

13 of the Brightest Tech Minds Sound Off on the Rise of the Tablet

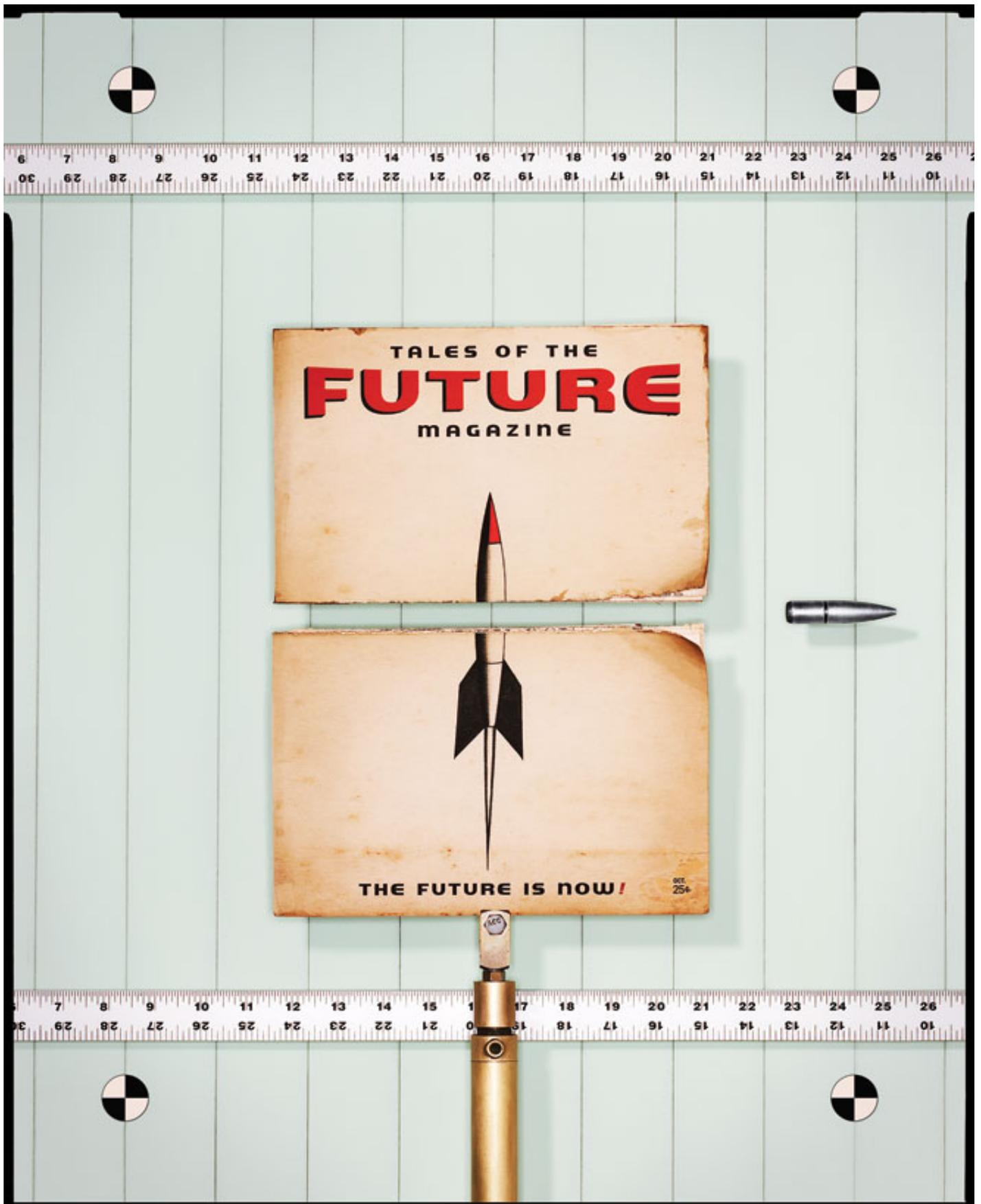


Photo: Dan Winters

Neil Young

CEO and cofounder, ngmoco

The New Generation of Tablet
Computers

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Cool and Connected

Is the tablet a new mobile computing device? Well, yes, it is, by default. But what is most interesting to me as a gamemaker is the impact that it can have in the least-mobile entertainment venue — the home. Aren't home games played on consoles? Yes. But for years, more and more players, especially teens, have been migrating to laptops and Flash gaming. The Web has become not just a viable venue for games but also one of the most vibrant.

