contributing to the discussions. At the bottom of each of your messages, be sure to include a "signature". A "signature" is a short advertisement (5 to 10 lines) of your program, product or service and includes your URL and email address. Every time you contribute to the discussion, hundreds of people will see your signature.

If the message board allows it, you can even include a short promotional blurb about your site at the end of your posting. However, make sure that individual messages that are posted on the message board are archived in static HTML pages (i.e. the URLs for individual messages should not contain a "?"). Otherwise, the search engines may not "spider" these pages and hence, will not be able to locate your link.

Email-based discussion lists that are archived on the Web in static HTML pages can also be used to boost the link popularity of your site in a similar manner. In this case, the signature file that you use with your email program should contain the URL of your website.



One discussion group on the topic: <http://groups.yahoo.com/group/BlueSilkRoad/> - Forum for discussion of relationship of ancient China with the rest of the world by way of the sea: The Blue silk road.

7. Electronic magazine and newspaper advertising

These are called E-zines. They offer most of the advantages of direct email because they reach very specific, targeted markets. With targeted advertising, readers of E-zines are pre-qualified as being highly interested in specific articles, products or services. Higher interest equals higher response and action percentage. Examples of E-zines that carry silk road articles are:

- ◆ NewsFinder.org - http://www.newsfinder.org/comments.php?id=861_0_1_0_C
- ◆ Asia Times Online - http://www.atimes.com/atimes/Central_Asia/EK25Ag01.html
- ◆ High Beam Library - <http://www.highbeam.com/library>

Below is an example of an e-zine

E THE ENVIRONMENTAL MAGAZINE Subscribe - Unsubscribe - About Our Planet - Feedback - Privacy Policy	
Week of January 11, 2005	
NEWS THIS WEEK	
Yellowstone Wolves Under New Management Secretary of the Interior Gale Norton announced last week that state wildlife agencies in Idaho and Montana have been approved to take over management of gray wolf populations in their states from the U.S. Fish and Wildlife Service. Go to all articles - Go to this article	
Coastal Greenbelts As Tsunami Lifesavers According to Friends of the Earth, the amount of devastation from late December's Indian Ocean tsunami was significantly lower in those coastal areas protected by natural barriers such as mangrove forests and coral reefs.	

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Reporting by Roddy Scheer

[Read more](#)

On the Waterfront: Miracles do Happen

In October I visited Pittsburgh to attend the annual Society of Environmental Journalists conference, and spent an afternoon touring one of the city's crown jewels: Washington's Landing, formerly Herr's Island.

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IN THE CURRENT ISSUE OF E

GREEN LIVING

Gluten-Free Cuisine

Is Avoiding the Protein Better for Us?

Gluten is the elastic, water-insoluble protein found in wheat and other grains such as rye, barley, kamut, spelt and oats. For someone suffering from celiac disease, all forms of gluten are toxic to the digestive system. By Kimberly Jordan Allen

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FEATURES

From Corn Waste to Bio-Fuel

While ethanol is cleaner and more efficient to produce than gas, environmentalists often give this alternative fuel the cold shoulder. The ethanol source of the future, some say, should be not the corn kernel but the stalk, cob and other portions of the plant that are currently fed to livestock or left lying on the field. By Phoebe Hall

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8. Link popularity

Link popularity, i.e. the number of sites that are linked to your site, is an important means to improve the visibility of your website. Other things remaining the same, the more links to your site, the higher its ranking will be. However, what is important is not only the number of links to your site, but also the types of sites that are linked to it. A link from a site that is related to your site is more valuable than a link from an unrelated site. Without other sites linking to you, it is unlikely that you will be included in many search results. In fact, some engines require at least one or more links coming to your website or they will drop your site from their index. For websites having similar audiences, topics, and objectives, this is an effective strategy to reach the same audience. Undifferentiated link exchanges are not beneficial as it is likely that the user will leave the site. Here are some steps to consider in building links.

◆ Set a quantitative and qualitative goal.

Set a goal for the number of links that you want. The general rule of thumb is to set your linking goal four-to-six times higher than the number of links you actually want to receive. You need to set your goal higher because most sites will not want to trade links for various reasons. Likewise, concentrate on related and important links only. Numbers become

unimportant if the sites are not relevant. What is important is to have the more popular sites on the Web link to your site. As well as make sure that the links pointing to your site are relevant to your subject area.

◆ **Make sure your site is worth a link.**

This means your site must offer something of value to entice other sites to link to it. Link value is the perceived benefit that another site will derive by linking with you. The more value they see in your site, the more likely they will link. At its basic level, the most immediate value for most sites is a reciprocal link. "You link to me and I will link to you." Although this is a convenient way to start, in reality, one-way links are more productive, "I'll link to you because I think your site is useful and attractive to my audience." Such links do not come easily and they involve hard work and effort. However, they are able to yield enormous returns in terms of increased traffic.

To persuade other sites to give you a one-way link, you need to maximize or improve the link value of your site. This can be done by:

- ◆ Highlighting the benefit that you offer the linking website. Perhaps you can offer access to your databases free of charge, post the activities and news and products of other sites, or publicize their sites as reliable sources and resources.
- ◆ Repackaging the information in your site into various formats. Many websites underestimate the value of their content but this can often be re-packaged to increase their link value. Review your site's content online and offline and re-package them into various forms to attract more users.
- ◆ Creating a range of fresh materials that addresses user needs in the form of articles, hints and tips, product reviews, and special reports. This material should be carefully aligned with the needs of the target audience.
- ◆ Creating attention-grabbing, interactive functions that will ensure increased traffic.



◆ **Determine the types of sites that you want to trade links with.**

Make an inventory of potential sites that you can trade links with. Focus on sites that are related to your target market. Relevance of content should be your most important guideline to determine your link partners. Linking with related sites will usually utilize the same keywords or key phrases that will help in placing your site at the top for those keywords. Since a search engine's primary task is to provide the most relevant search results for your search query, your inbound links from other sites should be able to assist the engines in defining your site's content.

In the area of Silk Road, the websites below are good places to trade link with and ensure increased traffic to your site:

History of the Silk Road

http://www.unesco.org/culture/silkroads/html_eng/history.shtml

A site describing the history of the Silk Road, it includes accounts of expeditions as well as features exhibits, publications and institutions dealing with the topic.

Silk Road Project

<http://www.silkroadproject.com>

An extraordinary classical music initiative exploring cross-cultural influences among and between Asia and the West and led by renowned cellist Yo-Yo Ma and a team of distinguished international scholars, musicians, and artists. The project illuminates historical contributions and celebrates the cross-cultural dimensions of the Silk Road and encompasses concerts, festivals, and educational outreach activities throughout Europe, North America, and Asia. The concerts feature performances by the Silk Road Ensemble, introducing the audience to a fusion of sounds, musical techniques, and instruments fostered by the process of exchange along the ancient Silk Road trade route.

Smithsonian Folklife Festival

<http://silkroadproject.org/smithsonian/>

The 2002 Smithsonian Folklife Festival *The Silk Road: Connecting Cultures, Creating Trust* celebrates the living traditional arts of peoples of Silk Road lands. The Festival presented artists whose stories and history link to the cultural mosaic of the Silk Road, an enduring symbol of cultural discovery and exchange.

Silk Road Seattle

www.uwch.org/silkroad

Silk Road Seattle is an ongoing public education project. It provides teaching and learning materials concerning the Silk Road. This site includes links to a virtual art exhibit, historical and cultural information about Central Asia, maps and event listings.

Asia Society

www.asiasociety.com

A national non-profit, non-partisan educational organization, the Society provides a forum for building awareness of the more than 30 countries that are broadly defined as the Asia-Pacific region. Through art exhibitions and performances, films, lectures, seminars and conferences, publications and assistance to the media, and materials and programs for students and teachers, the Asia Society presents the uniqueness and diversity of Asia to the American people.

Asian Social Network

www.asiansocialnetwork.com

Asian Social Network, a for-profit corporation, was founded in 2001 to provide an environment where young professionals and organizations representing different Asian ethnic backgrounds can organize and participate in a variety of activities, Asian and non-Asian, social, charitable and community-based.



Ger Magazine Online

www.un-mongolia.mn/ger-mag

Presented by the United Nations in Mongolia, this online magazine takes a look at popular Mongolian culture.

International Dunhuang Project

idp.bl.uk

IDP is a groundbreaking international collaboration to make more than 100,000 manuscripts, paintings and artifacts from Dunhuang and other Silk Road sites freely available on the Internet, bearing top quality color images.

◆ Use relevant tools to evaluate your link partners.

You do not want to spend so much time going through all the links, many of which may not at all be useful. To save time, use such tools as Google Toolbar. This can help you decide as to which sites are quality link partners and which are not. Integrated into your Web browser, it helps you by displaying the "page rank" of each site that you visit. Page rank is a rough indicator of the quality of a site. The higher a page ranks the better. One strategy is to try to link up with sites that have pages ranked as high as or higher than your own.

◆ Find quality link partners through directories.

As described above, directories usually carry quality sites and they are a means to locate quality link partners. The quickest way is to start at Open Directory and Yahoo! These are good places to start for three reasons: 1) It is very difficult to get listed in these directories. Once listed you are sure to get linked to higher quality sites than those found elsewhere; 2) They will greatly boost your site's link popularity; and 3) Search engines will quickly find your links from these

sites. To find partners, simply start searching for terms that are related to the types of link partners that you decided are best. While surfing your potential partner's website, keep an eye on its page rank.

◆ **Make a list of collected links for final selection:**

You may use a spreadsheet to compare and contrast the various link candidates, such as shown below:

- * Full name of site owner or Webmaster.
- * Email address of the site owner or Webmaster.
- * Home page URL of link partner.
- * URL of the page where you think your link belongs and why you think it belongs there.
- * Page rank of the page where you think your link belongs.
- * Something unique that you like about the site.
- * Date of initial link request.

◆ **Contact selected sites**

Now that you have a list of potential link partners, go through the list and send a customized email to each one requesting that you trade links. Do not send a generic email requesting a link; it will not get a response. Your link request should mention the following, most of which come from your spreadsheet:

- * Something you liked about their sites. Compliments go a long way.
- * Why you think your link belongs to their sites.
- * The URL to where exactly you think your link fits in their sites.
- * The URL of where you will be placing their links in your site.
- * How you would like them to link to you. Provide a sample link and description. The easier you make these, the more likely they will post it.



◆ **Check for links.**

You may need to wait a month or longer before checking to see if anyone has linked to your site from your new partner. Usually it is best to do this step by hand, but you can use a link popularity tool if you have a lot to check.

◆ **Set a schedule.**

You will find it easier to keep building links if you put yourself on a sort of link-building schedule. Consider doing a small amount (30 to 60 minutes) of link building each day, rather than an intensive, specific duration as there are always good sites that can come up later.

