

Mobile Devices: Driving Standards for a “New” Web

The impact of Information Architecture on the Mobile Web

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On several occasions I have had the desire to connect to the Internet from my antiquated cell phone and find a restaurant or movie listing. Even though I can access the Internet, I have shied away from using this feature on my phone. The reasons for this are the additional charges applied to my bill for connecting to the “T-zone”, the slow connection and download speeds and the way the information is displayed on my screen with dimensions of 1.25 X 1.50 inches. My reservations can be compared to the early days of personal computing and the Internet; the days in which information was displayed on monochrome screens and “high-speed-connection” were not common household terms.

However, over time, the evolution of computer technology and the Internet changed the ways in which Internet content was accessed, viewed and used. New operating systems were created, screen resolutions were optimized and connection and download speeds got faster. All of these advancements combined made for a richer user experience.

There is a parallel between the conventions developed during the earlier stages of desktop computing and web design and the conventions being developed for mobile devices. In this paper I discuss how technological advancements in mobile devices have led to new information architecture strategies and technical specifications to enable accessible, well organized and meaningful content for mobile computing users.

Mobile Devices Mobile devices are “pocket-sized computing devices, typically comprising a small visual display screen for user output and a miniature keyboard or touch screen for user input” (Wikipedia). Mobile devices allow users to take their data with them. In addition, wirelessly enabled mobile devices allow users to connect to the internet, providing access to even more data. Categories of mobile devices include personal digital assistants (PDAs), mobile phones, laptops, and smartphones. Websites accessed using mobile devices are referred to as the “Mobile Web”.

Mobile Web The Mobile Web is a “collective term for websites designed for viewing on a mobile device. Websites are published and accessed via the Internet just like a regular desktop website” (Fling).

Mobile Web Users Mobile web users are categorized as people seeking information and looking for answers to questions. Their use patterns do not involve a lot of reading. Examples of the types of information they are seeking include



1 | *Mobile devices and mobile web*

addresses, phone numbers and movie show times. Hence the drive to create information systems that have clear navigation and labeling, and organized content that enable users to access information with little effort in a timely manner.

According to Brian Fling, Director of Strategy at Blue Flavor – a design, development and consulting firm-, there are three critical factors developers must consider when designing websites for mobile devices.

Cost If you don't develop your mobile website responsibly, the user could get stuck with a big bill in order to view your content.

Content Issues like navigation, image sizes, page weight and scripts all need to be considered when thinking about your website on mobile devices.

Context What does your website add to the users mobility? How do you add value to their physical context? What is the context in which they will use your site? On a bus or train?

The application of information architecture strategies, from both a design and technical perspective, impacts each of these factors.

Mobile Information Architecture Currently, there are additional charges applied to mobile device users when accessing websites. In a study conducted by Smith and Salvendy to identify an optimal information architecture model for mobile multimedia devices, they concluded that content should be separated by costs (466). Participants in their study were aware of the potential for extra charges associated with online content versus offline content; this awareness demonstrates to potential of discouraging users if the costs are too high to access content.

In regards to navigation and the organization of content, the information architecture methods used for traditional websites do not work with mobile devices and the mobile web. A few reasons are screen size and the types of content mobile users are accessing. Screen size is covered under the Mobile Web Design section. Mobile users' reasons for accessing the web-- quickly looking for specific bytes of information-- differ from traditional users who do not have the same constraints associated with mobile computing; like reliable connectivity and access and environmental factors such as stationary versus mobile.

Fling suggests these information architecture methods to help in the organization and presentation of mobile web content (47):

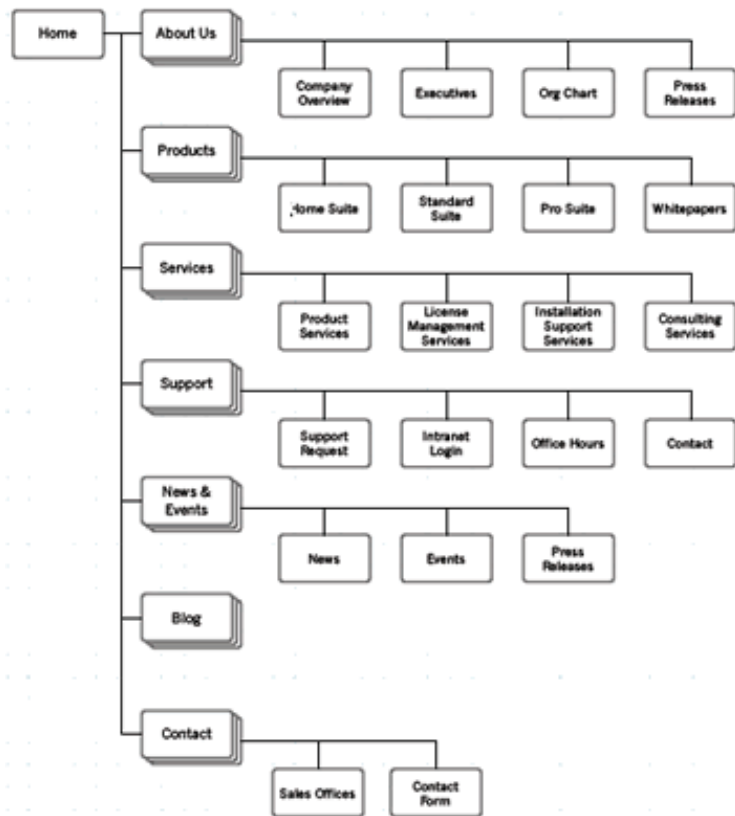
Information Architecture Methods:

- Limit categories to 5
- Limit links to 10
- No more than 5 levels deep
- At least one content item per category
- Prioritize links by activity or popularity
- Design based on clickstreams – clickstreams refers to the series of clicks, or path, the user takes to reach a destination in an informational space.

