Chapter 1

Who Are Smartphone Users?

Abstract

The demographics of mobile Internet users run partly counter to stereotype, with blacks and Hispanics more likely than whites both to own cell phones and to use a wide range of their data features. However, minorities, the young, and people with low income and education are more likely to access the Internet only from their phones. This differs from the desktop Internet experience in ways that have implications for library values.

Google "smartphone user." Click on Images. What do you see?

When I tried this, I saw some graphs, pictures of devices (many of them BlackBerrys), and a bunch of white people, mostly men, using smartphones, often to do business. The problem: this is a lie. It doesn't represent the devices people use, or who's using them, or how.

As I researched this *Library Technology Report* I discovered that many of the assumptions I had made about smartphone use, based on media images like these as well as the usage patterns of my social and professional circles, were wrong. I believe these assumptions are wrong in ways that have civic and moral significance for the provision of library services. In this *LTR*, I'll walk you through the current state of smartphone ownership and use; discuss a variety of mobile services that can be implemented to serve diverse populations; and address why it is important that libraries do so.

Before I do, it's worth noting that mobile does not mean just smartphone. I've mostly limited my scope to smartphones since they're devices with both fairly high (and increasing) market penetration and a variety of capabilities. However, they are not the whole picture. There are mobile services that can be delivered on feature phones. There are other Internet-enabled mobile devices, albeit often more expensive ones with lower market share, such as tablets and e-readers. I'll reference these occasionally as well, and I encourage readers to think broadly about device types and carefully observe which ones their patrons are using—especially since the picture will be different by the time you read this.

The best source of data on Americans and their mobile devices is the Pew Internet & American Life Project. The data in the next paragraph come from the Mobile Access 2010, its most recent report as of this writing.[1] However, the project regularly issues updates, so do check for the most recent data.

Over 80 percent of American adults own a cell phone of some sort (either smartphone or feature phone), and 40 percent of adults (that is, around half of cell owners) access the Internet, e-mail, or instant messaging from their phone. This is a substantial increase over 2009, when only a third of adults used their phone for such access. Indeed, over that one-year time period, cell owners increased their use of a wide range of their phones' features. Taking pictures and texting are the most popular phone features, but all features in the Pew survey showed statistically significant one-year growth. In fact, Pew added additional categories to the survey in 2010 to catch up to cell owners' rapidly changing usage patterns.

Of these, a substantial and growing number are smartphone users. According to comScore, as of July 2011 there were 82.2 million smartphone subscribers in the United States.[2] ComScore tracks users 13 and up, whereas Pew surveys only people 18 and older, so the data are not directly comparable. Nonetheless, as there are 308.7 million total people in the United States as of the 2010 Census, 234.6 million of

