

Web Development Life Cycle

Any software development project, a methodology should be followed to ensure project consistency and completeness. The Web development life cycle includes the following phases: *planning, analysis, design and development, testing, and implementation and maintenance.*

Web Development Phases and Questions	
Web development phase	Questions to ask
Planning	<ul style="list-style-type: none">• What is the purpose of the Web site• Who will use this Web site• What are their computing environment• Who owns and authors the information on the Web site
Analysis	<ul style="list-style-type: none">• What information is useful to the user
Design and development	<ul style="list-style-type: none">• What type of Web site layout is appropriate• What forms of multimedia is helpful to the user
Testing	<ul style="list-style-type: none">• Is the Web site content correct• Does the Website functions correctly• Are users able to find the information they need• Is the navigation easy to use?

<p>Implementation and Maintenance</p>	<ul style="list-style-type: none"> • How is the Web site published • How is the Web site updated • Who is responsible for content updates • Will the Web site be monitored
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Web site Planning:

Involves the identification of the Web site goals or purpose. The question to ask is: What is the purpose of this Web site?

In addition to understanding the Web site purpose, you should also ask: Who will use the Website? Or knowing the target audience in terms of: age, gender, computer literacy, etc.

Understanding the computing environment will allow the designer to know what type of Technologies to use.

The last question is to ask who will provide the information included in the Web site.

Web Site Analysis:

During this phase, the Web designer needs to make decisions about the Web site content and functionality.

It includes a detailed analysis of the content of the Website in terms information covered, processing required, etc.

Web Site design and Development

After, the purpose of the Website has been found and the content has been defined, we need to organize the content of the Website. Many ways to organize the Website exists. Here are some general pointers:

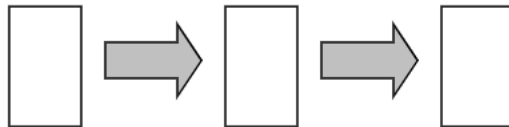
Elements	Purpose
Titles	Use simple titles that clearly explain the purpose of the page
Headings	Use Headings to separate main topics
Horizontal rules	Use horizontal rules to separate main topics
Paragraphs	Use paragraphs to help divide large amount of data
Lists	Utilize list. Numbered or bullet when appropriate
Page length	Maintain suitable Web page lengths; about one or two pages are adequate
Information	Emphasize the most important information by placing it at the top of a Web page
Other	<ul style="list-style-type: none"> • Incorporate a contact e-mail address • Include the date of the last modification

Web site layouts:

Websites are designed using any of several different types of layouts, including linear, hierarchical, and webbed. Each layout links, or connects, the Web pages in a different structure to define how users navigate through the site and view the Web pages. You should select a layout for your Web site based on how users will most easily navigate through the site to complete tasks and view the Web site contents.

A **linear** Web site layout connects Web pages in a straight line. A linear Web is appropriate if the information on the Web pages should be read in a specific order.

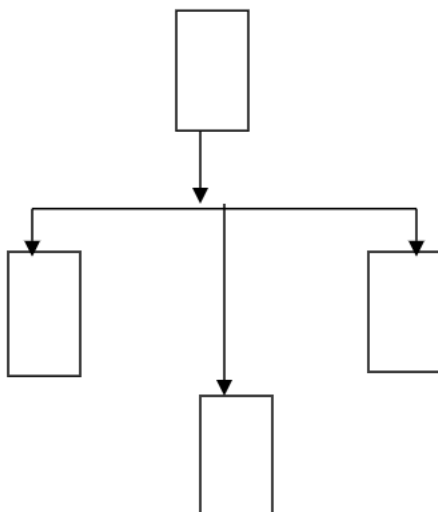
Linear Web Site Layout



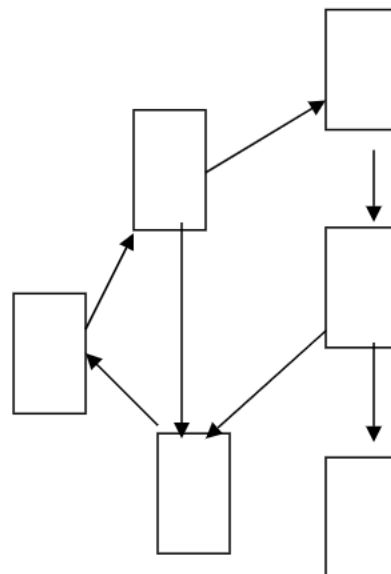
A **hierarchical** Web site layout connects Web pages in a tree-like structure. A hierarchical Web site layout works well on a site with a main index or table of contents page that links to all other Web pages. With this layout, the main index page would display general information and secondary pages include information that is more detailed.

A **Webbed** Web site layout has no set structure. A Webbed Web site layout works best on Web sites with information that does not need to be read in a specific order and with many navigation options that users can select.

Hierarchical Web Site layout



Webbed Web Site Layout



Most Web sites are a combination of the **linear**, **hierarchical** and **webbed** layouts. Some of information on the Web site might be organized hierarchically from an index page; other information might be accessible from all areas of the site while other information might be organized linearly to be read in a specific order.

Using a combination of the three layouts is appropriate, if it helps users navigate through the site easily.