In addition to the steps above, here are some do's and don'ts that can help you build good links: (Adapted from: From the article, "Submitting is not enough", from **Market Position Monthly** <http://www.marketposition.com>)

Do's

1. When you visit related sites, look to see if they offer guestbooks or fora. If they do, post a message and include your URL in your signature. For example, the website <http://www.silkroadprojects.com> offers users free subscription to its e-newsletter and invites guests to sign up.
2. Concentrate on related and important links only. Sheer numbers are no longer important. What is important is to have the more popular sites on the Web link to your site, as well as to make sure that the links pointing to your site are relevant to your subject area.
3. List your site in one or more of the major directories, such as Yahoo!, Looksmart, and Open Directory Project. Open Directory is free and is therefore a good place to start.
4. Visit **Link Popularity Check** and search for your competitors. Start visiting sites that are linked to your competitors and write to see if they will consider linking to your site.

5. Create a list of links before you even contact sites for linking purposes. If organizations see that you have already added their URLs to your list of links, they will, in return, gladly add your link in their sites. Again, concentrate on related links only.
6. Consider what other fields are related to your particular programme areas and concentrate on getting links from those areas. For example, if your focus is a digital museum and art exhibits on Silk Road, you can link up with sites that deal with Silk Road textiles and silk or use of technologies in digitizing documents.
7. Consider setting up separate theme-oriented domains and link all your domains together.
8. Offer a discount on your publications, products or services to anyone who agrees to post a small graphic on their sites that link back to your site.
9. Create a testimonial page and write brief testimonials about websites that you would like to get linked to your site. Inform these sites of your testimonials and encourage them to link to the page.
10. Offer awards in your site and offer little graphics that link back to your site. .
11. Become a content provider in your focus area and get your articles posted across the Net, in related areas.
12. Are there any professional organizations related to your program area? If so, do they have pages of links?
13. Develop a plan for boosting link popularity and then stick to it. Pledge to get a certain number of new links a week. Consider hiring a high school or college student at a minimum wage to work for you, if needed.
14. Use existing and available analysis tools to study your own website's complete linking structure along with your competitors and learn exactly which areas you need to work on.
15. While exchanging links with popular sites is important, be aware that in the case of Google, the more outgoing links you have, the greater the risk of reducing your link popularity score. Therefore, links to your site are more influential when you do not have to link back.

Don'ts

1. Don't participate in link exchange programs or link farms. Google will ban sites that participate in link exchange programs. Many other major engines have also expressed their dislike for artificially created link popularity.



2. Don't make the mistake of thinking that link popularity is not important or necessary. Sometimes high link popularity combined with some basic keyword optimization is all that it takes to achieve top rankings. It is crucial, in many cases, to the success of an online business.
3. Don't use redirects on sites that point back to your main site, if your purpose for creating separate theme-focused sites is to boost link popularity. Instead create a mini site at the new URL with several pages of good, solid content, and then visibly link back to the main site.
4. Don't share the same IP address for each domain if you interlink multiple domains that you own. All domains should have unique IPs.
5. Don't bother with free-for-all pages. Many bulk submission products these. Generally, the only thing these pages will guarantee is an increase in spam email if you participate. In addition, when you submit to free-for-all sites, your site will be placed at the top of the page at the initial stage. However, as more and more people submit their sites to the FFA page, your site will be pushed way down and removed when it reaches the bottom of the page.

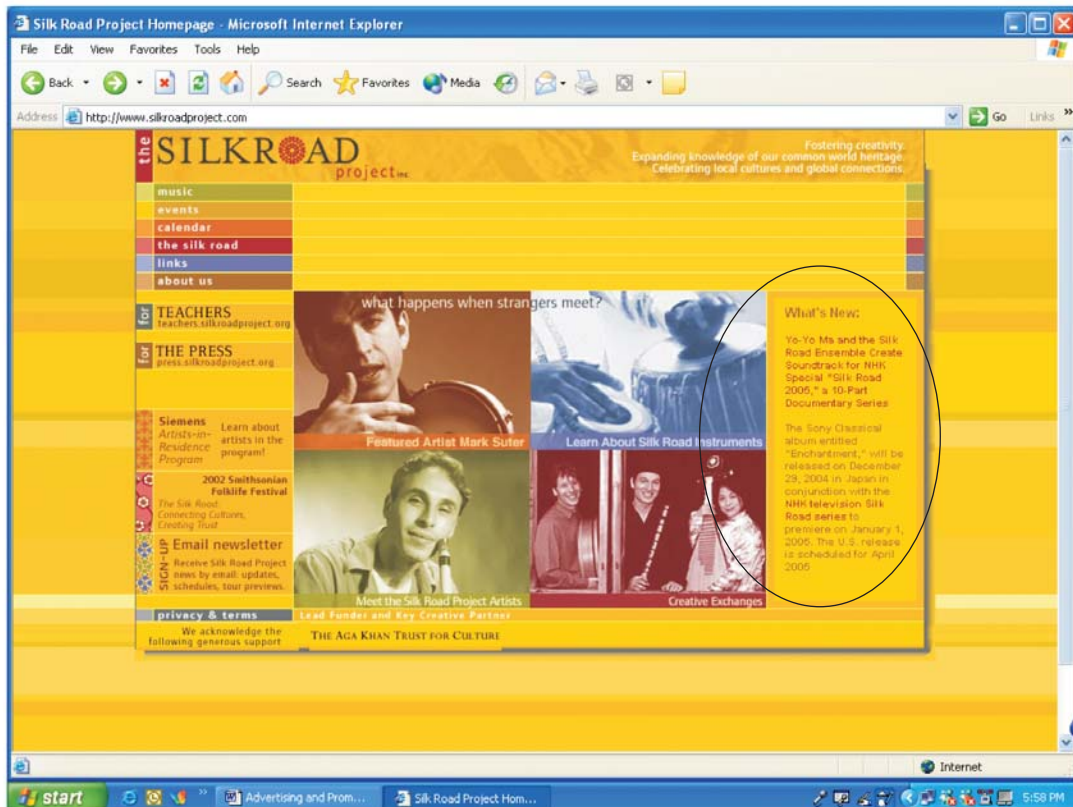
9. Product advertising in media

In some cases, a product advertisement is followed by the URL (uniform resource locator). For example, a Nokia advertisement will include www.nokia.com. This is seen in advertising circulars given out in shopping malls or at home; in cinemas before a film showing; in commercial breaks on television. It is announced on radio programmes. Print advertisements with URLs are also commonplace. An ad on the Silk Road textile and silk sale for example will automatically carry their URL. A product dealing with transport or telecommunications supporting the communications development of the Silk Road region can also highlight the website's URL.

10. Creating a "What's New Page" in your site

This page will enable users to find out about your latest updates by making a link to it, that is, if it is prominently displayed in the Web's homepage or in its index. Website

releases on minor changes made to the site can also be placed here. Announcements of updates can be posted here as frequently as possible. The postings should be followed up by emailed announcements to alert users to recent postings. These emailed announcements usually result in one or two of your updates being posted in other related websites.





11. Sponsorships and testimonials

A traditional way of announcing your site is by supporting a worthy cause or sponsoring an event and giving testimonials to call the attention of potential users through association. For example, you might want to be a sponsor in a cultural festival or fair on silk road. This offers you a chance to advertise your website in this fair. Another example is to have a company sponsor a project on cultural heritage preservation and to have its site published in the project's site. Giving testimonials for good products or services that you find useful and are



related to your topic is also be an effective way to improve your site. A very good example was the Silk Road Festival-Smithsonian Folk Life Festival organized by the Aga Khan Trust for Culture and The Smithsonian in Washington D.C. A number of other institutions and industrial

companies joined hands in the event's celebration and organization. The Silk Road Seattle sponsored by the Simpson Center for the Humanities at the University of Washington, which runs a virtual museum and library <http://depts.washington.edu/uwch/silkroad/index.html> and also simultaneously featured the Silk Road culture, music and art in their website. The website in turn was linked to site of the Silk Road Project <http://www.silkroadproject.com> and the Smithsonian Folklife Festival <http://www.silkroadproject.org/smithsonian> The Peabody Essex Museum, Sony Corporation and Ford Motor Company, among others, were also sponsors. Their contributions are described in their respective websites which get automatically linked to a mother site <http://silkroadproject.com>

The Silk Road festival website <http://silkroadproject.com> is featured in turn by other sponsors in their respective websites, notably by the Simpson Center for the Humanities at the University of Washington and the Smithsonian Folklife Festival shown below:



Silk Road Seattle homepage



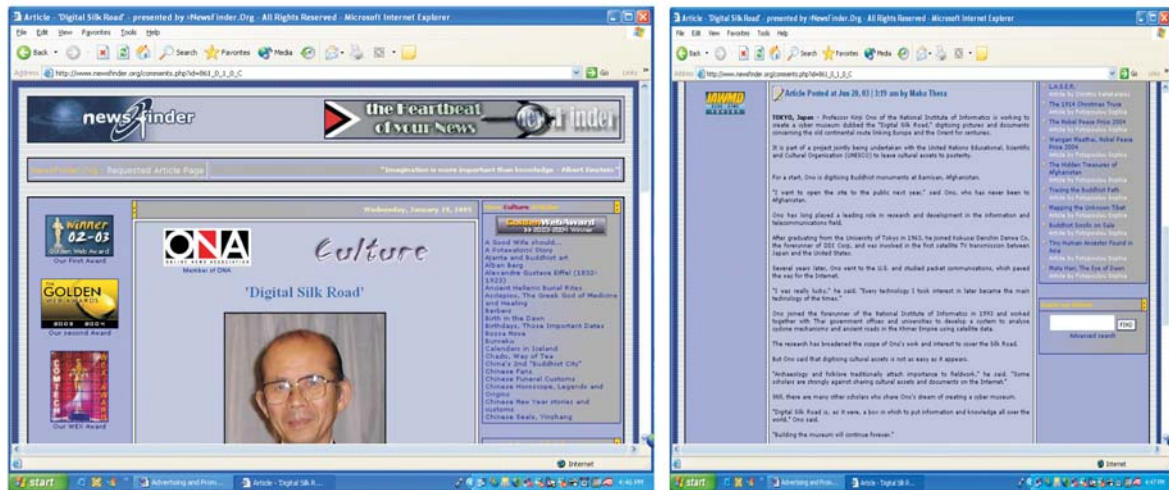
Smithsonian Folklife Festival homepage



As far as testimonials are concerned, if you think that the China or Mongolia project on the silk road has been very effective and useful, compose a very good but short testimonial. Chances are the project authorities will write back to thank you for your comments and will ask your permission to display your comments in their website. Give your permission as long as they agree to publish your URL as well.