The iPhone 3GS is already far superior to the Nintendo DS or PSP and is approaching the performance level of the Wii. A tablet that is powerful enough to handle great games and portable enough to take anywhere — with an immediate library of tens of thousands of inexpensive or free experiences from the App Store — will be serious competition for laptops.

Of course, [the netbook](#) was supposed to replace the laptop and be used by millions around the world. Forget the netbook. It's a slow, clunky piece of junk. Do I want to look like the guy who couldn't afford a real computer or the guy who went to the future and brought back a device that's as cool as I imagine I am?

If the tablet is as appealing and useful as a laptop, with the power of a game console and an always-open library of apps, games, music, and entertainment, it will kill the laptop as a home games machine and kick the netbook out the window before it's had a chance to disappoint us with its inadequacy.

Steven Johnson

Science writer

The End of an Era

Ten years from now, we will look back at the tablet and see it as an end point, not a beginning. The tablet may turn out to be the final stage of an extraordinary era of textual innovation, powered by 30 years of exponential increases in computation, connection, and portability.

When the [Homebrew Computer Club](#) started holding meetings in the mid-'70s, the reigning assumption among critics and futurists was that we were headed, inexorably, toward an image-based culture dominated by the visual language of television. The word — for so long the dominant medium for the transmission of information — was headed for the margins, subtitles underneath the hypnotic flicker of the Image Society.

But then something extraordinary happened. The personal computer proved to be more than just a fancy calculator. It turned out to be a device for doing things with words. Each milestone in computation and connectivity unleashed a new wave of textual breakthroughs: Early networks gave rise to email and Usenet; the Mac UI made reading text on the screen tolerable; the Internet platform (and the NeXT development environment) made it possible for one man to invent a universal hypertext system; Google harnessed distributed computing to make the entire Web searchable in microseconds; and thanks to Wi-Fi and cellular networks, along with hardware miniaturization, we can now download a novel to an ebook in 10 seconds.

It has been an exhilarating ride, but it is coming to an end, and that magical experience of instantly pulling *Middlemarch* out of the ether and onto your Kindle suggests why: Compared to other kinds of information that computers process today, text has an exceptionally small footprint. With the arrival of the tablet, we have crossed a critical threshold: Where text is concerned, we effectively have infinite computational resources, connectivity, and portability. For decades, futurists have dreamed of the “universal book”: a handheld reading device that would give you instant access to every book in the Library of Congress. In the tablet era, it’s no longer technology holding us back from realizing that vision; it’s the copyright holders.

Advances in technology will give us plenty of headroom with other kinds of data: streaming real-time video, conjuring virtual spaces, exploring real-world environments with geocoded data, modeling complex systems like weather. But in the tablet world, textual innovation will not come from faster chips or wireless networks. Incremental improvements will continue, to be sure, but there will be a steady decrease in radical new ways we interact with text.

If you time-traveled back to the Homebrew Computer Club in 1975, it would take you days to explain all the new possibilities for creating and sharing text. (Imagine explaining Wikipedia to someone who hasn’t heard of the word processor.) But I suspect that the text-based interactions that coalesce around the tablet will still seem familiar to my grandchildren in 2030. Unless, of course, we’ve hit the singularity

and the novels we're downloading have been written by the machines. But in that case, the rise of AI novelists will be the least of our worries.

Kevin Kelly

Technology pioneer

Window on the World

Don't think of them as tablets. Think of them as windows that you carry. Two things distinguish them from always-on smartphones and lightweight laptops.