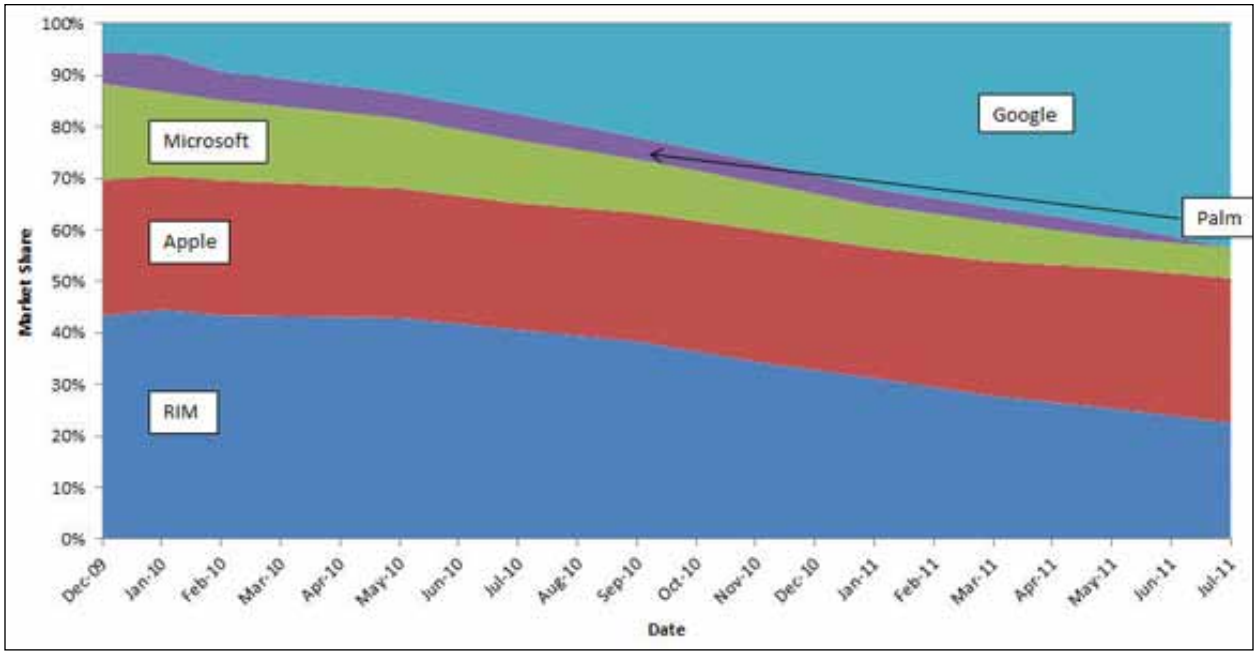

Figure 1
Market share by OS. Data for May 2010 does not include Apple's iPhone launch. As of July 2011, Palm data was no longer reported. Source: comScore data on smartphone platforms from news releases on U.S. mobile subscriber market share dated from Feb. 2010 through Aug. 2011; available at www.comscore.com/Press_Events/Press_Releases?year=225&keywords=%22u.s.+mobile+subscriber+market+share%22&location=0&searchBtn=Search.

them over the age of 18, a sizable fraction of adults are smartphone owners. And this fraction is growing explosively—comScore's June data showed 78.5 million smartphone subscribers.[3] That's almost four million additional smartphone owners *in one month*.

What's driving this? As someone who held out on purchasing a smartphone until April 2011, in part because I was intimidated by the iPhone's cost, I have a hypothesis. My Android phone, after rebate, was around $50—nowhere near that scary iPhone price point. In fact, as of August 2011, Sprint, Verizon, T-Mobile, and AT&T were all advertising free smartphones. Like mine, these are Android phones (iPhones are still expensive); they may be free only after a rebate, hence requiring some up-front expense, and the deal may be available only to new data subscribers. And, for people who have been accustomed to voice-only phone plans, a data plan is a significant added expense. Nonetheless, with these caveats, *the cost of a smartphone is no barrier to device ownership*, because the phone is free.

And this is the pattern we see borne out in figure 1, which shows the market share of five top smartphone operating systems, using comScore data from December 2009 through July 2011. At the beginning of this period, almost half of smartphones were running RIM. Those are BlackBerrys, retaining high market share from the pre-iPhone era when we had PDAs, not smartphones, and users were often businesspeople. As you can see, though, RIM's market share fell almost by half during that time (with another PDA operating system, Palm, falling so low it ceased to be reported). Microsoft lost two-thirds of its market share in the same period. The iPhone's market share remained steady at around a quarter of devices, even as everything else changed around it. (Keep in mind that this is market share, not number of devices; since the total smartphone market has been growing enormously, there are a great many more iPhones in service now than in 2009.) The real story here, though, is Google's Android. Android phones did not even become commercially available until late 2008; as of late 2011, they are over 40 percent of the market, dwarfing all other operating systems' share. To a large extent, the story of growth in smartphone ownership recently is the story of Android adoption.

So that's the big picture: explosive growth in smartphone ownership, driven at least in part by surprisingly low price points, with total cell ownership (smartphone and feature phone) reaching four-fifths of the American adult population. But what does the picture look like for specific demographic groups?

