

# The Rise of the Tablet



**Figure 2.1**  
iPad

## Abstract

*The rise of the tablet form-factor as a computing device reached new heights after the 2010 introduction of the iPad. It wasn't the first tablet, but the combination of hardware and software cracked some code for commercial success that had been dormant previously. This chapter examines the iPad, as well as Android tablets, and looks at management and buying choices.*

In the year since I wrote this original text, an entirely new class of personal electronics has taken off: the tablet. While there were tablet computers before the

iPad, it isn't a stretch to say that the iPad sold more in the first year of its existence than all preceding tablet computers put together. During Apple's 2011 Worldwide Developer Conference keynote, Apple CEO Steve Jobs said that Apple had sold more than 25 million iPads in the first 14 months of its commercial availability.<sup>1</sup> Since then, the growth hasn't slowed. Through the end of 2011, Apple sold a total of 55.28 million iPads worldwide.<sup>2</sup> When something that popular hits the world of personal electronics, it's going to have an impact on expectations. So this chapter will be about this new tablet resurgence, and how the iPad has ushered in what Jobs called the "post-PC era" of computing.

It was way back in 2000–2001 that Microsoft popularized the term *tablet* for a computer that lacked a keyboard, instead relying on a screen for input. Indeed, a tablet could be accurately described as being only a screen with the input and the display being the entirety of the device. Microsoft was so certain that the tablet computer was the future that CEO Bill Gates told CNN, “The tablet takes cutting-edge PC technology and makes it available whenever you want it, which is why I’m already using a tablet as my everyday computer. . . . It’s a PC that is virtually without limits—and within five years I predict it will be the most popular form of PC sold in America.”<sup>3</sup>

Microsoft went about producing tablets, but aside from uptake in some specialized fields such as medicine, where the tablet form factor was incredibly useful, the adoption of tablets elsewhere, especially in the general consumer market, was practically nonexistent. There are many reasons that these early tablet computers didn’t take off among consumers, but a quick list would include these: early tablets were often a price premium over standard notebooks, they ran an operating system designed around the keyboard and mouse, and they often required the use of a stylus or other input device.

## Apple iPad

Gates was off by a few years, and he was also wrong about who would be making the tablets. A decade later, Apple released something called an “iPad” (figure 2.1) that became the fastest-selling non-phone electronic device in history.<sup>4</sup> Announced in January 2010 and available in April of the same year, the original iPad was a thin slab of aluminum and glass driven by Apple’s iOS operating system. It was available in a variety of configurations, with two choices for connectivity (Wi-Fi only, or Wi-Fi + AT&T 3G) and three choices for storage capacity (16, 32, or 64 GB of internal flash storage).<sup>5</sup>

The iPad has been so popular and has defined the market for tablets so thoroughly that some technology pundits have quipped that there is no “tablet” market, there is really only an iPad market. Marco Arment, creator of the iOS app and website Instapaper, said, “There’s an iPad market, and the iPad could be classified as a tablet, from a hardware-centric viewpoint. But the market for non-iPad tablets is about as big today as it was before the iPad, which isn’t nothing, but it’s close enough to nothing that Apple doesn’t need to worry about it.”<sup>6</sup>

Most people think of the iPad as a follow-up to the iPhone or iPod Touch and believe that Apple took its mobile phone OS and upsized it for the tablet. That’s not actually true, as iOS was originally developed for the tablet form factor and then scaled down when

Apple realized that the phone market was its priority. So Apple took its in-development tablet operating system and scaled it to work on a mobile phone, which turned out to be a great move. With the iPad, Apple returned the user experience to the full screen size it was originally designed for, and it’s been a huge, huge hit.

In March 2011, Apple released the second-generation iPad, called simply the iPad 2. While the new device has the same screen and runs the same operating system as the previous generation, it is significantly thinner and lighter and has similar battery life despite having a more powerful processor. Apple chose to include both a front and a rear camera on the iPad 2 and extended the models to include one that was capable of 3G connectivity with Verizon, bringing the number of different unique models of iPad 2 up to nine.<sup>7</sup>

Why has the iPad been such a success? In designing the tablet, Apple gave consumers a sort of “magic window” that could transform into whatever information device that they needed. It is equally adept at browsing the Web, reading a book, playing a game, or watching a movie. While laptops and their smaller, cheaper cousin, the netbook, could do these things as well, the iPad gave people a user experience that many preferred. The speed and flexibility of the iPad, combined with the convenience of the form factor, filled a need that people didn’t realize they had. Well, maybe need is too strong a word; the iPad definitely is filling a space in computing that previously wasn’t being filled as well as eating into the sales of low-end laptops. It isn’t at all unusual for people at this point to consider an iPad in lieu of a netbook or even a more fully featured laptop. For Web browsing, e-mail, Facebook, and a couple of games, the iPad is perfect, and that covers about 90 percent of most people’s use of their computers.

