

# Exhibit 31



## Personal Technology

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# Apple iPad Review: Laptop Killer? Pretty Close

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For the past week or so, I have been testing a sleek, light, silver-and-black tablet computer called an iPad. After spending hours and hours with it, I believe this beautiful new touch-screen device from Apple has the potential to change portable computing profoundly, and to challenge the primacy of the laptop. It could even help, eventually, to propel the finger-driven, multitouch user interface ahead of the mouse-driven interface that has prevailed for decades.

But first, it will have to prove that it really can replace the laptop or netbook for enough common tasks, enough of the time, to make it a viable alternative. And that may not be easy, because previous tablet computers have failed to catch on in the mass market, and the iPad lacks some of the features—such as a physical keyboard, a Webcam, USB ports and multitasking—that most laptop or netbook users have come to expect.

If people see the iPad mainly as an extra device to carry around, it will likely have limited appeal. If, however, they see it as a way to replace heavier, bulkier computers much of the time—for Web surfing, email, social-networking, video- and photo-viewing, gaming, music and even some light content creation—it could be a game changer the way Apple's iPhone has been.

The iPad is much more than an e-book or digital periodical reader, though it does those tasks brilliantly, better in my view than the Amazon Kindle. And it's far more than just a big iPhone, even though it uses the same easy-to-master interface, and Apple (AAPL) says it runs nearly all of the 150,000 apps that work on the iPhone.



When held horizontally, the iPad's virtual keyboard is roomy and easy to use.

It's qualitatively different, a whole new type of computer that, through a simple interface, can run more-sophisticated, PC-like software than a phone does, and whose large screen allows much more functionality when compared with a phone's. But, because the iPad is a new type of computer, you have to feel it, to use it, to fully understand it and decide if it is for you, or whether, say, a netbook might do better.

So I've been using my test iPad heavily day and night, instead of my trusty laptops most of the time. As I got deeper into it, I found the iPad a pleasure to use, and had less and less interest in cracking open my heavier ThinkPad or MacBook. I probably used the laptops about 20% as often as normal, reserving them mainly for writing or editing longer documents, or viewing Web videos in Adobe's (ADBE) Flash technology, which the iPad doesn't support, despite its wide popularity online.

My verdict is that, while it has compromises and drawbacks, the iPad can indeed replace a laptop for most data communication, content consumption and even limited content creation, a lot of the time. But it all depends on how you use your computer.

If you're mainly a Web surfer, note-taker, social-networker and emailer, and a consumer of photos, videos, books, periodicals and music—this could be for you. If you need to create or edit giant spreadsheets or long documents, or you have elaborate systems for organizing email, or need to perform video chats, the iPad isn't going to cut it as your go-to device.

The iPad is thinner and lighter than any netbook or laptop I've seen. It weighs just 1.5 pounds, and its aluminum and glass body is a mere half-inch thick. It boasts a big, bright color 9.7-inch screen that occupies most of the front. As on all Apple portable devices, the battery is sealed in and nonreplaceable. It has a decent speaker, and even a tiny microphone.

Memory, also sealed in and nonexpandable, ranges from 16 gigabytes to 64 gigabytes. And you can order one with just a Wi-Fi wireless connection to the Internet, or Wi-Fi plus an AT&T (T) 3G cellular connection. The Wi-Fi models will be available Saturday and the 3G models, which I didn't test, about a month later.

Prices start at \$499 and go to \$829, with the costlier models having more memory and/or 3G. The cellular models don't require a contract or termination fee. You can pay AT&T either \$15 a month for 250 megabytes of data use, or \$30 a month for unlimited data—a significant reduction from typical prices for laptop cellular connectivity.

I was impressed with the iPad's battery life, which I found to be even longer than Apple's ten-hour claim, and far longer than on my laptops or smart phones. For my battery test, I played movies, TV shows and other videos back-to-back until the iPad died. This stressed the device's most power-hogging feature, its screen. The iPad lasted 11 hours and 28 minutes, about 15% more than Apple claimed. I was able to watch four feature-length movies, four TV episodes and a video of a 90-minute corporate presentation, before the battery died midway through an episode of "The Closer."

Walt's mountain-view wallpaper with app icons arranged during his tests.

Oh, and all the while during this battery marathon, I kept the Wi-Fi network running and the email downloading constantly in the background. Your mileage may vary, but with Wi-Fi off and the screen turned down from the fairly bright level I used, you might even do better. Music plays far longer with the screen off. On the other hand, playing games constantly might yield worse battery life.