Some things fit the stereotype. According to the Pew *Mobile Access 2010* report, young, affluent, highly educated people are more likely to be intensive cell phone users. But some things do not fit:

- Whereas only 80 percent of whites own cell phones, 87 percent of both African Americans and

	. . . are more than 1.5 times more likely than whites to . . .	. . . are more than twice as likely as whites to . . .
African Americans	play a game post a photo or video online record a video send and receive instant messages use a social networking site use a status update service watch a video	play music
Latinos	access the Internet play a game play music post a photo or video online purchase a product record a video send and receive e-mail use a social networking site use a status update service	send and receive instant messages watch a video

Table 1
Comparison by ethnicity of use of phone features. Source: Aaron Smith, *Mobile Access 2010 (Washington, DC: Pew Internet & American Life Project, 2010), www.pewinternet.org/Reports/2010/Mobile-Access-2010.aspx.*

English-speaking Latinos do. (The Pew survey was conducted in English, so it may not reflect the phone habits of Latinos who speak only Spanish.)

- African Americans and Latinos use a wider range of their phones' features than whites do. In fact, they are more likely than whites to do *all* of the activities that Pew asked about. In some cases, the percentage of these groups using a given feature was more than twice the percentage of whites who do (see table 1).[4]

The Pew study didn't just examine Americans' cell phone use habits; they looked at them within the context of wireless access more broadly, including laptops and other Internet-enabled mobile devices. These other devices (such as e-readers, tablets, and MP3 players) had a negligible impact on total wireless adoption (that is, there were very few people who accessed the Internet with them who did not already access it with either a cell phone or a laptop), so the study largely left them out of its analysis. (Again, check for more recent data: I'm writing this sentence mere days after Amazon's announcement of a $199 tablet and a $79 Kindle, price points which will doubtless have an impact on the market penetration of these devices.)

Pew found that there has been a steady increase in wireless Internet access across most demographic groups, with the largest increases among young adults and people with household incomes under $30,000 per year. As of 2010, 47 percent of adults go online wirelessly using laptops and 40 percent using cell phones. In total, 59 percent of adults go online wirelessly with at least one of these devices.[5] Comparing these numbers, we can infer that 12 percent of adults go online wirelessly using cell phones only! (See figure 2.)

This says nothing about their non-wireless Internet access. However, a subsequent Pew report, *Smartphone Adoption and Usage,* notes that roughly one-third of smartphone owners who go online primarily via their phones lack home broadband access.[6] Although they may have access to broadband at other locations (e.g., libraries), for such users, their concept of the Internet is likely to be heavily mediated by the phone experience.

Who are these users? There are three groups of people whose mobile Internet access is unusually likely to be cell-only. According to *Mobile Access 2010:*

- African-Americans and Latinos—18% of blacks and 16% of English-speaking Hispanics are cell-only wireless users, compared with 10% of whites. Furthermore, over half of Hispanics go online daily from their phones.
- Young adults—19% of 18–29 year olds are cell-only wireless users, compared with 13% of 30–49 year olds, 9% of 50–64 year olds and 5% of those ages 65 and older.
- Those with low levels of income and education—17% of those earning less than $30,000 per year are cell-only wireless users, as are 20% of those who have not graduated from high school and 15% of those who have graduated from high school but have not attended college.[7]

As we have seen above, many of these users are very savvy phone owners who take advantage of a wide range of their phones' features. However, they are also people who are disproportionately likely to be on the disadvantaged side of the digital divide. What

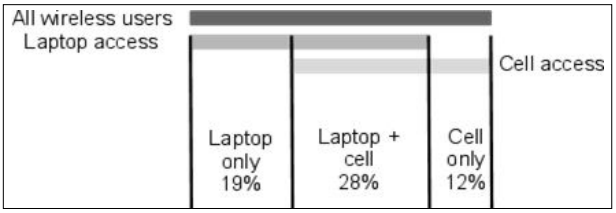

Figure 2
Comparison of wireless access via laptops and cell phones. Source: Aaron Smith, *Mobile Access 2010 (Washington, DC: Pew Internet & American Life Project, 2010), www.pewinternet.org/Reports/2010/Mobile-Access-2010.aspx.*

does this mean?