First, these are mobile screens, meant to move. They are aware of where they are in space and time. Hold a window up in front of you and you see an alternative view of the scene. Maybe you see annotated layers or a view from long ago. If someone is speaking to you through the window, move the screen and it will sweep across the caller's room. This portable portal will peer into anything visible. You'll be able to see into movies, pictures, rooms, Web pages, places, and books seamlessly. Many people think of this sheet as a full-color, hi-res, super ebook reader, but this viewer will be about moving images as much as text. Not just watching video but making it. It will have a built-in camera and idiot-proof video-editing tools, and it will also serve as a portable movie screen, eventually enabled for 3-D. You'll "film" with the screen! It will remake both book publishing and Hollywood, because it creates a transmedia that conflates books and video. You get TV you read, books you watch, movies you touch.

And that is the second difference between this window and past devices: The tablet window goes two ways. You watch; it watches you. Its eye can remain on all the time, watching you as much as you like. Brian Eno [once famously said](#) (in the pages of *Wired*) that the problem with computers was that there was not enough Africa in them. By this he meant that computers as we knew them could "see" only the wiggling ends of our fingers as we typed. But if they could see and employ the rest of our body, as if we were dancing or singing, we could express ourselves with greater finesse. This window tablet injects some Africa into computers. It overthrows the tyranny of the keyboard. Gestures are king. Swoosh your fingers to scroll, wave your arms as with a Wii, shake or tilt it. Celebrate its embodiment. The craftsmanship of this device will matter. We'll spend hours holding it, caressing it, stroking its magic surface, watching it. The feel of its surface, the liquidity of its

flickers, the presence or lack of its warmth, the quality of its build, the temperature of its glow will come to mean a great deal to all of us.

James Fallows

National correspondent, The Atlantic

The Digital Copilot

Will the tablet computer catch on? In one specialized realm, it already and decisively has: aerospace. Right now, the flying world is far ahead of the general public in embracing tablet devices. And while the motivations for widespread early adoption are specific to flying, they have enough parallels to normal terrestrial activity to suggest that tablets may find a place here on Earth.

The collective term for these devices is [electronic flight bags](#). EFBs come in many forms, including some built into cockpits. But several popular versions resemble what Apple and others have announced: bigger than a PDA, smaller than a laptop, a flat working surface dominated by a display that accepts multiple kinds of touch inputs. EFBs are expensive — costing many hundreds to many thousands of dollars — but also very popular, for several reasons.

First, they address a genuine point of pain. Remember those squarish, footlocker-sized cases you used to see pilots wheeling through airports? They were jammed with the documents required for almost any flight — approach plates for landing in bad weather, charts, runway diagrams, checklists, and operating handbooks. All that paper caused general chaos in the cockpit. To have it all in one trim package brings relief.

EFBs also let pilots simultaneously work with different kinds of data. The information a crew needs to see during flight consists of text (checklists, notices), static diagrams (airspace, airport layouts), and dynamic graphics (wind patterns at different altitudes). The EFBs present all this in one place — often as combined maps with text overlays, a view pilots can't get in any other way. And they're just as egalitarian about input. Pilots don't always have time to type, and depending on flight circumstances like turbulence or light, they might prefer touchscreens or knobs. Good EFBs accept different kinds of entries.

More important, in the cockpit constant updates save lives. Paper charts and

briefings are out of date the second they're printed. Weather systems would have moved, airspace restrictions might have changed, and very often a plane's route would be adjusted. EFBs update constantly, usually via satellite networks.

All these traits could easily find applications in the nonflying world. Engineers and architects might like to see a variety of data combined in one place as they stand outside a building site. People in a teleconferenced meeting might sketch a design on a touchscreen tablet and have it appear on their colleagues' devices around the world. Journalists at a congressional hearing might have live-feed windows showing what is being said in other rooms. And all of this information would be more useful on a device that's bigger than an iPhone but that doesn't require the awkward holding of an opened laptop.

There is one additional, crucial aspect of the EFB's popularity: People mainly use it while sitting in a chair. This points to the primary challenge for tablets: limiting them to situations when people can conveniently — and safely — stare at a screen. The main social menace of mobile devices today is that people look at their screens when they should be looking at the road or sidewalk. That's not a problem on airplanes. While pilots need to pay “strategic” attention to the flight — “Where is that thunderstorm headed?” — there's less second-by-second risk if they're checking their computer screen.