With the success of the device came an explosion of apps for it. At this point in time, if you can think of a website, information service, retailer, or service provider, it probably has an app available for iOS devices. Governmental agencies are using apps to reach out to citizens, financial institutions have apps that allow for the management of your portfolio, and every retailer from Amazon to Wal-Mart has an app designed to make it easy to shop. One of the strengths of the iPad has been its media capabilities, with apps like Netflix, HBO GO, ABC, Hulu Plus, and more providing video from just about every possible online source. Music and other audio is equally present, with services from Pandora to MOG to Spotify and hundreds more just a click away.

And then we come to books. iOS devices are currently the only devices that give users the ability to purchase and read books from all of the major booksellers online: Amazon, Barnes and Noble, and Apple itself—not to mention all of the other possibilities like Copia, Blio, and Kobo. In addition, through an app like Bluefire Reader you can sideload any books from

	AT&T	Verizon
250MB	\$14.99	
1GB		\$20
2GB		
3GB	\$30	\$35
5GB	\$50	\$50
10GB		\$80

**Table 2.1**

Comparison of costs for AT&T's and Verizon's 3G data plans for the iPad 2. Sources: "Apple iPad 2 with Wi-Fi +3G," AT&T website, accessed February 17, 2012, [www.att.com/shop/wireless/devices/ipad.jsp](http://www.att.com/shop/wireless/devices/ipad.jsp); "iPad 2 on the Verizon Wireless 3G Network in Stores Nationwide on March 11," news release, Verizonwireless.com, March 10, 2011, <http://news.verizonwireless.com/news/2011/03/pr2011-03-09y.html>.

any bookstore that uses Adobe DRM for its EPUB files. There is even an app directly from OverDrive that allows for the loading of OverDrive books from library collections. If there is a bookstore or service that provides e-books, it's almost certain that there is an iOS app that will take care of it. In our current e-book landscape, where titles are being offered by a dozen or so different storefronts, iOS is the only option for being able to access them all.

### Hardware Details

As mentioned above, there are several different models of iPad 2 currently for sale, but all of the differences boil down to memory and connectivity. You can purchase an iPad 2 with either 16, 32, or 64 GB of local storage and with either Wi-Fi-only data or two different 3G data providers, AT&T or Verizon.<sup>8</sup> In both cases for 3G, no contract is required, and the data is purchased in monthlong chunks of total usage, as seen in table 2.1.

Without a contract, you can choose to activate the data plan one month (when you're traveling) and then not the next (when you're mostly in places with Wi-Fi). It's a really good option for rural libraries, where Wi-Fi might be scarce but there's the potential for picking up a stray couple of cellular signals.

The only significant difference between the 3G and the Wi-Fi-only models (aside from the data capabilities indicated in the names) is that the 3G iPad contains a GPS chip, while the Wi-Fi-only doesn't. This doesn't mean that the Wi-Fi version doesn't have any location abilities. It does, but it is limited to geolocation via the Wi-Fi access point it is connected to, rather than being able to locate itself on the globe sans any data connectivity. The GPS chip in the 3G models allows the iPad to be used as a stand-alone GPS with the right app, something that may be needed in certain use cases.<sup>9</sup>

### iOS and Everyday Use

As with all personal electronics, moving them from a "personal" implementation to an enterprise implementation is fraught with choices and drawbacks. These devices are, for the most part, designed to be owned by a single person, synced to a single computer, and used by a single person. Using iPads and other iOS devices in a library setting can be challenging. Here are a few tips and tricks to make dealing with them a bit easier.

### iOS for Library Staff

If your library is providing iOS devices for your staff to use in the library, managing them is reasonably straightforward. You can attach any number of iOS devices to a single iTunes account, as long as Automatic Download isn't turned on for said devices. Automatic Download is a feature on iOS that syncs purchases across devices: if you have Automatic Download on and you buy an app on one device, it automatically downloads to your other devices that have it turned on. However, if you don't turn on Automatic Download, you can still manually download apps via iTunes to as many iOS devices as you'd like. If you choose to activate this on your devices, you are limited to ten iOS devices per iTunes account.<sup>10</sup> So, the moral of the story is don't turn on Automatic Download if you are going to have more than ten iPads or other iOS devices attached to a single iTunes account.