I believe this has moral significance for libraries. If you're a mobile phone Internet user, you know that it's a very different experience from desktop or laptop use. (If you're not, borrow someone's phone and try. This is important.)

Phones have some advantages over desktops or laptops for browsing the Internet. They're easy to tie into everyday life—Are you in an unfamiliar area looking for a good restaurant? Need driving directions for a spur-of-the-moment trip? Want to know what's going on in your social circle or the national media right now? Phones are simply better for this. But if you're trying to read up on local news, or locate and fill out government forms, or transact business, phones are frequently terrible. Most sites don't have mobile versions; while some are usable anyway due to clean design, others are unreadable or tend to obscure functions you're looking for. Many online documents are in PDF or Word and hence not easy to read on phones (and slow to download). Navigation elements can be too small for effective touch interface. Forms requiring lots of typing and clicking are an exercise in frustration.

In short, cell-only Internet access is good for entertainment and social connection and some forms of current awareness. But it's terrible for many forms of research and civic engagement. The cell phone Internet experience can be hostile in a way that's totally invisible to people whose experience of the Internet is desktop- or laptop-only. And too much of our Internet—including public institutions such as government, schools, and, yes, libraries—is hostile in this way.

In short, the digital divide is not just about who has a computer and who doesn't. It's about what *kind* of Internet we experience on our different devices. It's about the fact that already vulnerable populations are disproportionately likely to experience a different kind of Internet—one that's great for social networking and photo sharing but that shuts people out of political and economic participation.

In his essay "The Best Fields for Philanthropy," Andrew Carnegie—founder of so many libraries—tells a story of his childhood. A local man, Colonel Anderson, opened his personal library to the neighborhood boys once a week. Carnegie grew up poor, starting work in a factory at the age of 13, and such generosity made a huge impact on him; he speaks reverentially of Anderson in this essay. Clearly his later philanthropic career sprang from these childhood experiences: "It was when revelling in these treasures that I resolved, if ever wealth came to me, that it should be used to establish free libraries, that other poor boys might receive opportunities similar to those for which we were indebted to that noble man."[8] Carnegie's impassioned defense of libraries is rooted in his personal understanding of their value to the disadvantaged.

Today's information landscape is more varied than that of nineteenth-century Pittsburgh; the Colonel Andersons of the day share not only physical books, but e-books and e-readers and tablet computers, and they share them with people who may not be located in a library—but benefit from the opportunities no less.

Notes

1. Aaron Smith, *Mobile Access 2010* (Washington, DC: Pew Internet & American Life Project, 2010), www.pewinternet.org/Reports/2010/Mobile-Access-2010.aspx.
2. comScore, "comScore Reports July 2011 U.S. Mobile Subscriber Market Share," news release, Aug. 30, 2011, www.comscore.com/Press_Events/Press_Releases/2011/8/comScore_Reports_July_2011_U.S._Mobile_Subscriber_Market_Share.
3. comScore, "comScore Reports June 2011 U.S. Mobile Subscriber Market Share," news release, Aug. 4, 2011, www.comscore.com/Press_Events/Press_Releases/2011/8/comScore_Reports_June_2011_U.S._Mobile_Subscriber_Market_Share.
4. Smith, *Mobile Access.*
5. Ibid.
6. Aaron Smith, *Smartphone Adoption and Usage* (Washington, DC: Pew Internet & American Life Project, 2011), www.pewinternet.org/Reports/2011/Smartphones.aspx.
7. Smith, *Mobile Access,* 10.
8. Andrew Carnegie, "The Best Fields for Philanthropy," *The North American Review* 149, no. 397 (Dec. 1889): 689; available online at www.jstor.org/stable/25101907.