During the design and development phase, you should also consider what types of multimedia could contribute positively to the Web site experience.

Types of multimedia are graphics, photos, video and audio.

Web site testing:

A Web site should be tested at various stages of the Web design and development. This testing should include a review of page content, functionality and usability. Some basic steps to test content and functionality are:

- Reviewing for accurate spelling and proofreading content including page titles.
- Checking links to ensure that they are not broken and are linked correctly
- Checking graphics to confirm they display properly and are linked correctly
- Testing forms and other interactive page elements
- Testing pages to check for speed of loading on lower speed connection
- Printing each page to check how page prints

- Testing each Web in several different browser types and versions to verify they display correctly

Usability is the measure of how well product, allows users to accomplish their goals. Usability testing is a method by which users of a Web site are asked to perform certain tasks in an effort to measure the ease of use of the product.

Site Implementation and Maintenance:

Once the Web site testing is complete and any required changes have been made, the Web site can be implemented. Implementation of a Web site means publishing the Web site or uploading it into a Web server.

Once, the Web site has been implemented, its maintenance will include updating the information content by removing the outdated one and putting in the new one.

Periodical checking of the links is also necessary to ensure that they are still active.

Finally, Website monitoring is another key aspect of maintenance. Usually, the Web servers that host the Web sites keep logs about Web site usage.

A **log** is the file that lists all the Web pages that have been requested from the Web site.

Analyzing the logs allows you to determine the number of visitors to your site and the browser types and versions they are using, as well as their connection speeds, most commonly requested pages.

Cookies:

Internet cookies are very small files that are downloaded from a Web server to a Web browser. Cookies are embedded in the HTML code related to downloading requested pages from a Web site.

When a Web browser first asks for a file from a Web server, the server creates a cookie containing information about the request and sends the cookie to the browser along with the requested file.

The next time a request is made from the browser to the server, the cookie is sent to the server along with the request. When the server returns the requested file, an updated cookie is also returned.

Challenges of designing for the mobile web:***Mobile Web Audience:***

- 1- The audience of people using mobile devices is growing and keeps growing.
- 2- The audience has different purposes in using their mobile: Save time, kill time, or socialize
- 3- The audience uses different mobile devices
- 4- The audience is of varying ages.

Evolving standards:

First mobile webs were designed with the limitations of Wireless Access Protocol (WAP 1.0). WAP is a series of rules and specifications, not design principles. WAP sets down what a mobile browsing session is, how the phone is allowed to talk to the

network, how the network is allowed to talk back and how the communication can be kept secure. WAP imposed restrictions and fees on mobile phone designers and was abandoned. WAP has evolved to support XHTML which is a more rigorous version of HTML that is used on mobile devices.

Designing for low end and high end devices:

Mobile devices come in many shapes, sizes and capabilities. This makes it challenging to make assumptions about any of these when designing a mobile site. The rule of thumb is to assume a minimum capacity and design for the low end devices. Test your design on the top ten mobile devices.

The iPhone Factor

The first and only device that is most responsible for taking the mobile web from the “nerdy” limited audience to the general public is the iPhone. The iPhone kick-started the mobile web revolution when it was launched in June 2007. Apple applied for 200 patents for the new technology for the iPhone.

Some of the new features introduced by iPhone in the mobile environment:

- Use of pinching or opening motions with one's fingers to shrink or enlarge webpages.
- scrolling is done by zipping one's finger down a webpage or a list of links.
- An accelerometer (a tiny gyroscope) can tell when the phone was moved and in what direction, or whether the phone is being held in portrait or landscape mode.
- the iPhone doesn't come with a manual. It is so easy and intuitive to use that most people learn by just playing around with it.

The iPhone has been credited with 500% increase in traffic to the mobile Web.

“There’s an app for that”

An app is a small computer program that runs on a cellphone and causes it to do something that is beyond a phone normal function, such as playing games, listening to songs or use light versions of some programs. There are about 1.5 million apps that have been downloaded last month (August 2015).

App developers can give away apps for free, hoping to pay for the development cost through advertising, or they can charge for it.

-Research “I Am Rich” app and discuss it

-Within the first nine months of opening the App Store, Apple Store had 1 billion downloads, of which Apple takes 30%.

The power of geolocation:

One of the things that differentiate mobile environments from desktop Web is location sensitivity. Local searches from mobile phones grew by more than 50% from 2008-2009, as millions of users use mobile browsers to find products and locations near them. As GPS receivers are becoming as standard in cellphones as cameras, many business opportunities, based on local searches, and personal likes are touted as something soon to come. (Minority Report).

However, leveraging GPS data remains an advanced feature, and many platforms only allow its use in native apps.

Watching and taking video anywhere, anytime:

Most people with cellphones now shoot, send and receive videos on their mobile devices and more than half of the videos on Facebook come from mobile device uploads. What used to require pricey equipment and technical people to develop now only require a good camera and robust wireless signal to stream it live worldwide.

Conclusion:

Designing a “good” website is a challenging endeavor even for desktop environments. When the target becomes mobile environments, then it presents further challenges, such as screen size, resolution, RAM available, that all need to be taken into consideration.