Understanding the Web Development Process
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Step 1: Determine your Purpose

In development of any website there is some reason for its existence. It may be as simple as cutting down on hardcopy publishing costs by posting the information online. In education, for example, the purpose may be to complement textbooks with online class notes and practice problems.

In the competitive world of retail sales, dining, or hospitality the purpose can be much deeper - to attract customers to your business location. In this case, the site must reflect the flavor of the business establishment, and to link the website to your geographical location. If customers are being drawn to your site from far away, first impressions are important.

The Internet has made possible an entire new industry of online business, providing means of ordering products and services online. In this case, bottom-line purpose of the site is to make sales - and the easier of an experience that is, the better.

The list goes on and on, with many purposes including new creative services, community networking, online information services and interactive teaching. In any event - first, **define and write down the purpose of your site so it can be designed with that purpose in mind**, and results can be measured to continually improve its effectiveness.

Step 2: Establish your "Look and Feel"

Creating a "look and feel" is perhaps the most foundational portion of web design – much like deciding the color scheme to use when decorating a house. In the case of a website, the key ingredients are: colors, layout, and font style.   These should be consistent among all pages of a site.

In cases where you have existing business marketing material (e.g., brochures), it makes sense to maintain consistency in choosing the web color scheme. A general design rule: never use more than four background colors on a web page (preferably three) and never use more than two font styles (other than bold and italic options for each).

To assist in the development process, make a "storyboard" that illustrates your concept of the web version of your brochure. This can be a simple sketch on a pad of paper, with separate pages reflecting the pages of the site.

In layout, target one part of the page that will be the "instant eye-catcher" that communicates the main message when a page is loaded (perhaps an image). Remember that most people will not bother to scroll down, so place the most important information

on the top of the screen – requiring scroll down for continuing text or non-essential information.

Many sites (especially in the hotels restaurant and entertainment industry) use animation on their home page – usually with "Flash" effects. Animation is a spice that is best used sparingly. Users expect quick page response times, and once viewed, a flashy introduction is redundant. (More on this in Step 10.)

When coming up with your site concept, keep both the first-time viewer and the repeat customer in mind. Remember: the purpose in not only to present an attractive image of your organization, but also to streamline the functionality used to obtain information or place orders.

Step 3: Navigation

The very nature of the web is the organization of information among multiple pages – both within the same site and on other websites. The usual method is via a set of buttons that are arranged either horizontally or vertically. You can also be creative in using images as navigation buttons in various arrangements. An important rule: make it obvious what the users can select to move among the web pages, and be consistent among the pages.

Try and avoid overwhelming the website visitors with too many options; about seven is a good limit items in a menu bar. In addition, try and visualize the number of future additions to your site so that the number can be expanded – or plan to subdivide as multiple pages.

Things to avoid: excessive graphic image buttons. In the inevitable case where you want to expand the site in the future (or routine maintenance) this will require creation of new buttons which match the originals – requiring graphic arts work for each new button. Graphic buttons take more page space and may interfere with the layout after a certain number of buttons is reached. And, by all means, avoid those pesky "drop-down" menus that disappear before you get a chance to click on a selection!

In creating your storyboard, try and minimize the number of mouse-clicks needed to reach important information. Remember: users are lazy, and critical information should be reachable within three clicks.

Step 4: Content

The real "meat" of a website is content. In fact, search engines primarily score the ranking of pages on the number of pages within the site and the associated content. This should be a clear and concise description of who you are, what your company does, where you're located and what's unique about you.

Try and place the most important points at the beginning of a page – or use the "Read More" approach with a two-phase approach: the "grabber" that provides one or two-line description, with a link to a more descriptive full-page write-up of the topic.

Consistency of format and terminology and correctness of grammar and spelling, while seemingly simple, are of hallmark importance in maintaining a professional image.

Step 5: Promotion

The process of "promoting" a website begins as part of the planning step, creating a strategy for driving traffic to the site. Here are the ways people discover your site on the Internet:

a) They obtain your URL from other media: magazines, newspapers, hardcopy advertisements, your business card, a bumper sticker on your car, or on the side of a bus. In this case, they type in your domain name directly in the "address" field of their browser.

b) They click on links from other sites. When you design your site, think of other organizations that can provide reference links to your site. (Note: search engines also base the priority or "score" of each site they discover based on the number of pages it contains and the number of other pages on the Internet that refer to the site via a link.) Contact other sites and request a link, request to offer a "mutual link", or perhaps they'll link to you for a reasonable fee (banner ads).

c) Through Search Engines. These are based on keywords that people use to locate a site – and those keywords should be contained in the content of your web pages. This is an entire area of specialty called "Search Engine Optimization", using a variety of techniques to raise your score and bring the link to your site close to the top of search results. (Note: optimization needs to take place for each of the top search engines – Google, Yahoo, AOL, Bing, Altavista, and Lycos being the major ones.)

d) Banner advertisements – provided as graphic ads on other websites (usually for a nominal fee) or advertisements on search engines, such as Google ads.

e) Email Solicitation – Used modestly, this method invites people to visit your site using your own mailing list.   This is typically restricted to people whose email addresses have been given to you as a request to be kept up-to-date.

