Chapter 1

On the Move with the Mobile Web: Libraries and Mobile Technologies
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What Is the Mobile Web?

Imagine walking by a movie poster for the upcoming Harry Potter film and scanning it with a click of your camera phone in order to download associated ringtones, get showtimes, or even buy tickets. How about snapping a photo while browsing through a magazine to get a free sample of a new perfume? This may sound like science fiction right now, but in Japan, this type of mobile search technology is widespread, and in the United States similar services are already being developed, services that promise just this type of virtual engagement with the world around us. Think about the convenience of scanning the logo on someone's Yankees cap to instantly receive the latest score from the game. This is what's coming.

Today, most of us are using our cell phones primarily to download ringtones and check our e-mail, but there is an abundance of truly amazing services we can access through the mobile Web right now. Armed with a smartphone, PDA, or other Internet-ready mobile mechanism, users can retrieve local traffic information; check bus, train, and airline schedules; and look up weather reports. But more impressive, they can also access mobile social networks that will alert them when their friends are nearby, text in a pizza order to Domino's, borrow e-books from their library, take a guided audio tour of a museum, and watch CNN. Through the mobile Web, people can download audiobooks, upload camera-phone photos to Flickr, receive turn-by-turn driving directions, and have in-store coupons delivered to them.

The computer, media player, and cell phone are all converging into a single device as manufacturers aim to provide a complete experience for the consumer. This evolution of handheld devices combined with new high-speed wireless data networks makes browsing the mobile Internet a more compelling experience. Much like the transition the Web experienced when broadband access became widely attainable, the mobile Web is turning a corner and becoming useful to the everyday user. While mass adoption is still in its infancy in this country, the landscape is developing quickly. Now is the time to get on board and on the move with the mobile Web.

The Mobile Web Defined

The mobile Web, simply put, is the World Wide Web accessed through a mobile device, ranging from a cellular phone to an iPod Touch. It includes the entirety of the Web and is not limited to Web sites that are specifically designed for mobile viewing. Handsets and mobile phones that have Web capabilities can search and browse the Internet from anywhere they can get a cellular signal. Web sites that are made especially for the small screen appear as scaled-back versions of their desktop counterparts, often with a numbered menu system for quick access to content. Web destinations that do not have mobile versions appear as if they were squeezed onto the tiny screen, and oftentimes have overlapping menus and links. If accessed by way of a search engine, a Web site may be "transcoded," or have some formatting applied to it in an attempt to make it more viewable on a phone.

Who Are the Early Adopters?

Fifty percent of the world's population, or 3.3 billion people, have mobile phone subscriptions, including 84% of U.S. residents.[1] An era of mobile ubiquity has clearly arrived, yet only 16% of American cell phone owners regularly browse the mobile Internet, according to Jupiter Research.[2] This number is exceedingly low when compared with other countries such as Japan, where over half

of mobile consumers consistently access the mobile Web. And not only access it, but wield it to pen bestselling novels and pay for purchases.[3] The Pew Internet & American Life Project finds a slightly more optimistic outlook with its study, which shows 32% of Americans taking part in non–voice-related data activities such as texting, taking photos, and accessing the mobile Web on a daily basis, and 58% having tried their hand at these applications at least once.[4]

In the United States, 9 out of 10 college students own a cell phone.[5] Therefore, it's not surprising that early mobile Web adopters include many from Generation Y, or users who fall into the 18–27 age range.[6] Gen Y spends as much time on their cell phones as they do on the Internet for personal reasons, according to Forrester Research.[7] English-speaking Hispanics and other groups, such as African Americans, who have been slower to adopt the desktop Web, are the leading users of handheld data applications. On an average day, over half of Latinos and 50% of African Americans use their cell phones for an activity that requires the transfer of data. The use of mobile devices for non–voice-related tasks spans all income levels: in households with incomes averaging less than $30,000 per year, 44% of cell phone owners participate in data pursuits daily.[8]

What Are People Doing with Their Mobile Devices?

Handset owners are utilizing their mobile access for a variety of purposes, although currently the most popular data-related activities include text and picture messaging, downloading ringtones, e-mail, instant messaging, and games. Participation in these endeavors varies greatly across generational lines, yet tends to be lower among older groups (see figure 1).