If you are a member of library IT and are tasked with upkeep, management, security, and other IT issues with iOS devices for either staff or patron use, Apple provides a huge number of resources to help. It has an entire site dedicated to using iOS in an enterprise setting, which covers everything from setting up Microsoft Exchange on iOS devices to setting up VPN access. It also has instructions on over-the-air profile delivery that automatically sets up a new iOS device with all of your settings—restrictions on device features (disabling the camera, for example), Wi-Fi settings, VPN settings, e-mail server settings, Exchange settings, LDAP directory service settings, and more.

#### *Enterprise iOS support*

[www.apple.com/support/iphone/enterprise](http://www.apple.com/support/iphone/enterprise)

#### *Over-the-Air Profile Delivery and Configuration*

<https://developer.apple.com/library/ios/#documentation/NetworkingInternet/Conceptual/iPhoneOTAConfiguration/Introduction/Introduction.html>

Unfortunately, one of the things that libraries would most like to be able to do, purchase and check out media onto a tablet, is almost impossible. Libraries have more or less one vendor, OverDrive,

that is focusing on providing media to library patrons through a tablet app. Nearly every other provider of personal content on the tablet (Amazon, Netflix, Hulu, et al.) have terms of service that preclude libraries from using them. This isn't to say that patrons couldn't use these apps with their own accounts. If you circulate the iPad in a "raw" state where none of the apps is attached to an account, patrons could check out the iPad and log in to their own Netflix account just fine.

### Native Apps

Built into the operating system of the iPad are a number of apps that are native to the device and can't be removed. These include Mail, Maps, Contacts, Calendar, Messages, Notes, YouTube, Safari, Reminders, iTunes, App Store, and Camera. The Maps app is an iPhone-specific incarnation of Google Maps, and YouTube is simply a specialized viewer for the same, but the rest of the apps are directly Apple in nature. Mail acts as a universal inbox, allowing you to add a number of different e-mail boxes to the device and have them shown to you all at once. Calendar and Contacts all sync with a variety of sources (Google, Microsoft Hotmail, Microsoft Exchange via Microsoft ActiveSync, iCloud), while the Mail app handles Gmail, Yahoo Mail, AOL Mail, Hotmail, iCloud, and any other standard IMAP or POP mail client that you may have.<sup>11</sup>

Reminders, new for iOS 5, is a location- and time-aware to-do list that can alert you when specific conditions are met. Need to be told to take the garbage out when you get home? Reminders can do that, as long as you enter your home address into Contacts, by querying the GPS for your location and using iOS Notifications when you get within a few dozen feet of your address.

### Apple and Textbooks

On January 19, 2012, Apple held a press conference at the Guggenheim in New York City, announcing its entry into the world of electronic textbooks.<sup>12</sup> Apple has decided to attempt yet another media disruption, this time focusing on reinventing the textbook market. This move was foretold in the biography of Steve Jobs, where Walter Isaacson wrote, "He wanted to disrupt the textbook industry, and save the spines of spavined students bearing backpacks by creating electronic texts and curriculum material for the iPad."<sup>13</sup>

The details of the announcement should definitely interest anyone in libraries, but especially school libraries (and, I think, academic libraries as well). The first announcement was the simple fact that Apple is getting into the electronic textbook market, providing tools for making electronic textbooks with rich media embedded and selling them in the iBooks store for the iPad. Apple also announced that it had signed three of

the largest producers of textbooks in the United States to be partners in the project: Houghton Mifflin Harcourt, McGraw-Hill, and Pearson.<sup>14</sup>

Three different software products were announced as well: iBooks 2, iBooks Author, and iTunes U for iPad. iBooks 2 gives you access to the textbook store, as well as adding features like highlighting and note taking, definitions, lesson reviews, and study cards.<sup>15</sup> The iTunes U app is a shortcut into the previously iTunes-focused iTunes U portal for free curricular content from a number of colleges and universities across the world.<sup>16</sup> iBooks Author is the most interesting of the products, as well as being the one that's generated the most discussion, almost entirely because of its end-user license agreement.

iBooks Author allows for the creation of media-rich e-books for the iBooks store or exportable to PDF or TXT files without the fancy media embeds.<sup>17</sup> Unfortunately for everyone, Apple chose to not support the emerging EPUB 3 standard for import and export. This is an Apple-only playground for the time being, with no import facilities at all. You start from a template and build out an e-book using tools that are reminiscent of Apple's own Keynote presentation software: it's by far the best interface I've seen for creating complicated e-books. It's a real shame that Apple chose to restrict the output to working only in iBooks: understandable from their point of view, but overall, I think, the wrong call.