So we learn from jet pilots that tablets may indeed catch on — and they may well make all of our lives better. As long as we keep them out of the driver's seat, I'm ready for the tablet age.

Bob Stein

Codirector,

Institute for the Future of the Book

Follow the Gamers

Twenty-five years ago, when I founded the Criterion Collection and Voyager, my imagination extended only as far as multimedia — enabling authors to express ideas with a palette that included audio, video, text, and graphics. While CD-ROMs hinted at these possibilities, the advent of the Internet, particularly the Web, showed that locating works in a dynamic digital network promised even more fundamental changes. The most important thing my colleagues and I learned from experiments

with “networked books” is that as discourse moves from the page to the networked screen, the social aspects of reading and writing move to the fore. A book is becoming a “place” where people congregate and converse.

The arrival of Apple, Android, and Nokia tablets ups the ante. Simply moving printed texts to tablets (as with the Kindle) will be of limited value. To succeed, publishers will have to embrace multimedia and community-building. My guess is that the [gaming industry](#) will show us the way. Unlike publishing, the culture of videogames is much less stifled by legacy products and thinking. Multimedia is already its language, and gamemakers have vast experience building thriving communities. As conventional publishers prayerfully port their print to tablets, my bet is that the gamemakers will invent the new forms of expression that will dominate the media landscape.

Martha Stewart

Magazine publisher and TV host

Into the Wild

I’ve been making magazines now for 20 years; I’ve been making books for 27 or 28. These are illustrated books and magazines that need a digital home somewhere. My printed cookbooks — the ones that have no illustrations — are [available for the Kindle](#) on Amazon.com. But the illustrated books need a full-blown effort like the iPad to really bring out the beauty of the images.

We all have so much to read these days, and having the ability to pick and choose and save and file and send digitally is really exciting. I have a bag full of torn-out magazine pages that I distribute to various people for creative ideas. I’ll be able to do that much more effectively if I have access to a digital version of those magazines rather than having to destroy them.

We are at a crossroads here. The printing press is still in great use and is still a very viable tool. But the Internet is also an exciting place to learn, to read, to see. Either way, it’s about customers. Where are those eyeballs? We have to find them.

That’s one of the big credos at our company. Where our customer needs us and wants us, that’s where we want to be — with our products, with our magazines, with our books, with our television content.

Ultimately, the tablet will not take the place, I hope, of the printed page in terms of the magazine format. I will continue to read print magazines, because I love them. That's me. But I will also read digital magazines. I will choose which ones. There are some magazines that I would look at just to see in more depth. *National Geographic*, God, I would love to see that. I already have the digitized version of *National Geographic*, but it's not the same thing. It's just like the magazine. The tablet could be like going into Africa.