12. Writing articles and allowing them to be re-published with attached URL

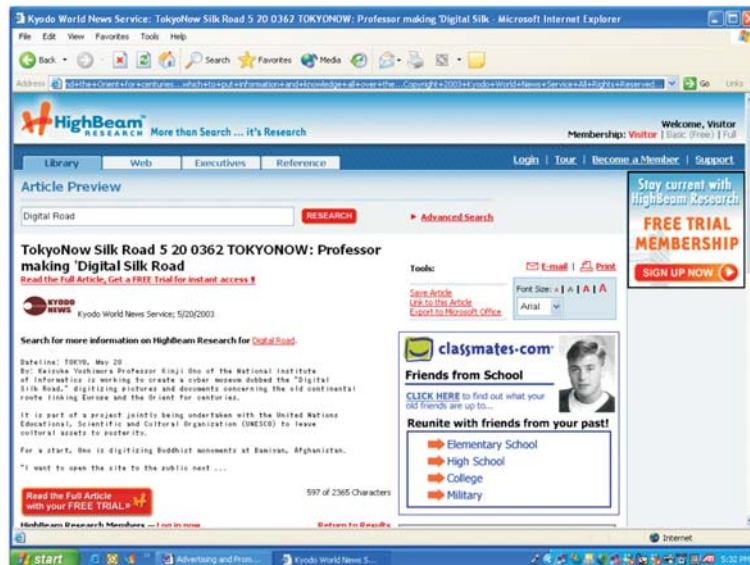
You can dramatically increase your visibility when you write articles in your area of expertise and distribute them to editors as free content for their email newsletters. Just ask that a link to your website and a one-line description of what you offer be included in the article. This is an effective "viral" approach that can produce hundreds of links to your site over time. The articles and papers already published in your newsletter or websites can be submitted to various electronic articles, magazines, and so on, for publication or posting. A good example is a news article published in



Caption: Maha Thera's article in the NewsFinder

Japan Today, 2003 by Keisuke Yoshimura and submitted by Maha Thera for the e-news called NewsFinder.org. http://www.newsfinder.org/comments.php?id=861_0_1_0_C which features the Digital Silk Road project of the National Institute of Informatics based in Tokyo. Submitting the news provides a good opportunity to include the website's URL.

The same article has also been posted By Kyodo News Service in another e library site called High Beam Research at its Research Library with URL [http://www.highbeam.com/library/doc0.asp?docid=1P1:74021044&refid=ink_d8&keyword=yoshimura&teaser=...TOKYO+May+20+By:+Keisuke+Yoshimura+Professor+Kinji+Ono+of...quot;+digitizing+pictures+and+documents+concerning+the...continental+route+linking+Europe+and+the+Orient+for+centuries...which+to+put+information+and+knowledge+all+over+the...Copyright+2003+Kyodo+World+News+Service+All+Rights+Reserved...](http://www.highbeam.com/library/doc0.asp?docid=1P1:74021044&refid=ink_d8&keyword=yoshimura&teaser=...TOKYO+May+20+By:+Keisuke+Yoshimura+Professor+Kinji+Ono+of...quot;+digitizing+pictures+and+documents+concerning+the...continental+route+linking+Europe+and+the+Orient+for+centuries...which+to+put+information+and+knowledge+all+over+the...)



The NewsFinder attach to each article an electronic form called "**send this article to your friend**" (shown above) which promotes further dissemination to those who are interested. This is another. You may adopt this technique by posting at the end of the article an instruction that interested parties are allowed to re-publish the article as long as they include the resource box at the end of the article that contains the URL. This could include the name of the author, title and organization and the URL and email of the author or organization. With webmasters and e-zine publishers publishing your articles, other webmasters and ezine publishers will be able to read them. This will have a multiplier effect as other webmasters will publish your articles. These will be read by a greater number of webmasters and e-zine publishers, and so on.

References

December, John. Web development process.

<http://www.december.com/web/develop/promote.html> Dec., 2004

Media College. Internet:tips for banner advertising

<http://www.mediacollege.com/internet/promotion/advertising-tips.html>

"Submitting is not enough", from **Market Position Monthly** <http://www.marketposition.com>

Assessment and Evaluation

Assessment and Evaluation

Assessing and evaluating your website are a must and these should be part of the entire process of website development and maintenance. The main purpose is to continuously improve the usability, value and quality of your site in order to meet or even exceed user expectations. As has been said so many times, a website is not, normally, a static product that is uploaded and later abandoned. Since the World Wide Web is a dynamic and competitive service, the process of developing and improving a website never stops. This requires looking at users' changing needs, interests, perceptions, and preferences and constant re-evaluation of the environment. Building a website's reputation for quality, comprehensiveness, and user service can help increase its value in the audience's perception. A continuous process of defining what value means to the users can help to improve a website.

Assessing web quality and functionality

What do you evaluate in a website to determine whether it is meeting its goals and satisfying users' needs and expectations? The following elements or indicators can be used as basis for assessing and evaluating website quality and functionality.

I. CONTENT

Purpose	◆ What is the purpose of the website? Does it aim to inform, educate, involve, give facts and data, persuade, entertain, sell?
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	<ul style="list-style-type: none"> ◆ Are these clearly indicated in the home page? If it is not, are you able to guess the purpose of the website? ◆ Do you feel as though the document is trying to convince you of something?
Audience	<ul style="list-style-type: none"> ◆ Who are you aiming to reach? ◆ At what level is the information catered to - researchers, academics, government officials, students, layperson, the public? ◆ Is the site supporting the needs and interests of the target audience? ◆ Do the website contents match or respond to the information needs of a target audience. ◆ Do your users have connectivity to access your website?
Value Added	<ul style="list-style-type: none"> ◆ Does your site offer something unique and new that cannot be found elsewhere? This means the website offers value added in the sense that users do not feel that it would have been better and easier to get the information elsewhere. ◆ Is the information in this website available in other forms (for example: print, audio, multimedia, CD-ROM and other WWW sites)? If they are, do the other media contain the complete version or have they been repackaged, i.e., transformed some content, added some new features, synthesized related information, etc? On the Internet, redundancy may be useful - a particular site may not be available when



	<p>required, or may not be easily accessible or their image-rich presentation may be difficult to download, or an alternative or mirror site may have to be used.</p> <ul style="list-style-type: none"> ◆ Does the site not only transfer information but also assists users in analyzing and interpreting a piece of information within a larger context of the users' experience? This means that the user is able to form new meanings in the information provided.
<p>Breadth or Scope of Information</p>	<ul style="list-style-type: none"> ◆ Do the contents reflect the expected coverage of information on various themes and sub-topics? This refers to the extent by which the website's main subject is treated in terms of its various dimensions or angles. ◆ Are all areas or dimensions of the topic covered and complete? ◆ Are some sections still under construction? ◆ Are some pages incomplete? Have some significant information been left out?
<p>Depth of Information</p>	<ul style="list-style-type: none"> ◆ Are the contents substantive and at the same time not overloaded? This means the treatment of content is not superficial. ◆ Are the topics well researched and elaborated in a meaningful way? ◆ Are there too many unnecessary details that distract user attention from the main message or cause them to lose interest?

Organisation	<ul style="list-style-type: none">◆ Is the organization of contents logical, coherent and easy to follow?◆ Is the hierarchy of ideas presented effectively and users can follow from one topic to sub-topics and vice-versa?
Readability and Understandability	<ul style="list-style-type: none">◆ Does the text follow basic rules of grammar, spelling and literary composition? This means they are free of typos, misspellings and grammatical errors.◆ Is the text in general easy to understand? This means technical terms are kept to a minimum.◆ Has it been written for the Web? When writing for the Web, understandability takes on a different form and definition as opposed to writing printed materials. Good website writing is characterized by chunking information, cueing the reader, and linking and ordering information. Since Web-based hypertext consists of links that endlessly branch into Web space, information can be written in a concise manner, prioritizing the information presentation.
Accuracy and Correctness	<ul style="list-style-type: none">◆ Are there political, cultural and ideological biases? The author should not present his/her own opinions and biases as facts. The writer should take care that the text is politically correct, does not discriminate any groups of persons, and attack traditions and beliefs.◆ Does it provide proof of its correctness? Information should not only be factually precise but should also show evidence of its accuracy. For



	<p>example, the content should indicate that information is supported by research. Sources of factual information should be clearly listed so they can be verified. To check out the accuracy and correctness of a site, cues can be used. Some examples include displaying the date of updating, information source/author, board of peer reviewers or advisers and information on how information is gathered and reviewed.</p> <ul style="list-style-type: none"> ◆ Does it contradict other information found elsewhere on the same topic? ◆ Does the organisation or person hosting the resource appear to have a commitment to the quality control of information?
<p>Currency</p>	<ul style="list-style-type: none"> ◆ Is the information up-to-date? Is it being updated frequently or not at all? Are dates of update stated, and do these correspond to the information in the resource? ◆ How up to date are the links? The following indications can help in cross-checking the up-to-dateness of a site: a) are there dates on the pages?; b) when was the page written; c) when was the page first placed on the Web; d) when was the page last revised; are there any other indications that the material is kept current?
<p>Quality of Information Selected</p>	<ul style="list-style-type: none"> ◆ When selecting information from various sources, do you base it on the relevance of the source to the theme and the proportion between primary and secondary information?

	<ul style="list-style-type: none"> ◆ Does the site contain original information or just simply links? ◆ If the value of the site lies in its links to other resources, are the links kept up to date, and made to appropriate resources? Are they reliable sources? Are the links well chosen, well organized, and/or evaluated/annotated? Do the links represent other viewpoints or indicate a bias? ◆ Are the links made in such a way that it is clear that an external site is being referred to? There are potential copyright issues with sites that, for instance, enclose an external link in frames so that the source of the information is unclear (Smith, Alastair. Criteria for evaluation of Internet information resources. http://www.vuw.ac.nz/staff/alastair_smith/evaln/index.htm ◆ Are sources documented with footnotes or links? In scholarly/research work, the credibility of most writings is proven through footnote documentation or other means of revealing the sources of information. ◆ Do the links work? Working links contribute to the site credibility.
<p>Credibility of Sources and Authority</p>	<ul style="list-style-type: none"> ◆ Does the resource have some reputable organisation or expert behind it? Does the author have standing in the field? ◆ What are the author's credentials on this subject? How knowledgeable is the individual or group on the subject matter of the site? ◆ Is the site sponsored or co-sponsored by an individual or group that has created other Web sites?