The real controversy comes in the EULA for Author. Included in the agreement is a section that reads

- B. Distribution of your Work. As a condition of this License and provided you are in compliance with its terms, your Work may be distributed as follows:
  - (i) if your Work is provided for free (at no charge), you may distribute the Work by any available means;
  - (ii) if your Work is provided for a fee (including as part of any subscription-based product or service), you may only distribute the Work through Apple and such distribution is subject to the following limitations and conditions: (a) you will be required to enter into a separate written agreement with Apple (or an Apple affiliate or subsidiary) before any commercial distribution of your Work may take place; and (b) Apple may determine for any reason and in its sole discretion not to select your Work for distribution.<sup>18</sup>

The commercial clause is the one that has most people worried and seems to be unique in the world of EULAs. You'd be hard pressed to find another piece of software that limits your ability to sell the output of said program. They exist, but this is far more direct and

draconian than any previous license that I'm aware of. For authors who want to use the tool, this locks them in to distribution via the iBooks store, which means that libraries and librarians are going to be cut out of purchasing them for collections in any real way. On the other hand, it means that if libraries themselves want to use the tool to produce tools to help users and distribute them for free, they can easily and quickly do so with iBooks Author.

Apple is starting its textbook rollout with titles designed for high school (grades 9–12 in the United States), which is surprising given the intense political and educational decision making that goes into choosing public school textbooks in the United States. I had expected Apple to start with college and university textbooks, where the decision to use or not use is almost entirely up to the professor teaching the class. This is almost certainly just a preliminary trial, and I suppose if Apple hooks the high schoolers, then the expectation of iPad textbooks might trickle up to the world of higher education.

These are far from a sure thing, but as the last fifteen years shows us, it's not a good bet to bet against Apple when it comes to selling things to consumers. Libraries should be ready to answer questions about these things over the next year or so as Apple tries to make textbooks into another conquest in its personal electronics and services empire.

## Android, Android Everywhere

While Apple redefined what a tablet could be, it's not the only tablet game in town. At the time of the iPhone's launch in 2007, Google had been working on a phone operating system for a few years. That operating system came to be called Android, and Google has been providing the core of the operating system as open source software for handset makers to use on their hardware. Given that it was being overseen by one of the largest technology companies in the world and that it is open source, it's only natural that hardware makers looked to it as a solution for an OS for the burgeoning tablet market.

There are dozens of varieties of Android tablet on the market, from more than a dozen different manufacturers such as Sony, Dell, Lenovo, Samsung, Asus, Motorola, Archos, Toshiba, and Vizio. They run the gamut of connectivity options, screen sizes, memory availability, and more. Some are even designed with integrated keyboards, bringing into question how to properly define the tablet category. Android tablets have many of the same features as an iOS tablet, including apps for standard computing functions (mail, calendar, music) built in. But the distinction in operating systems means that apps written for iOS don't work on Android, and vice versa.



**Figure 2.2**  
Samsung Galaxy Player 5.0

As a result, Google has its own app store, the Android Market, where you can download apps onto Android devices. But certain manufacturers, most significantly Amazon, have forked the Android app ecosystem and have their own app store that is completely separate from the Google one; apps must be submitted separately, and Amazon has approval over that process, rather than the free-for-all that takes place in the larger Android Market. This means that there are apps you can find only in certain places, and because of the hardware variety, there are apps that function only on certain Android devices. As an example, the Amazon Kindle Fire doesn't have GPS or a camera, and there are a great many apps that rely on those for functionality.

There are dozens and dozens of Android-based tablets on the market, so how do you make the decision which to experiment with or implement in your library? Here are my recommendations, as well as why I think they are the best in class. I've broken them up into categories that fit specific use cases, but can't possibly cover all of them. I hope this is a solid introduction to the possibilities, though.