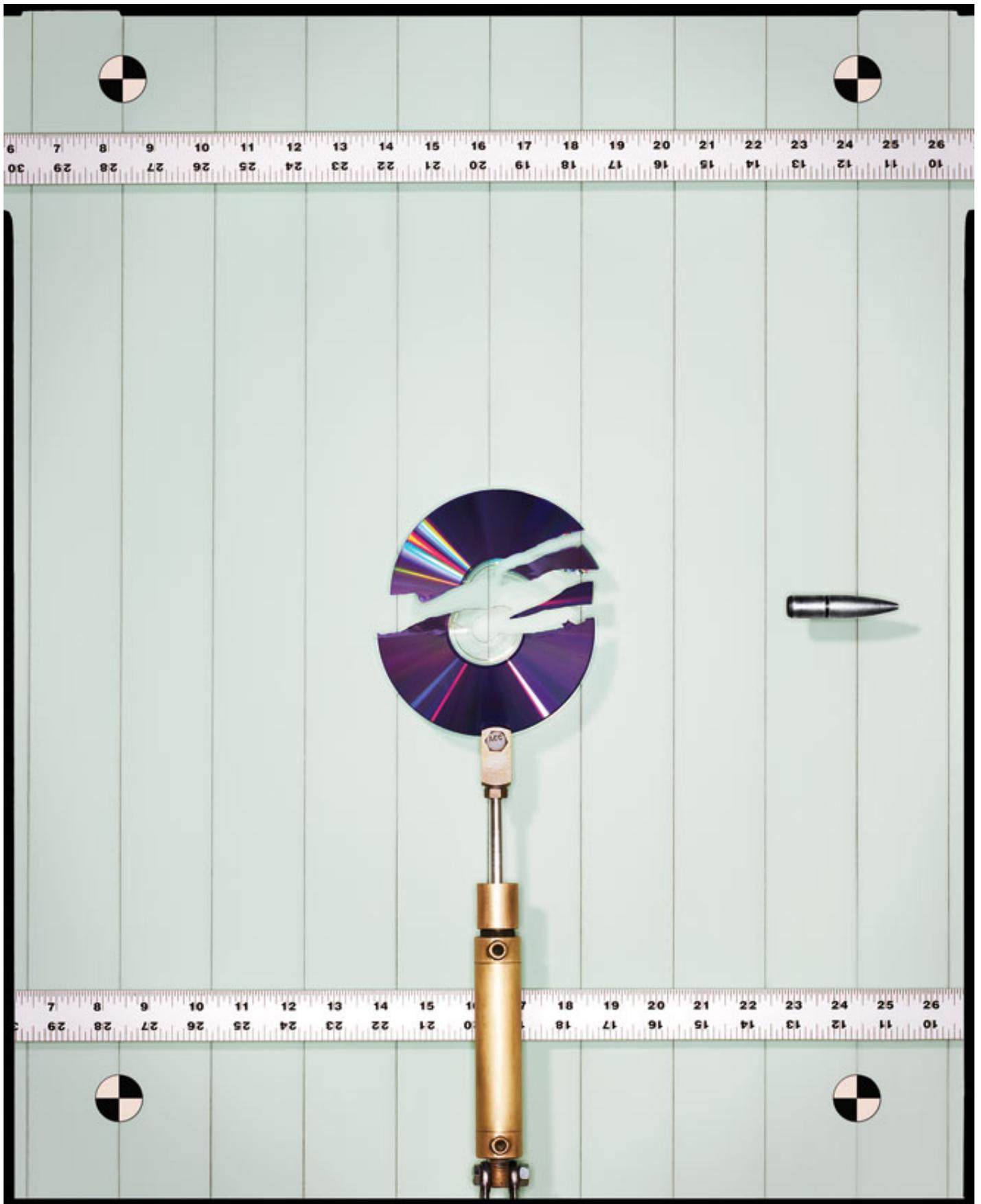


Photo: Dan Winters

Nicholas Negroponte

*Founder, One Laptop per Child;
first investor in Wired*

The Next \$100 Laptop

The unsung advantage of current ebooks is being able to use them in bed. Paper books have pages that can neither disappear nor reappear. Instead, we have to turn them, which is pretty stupid and not at all easy when you're lying on your side.

So why tablets? A short answer: one-handedness.

And it's not just for bed. Would you have ever imagined how many people walk around looking at one hand? Texting is replacing talking, and thumbs are replacing lips. Laptops, meanwhile, are not mobile. They are nomadic. You have to sit down to use one and do battle for a connection. Standing with a laptop is entirely unsatisfactory.

Tablets are therefore the new frontier. They are the new book, the new newspaper, the new magazine, the new TV screen, and potentially the new laptop. Something you carry — and, yes, something you can lose.

The real beneficiaries, however, are not you and me or the thousands who will soon queue up to buy the iPad. The undeniable beneficiaries of tablets will be those who have no alternative, those who have no books, no libraries, and in many cases no schools or electricity. I mean the nearly 2 billion kids in the developing world.

For them, a tablet needs to be windup. Yes, a crank, not solar but quiet human power that works at night, in cloud cover, and on windless days. Such a device also needs to be unbreakable, water-resistant, and dust-proof, and to connect to the Internet for free. At a minimum, it needs to hold 100 books and wirelessly access any of the titles stored on nearby tablets. So, if you ship 100 of these to a remote African village, each loaded with 100 different books, that's 10,000 books in the village — more than you and I had in primary school.