	<ul style="list-style-type: none">◆ Is the information easily verifiable? This means that the author or producer is clearly stated; the source of information is clearly stated; the contact information of the source or producer is provided. The author or authors can be contacted via email, telephone, and postal correspondence for clarification. There is also a way of verifying the legitimacy of the organization responsible for the contents of the site. You can check out the statement concerning the page's content. This bears the official approval of the organization and names the organization as copyright holder. Check also if the site has been reviewed by an online reviewing agency or if it has an advisory board that ensures the quality of information. Find out if the website has won any awards from reputable organizations (University of California, Berkeley. Evaluating web pages: techniques to apply and questions to ask. http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Evaluate.html)
	<ul style="list-style-type: none">◆ What type of domain does it come from ? (educational, nonprofit, commercial, government, etc.). The domain should be appropriate for the content? For example: Government sites: look for .gov, .mil, .us, or other country code; Educational sites: look for .edu; Nonprofit organizations: look for .org

II. DESIGN

<p>Homepage General Appeal and Layout</p>	<ul style="list-style-type: none"> ◆ Does the homepage project a strong eye appeal? ◆ Does the layout gives a clear idea of the entire structure and content of the website? For example, related elements are put together and unrelated elements are placed apart. ◆ Are all important information and graphics found on the first screen of the homepage? ◆ Are important information easily visible and is it too heavy with too many complicated links?
<p>Overall Layout of Webpages</p>	<ul style="list-style-type: none"> ◆ Is the layout of the inner pages neat and organized? This means items are located in expected places ◆ Is the overall layout of webpages consistent?
<p>Use of Colours</p>	<ul style="list-style-type: none"> ◆ Are the colours used in good harmony and appropriately? ◆ Are they are appropriate to the content and the target audience. ◆ Do they evoke the right emotions for the site? ◆ Does the colour combination provoke interest and attention? Use bright colours for items you want the user to notice but the rest should come in neutral and black and white colours. ◆ Does the background and text colours used enhance the presentation?. Choose a background that does not interfere with the text or other information on the page. Do not use yellow background on white text.



	<p>Do not use pure red or blue on black. These combinations don't give enough contrast between letters and background.</p> <ul style="list-style-type: none"> ◆ Does it use appropriate and standard colours? If your illustration uses solid colours, stick to using only the standard 216 colours found in a typical web palette. These are the colours that will show up the same on all types of computers and web browsers. ◆ Do the illustrations match the colours used in other graphics of your web site layout: masthead, sidebar, buttons, icons, image maps, and so forth?
<p>Design Consistency and Logical Hierarchy</p>	<ul style="list-style-type: none"> ◆ Is the arrangement of information and graphic styles follow a consistent pattern throughout the site? In other words, it should establish a consistent, logical screen layout throughout the site. ◆ Does it create a strong, consistent visual hierarchy in which important elements are emphasized and content is organized logically and predictably? ◆ Does it promote familiarity in design, avoiding too complex design? ◆ Does the overall design provide contrast that catches one's attention?
<p>Use of Graphics</p>	<ul style="list-style-type: none"> ◆ Does the document follow good graphic design principles? ◆ Do the graphic elements direct users to the content, rather than distract them?

	<ul style="list-style-type: none"> ◆ Do the graphics and art serve a function and enhance the content or are they merely decorative? ◆ Do icons clearly represent what is intended? ◆ Are the graphics optimized for easy downloading and accessibility?
Average Length of Pages	<ul style="list-style-type: none"> ◆ Is the length just right for one reading or scanning, and require minimum scrolling by the readers? ◆ Are all important information located in the upper part of the page? ◆ Does the site avoid lengthy page by ensuring that there are links to separate files that contain full text? ◆ Is the width of the page on the computer screen spread too widely beyond the area most viewers can see on their seventeen- or nineteen-inch display screens? ◆ Is information divided into chunks in the pages? ◆ Does it ensure a line length that is comfortable for reading?
Font Style	<ul style="list-style-type: none"> ◆ Are the typeface and type size chosen legible, easy to read, as well as enhance the message and add to elegance
Format and Labeling of Headings	<ul style="list-style-type: none"> ◆ Are the topics or major items of information well labeled? ◆ Do the format and labeling reflect the hierarchy of information clearly?



III. USABILITY, NAVIGABILITY, AND SEARCHABILITY

<p>Accessibility</p>	<ul style="list-style-type: none"> ◆ Does the design interfere with accessibility? ◆ Is your site easily accessible and downloadable? While multimedia equipment can present a rich experience for the users, it must be ensured that too heavy and too complicated use of graphics, images and multimedia may make it difficult to access especially for who do not have the appropriate multimedia technology ◆ Do you use special effects that interfere with accessibility of the websites? ◆ Are the graphics too heavy that they overload and difficult to access? ◆ Does it provide an alternate or fallback to complex hard to access design? If you provide information in any medium besides plain text, you should always provide an alternate, or <i>fallback</i>, version. This means allowing the site content and presentation to transform under different conditions. For example, those users without graphics capabilities can still understand the function of graphics on your pages by building an alternate text descriptions which is one capability that HTML provides. ◆ Did you ensure page and graphic safe areas?
<p>Browsability or Ease of Navigation</p>	<ul style="list-style-type: none"> ◆ Is the information organised in a logical manner to facilitate the location of information? ◆ Is the organisational scheme appropriate, for example topical for thematic resource and chronological for an historical source?

	<ul style="list-style-type: none"> ◆ Does it provide direct access? Is moving from one page to another quick and easy? There should not be too much information on a single page as this could overwhelm the users. On the other hand, too little information on a screen with many links could prompt users to go through multiple links in your site before they are able to locate what they are looking for. ◆ Does it provide navigation guide both at the site and page level. ◆ Does it provide clear navigation aid? Clear, consistent icons, graphic identity schemes, and graphic or text-based overview and summary screens can give the user confidence that they can find what they are looking for without wasting time. ◆ Does it use consistent and persistent navigation bars? ◆ Does it use multiple navigation bars to organize large sites? ◆ Does it use breadcrumb trail which shows the closest direct path back to the home page
Direction	<ul style="list-style-type: none"> ◆ Does it provide clear and easy-to-follow directions or instructions for using various parts? ◆ Does it use visible tools and aids to provide direction?
Labelling of Webpages	<ul style="list-style-type: none"> ◆ Do the labels clearly tell the location of any page in view relative to the entire site?
Speed of Downloading	<ul style="list-style-type: none"> ◆ Can the pages can be downloaded quickly?



Functionality of Links	<ul style="list-style-type: none"> ◆ Does it contain a sufficient number of links and do these lead to correct and highly relevant pages within the site or external sites. ◆ Does it have a lot of dead-end pages?
Visibility of Links	<ul style="list-style-type: none"> ◆ Are the hyperlinks clearly labeled and easy to read? ◆ Are the links colours (before and after clicking) familiar to your users? For example, blue text usually indicates an unvisited link and purple or maroon text usually indicates a visited link. If you elect not to use the default colours, your text links should be emphasized in some other way (boldfaced, a larger font size, set between small vertical lines, or a combination of these).
Ease of Searching	<ul style="list-style-type: none"> ◆ Can visitors get the information they need within a reasonable number of links (preferably 3 or fewer clicks)? Information search is easy as no more than three clicks are needed to go deep into a section containing the desired information. Some Web developers tend to overload a single page with clutter and one big file of text, making it impossible to find important information that are deeply buried in several layers of text.
Search Functions	<ul style="list-style-type: none"> ◆ Is it easy to retrieve information from the site? Is the information organised in a logical manner to facilitate the location of resources? Is the organisational scheme appropriate, for example chronological for an historical source, or topical for a thematic resource?

	<ul style="list-style-type: none"> ◆ Is a useful search engine provided? How does the search engine capture and retrieve information? What operators and ranking features are available? Does it index the entire information? Is the search engine interface intuitive? This facilitates information search and makes it more efficient. It ranks results according to their relevance.
<p>Required Computing Environment</p>	<ul style="list-style-type: none"> ◆ Can the website be accessed with standard equipment and software, or are there special software, password, or network requirements? ◆ Has the website been designed to work well with one software and user interface (for example the latest Netscape release on a T1 connection) but be difficult to use with others (for example Lynx at 2400bps)? It is useful to test resources with a variety of browsers and connections. Telnet resources may pose problems to users who have not installed a telnet client. Images and other multimedia may create problems if users have not installed the correct viewer. While the extent to which older browsers are still used is a source of argument, there are still Lynx only users, frames challenged users, visually impaired users out there, and sites should attempt to cater for them. (Smith, Alastair. Criteria for evaluation of Internet information resources. http://www.vuw.ac.nz/staff/alastair_smith/evaln/index.htm)



	<ul style="list-style-type: none"> ◆ Can the text stand alone for use in line-mode (text only) Web browsers as well as multimedia browsers, or is there an option for line-mode browsers? ◆ Is attention paid to the needs of the disabled -- e.g., large print and graphics options; audio; alternative text for graphics?
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IV INTERACTIVITY

<p>Interactive Features</p>	<ul style="list-style-type: none"> ◆ Is appropriate interactivity available? Where interactive features such as forms, cgi scripts etc are provided, do these work? Do they add value to the site? Are the following interactive features available? <ol style="list-style-type: none"> 1. Message board 2. Discussion group 3. Contributions to news, databases, and so on. 4. Competitions 5. Online forms 6. Feedback 7. etc.
<p>Ease of Use</p>	<ul style="list-style-type: none"> ◆ Do interactive forms, discussion boards and so on provide instructions that are easy to follow?. Is navigating from one step to another is easy and hassle-free. ◆ Are they easy to submit and inform you of their submissions?

Search Engine	◆ Are there links to search engines or is a search engine attached to (embedded in) the Web site?
Contacts	◆ Are the organization and people responsible for the site clearly presented and their contact details are given.

Methods for evaluating the website

Online assessment of websites is significantly influencing a change in evaluation methodology. Unlike paper-based surveys, online surveys are available and accessible to the general public at an affordable cost, enabling anyone with Internet connectivity to conveniently conduct a survey. Thus, the Internet has truly democratized survey taking as a process. Survey professionals and large organizations are no longer the only parties that conduct surveys on the Web. Software products that are capable of producing survey forms are available to the general public. Because of the technology involved in developing Web surveys, leadership has come from people with a background in technology and not from survey methodology professionals. The increasing application of technology and software in website evaluation is manifested in the use of automatic validation tests to determine if the mechanical aspect of a website is functioning properly. This is impossible to measure by the naked eye. Built-in web log statistics software have also been developed to monitor website visits, hits and utilization. Finally, Web-based surveys offer some advantages over paper-based survey. These include

1. Web-based surveys are relatively cheaper because you spend less money in transportation, stationery costs, face-to-face arrangements logistics, etc.
2. Web-based surveys results in faster response rate
3. Reminders are easier to send to participants though the Web



4. Responses could be transferred to a spreadsheet, a data analysis package, or a database making it easier to process data
5. It offers capability for dynamic checking for errors in responses
6. There is an option to arrange questions in a random order
7. One can easily follow and navigate through the complex skip pattern questions w
8. It can employ pop-up instructions for selected questions; and
9. Drop-down boxes make it easier to respond to multiple choice questions.

Types of evaluation methods

1. *Observation*

This method enables the evaluator to undertake observations while the user is browsing the website. Depending on the size of the website to be evaluated, one to three hours can be spent browsing the site to answer the series of questions posed to the respondent. Site browsing is based on a set of questions and each question is based, in turn, on a set of assumptions about the contents of a 'quality' website.