One significant use of mobile technology is for communication (see figure 2). Text messaging, or short messaging service (SMS) technology, is a way to exchange brief messages of up to 160 characters with other cell phone owners, while picture messaging—sending images from one mobile phone to another—is accomplished through the multimedia messaging service (MMS) technology. E-mail accounts can be accessed via mobile phones through Web e-mail, Microsoft Exchange, BlackBerryMail, and Enterprise servers and more. Mobile Web users can access instant messaging (IM) accounts such as AIM or MSN Messenger on their mobile devices to send and receive instant messages from their buddy lists.

Mobile phones can also be used to download various kinds of information and resources (see figure 3). Ringtones are customizable sounds or phone ringers, sometimes made from popular music tracks, that may be downloaded for use on mobile phones. Mobile games are widely available for download and offline play for cell phone owners, and music files may be downloaded onto most mobile devices, many of which double as MP3 players.

And increasingly cell phone owners use their mobile devices to search for information (see figure 4). Weather reports, breaking news, maps, and reference resources can all be found via the mobile Web.

Benefits of the Mobile Web

The mobile Web IS the Internet for the small screen and therefore delivers many of the same rewards as its desktop counterpart:

- **Constant Connectivity**—Web-enabled mobile devices provide owners with around-the-clock access to the

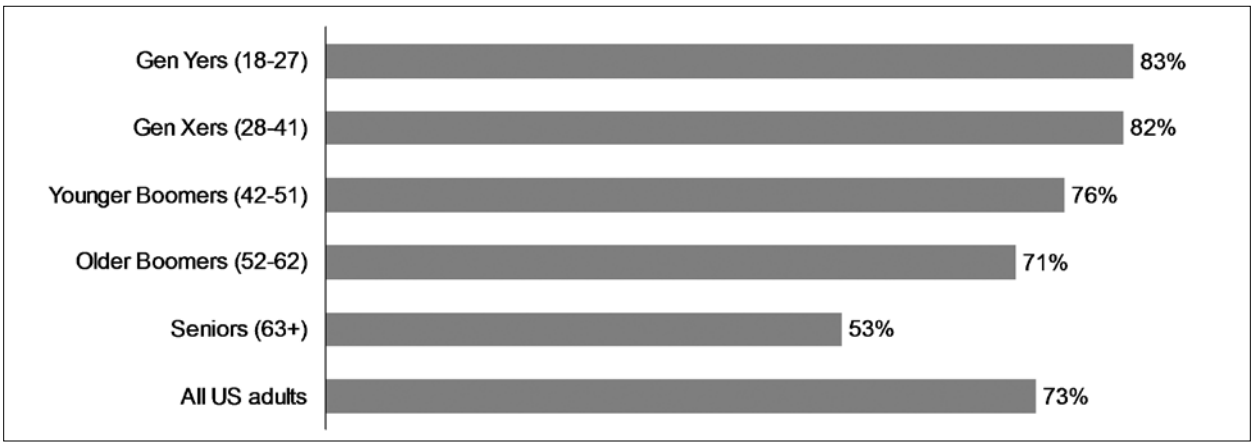

Figure 1
Percentages of cell phone owners among U.S. adults. Source: Forrester's North American Technographics® Benchmark Survey, 2007 (Charles S. Golvin, "Which Generations Are Doing Mobile Data Activities, 2007," Forrester Research, Jan. 4, 2008).