Apple says video playback, Web use and book reading all take about the same amount of juice. When I was doing the latter two tasks for an hour or two at a time, the battery ran down so slowly for me that I stopped thinking about it.

I also was impressed with the overall speed of the iPad. Apple's custom processor makes it wicked fast. Screens appear almost instantly, and the Wi-Fi in my home tested as fast as it does on a laptop.

I found email easy and productive to use, and had no trouble typing accurately and quickly on the iPad's wide on-screen keyboard. In fact, I found the iPad virtual keyboard more comfortable and accurate to use than the cramped keyboards and touchpads on many netbooks, though some fast touch typists might disagree. Apple's \$39 iPad case, which bends to set up a nice angle for typing, helps.



The Web browser also works beautifully, and takes advantage of the big screen to show full pages and cut down on scrolling. It even now has a bookmarks bar at the top. As noted, however, it doesn't support Adobe's Flash technology.

I also was able to easily sync the iPad's calendar and contacts apps with Google (GOOG) and Apple's MobileMe.

Watching videos, viewing photos, listening to music, reading books and playing games was satisfying and fun. I used the device heavily for Twitter and Facebook. And I even got some light work done in the optional iPad word processor, called Pages, which is part of a \$30 suite that also includes a spreadsheet and presentation program.

This is a serious content creation app that should help the iPad compete with laptops and can import Microsoft Office files. However, only the word processor exports to Microsoft's formats, and not always accurately. In one case, the exported Word file had misaligned text. When I then tried exporting the document as a PDF file, it was unreadable.

Apple created a touch version of its Pages word processor for the iPad.

The iPad can run two types of third-party apps, both available from Apple's app store. It can use nearly all existing iPhone apps. These can either run in a small, iPhone-size window in the middle of the screen, which makes them look tiny, or blown up to double size. The larger size makes them fill the screen, but can make type inside them look blocky. Still, the dozens I tested all worked properly. And it can run a new class of specially designed iPad apps, of which Apple hopes to have 1,000 at launch. I successfully tested the revamped App Store, which features the iPad apps most prominently when you're on an iPad.

Based on my very small sample, some app developers may be testing higher prices for iPad apps than the 99 cents or \$1.99 typical for paid iPhone apps. The paid iPad apps I saw ranged from \$3.99 to \$49.99. Others were free.

Apple has rebuilt its own core iPhone apps for the iPad to add sophisticated features that make the programs look and work more like PC or Mac software. For instance, there are "popover" menus that make

it easier to make choices without leaving the screen you're on. And, when the iPad is held horizontally, in landscape mode, as I often preferred to use it, many programs now have two panels, making them faster and more useful. For example, in email, a left-hand panel shows your message list, while a larger right-hand panel shows the message itself.

The photo app is striking, and much more like the one on the Mac than the one on the iPhone. The device can even be used as a digital picture frame. The iPod app is beautiful, too, as are the calendar and contacts app.

Unfortunately, Apple

excluded some of the more familiar apps from the iPhone, including Weather, Clock and Stocks.

I tested a small selection of the new third-party iPad apps Apple hopes to have available at launch, and most were also rich and feature-filled, beyond what iPhone apps offer. These included games such as Scrabble and "Touch Hockey," a database app, news services and more.

I was able to try a pre-release version of The Wall Street Journal's new iPad app (which I had nothing to do with designing), and found it gorgeous and highly functional—by far the best implementation of the newspaper I have ever seen on a screen. Unlike the Journal's Web site, or its smart-phone apps, the iPad version blends much more of the look and feel of the print paper into the electronic environment. Other newspapers and magazines have announced plans for their own, dramatically more realistic iPad apps.

I also found iBooks, Apple's book reader and store, easy to use, and read a couple of books on it. I consider the larger color screen superior to the Kindle's, and encountered no eye strain. But the iPad is much heavier than the Kindle and most people will need two hands to use it. The iBooks app also lacks any way to enter notes, and Apple's catalog at launch will only be about 60,000 books versus more than 400,000 for Kindle.

I did run into some other annoying limitations. For instance, the email program lacks the ability to create local folders or rules for auto-sorting messages, and it doesn't allow group addressing. The browser lacks tabs. And the Wi-Fi-only version lacks GPS. Also, videophiles may dislike the fact that the iPad's screen lacks wide-screen dimensions, so you either get black bars above or below wide-screen videos, or, if you choose an option to fill the screen, some of the picture may get cut off.

All in all, however, the iPad is an advance in making more-sophisticated computing possible via a simple touch interface on a slender, light device. Only time will tell if it's a real challenger to the laptop and netbook.

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