I'm talking about the tablet version of the XO from One Laptop per Child, proposed for 2012. By that date, we will have moved from laptop to tablet for a variety of reasons, the biggest being cost. The \$100 laptop never actually hit \$100 (the closest we got was \$175), but we can get the price down, and the tablet is the way to do that. It requires no moving parts, not even a hinge. The housing can be made of a single piece of plastic. The XO today has 900 pieces, most on its circuit board. Ideally, the tablet's circuit board will be reduced to only one chip.

XO laptops are now in the hands of 1.4 million children in 35 countries and support 25 languages. The result: The kids teach their parents to read and write, truancy drops, and educators say they have never loved teaching so much.

Most of the students own their XOs and feel that it's the most important piece of hope in their life. And not surprisingly, most of the kids even sleep with them.

Gina Bianchini

CEO, Ning

A smartphone is mobile, but it isn't fun to browse on. On a laptop, the technology is built in, but few want to carry around a 6-pound computer for the privilege of using a browser. The tablet bridges this gap. People will not only engage in new social experiences but will do so on a device that's easy (and beautiful) to use, wherever they may feel so inspired.

George Lois

Advertising pioneer

The Real Thing

Way back when I was a young man, making deliveries at my father's florist shop in the Bronx, I once had the unexpected choice of spending the evening taking a gander at some 1940s porno or accepting the invitation to have actual sex with a gorgeous lady I regularly delivered flowers to in ritzy Riverdale. With a pounding heart, I chose the real thing. That's how I feel about experiencing a magazine's contents on a crammed computer screen versus holding a magnificent magazine in my hands — with its surprising visual and visceral possibilities at the turn of each page.

The newfangled tablets that let me read electronic magazines could be a useful research device at times, but the tactile and graphic excitement that's available on the best graphically designed magazines are pitifully nonexistent on a bland, crowded computer screen. And certainly, the possibility of a great magazine cover that knocks your eye out on the newsstand — one with a big, edgy idea that makes

a statement about America's politics and culture, that force-feeds an irresistible taste of a magazine's content — is totally out of the question. The magazine is dead. Long live the magazine.

Jack Dangermond

President and founder, ESRI

Planning a garden, park, building, or city shouldn't be done in an office. A location-aware tablet will let us use what's called geodesign to compose participatory, what-if scenarios onsite, using maps that several people can share — something we could always do with paper but that's been a challenge with digital maps in the field.

Marshall McLuhan

Prophet of the electronic age

The Medium Is Life

What would Marshall McLuhan (1911-1980) make of the coming tablet age? Contributing editor Gary Wolf channeled the oracular media theorist.

Steve Jobs is the preeminent figure of the late 20th century; he is our Ford, our Disney. Like them, Jobs is a great success in business. Others may have similar thoughts, similar predictions — in fact, if he were truly original he would not be so popular — but the fearlessness and simplicity of his attack on the old type of humanistic consciousness makes him a hero.

Jobs operates in the infralogue of the digital age, where the separation between user and product is vanishing, along with the outdated conscious operations of prediction and control.

Humanism temporarily survived the era of electronic media only through the act of turning on a device. The knob or switch is like the cover of a book: Open it; close it. But when a medium is coincident with life, the last refuge for humanism is gone.

The iPad is the beginning of this end. The thin, single pane of glass that comprises the interface is just a window onto the world, an edgeless frame. Essentially, there is

no interface, any more than a person's fingertips are an interface. The long story of humanism — by which I mean the emergence of individual consciousness as a byproduct of our language and literature — comes to an end when we return, futuristically, to doing everything by hand.

We no longer hear the voices of the past, because we have our fingers in our ears.

Fake Steve Jobs

Not the CEO of Apple

Go Save Yourself

So once again we've changed the world with a mind-blowing, revolutionary product that does things that everybody considered impossible. An ebook reader that also plays movies and music? And browses the Web? No way. Can't be done. Well, we did it. And you can fly three times around the globe and watch movies the whole time on a single battery charge. It's amazing. Phenomenal. Exciting. Magical. Amazing. Beautiful. Stunning. Gorgeous. And yet for some people in the media, this is not enough. These people are disappointed because they expected the iPad to also save newspapers from a certain death.