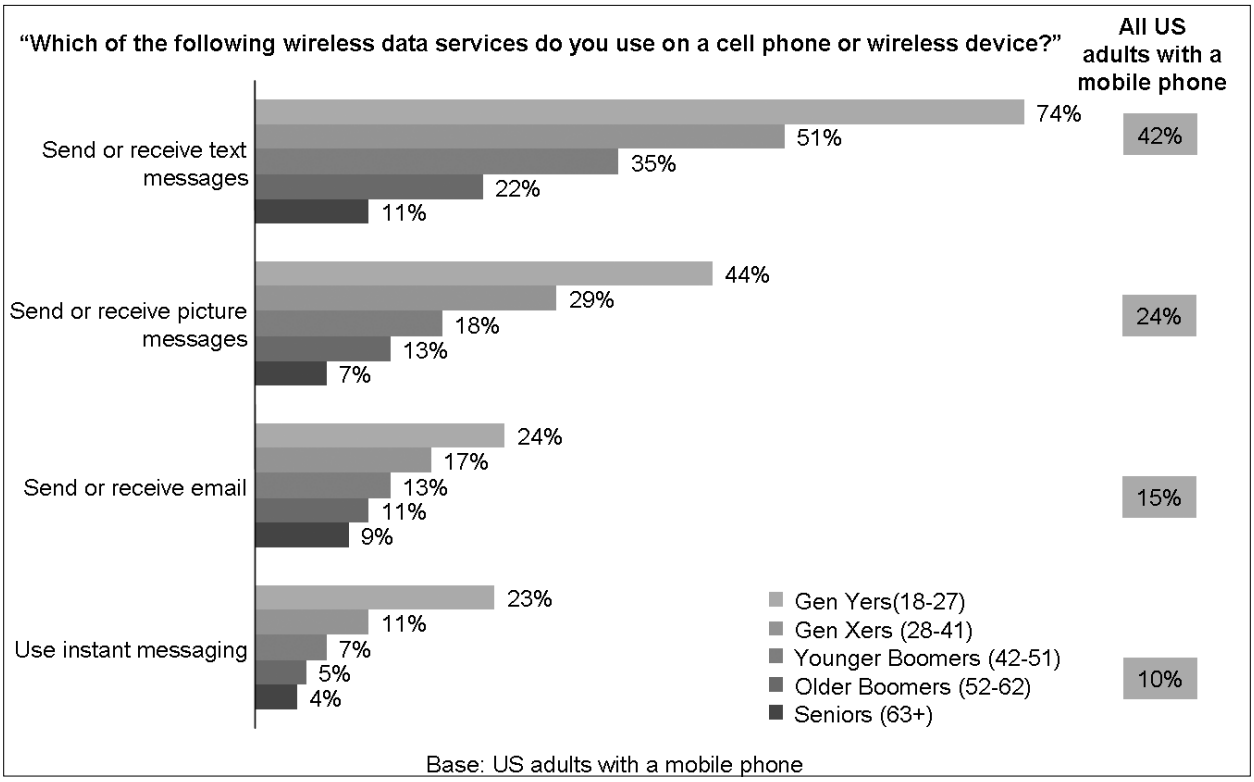

Figure 2
Percentage of U.S. cell phone owners who use their phones for text messaging, picture messaging, e-mail, and instant messaging. Source: Forrester's North American Technographics® Benchmark Survey, 2007.