With respect to search engines, note that search words are found in content, not in pictures. If posting pictures, make sure to include "alt text" for each, or a title per-picture to allow the Search Engine to classify the content.

Step 6: Measurement of Performance

"If you can't measure it, you can't manage it" (Peter Drucker). With respect to the effectiveness of a website, it's important to measure how many visitors are coming to your site, how many pages they view, and which specific web pages are most popular.

It's also possible to generate a wide variety of statistics on your site's visitor performance – such as the amount of time a visitor stayed on the site, the geographic distribution of visitors, and the referring sites. This information is obtained by using software to analyze the "log files" generated on the server that is hosting your site. This information is extremely useful in optimizing your ranking on search engines. The statistics can be monitored on a regular (usually, monthly) basis and used to fine-tune the content to improve the traffic level.

At the same time, the ranking of the site on the major search engines can be determined by searching on preferred keywords. Measurement programs such as "webalizer" and "comtrack" can generate a list of keywords that are commonly being specified by remote users to find your site. Content of the site can then be adjusted accordingly to focus on those keywords to improve search engine ranking. [Note: This is the beginning of a complex process called "Search Engine Optimization" (SEO) – a field of its own. Jockeying for rank on each of the Search Engines is an on-going process.]

Step 7: Providing and Obtaining Contact Information

Your website should be used to build ongoing relationships with Internet users or customers. Most all sites have a mechanism via a "Contact Us" page for remote users to ask a question or suggest additions to your site.

The simplest way is for you to provide a link to send you an email. Beware, however, as your posted email address is a "sitting duck" for spammers who harvest email addresses from the web. To avoid this problem, you can use a "rotating" email address which changes every six months or so. The website address (e.g., admin501@yoursite.com) is redirected via forwarding to your "real" email address which is hidden. In the event this is gleaned by spammers, its use will be obsoleted when it is changed to admin502@yoursite.com on the next update.

Better yet, an input form can structure an email (and keep your email address hidden) and can collect additional information such as FirstName, LastName, City, etc. to be included in the email.

Best of all, allow remote visitors to add themselves to your "guestbook" by indicating they want to receive further information periodically via email when it becomes available.   The guestbook captures their contact information in a database – perhaps with other qualifying information (e.g., product interest). This allows you to send personalized emails to selected visitors with information on new changes to the website,

new events, new product availability, or new services available. (Note: sending of email is regulated by the "Can Spam Act of 2008", and requires that you include – among other things – the ability of visitors to opt out of your mailing list.)

Provided you abide by the rules of email politeness, this approach is an excellent way to encourage "re-visits" to your site on a periodic basis.

Step 8: Databases and Advanced Features

A database is a collection of data that can be quickly obtained based on selection criteria. The guestbook described above is an example, typically implemented using a minimal database consisting of FirstName, LastName, and E-Mail address.

The database is also an addition to website design that contains information to be presented to remote users. In the case of a website describing a wine catalog, for example, a web page need not be created for each wine in the catalog. Instead, a "template" page can be used to display each entry, substituting information retrieved from the database as it is displayed.

This makes possible the presentation of a wide variety of information without having a web designer create pages for each separate product; someone simply has to enter information into the database.   Most commonly, this takes place through a password-protected administrative page, allowing a system administrator to add and remove information from the database. When such information is added the changes are instantly reflected on the website.

Database-driven websites allow information to be selected or arranged by your web visitors. A property management site, for example, can list properties available in a given city, allowing the web user to request a list sorted by city, price, address, or numbers of bedrooms.

There are two other facilities that are made possible by databases within websites: blogs and forums. Blogs (or, "web-logs") are facilities to allow you or others to upload content to the site, providing both text and pictures as part of an ongoing-dialog. This can be integrated with your website "look and feel" to allow interaction with customers, local news and information, information for clubs, etc.

Forums are an additional feature that can be integrated with database-driven sites – allowing multiple users to ask questions or provide feedback. This is frequently used in the software community for people to get help from a group of people who might have run into a problem you describe. Forums are also an invaluable format for community discussion on local political topics.