In most cases, the questions asked are simple and unambiguous, but those concerning 'directory structure', 'document downloads' and 'meta-tags' warrant further explanations simply because the responses to these are dependent on other factors that are not readily discernible. For example, the functionality of meta tags can only be cross-checked by going into the "View" to read the source code. If downloads take time, it could be that the other person receiving the files is using an old version of MS Word and so on.

2. *Automated and validation tests*

You may come across instances when, having uploaded your website, some text, forms or frames and graphics do not appear on the screen. It could be that your HTML mark ups

have not been properly applied. Checking whether you have done your HTML correctly or not is useful to assessing the performance and accessibility of your website. Manual editing and correcting of HTML is cumbersome and time consuming. There is also the possibility of making more mistakes. There are simple ways to fix these mistakes automatically and to check whether your HTML code conforms to universal accessibility standards. This process is called validating your site. There are many validation tools that can be used to find out where you need to pay further attention to make your pages more accessible to the public. Many have criticized this evaluation method as it does not analyze user behaviour. Automated or validation tests are useful, nevertheless, as they indicate whether the mechanical aspect of a website is functioning properly. This is impossible to measure by the naked eye. For certain mechanical aspects of website performance, **Web-based analysis tools** can be used.

Many validation tools can carry out the following:

- ◆ Correct the mark-up in a way that the site can be accessed using any of the popular browsers from Netscape and Microsoft.
- ◆ Detect and correct missing, wrong-ordered or mismatched end tags as well as recover mixed up tags.
- ◆ Fix problems with heading emphasis, particularly when the rest of the text uses the heading font size.
- ◆ Get the `<hr>` in the right place.
- ◆ Add the missing `"/` in end tags for anchors.
- ◆ Perfect the lists by marking around all attribute values. Instances where you have forgotten the closing quote mark can also be detected, although this is something you will have to fix yourself.
- ◆ Unknown proprietary attributes are reported.



- ◆ Tags lacking a terminating '>' are spotted.

For more details on the various tools that can be used to make your site more accessible, please go to: Web Accessibility Initiative. Evaluation, repair and transformation tools for Web content accessibility. <http://www.w3.org/WAI/ER/existingtools.html>

This site classifies the many tools into three categories:

- ◆ **Evaluation tools** - Perform a static analysis of pages or sites regarding their accessibility, and return a report or a rating.
- ◆ **Repair tools** - Once the accessibility issues with a Web page or site have been identified, these tools can assist the author in making the pages more accessible.
- ◆ **Filter and transform tools** - These tools assist Web users rather than authors to either modify a page or supplement an assistive technology or browser.

These tools include link checking, html validation, load testing, security testing, java testing, publishing control, site mapping, script code generators, colour charts, calculators, translators, url submission, code validation and many more.

3. Usability tests:

Why are usability tests important? Very often the decision on why and how a website should be developed, designed and what content should be placed on it come from four people: the project manager, developer, designer and marketing person. They usually assume that they know what their users like or do not like. They tend to think that most Web users like the same things they like and that the users are mostly like them. Even among themselves, opinions differ. The designer for example always think that most people like sites that have lots of "hot designs" while the project manager wants to put more content on it. Soon the clash of personal and professional opinions

could result in a stalemate: should we use a pull down or not? Should we use red colour against blue? Should we use a sexy design or an elegant one?

To settle these arguments, a usability testing is in order. A usability test involves testing the site's navigation, architecture, design, layout, structure and information presentation across the website, by examining users' ability to navigate the website and to complete key tasks. Testing actual users in undertaking real tasks in your website is regarded to be one of the best methods for evaluating websites. The purpose is to see how users interact with your website to accomplish their work and to take note of how the Web fails to meet user needs and to accomplish tasks for which the website has been designed.

The difference between usability tests and focus groups is that usability tests are good for finding out whether your site works and how to further improve it while focus groups are good at needs assessment, gathering data on user wants, needs and likes and dislikes, and whether the idea behind the site makes sense.

Therefore it is important to test because not all of your users may think the way the website developers do and use the Web the way you all do. Usability testing need not be undertaken in a most rigid condition. Even just asking one or two persons is better than not testing at all because almost always one or two persons can always give you their opinions and suggestions for improving your site. To make up for the small number of sample, testing should be done often and regularly. It is not something you do once. Also many website owners usually test after they have developed the website. It is better to test early in the development process rather than almost the completion stage in order to guide the development process right from the start. Making changes when a site is almost finished is always difficult to do.



Guidelines for usability tests

1. Use three to five users per test. The same results tend to come out regardless of the number of respondents. Try to find users who represent your audience but do not have a hang up on it. Very often it does not matter who you test. All you really need are people who have enough experience using the Web to learn the basics. There are exceptions, as for example, when a site is meant for one specific type of users (like women), when the audience is split between clearly defined groups with very divergent interests and needs; and when using your site requires specific domain knowledge.
2. One does not need to be in a laboratory to do usability tests. The test can be organized in any office or conference room. Wherever you are, the following equipment should be available: a PC with Internet connection, a camcorder and a tripod. The camcorder needs to record what the user sees and what the user and facilitator say.
3. Decide what you are going to show. The following can be shown as part of the tests:
 - ◆ Home page
 - ◆ Second-level page
 - ◆ Third-level page
 - ◆ Content
 - ◆ Others
4. What will you look out for:
 - ◆ What do they like?
 - ◆ How does it fit into their lives? Are the website and the information in it meaningful and sufficiently useful to the work they are doing?

- ◆ What works well? Does the search function well? Is the message or bulletin board continuously active? Are all the links working and correct?
 - ◆ How hard is it to do key tasks? Or can they accomplish key tasks? How long does it take to do a task properly? Do they need cues for doing the tasks?
 - ◆ Do they get the point of the site? Is the information presented so heavy that users lose the main message in the site?
 - ◆ Do they follow the navigation? Can they find their way around? Do they notice and understand the site's navigation? Does your hierarchy and the names you are using for certain items make sense to them?
 - ◆ Do they get it? Without any help, can the users figure out what the site or the page is, what it does and where to start? Can they guess where to find things?
5. Do not give hints about what to do. If they say, "I am not sure what to do next", you should say, "What do you think should you do?" "What would you do if you were at home?"
6. Keep your instructions simple. Some examples are:
- ◆ Look around the page and tell me what you think of everything and what you would like to click on.
 - ◆ Tell me what you would click on next and what you expect you would see then.
7. Probe, probe, probe. When a user says, "I like this page", you ask, "What do you like best about it?" If the answer is, "The layout", you need to follow up with, "What appeals to you about the layout?"

Testing the ease and speed of locating information in the website involves the following procedures:



1. Pick out memorable text from within the website under study and, starting at the home page, note the minimum number of clicks that it takes to find a certain piece of information.
2. Construct a question that effectively leads people to find that information by encouraging them to make associations between the information requested and the categories that could be used to describe it.
3. Find out the average number of clicks that users took to locate the required information.
4. Upon searching each site the user manually notes down the number of clicks taken. This figure will then be compared to the minimum number of clicks necessary to find that information. The quantitative data collected using this test is a measure of website navigability. For example, if the actual number of clicks made by users is greater than the minimum number of clicks possible, it can be said that the information is difficult to find in the website.

4. Web-based (online) survey

This type of evaluation method makes use of the website itself for collecting information and user feedback. Web-based surveys are self-administered questionnaires. Based on visual stimulation, the respondents have control over how they read and interpret each question. There are many Web-based surveys on the Internet. Over 3,000 Web-based surveys in around 60 categories have been identified on the Internet. Not all of these are serious surveys. Surveys on the Web run the gamut from entertainment questionnaires to those with a probability-based design.

Type of Web-based surveys

Holly Gunn identifies two major types of web-based surveys: (from Gunn, Holy. Web-based surveys: changing the survey process. http://www.firstmonday.org/issues/issue7_12/gunn/index.html 2002

a) *Non-probability surveys*

You probably have experienced seeing various kinds of surveys on the Internet and completed a product or poll survey while navigating the Internet. These kinds of surveys include for example an opinion poll surveys that employ questionnaires which asked you to choose an answer usually given in multiple choices. A television channel may want to find out how you feel about their TV programmes, or an organizational website may want to assess your information needs to help build the content of their sites or a company may want to determine whether you approve or not of their products. These surveys are open to the public and Internet users and responses are made through their own volition or voluntarily. Therefore, they do not lead to generalizations of viewpoints across populations, and are not intended for that reason because they are not based on random sampling. These are called non-probability surveys.

b) *Probability surveys:*

The other kind of surveys is based on a systematic sampling of respondents where for example, every nth visitor to a website is included in the survey or a panel of respondents are systematically chosen to administer the survey on an exclusive basis or all of the population are asked to join the survey with a reward for their participation. This type of survey is frequently used for customer satisfaction surveys. Some Web-based surveys are completed by participants in response to email invitations for them to participate. For all of these probability surveys, non response is the major concern. It was found out that even if they are given some incentives to administer the questionnaires, non-response remains a problem.

Non-probability and Probability-based surveys

Couper (2000) described the various categories of Web-based surveys that he has encountered. He grouped these as either probability-based or non-probability-based. Couper included the following in the non-probability-based category:



1. Entertainments surveys;
2. Self-selected Web-surveys; and,
3. Surveys made up of volunteer panels of Internet users.

People who spent a lot of time on the Internet have probably completed an entertainment survey. Such surveys consist of questionnaires that request a vote on particular questions and other instant polls. These surveys don't lead to generalizations of viewpoints across populations, and were not intended for that reason. Other non probability-based surveys include dedicated survey sites maintained by owners of Web sites. Such surveys could allow multiple submissions, and make no attempt to be representative of the whole Internet population.

Couper (2000) described several types of probability-based Web-based surveys:

1. Intercept surveys;
2. Surveys that obtain respondents from an e-mail request;
3. Mixed-mode surveys where one of the options is a Web survey; and,
4. Pre-recruited panels of a particular population as a probability sample.

An intercept survey polls every n th visitor to a Web site. Multiple submissions from the same computer can be prevented with cookies. Couper (2000) said this type of survey is frequently used for customer satisfaction surveys. Some Web surveys are completed by respondents who agree to complete a survey in response to an e-mail invitation to participate. Non-response is a big concern with this type of Web survey (Couper, 2000). Other Web-based surveys are part of mixed-mode surveys where participants are offered the choice of completion of a survey on the Web or by paper. With a pre-recruited panel as a probability sample, respondents are provided with passwords or personal identification numbers. Non-response is still a big issue even with pre-recruited panels, and this non-response occurs at various stages in the survey process (Couper, 2000). In some

cases, probability-based samples of the full population obtain participation by providing equipment in exchange for participation in the survey (Couper, 2000). Even with equipment provided, Couper explained non-response was still a concern.

Differences in Presentation

Dillman and Bowker (2000) distinguished between Web-based surveys according to their methods of presentation, either screen-by-screen or those surveys that allow scrolling. Screen-by-screen Web surveys allow only one question to be viewed by the respondent at a time. The question displayed must be completed before proceeding to the next one. Other Web surveys allow horizontal or vertical scrolling, giving the respondent the view of the entire questionnaire. Even within these same categories of Web surveys, the surveys themselves can differ greatly because of variations in layout and patterns of navigation (Dillman and Bowker, 2000).