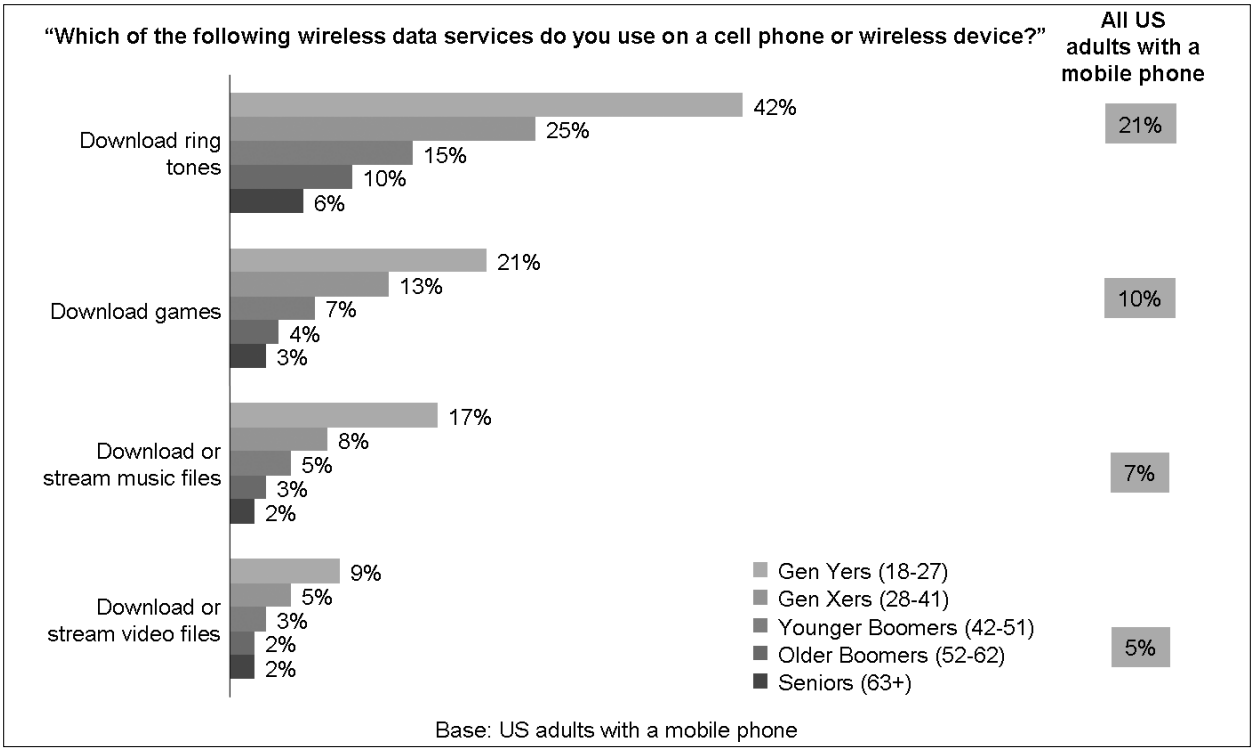

Figure 3
Percentage of cell phone owners who use their phones to download ringtones and games and download or stream music and video files. Source: Forrester's North American Technographics® Benchmark Survey, 2007.