### Best Android Device for Roaming Reference

I'm going to go a bit out on a limb with this one, but for roaming reference sorts of uses that revolve around

helping people on the go, mostly with a web browser, I'm going to pick something that isn't even billed as a tablet: the Samsung Galaxy Player 5.0 (figure 2.2). Samsung bills this as a \$270 media device, but it's a full Android tablet, just in a five-inch form factor. Wi-Fi-only, it's just big enough that the screen is easy to use for web browsing, but small enough to be pocketable (barely).<sup>19</sup> It's got good battery life and would work very well as a "let me help you with that" device.

It's not a full-sized tablet, however, so reading PDFs and other "big screen" tasks are likely to be uncomfortable at best. But if you wanted to play with an Android device for providing services, this is a good, low-cost/high-impact choice.

### Best Android Laptop Replacement

This one is easy, although not available yet. At CES 2012, Asus announced the Asus Eee Pad Transformer Prime TF700 (figure 2.3), an update to its currently available Asus Eee Pad Transformer Prime TF201. (Don't you just love these names?) So what's so great about the TF700? The first thing is that it's a hardware beast, with a quad-core processor (most powerful yet in a tablet) and a massive HD screen that runs at 1920 × 1080. It's got power like a laptop, but runs the very latest Android OS, Ice Cream Sandwich.<sup>20</sup> (Aside: Android operating system releases are code-named after deserts, alphabetically; the first commercially available version was Cupcake, then Eclair, Froyo, Gingerbread, Honeycomb, and now Ice Cream Sandwich.)

But the main selling point for those wishing to replace a laptop with a tablet (not a plan I'm going to endorse, but it seems to be a popular one) is that the Transformer line from Asus has a keyboard dock that makes it look more or less exactly like a laptop. The dock even includes another battery that can recharge or power the main battery in the tablet, making it easy to take notes and such in a business environment, but still pop the screen off and have the convenience of the tablet form factor.

### The Baby Bear Android Tablet: Not Too Big, Not Too Small

The Asus Eee Pad line gets another win here, with the MeMo ME370T (figure 2.4). (Did I mention how unhelpful these names are?) What it lacks in snappy moniker, it makes up for in form factor. The MeMo is a seven-inch Android tablet that does most everything its big brother the Transformer does, just in a size that will go in a purse or jacket pocket. It's also about the same price as the Galaxy Player listed above, as the retail looks like it will be in the \$250 range.<sup>21</sup> This makes it a really good sweet spot for Android tablets: screen is big enough to give you enough real estate for



Figure 2.3

Asus Transformer Prime TF700

PDFs and web pages but small enough to be portable and easily handled.

I'm a big fan of the seven-inch tablet, as it mimics the size of a hardback book very well and is a comfortable size to interact with. The MeMo is one of a group of seven-inch tablets that I think could be very useful in libraries, a couple of which I've lumped into the discussion below on e-readers: the Nook Tablet and the Amazon Kindle Fire.

If your use case doesn't include needing a stock Android tablet, read on and see if the Nook Color, the Nook Tablet, or the Kindle Fire is a better choice. For most libraries that want to play with a tablet, any of the choices from Barnes and Noble or Amazon are solid choices.

### Android Apps and Management

Much like the iOS operating system that runs the iPad, Android is built with the expectation that there is a single owner of the device in question. It's not designed for shared or public use in the same way that computers have been for the last three years. Android tablets must be attached to a Google account in order to download apps from the Market and for large portions of the built-in functionality like the Gmail client and other native Google apps.

If you have access to Google Apps for business, education, or government, there is a My Devices app that allows for web-based control of Android devices attached to a single account. This allows for a variety of policies, including password strength, to be enforced and for locking and locating the tablet or other device. This functionality requires a corresponding Google Apps Device Policy app to be installed on each tablet. The app is free and can be found in the Android Market.



**Figure 2.4**  
Asus MeMo ME370T

These tools don't provide a full suite of management tools for Android, but there are businesses that are filling that gap and will handle enterprise-level rollouts of Android devices if needed. One such business, Zenprise, handles the above services as well as the creation of a curated app bundle for users to download and install. There are many other businesses that do similar things if your library or system is trying to find a commercial solution to large-scale rollouts.

*Google Mobile: Manage My Devices*  
<http://support.google.com/mobile/bin/answer.py?hl=en&answer=1235372>

*Android Market: Google Apps Device Policy*  
<https://market.android.com/details?id=com.google.android.apps.enterprise.dmagent>

*Zenprise: Android Management*  
[www.zenprise.com/solutions/android-management](http://www.zenprise.com/solutions/android-management)

## Notes

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