The information on the two types of web surveys were "Used with the kind permission of the author and First Monday, copyright 2002 Holly Gunn and First Monday. An extract from Holly Gunn, "Web-based surveys: Changing the survey process," First Monday, volume 7, number 12 (December 2002), at http://www.firstmonday.org/issues/issue7_12/gunn/index.html

Concerns related to Web-based surveys

Web-based surveys are not without problems. These problems include:

- ◆ Not everyone is connected so it will not work on all populations
- ◆ Because respondents have different browsers on different monitors, the questionnaires may look differently and therefore, the respondents may see different views of the same question and not receive the same visual stimulus.
- ◆ Not everyone is computer literate and savvy and can result in errors or non-response.
- ◆ Data is not always secure on the server and can cause problems in confidentiality.



- ◆ The sample in a Web survey is not really a random sample, and there is no method for selecting random samples from general email addresses. (Elaine Zanutto, 2001. "Web & E-mail Surveys," at <http://www-stat.wharton.upenn.edu/~zanutto/Annenberg2001/docs/websurveys01.pdf>, accessed 6 November 2002)

In spite of these problems, Web-based surveys are still more reliable than telephone surveys because the respondents have more time to recall responses. In addition, they need not be agreeable simply because of the presence of an interviewer. Respondents complete the surveys at their own pace.

Principles for constructing Web surveys

Take note that design is more important in Web surveys than in other modes of surveying because of the visual effect of the Web and the way by which the survey appears in different browsers and on different screens. Thus, the design of a survey can affect the response rate, the dropout rate, and even the responses themselves. There is a vast array of response options for Web-based surveys compared to paper surveys that can motivate or promote respondents to accomplish a Web-based questionnaire. These include for example, radio boxes, check boxes, Likert scales, drop-down menus, and skip patterns, as well as the inclusion of graphics, color and sound. Just be careful not to overdo the design as a very fancy design may take longer to download and thus take more time to administer or may not appear on old browser.

To improve response rate and to encourage and motivate the respondents to answer the questionnaire as completely and as accurately as possible, a respondent-friendly questionnaire should be developed. It is essential that Web questionnaires, like paper questionnaires, have design features that are easy to understand, do not take a lot of time to comprehend, and are

interesting to complete. Here are some principles and criteria for designing a Web survey as compiled from three website footnoted below:

- ◆ Pretest questions before they go online.
- ◆ Use a cover letter for the questionnaire and write an introduction for the survey to inspire cooperation from participants.
- ◆ Use filtering questions and prepare questionnaires appropriate for filtered groups;
- ◆ Divide long surveys into sections.
- ◆ Use open-ended questions sparingly.
- ◆ Offer incentives to get people to respond.
- ◆ There should be "Clear" and "Reset" buttons for each of the survey sections so that respondents do not have to reset the entire survey if they want to clear one answer.
- ◆ "Clear" and "Submit" buttons need to be in separate locations so they are not confused; word length needs to be specified for open-ended questions.
- ◆ Make the survey simple and no longer than 20 minutes to complete.
- ◆ Indicate the estimated time that is required to complete the survey.
- ◆ Make sure that the first question is interesting, easy to answer, and related to the topic of the survey.
- ◆ Take into consideration privacy issues in relation to the respondents and the collected data. (Do not use cookies and make sure the data are secure on the server, even if it means using encryption software.)
- ◆ Allow an alternate mode for completion if people are concerned about privacy, i.e., print and mail in the survey.
- ◆ Use a welcome screen that motivates, emphasizes ease of responding, and shows respondents how to move to the next page.
- ◆ Have the first question fully visible on the first screen and ensure that it is easy to understand and applies to all respondents. The first question is not the place for filtering questions or drop-down boxes.



- ◆ Use a conventional format similar to a paper questionnaire. Avoid the lack of spacing, crowded horizontal design, and unconventional layout. Brightness, fonts and spacing can greatly assist respondents in navigating questionnaires. Conventional vertical layout with numbered questions and distinct space between questions and responses make Web questionnaires respondent-friendly.
- ◆ Provide instructions for necessary computer actions, i.e., erasing radio buttons, drop-down menus, and clearing open-ended questions.
- ◆ State these instructions with the questions, in case action is necessary, not at the beginning of the questionnaire.
- ◆ Don't make it necessary for respondents to answer each question before going to the next one.
- ◆ Use a scrolling design that allows respondents to view all the questions unless skip patterns are important.
- ◆ Make sure that all responses can be displayed on one screen, using double rows if necessary and navigational aids to achieve this.
- ◆ Use symbols or words to give respondents some idea of their progress in the survey. Web survey respondents, like paper respondents, need some indication of how near they are to completion.
- ◆ Exercise caution with question structures that are known to have measurement problems in paper surveys, such as check-all-that-apply and open-ended questions.
- ◆ Validate on different browsers and design for the least compliant browser.

Above guidelines were adapted from:

1. Gunn, Holly. Web-based surveys: Changing the survey process
http://www.firstmonday.org/issues/issue7_12/gunn/index.html
2. Zanutto, Elaine. "Web & E-mail Surveys," at

<http://www-stat.wharton.upenn.edu/~zanutto/Annenberg2001/docs/websurveys01.pdf>, accessed 6 November 2002.

3. Archer, Thomas. Web-based surveys. From the Journal of Extension. <http://www.joe.org/joe/2003august/tt6.shtml>, August 2003

5. *Log-file Data Analysis*

Using the website itself to track down usage is another interesting way of collecting and analyzing evaluative data. There are many web-log statistics software which monitor, analyze, and report the visits and utilization of your website. The questions usually tracked down by the log-file software are:

- ◆ Who and how many people are visiting your web site?
- ◆ Where do your visitors come from?
- ◆ Which pages do they look at most?
- ◆ What type of information are they interested in?
- ◆ What hours, days, weeks, months, quarters and years are they particularly active?
- ◆ From which URLs do people come to visit your web site?
- ◆ What kind of technology do they use to view your web site?

These weblogs give you reports of access to your website every day, every week, every month and every year.

Web traffic statistics are usually provided by the Web host more often free of charge or included in the hosting fee. They are also located on the Internet free of charge and can be downloaded for use on your website. There are many tools for tracking websites from the simple page counters that simply register HITS to sophisticated tracking software that not only registers the number of visitors to your site, but also records other information such as geographic location, Internet protocol address and the websites or links where your visitors came from.



However, you must watch out for some inadequacies when using log-file to interpret the performance of your website. By itself, the data will not really reveal the exact number, the demographic profile and experiences of the website user. So it is not fully an effective measurement of a website performance. A fundamental rule of log-file analysis is to be precise and consistent when making use of log-file data terms.

What does the log file software monitor and report to you? The following are some of the most basic Web traffic statistics that are typically available for Web traffic analysis. Also below are brief suggestions on how to use the information. (Medium Blue Search Engine Marketing . "Web traffic analysis and your bottom line." <http://www.mediumblue.com/newsletters/web-traffic-analysis.html>, June 2002)

These include the following:

- ◆ **Hits** - Most Web surfers have come across sites that boast about "50,000 hits per day" or something similar. But what does this mean? To an Internet marketer, unfortunately, not much. "Hits" actually refers to the number of requests for information that the Web server receives. To use an oversimplified example, if your homepage has 20 separate graphics on it, each visitor to that page will account for 20 hits. If you were boasting of 20,000 hits per day, you would really only be talking about 1000 visitors. Obviously, this statistic is not a fair indication of actual site visits and should not figure in your web traffic analysis.
- ◆ **Visit** - A visit refers to the number of consecutive page requests made from a client to a server in a single session. It estimates the number of people who have viewed the website. Some log-file software disaggregate this information according to the number of unique visitors in a 24-hour period. It also gives the average number of visitors on a daily, weekly and monthly basis. This is a better measure of website

activity. It should be noted that the more your traffic increases, the more accurate the rest of your Web traffic analysis becomes because trends in a larger sample are more telling than trends in a smaller sample where a small number of atypical users could skew the results. However, one should also note that visitor numbers may also mean that same people may be visiting the site more than once so visits do not necessarily translate to one visit per one person. It could mean several visits by one person as well.

- ◆ **Most/least requested pages** - A page request is defined as a series of hits that successfully retrieve the collection of files constituting a single webpage. This statistic can be useful in as an indicator of the level of activity around a website.

- ◆ **Average time spent on site and average page views per visitor**

If the average time that people spend on your site is small (for example less than a minute), or the average visitor only visits one or two pages, your Web traffic analysis may tell you that there is some problem. Perhaps your site is attracting the wrong traffic, with visitors abandoning the site quickly when they realize it is not what they are seeking. Perhaps visitors are confused by the navigation and will decide to look elsewhere. Maybe your site, even though you love it, gives off inexplicable bad vibes. Whatever the case, awareness of the time people spend on your site and the number of pages they view can bring a potential problem to your attention and help you gauge how effective your solution is.

Web traffic statistics are helpful in determining "hot" and "cold" areas of your site. If you notice that a page, which you think is important, does not get any attention, perhaps the link to this page should be made more prominent or enticing. On the other hand, if there are areas within the site that you consider less important, but are in fact attracting a great deal of your traffic, you can shift some of your promotional focus to those pages.



- ◆ **Top exit pages** - These are pages from where people leave your website. It is not a big problem if people leave your site from exit pages, as these are where they are supposed to exit anyway. Some examples of exit pages are a confirmation page which involves the filling out of a form by users and a contact page that informs visitors how to get in touch with your organization and so on. It is unrealistic to assume that every visitor will find exactly what he or she is looking for. For this reason, provision could be made for a wide range of exit pages. However, it bears close scrutiny if your Web traffic analysis indicates that a high percentage of visitors leave your site from any page. This could suggest the need to modify the content of some of your pages to discourage people from exiting.
- ◆ **Top Search Phrases** - Unlike other Web traffic statistics that are primarily based on traffic already at your site, data on top search phrases can be very useful in understanding the type of traffic to your site. You will come across relevant phrases that bring consistent traffic. Use such phrases as they imply targeted traffic. On the other hand, if the predominant phrases used to find your site are unrelated to your subject, you would know that some of your traffic is of a lesser quality. If people find your site by typing in the name of your organization, you will know that you have achieved some level of brand awareness. In order to gain a better understanding of your visitors, study your Web traffic analysis and examine the search phrases used by your visitors.

When selecting the right web log software to use, the following criteria should be considered:

- ◆ It is easy to install and get up and running
- ◆ It is fast and flexible to generate a report
- ◆ It is accurate

- ◆ Provides help online and documentation
- ◆ It supports log file format from the most popular web servers
- ◆ It can run on common platform but supports multiple log file formats
- ◆ It can easily be integrated and tuned in into your environment

How to Read and Use Web traffic. Analysis software.