For links, he recommends using ordered numerical list. By doing this users have the option to select information using Accesskeys. These are shortcuts content that allow the users to hit a number pad to make a selection.

Information architecture for the mobile web is simpler in the sense that the amount of content and choices a user has is limited to information considered important to the delivery of the message. A comparison of a traditional web sitemap to a mobile web sitemap illustrates this point, see figures 2 and 3.

Mobile Web Design Fling (63) illustrates the challenges of developing for the numerous screen sizes available on the various mobile devices. Not only are the screen sizes different, but the screen orientation is different as well.

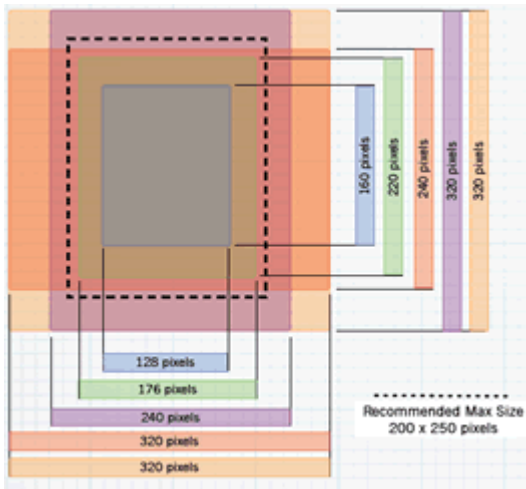


2 | Traditional web sitemap

In order to address the screen size issue, Fling recommends designing vertically using dimensions 200 x 250 pixels, see figure 4. With Mobile devices, users will have long columns of content to navigate. This is another reason why proper information architecture--ensuring users are not distracted by useless content.



3 | Mobile web sitemap



4 | Mobile device screen sizes

The language used to code Mobile websites is XHTML-MP (Extensible HyperText Markup Language Mobile Profile). This is subset of XHTML Basic and HTML. It is used as a primary markup language for the Wireless Application Protocol (WAP) 2.0 protocol.

WAP 2.0 is an open international standard for applications that use wireless communication. A WAP browser provides all of the basic services of a computer based web browser but simplified to operate within the restrictions of a mobile phone, such as its smaller view screen (Wikipedia).

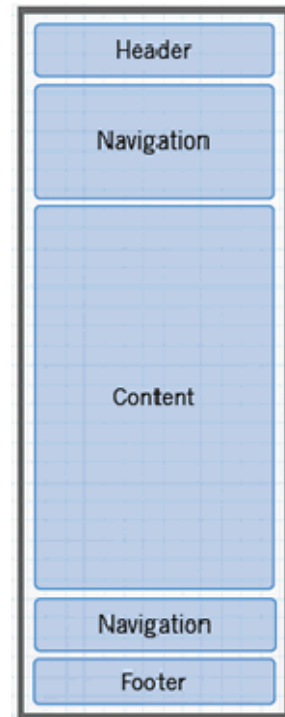
Fling offers these guidelines for writing code for the mobile web to help ensure visibility of your site by multiple mobile devices (93):

- o Ensuring the use of the correct character encoding and doctype makes sure that the page renders as expected.
- o Use well-formed code
- o Avoid tables for layout
- o Place navigation in the content body – show only navigation that’s relevant to the page, see figure 5.
- o Use accesskeys in the primary navigation – the primary navigation should include an assigned accesskey that corresponds to a numbered keypad whenever possible.
- o Use document styles, not external styles – insert styles into the <head> of a document.
- o Use few or no forms. If you have to use forms, keep required information as little as possible.
- o Make telephone number links

Summary

Even though mobile devices have been around for a while, I believe we are at the early stages of defining standards, guidelines and strategies for planning and designing information systems that capitalize on the possibilities of mobile computing. Today’s research is reminiscent of commentary published in the mid-1990s as the Internet become more popular and the public become more computer literate. The science of information architecture played a pivotal role in helping content producers and code developers create web experiences that embodied proper organization of content and labeling and navigation systems designed with the user needs in mind.

I would like to see further research on the information architecture strategies used for mobile devices in the work place; in particular, health care professions and “field workers” – referring to technicians and other professionals who work outside of the typical office environment handling service calls, etc. As mobile devices become as ubiquitous as desktop computers, designers and developers will need to shift their thinking and redefine information architecture to help drive the standards for a new web—a mobile web.



5 | Mobile device content structure

Works Cited

Fling, Brian. Everything You Always Wanted to Know About the Mobile Web: But Were Afraid to Ask, 2006.

Smith, M.J and Salvendy, G (Eds) Towards an Optimal Information Architecture Model for Mobile Multimedia Devices. Springer-Verlag Berlin Heidelberg: Human Interface, Part II, HCII 2007.