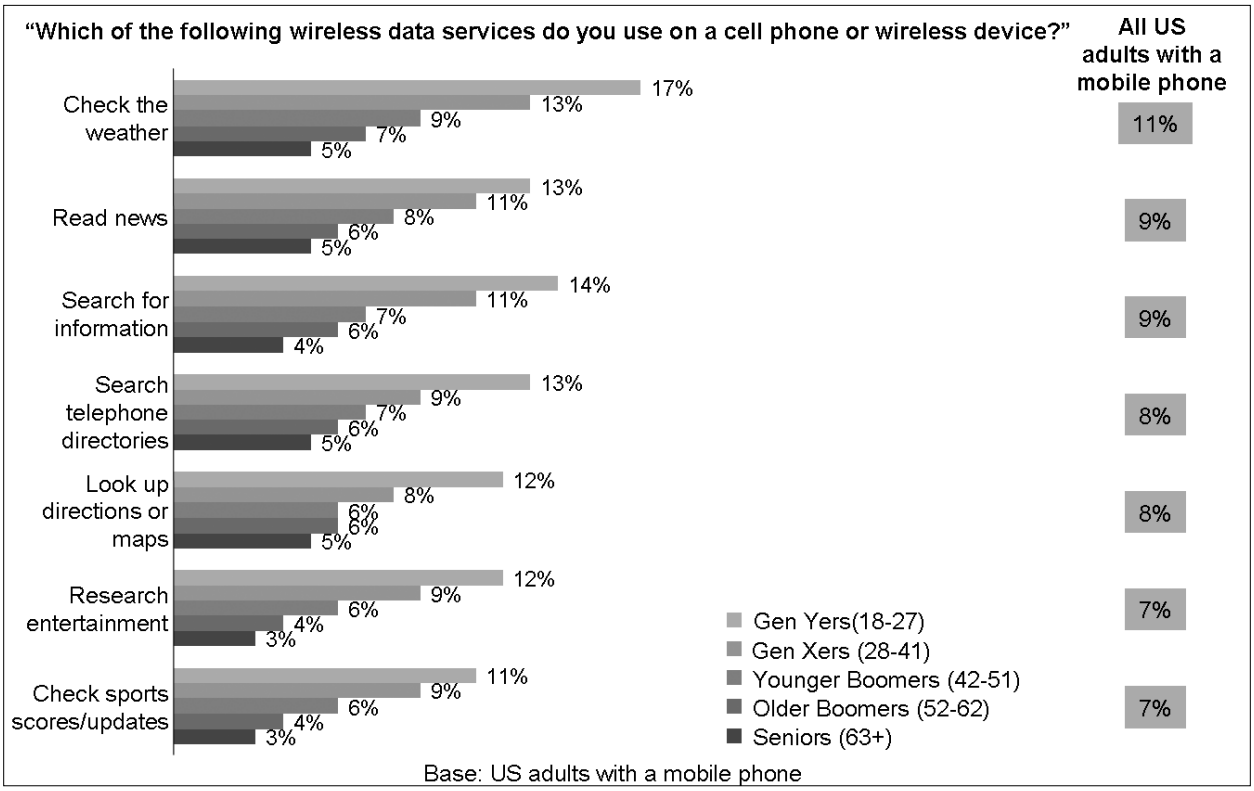

Figure 4
Percentage of cell phone owners who use their phones check weather reports, read news, and look up various types of information. Source: Forrester's North American Technographics® Benchmark Survey, 2007.

Internet, regardless of location. At home, away on business, or just off to the grocery store, handsets provide a continual link to the wealth of information that is available on the World Wide Web. Mobile users can check on the status of a flight while on road to the airport, check traffic reports, and even access a map and directions if they decide to take an alternate route. They can discover movie times while taking the bus home from work, buy tickets, find menus for nearby restaurants, and text an invite to a friend.

- **Location-Aware**—Many of today's smartphones and pocket PCs have global positioning system (GPS) capabilities, which make them "aware" of where they are at all times. Cell phone users can search for businesses near their locations, retrieve directions to a desired destination, create location-based content, and discover nearby friends and contacts.
- **Limitless Access**—As previously mentioned, the mobile Web includes the whole Web, not only those sites specially designed for mobile browsing. Users of Web-enabled phones have access to all the same online resources that they would find via their desktop computer.

Interactive Capabilities—The mobile Web offers users the participatory experience of the read/write Web in the palm of their hand. Users can create content, such as photos and videos taken with their camera phones, share and rate media, make comments, write blog posts, tag resources, and form connections on social networks.

Mobile Web Challenges

Mobile Web developers and users alike encounter challenges when it comes to the portable Internet. Those who create content for this new channel are confronted with numerous development standards and technologies to choose from, as well as hundreds of different mobile device types with varying functional capabilities, screen resolutions, and sizes, as well as more than 40 distinct mobile browsers. This lack of uniformity renders testing mobile Web sites and applications for universal compatibility a near impossibility. Mobile Web developers also brave the high expectations of mobile Web users, who anticipate the same caliber experience on their handsets that they enjoy on the desktop Web.

Mobile Web users are faced with finding made-for-mobile content by either guessing the addresses of favorite destinations' mobile versions or using a search engine,

which may or may not present the mobile site at the top of the results list. The task is further encumbered by carriers that sometimes make the browser very difficult to locate on some phones. Once the browser is located, Web sites are often tough to navigate on mobile devices. When combined with the experience of slow connection speeds and an additional cost for access, the mobile Web may be too frustrating for some.

The mobile Web is still evolving, and this is an exciting time of early development, but some hurdles still need to be overcome. As we see familiar brands such as Facebook and MySpace porting their presences to the mobile domain, we will see a wider adoption of this channel by the mainstream. As developers experiment and get comfortable creating for mobile, they will learn how to design usable, engaging experiences, increasing interest in the portable Web. And the continued development of mobile phones will make these experiences easier through improved devices such as the iPhone and the proliferation of QWERTY keyboards, larger screens, and 3G networks.

Key Terms

Here are some key terms for understanding discussions of the mobile Web:

- **3G:** third-generation mobile phone technology that allows for high-speed connectivity
- **carrier:** a mobile phone operator or provider
- **handset:** an alternate term for a mobile phone. Other interchangeable terms include *handheld, cell phone,* and *mobile device*.
- **PDA:** personal digital assistant, a handheld computer that may also be a cell phone
- **smartphone:** a cell phone with computing capabilities

touchscreen: a mobile device with a display that can detect interaction, making the screen, rather than a keyboard, the input method

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