Both online trackers and Dedicated Web Analysis Software have the same principles so if you are familiar with one you will usually know how to use and understand the others. For this exercise we will use one of the most popular web analysis software **Webalizer**.

Web statistic pages can be easily accessed by entering your hosting web control panel. (Your hosting company will provide you with the URL address, login and password)



The image shows a screenshot of a web control panel interface. At the top, there is a blue header with the text "H-SPHERE CONTROL PANEL" on the left and "Fluid H" in a large, stylized font on the right. Below the header, there is a login section with the following elements: "Login:" followed by a text input field containing "userlogin", a green plus sign, "Password:" followed by an empty text input field, a red exclamation mark icon, a blue "LOGIN" button, and a blue "LOST PASSWORD?" button. Below the login section, there is a grey banner with the text "Welcome to Fluid Hosting Control Panel".

Enter your password and login name and you will be taken into the control panel:



Main



Domains



Web options



Change Password



Change Account



Add Account

E-Mail



e-mail



Web Mail

FTP



FTP Manager

Contact/Billing Info



Contact Info



Billing Info



Billing statement



Online Price



Money Back

Tools



SiteStudio



File Manager



Stats



Submit URL

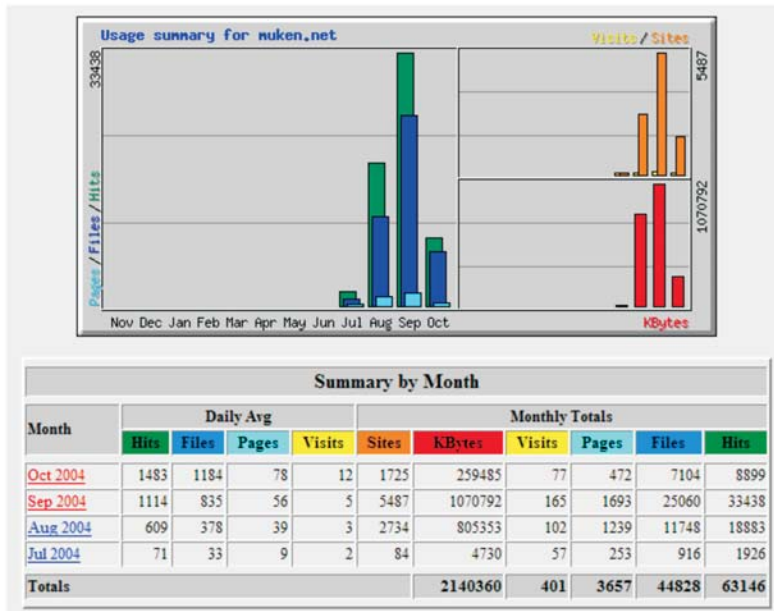


Reverse Traceroute

Here you will see a list of options to adjust your website will be available. Click on Stats.

Edit statistics				
Domain	Webalizer	Modlogan	AWStats	Status
muken.net				OK

Once inside the Stats page click on Webalizer (if your server has more then one Analysis program you will be given a list just like in the image). You will be taken to this page which is the traffic analysis summary page





The months can be clicked to reveal more detailed information but before that let us learn what does these figures mean first.

HITS: Represents the number for files (HTML page, images, multimedia files, text files) that the user's browser request to the website. A single user can register multiple hits on every visit. Example if your webpage contains 4 pictures and one HTML file then when a person visits it then it registers 5 hits (4 pictures and one HTML file). Remember, it registers 5 hits because the browser asked the website to send the HTML files and the pictures to the browser and not necessarily downloaded completely.

In other words, while the browser was downloading the HTML page and 4 pictures and the user cancels the download and only the HTML file and picture are displayed it will still register as 5 hits because the browser requested the whole page (the HTML file and 4 pictures).

FILES: These are the number of files downloaded completely by the browser. In other words if the browser completely downloaded the HTML files and the 4 pictures it will register as 5 files. If the process was canceled by the user and only the HTML file and 2 pictures were displayed the Analysis software will register 3 FILES and 5 HITS.

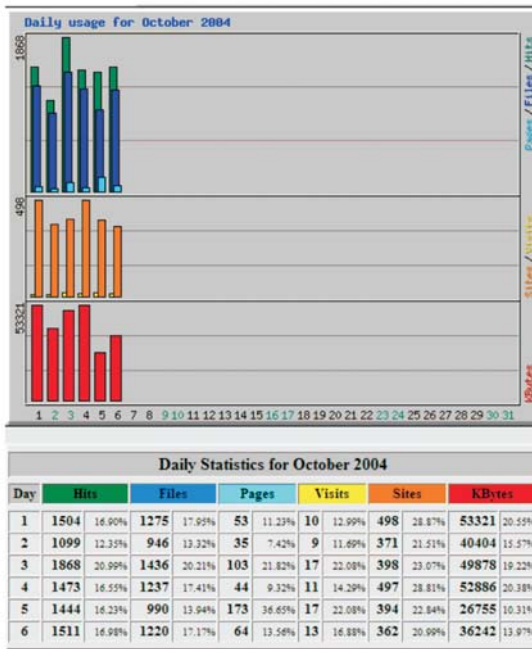
PAGES: Refer to HTML files downloaded/displayed by the user's browser. Not images, audio clips or video.

VISITS(or Uniques): The number of actual people (based on IP) who visited the site per day (or depending on the setting of the software). So it is possible to have the same visitor to register a visit on Monday and still register a visit on the following day. Also it is possible to have one visit but have 20 hits registered.

PAGE: These are the number of webpages requested but not necessarily displayed or downloaded. Similar to hits but only refers to pages and not other elements such as audio clips, pictures, images or video.

KBYTES: These are the amount of traffic the flows through your website. So if the user views one HTML page (20K) with 4 pictures (50K each = 200K) then the user will register an initial 240K on her visit.

Once you understand these concepts reading the other parts will be pretty self-explanatory.



After that you can click on a month you will be presented by various information such as daily and even hourly statistics and visits.

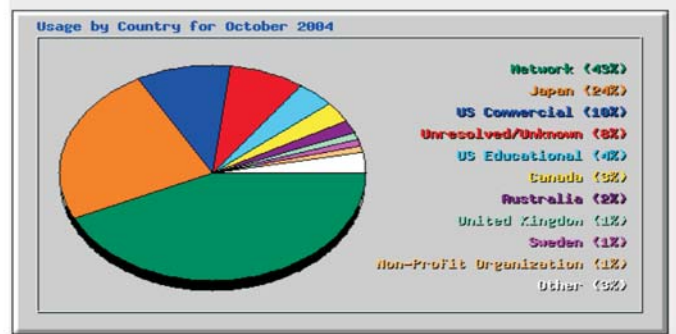


Top 30 of 562 Total URLs					
#	Hits		KBytes		URL
1	2556	28.72%	1099	0.42%	/outpages/pow.gif
2	383	4.30%	10702	4.12%	/bbs/
3	233	2.62%	792	0.31%	/outpages/banners/469x61.jpg
4	230	2.58%	440	0.17%	/outpages/banners/dominionbanner468x60.gif
5	229	2.57%	519	0.20%	/outpages/banners/badblood_vb.gif
6	222	2.49%	1120	0.43%	/outpages/banners/mfiban1.gif
7	214	2.40%	2961	1.14%	/outpages/banners/biglink02.jpg
8	207	2.33%	2559	0.99%	/outpages/banners/413b8c3096a61.gif
9	164	1.84%	28115	10.84%	/outpages/v2023.gif
10	136	1.53%	21606	8.33%	/outpages/v2017.gif
11	130	1.46%	19816	7.64%	/outpages/v2022.gif
12	129	1.45%	19771	7.62%	/outpages/v2018.gif
13	127	1.43%	18871	7.27%	/outpages/v2021.gif
14	127	1.43%	18469	7.12%	/outpages/v2015.gif
15	124	1.39%	20983	8.09%	/outpages/v2019.gif
16	124	1.39%	21142	8.13%	/outpages/v2020.gif
17	122	1.37%	15103	5.82%	/outpages/v2016.gif
18	121	1.36%	17946	6.92%	/outpages/v2014.gif
19	84	0.94%	309	0.12%	/bbs/style/images/l/logo4.gif
20	79	0.89%	37	0.01%	/bbs/style/images/l/atb_calendar.gif
21	79	0.89%	37	0.01%	/bbs/style/images/l/atb_help.gif
22	79	0.89%	41	0.02%	/bbs/style/images/l/atb_members.gif
23	79	0.89%	34	0.01%	/bbs/style/images/l/atb_search.gif
24	79	0.89%	9	0.00%	/bbs/style/images/l/tile_back.gif
25	78	0.88%	63	0.02%	/bbs/style/images/l/nav.gif
26	75	0.84%	3	0.00%	/bbs/style/images/l/nav_m.gif
27	74	0.83%	9	0.00%	/bbs/style/images/l/tile_sub.gif
28	72	0.81%	2	0.00%	/bbs/style/images/l/spacer.gif
29	59	0.66%	757	0.29%	/images/mukenlogo2.gif
30	53	0.60%	61	0.02%	/bbs/style/images/l/bf_nonew.gif

On the left is an example of a section showing the most viewed or requested URL of a certain site.

Top 15 of 273 Total User Agents		
#	Hits	User Agent
1	1563	17.56% Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1)
2	1280	14.38% Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; NET CLR 1
3	844	9.48% Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.7) Gecko
4	755	8.48% Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; Q312461)
5	574	6.45% Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; NET
6	496	5.57% Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1)
7	358	4.02% Mozilla/4.0 (compatible; MSIE 6.0; Windows 98)
8	352	3.96% Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0)
9	269	3.02% Mozilla/5.0 (Windows; U; Windows NT 5.1; rv:1.7.3) Gecko/2004
10	161	1.81% Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; NET CLR 1
11	101	1.13% Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.6) Gecko
12	100	1.12% Mozilla/5.0 (Windows; U; Windows NT 5.0; rv:1.7.3) Gecko/2004
13	77	0.87% Mozilla/4.0 (compatible; MSIE 5.5; Windows 98)
14	72	0.81% Mozilla/5.0 (Macintosh; U; PPC Mac OS X; en-us) AppleWebKit/1
15	70	0.79% Mozilla/4.0 (compatible; MSIE 6.0; Windows 98; Win 9x 4.90)

The next group of information would be User Agents and the geographic location of the visitors. User Agents would mean the Operating system (Mac/Windows/Linux) and the browsers (MSIE (Microsoft Internet Explorer, Opera, Firefox etc.) viewers are using.



Other information that are also displayed would be such as the number of visitors who bookmarked the site, or how many people hit the error pages (404, 206) or what search engines indexed your site etc.

Below are some examples of Web-log statistical tools or tracking software

1. Counters - These are the simplest tracking tools for registering hits and unique visits to pages where the counter is placed. Counters are CGI scripts that record how many times a webpage is loaded. Usually counters only record traffic in one page. These are not ideal for tracking traffic within an entire website.