Yes, David Carr of *The New York Times*, I'm talking to you, you pie-eyed crackhead. All I can say is, bitch, please! I'm a genius, but I'm not a miracle worker. Nor am I Mother Teresa. I wasn't put on earth to save *The New York Times*. I was put on earth to restore a sense of childlike wonder to people's empty, pathetic lives, and I must say that so far I'm doing a pretty outstanding job.

Anyway, do you really think saving newspapers is just a matter of putting your old crap on a new device? Because from what I can see, *The New York Times* sucks just as bad on a Kindle as it does on paper. That, in fact, is the real problem with *The New York Times*: It sucks, and everyone knows it, except, apparently, the dumb fucks who write for *The New York Times*, which is, oddly enough, the heart of the problem. *Quod erat demonstrandum*, as Socrates once said.

The iPad isn't about saving newspapers. It's about inventing new ways of telling stories, using a whole new language — one that we can't even imagine right now.

Like I said when I met the publisher of *The New York Times* when he begged me to

let his new media guy get onstage at our iPad event: Sully, I like you guys, but the truth is you guys really need to die so that we can clear the way for the new guys — although at the same time I do want to commend you for the great job you did when you landed that plane on the Hudson. He's like, What? And I'm like, Wasn't that you? And he's like, No, that's a guy named [Sullenberger](#), and I'm like, Well, what's your name? and he says, Sulzberger, and I'm like, OK, whatever, but you're still screwed.

Hacks, I'm sorry, but I'm not going to save you. Frankly, I don't read magazines or newspapers, and if every last one of you were all erased from the planet tomorrow I would not notice and I would not care. Having said that, I wish you all the best in whatever future careers you choose. Gardening, I've heard, is very peaceful and involves slinging manure, so you should be good at it. Namaste. Much love. Peace.

Chris Anderson

Editor in chief, Wired

Ditch Your Laptop

Tablets are the future of media — if they become ubiquitous. And that will happen only if they replace laptops. I think most of us are willing to carry two devices (one is a phone) but not three. So why would they dump a keyboard for a touchscreen? Look to three data points for the answer: the iPhone, the Kindle, and the cloud.

The iPhone shows that loads of people want rich-media networked devices with them everywhere. Like a tablet, the iPhone is a one-app-at-a-time full-screen experience, where the interface is determined as much by the apps and the device itself as it is by the OS. By dint of its bigger screen, a tablet is immersive enough to spend hours with — and yet it's still intimate. A laptop is a work device, an arm's-length, lean-forward experience. A tablet, in contrast, is a personal device, something you cradle and lean back with.

The Kindle shows that people are willing to pay for specialized devices if they can give them the flexibility to have the content they want when they want it. For magazines, with their long-form text and engaging, visually rich design, a tablet could be perfect. Of course, it will still have a Web browser, but it'll also have a critical mass of content — games, books, magazines, and video — that isn't Web-based. All the impact (and more) of print, with the convenience of digital delivery.

If it worked for the single-purpose Kindle, it will work even better for the multipurpose tablet. Imagine highly produced, curated content that arrives as an event to look forward to, like a film opening or a book launch. This is where the new business models kick in: Tablets can show media in a context worth paying for. The first issue of a magazine might even be free, like the first few levels of a game are, but that's just a sampler. Rather than tell people about great content, that tablet lets them experience it — and easily upgrade to get more.

Finally, the cloud shows that as more and more of our data and software lives in servers somewhere, the computers we carry with us can be less and less powerful — thinner, lighter, longer battery life. Let Google buy the big iron; you can buy sexy aluminum and glass that's a delight to hold. Sure, rich-media apps like games and magazine readers will run locally, but they'll be no resource-hogging Photoshop. Modern smartphones have shown us what efficient mobile operating systems and specialized apps can do with hardware that wouldn't fill a single drive bay on a desktop PC.

Think of all the trips where you've asked yourself, "Is this when I leave the laptop behind and just use my phone?" The tablet answers that question. Bigger than a phone, funner than a laptop, more cuddly than a Kindle. I think they're going to sell like hotcakes.

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