Both blog and forum capabilities can be configured as part of your website with openly-available (free or reasonable-cost packaged software) such as Wordpress and phpBB.

Step 9: e-Commerce Sites

e-Commerce sites can range in complexity from a simple web page selling a single product to a complex database of thousands of products available online. The simplest site can use PayPal to do the work of collecting payments using credit cards, and setting up a merchant PayPal account is only a few hours work. This is a good way to test the water in e-marketing, starting with a simple website and beginning the discipline of site promotion.

The typical e-Commerce site is database-driven, allowing the site manager to add and remove products, change prices, place products on hold, change shipping rates, tax rates, and so on. In each of these cases, information is stored in the database, and the database controls interaction with remote web users.

Of particular concern in e-Commerce sites is that of information security, since information related to credit or banking information is involved. In this case, these sites implement data encryption using a secure "certificate" that protects confidential data being transmitted through the Internet, and the server systems adhere to strict guidelines related to storage of information. Secure Certificates are obtained through application to third party SSL Certificate providers such as Verisign, Thawte, or GoDaddy at a fee. (Comware e-Commerce software implements the "Payment Card Industry Data Security Standard" as well as other software security features.)

Implementation of online ordering can provide a wide variety of features, including remembering of past customers, computing shipping costs using a variety of methods, computing state taxes, international fees, and inventory quantities.

Since the primary purpose of e-Commerce sites is typically to make sales, it is of paramount important that the mechanics of locating a product within your site and completing the sale be streamlined. Typically, this involves simple selection of product options, addition to a shopping cart, review of the cart (item subtotal), specifying shipping options, payment, and final confirmation. The site design should follow the GEICO user model so "even a cave man can do it."

Step 10: Dynamicity

This term implies the perceived amount your website changes – thereby causing people to come back to "see what's new". If your site looks identical each time they return it may acquire the lovely term "stale".

Keeping a site "fresh" can be made possible by periodically changing photographs, or having a "news" section on the home page describing in short format something informative (perhaps with links to a page within the site describing in detail.)

Adding new content gives people a reason to return to your site. No matter what the overall purpose is for having a website, its value is proportional to the number of visitors to the site – sort of like the number of copies published of a magazine. If the site informs – more people receive the information. In the case of e-Commerce sales, this directly influences the potential sales produced by the site.

Animation is the graphic effect of movement or fading of images on a website. Usually this makes use of the Adobe Flash Movie Player, useful for providing a splashy introduction to a site – complete with sound. Sometimes animation can be provided in more subtle fashion by simply fading among rotating images every so often.

Studies have shown that an impressive animated intro page is great for first-time visitors but is unneeded or even annoying to repeat visitors. It is worthwhile to make an effort to bypass any extensive animation on a short-term revisit to the site.

Step 11. Website Maintenance

Once a website is developed there are inevitable additions, changes, and corrections – referred to as general maintenance of the site. This is usually an extension of the basic web development effort, whereby changes are requested, made and paid for on an hourly basis.

An owner of a website may decide to maintain it themselves. There are software tools such as Adobe Dreamweaver that provide the ability to edit and upload web pages after the site is developed. If changes to graphics are involved, other programs such as Adobe PhotoShop are needed. Bear in mind, this might require someone on staff who has sufficient experience to manipulate graphic images, save existing versions of web pages (to avoid loss of content), and perform uploads of updated pages.

In the case of database-driven sites, facilities can be provided to update sections of the website without any web design tools. A user who is assigned "site administrator" can login and place information online in specific sections of the site. Changes are made to the website database, and changes to the updateable sections take place immediately.

Step 12. Using Social Networking Sites

So-called social networking sites (specifically Facebook and Twitter) started out connecting people. More and more they are extremely powerful tools for promoting your website and your business.
Here are just a couple of the features they offer:

You can submit an announcement (i.e., tweet) to twitter each time you add something important to your website. People following you on twitter can – with a single click –

follow the link to your site. (You aren't doing any mass email here, so it avoids being accused of being a spammer!) In effect, twitter can be used to promote your site.

You can use Facebook as a photo gallery – without any web design or database implementation within your site. You simply post information on company events, with a link to your company website. People can follow your company on Facebook for photos (or web updates).

Probably of most significance are the ways in which the "social networking" sites act as traffic feeds to your website. On Twitter, for example, you can periodically post a news entry (a "Tweet") that goes to all who are following your Twitter feed. Since your news entry would certainly contain a link to your website, this is an instant nudge for all on the list to re-visit your site. (No worries in this case of being accused of spamming – they are your followers!)