Most counters are used by hobby or personal sites and are not considered a legitimate tool for website tracking for professional and corporate websites.

2. Online Trackers - These are more holistic statistical tools. They usually cover traffic going through entire websites and measure such figures as the visitors' geographic locations, unique visits, hits, IP addresses, referring websites or links, pages viewed, amount of bandwidth used, operating system, number of visitors that bookmarked the site, number of times a certain visitor (or IP address) has visited your page, etc. Another advantage for online trackers is being able to graphically display different kinds of information in the form of charts, graphs and pies.

One can get an online tracker offered by an Internet company, such as **bravenet.com**. All you have to do is register and they will provide you a code where you can cut and paste into your website.



Free services often require the insertion of banners in their counters and trackers. This is a sample banner of **goldstats.com**. To view the statistics, click the banner first. Note that by paying the tracking company for its service, you can have these banners removed to make your tracker invisible to viewers.

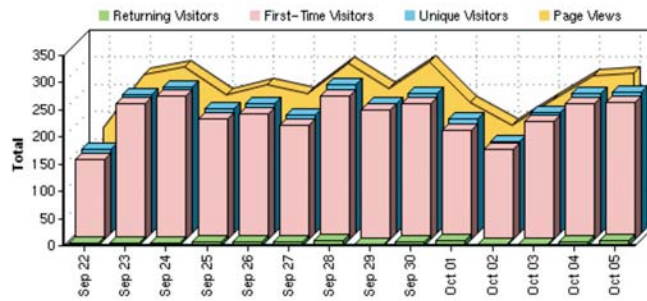


- General**
 - › Counter Stats Overview
 - › Download Statistics
- Traffic Statistics**
 - › Page Views
 - › Unique Visitors
 - › First-time Visitors
 - › Returning Visitors
- Comparisons**
 - › Page Views/Unique Visitors
 - › First-time/Returning
 - › Compare All
- 7 Day Trends**
 - › Unique Visitors
 - › Page Views
 - › Returning Visitors
 - › First-Time Visitors
- Visitor Analysis**
 - › Referrers
 - › By Day of Week
 - › By Hour of Day
- Browser Statistics**
 - › Screen Resolution
 - › Color Depth
 - › Web Browser
 - › Operating System

Counter Stats - Last 30 Days

Counter Name: **BNC82**
Page Name: **www.bravenet.com**

[Download as CSV](#)



Today's Traffic Summary

October 06, 2004

Unique Visitors Today	223	
Page Views Today	247	
First-Time Visitors	215	
Returning Visitors	8	
Uniques / Page Views	90%	

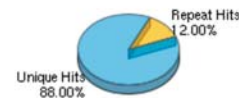


Top Statistics

Busiest Time	01:00 PM		Busiest Day	Tuesdays	
Screen Resolution	1024x768		Color Depth	16.7M Colors	
Operating System	Windows XP		Web Browser	Internet Explorer 6.x	

Cumulative Statistics since

Total Page Views	111,223	
Total Uniques	98,425	
Uniques / Page Views	88%	
Counter Start Date	September 17, 2003	



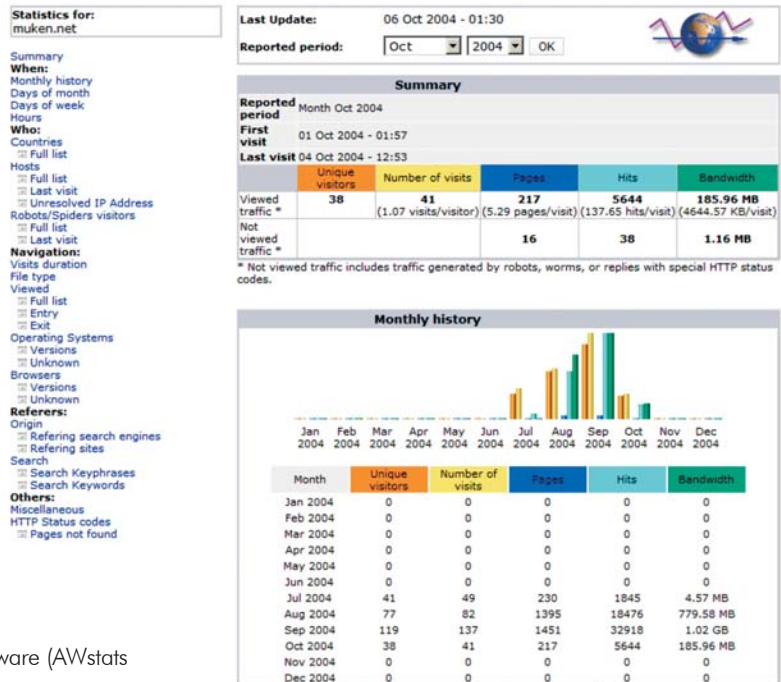
This is an example of a statistical report by **Bravenet.com's** tracking software. All you have to do is register and they will provide you a code where you can cut and paste into your website.



It is often required by these free services to insert banners into their counters and trackers. This is a sample banner of goldstats.com. To view the statistics one must click on the banner first. Note that these banners can be removed to make your tracker invisible to the viewers by paying the tracking company for its service.

3. Dedicated Web Analysis Software or Server Log File Analysis Programs - These programs have features that are similar to those of online trackers, although they are more thorough and are capable of tracking more information in greater detail. Since the software resides within the server itself, the figures and numbers are usually more accurate than most online trackers. Unlike online trackers,

This is a screen shot of a Web Analysis Software (AWstats)
<http://awstats.sourceforge.net/>





these do not require a cut and paste code to activate its function. A distinct advantage of Web analysis software installed into the server is its ability to record traffic statistics of these websites on a daily, monthly and yearly basis.

One advantage of the dedicated web analysis software is that it is invisible and can run in the background without being seen. Please note that many online trackers can also be made invisible but one must pay for the feature.

Dedicated Web Analysis Software is usually the most popular statistical traffic analysis method preferred by professionals because server administrators and webmasters have more control on the information that flows into the server. These software products are usually provided by many commercial Web hosting services and even the most popular ones are open sourced (usually if you server is UNIX/LINUX based) and can be downloaded for free.

Popular Web analysis software such as **Webalizer, Modlogan, AWStats** are all open source software that can be downloaded off the net

<http://www.mrunix.net/webalizer/>

<http://awstats.sourceforge.net/>

Take note that not one source is completely accurate and capable of reporting all aspects of incoming traffic. As normal practice, therefore, install not just one but several types of this software product. For example, AWStats specializes in accurately detecting how many visitors bookmarked your page, the origin of the visitors and frequency of their visits to your site. Webalizer is much better at tracking hits, unique visitors and their geographic locations.

Type of Web-log Statistical Tools	Pros	Cons
Online Trackers	<ul style="list-style-type: none"> ◆ Usually free online provided by Internet companies, such as bravenet ◆ Need not slow down the webpage since it is not installed in the server ◆ Some paid services with excellent tracking, such as http://www.onestat.com/html/os_premium.html, are used by MIT, Cornell University and KLM for their websites ◆ Ease of installation, involving cutting and pasting code provided by the company website into the HTML page ◆ Usually tracks only a limited number of pages (normally where the code is placed) 	<ul style="list-style-type: none"> ◆ With the exceptions of http://www.onesta.com online trackers in general are not as accurate as most dedicated software analysis programs ◆ Most online trackers offer limited function; usually advertisements are added (and cannot be removed) unless the customer pays for the "full version" of the service ◆ Fees are usually recurring charges; depending on the company, fees are paid to maintain the service on a yearly basis - depending on the number of visitors.



Type of Web-log Statistical Tools	Pros	Cons
		<p>Some of the better tracking services charge a hefty price (hundreds of US dollars)</p>
<p>Dedicated Web Analysis Software</p>	<ul style="list-style-type: none"> ◆ Standard in all paid hosting services. ◆ Many Web Analysis Software are open sourced and can be downloaded for free; more cost effective than paid online tracking service. ◆ Usually much more accurate and in-depth than online trackers ◆ Invisible, works in the background ◆ Multiple trackers can be installed to give a much more detailed analysis of website traffic ◆ More control of the presentation and/or collection of information 	<ul style="list-style-type: none"> ◆ Like any type of program or software, installing a web analysis software may use up resources and bandwidth. ◆ Although more accurate in general than most online trackers, it is still not 100% accurate. ◆ Usually needs to be installed by somebody with a background in server systems.

Pros and Cons

Ultimately, the choice is between **online trackers** and **server installed Dedicated Web Analysis Software**. Following is a comparison of their features.

There are four ways to obtain web statistical tools:

- 1) Commercial and free online tools
- 2) Provided by the hosting service
- 3) Software is purchased and installed on owned/company/private server.
- 4) Downloaded for free on the Internet (Open Source) to be installed in the server.

6. Telephone survey

Telephone surveys can vary widely in quality. There are those who use small but representative sample in statistically sound opinion polls and those misleading public opinion 'phone ins' which asked people to ring in and put their 'vote' on record.

A scientifically sound telephone survey starts with drawing up a statistically sound sample. This requires being able to access phone numbers of your entire respondent population and a sample is taken from this complete list. The list could be derived from sources such as directories, credit lists and membership lists of professional or social organizations and existing mailing lists of related organizations. Each person on the list is contacted by telephone until enough number parties have responded (hence the use of quota sampling). Those who agree to participate will be given a pre-defined set of questions, usually quite simple in structure (such as multiple choice). The interview is unlikely to last for more than a few minutes, as many people will not participate if they think it will take more than that amount of time.



There are major advantages to this technique. (Goodman, Albert. Survey techniques. <http://www.deakin.edu.au/~agoodman/sci101/chap8.php#RTFTtoC8>)

- ◆ It is a low cost method as the only expenses are telephone calls (mostly local calls) and the wages of the interviewers.
- ◆ It can obtain data more quickly. Telephone surveys can often be completed more rapidly and at considerably lower costs than personal interviews.
- ◆ It can probe and clarify answers - There are opportunities to persuade the party to answer open-ended questions, probe for more information, or clarify a question or response to a question.
- ◆ It can ask more complex questions.
- ◆ It has better control of response rates.
- ◆ It can control questions being answered.
- ◆ Data are entered into computer files during the interview process.

But it is not perfect. Here are some disadvantages:

- ◆ Potential bias due to non-coverage or under-representation of economically disadvantaged members of society who do not have access to telephones.
- ◆ Contact is not guaranteed as the contacted parties may not be available when the interviewer calls.
- ◆ People's suspicion of hidden motives of unfamiliar callers.
- ◆ Possible inconvenience to the participants, especially if they are contacted at strange hours of the day or at night.
- ◆ High degree of outright refusal to cooperate; people who might 'give in' and agree to

participate if asked directly may be emboldened to say no and hang up when approached over the telephone.

- ◆ Problem of miscommunication or poor understanding, especially where one party is less articulate than the other.

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