

COLUMNS

## How 6 apps took their technologies mainstream

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With the launch of **Pokemon GO**, and the **ensuing media tsunami**, Nintendo and **Niantic Labs** have once again turned the world upside down with a seemingly modest but literally game-changing piece of technology.

For those who have yet to join the roving packs of smartphone-wielding GO addicts, the game is not only a success story for the embattled company, but also the killer application that is making augmented reality (AR) a mainstream technology overnight, even though it is **technically a very rudimentary version of AR**.

As engineers and designers are all too familiar, this phenomenon of a technology struggling for relevance only to have one product or implementation spark a fire and suddenly find widespread adoption, is not unique. To the contrary, it is the common theme of many icons of our age.

Here is a look at six other killer apps that propelled once flailing technologies to greatness.

### Macintosh establishes the personal computer

It's an oft-told tale, typically as more fable than reality, but there is no denying the launch of the Macintosh in 1984 not only helped usher in the age of home PCs, but became the bedrock of what is now one of the most influential companies in the world.

Prior to the Macintosh, there were plenty of home PCs available. These used a mish-mash of non-standard technologies, however, and were all but relegated to enthusiast and educational use.

With Apple's **infamous 1984 ad** during the Super Bowl, the world suddenly had a computer with a built-in floppy drive, and a novel graphical user interface controlled by a crazily named "mouse" and keyboard, instead of via wonky command line (I know, I know Apple did not invent them).

Amazingly, in the intervening three decades and billions of PCs later, we still rely on essentially the same format

### Mosaic popularizes the Web

While not the first browser to allow users access to the then-virgin landscape of the World Wide Web, **Mosaic**, launched in 1993 and co-pioneered by now-venture capital mastermind Marc Andreessen at the NCSA, became the first widely adopted one.

Within months it was cross-platform with a Windows and Mac version, and was able to support not just graphics and text, but also images, audio and video.

While competing services such as Prodigy offered a way onto the Internet, Mosaic, which would later become the backbone of both Netscape and Internet Explorer, among others, opened the doors to the Web and the Internet revolution followed.

Napster mainstreams file-sharing and MP3s

It is hard to remember, but not so long ago there used to be these things called "compact discs" and they were listened to on "stereo systems" and they supported a vast and powerful "music industry."

After their introduction in 1982, CDs quickly overtook vinyl and cassettes as the standard.

Though the advent of CD-burners, and the ability for consumers to use PCs to craft their own music CDs, was a big deal, the advent of audio coding software that allowed the copy and compression of music made the sharing of files over the Internet far easier.

Then, in 1999, an ingenious trio of programmers released Napster, a pioneering peer-to-peer sharing service that allowed users to quickly search for and share vast amounts of digital files.

While a number of competing file types existed, it was the MP3 that became the standard.

Despite repeated attempts to lock users into less shareable or higher-quality file types over the following years WMA, ACC, protected MP3, among many others eventually the music and tech industries realized the futility and relented.

Apple's iPhone popularizes smartphones and mobile apps

The Palm Pre, assorted BlackBerry phones and the Nokia 9000 Communicator are just a few of the early smartphones that impressed and frustrated consumers prior to 2007.

And then the iPhone launched, and essentially world culture turned a corner.

Suddenly multi-touch displays, pinch to zoom and swiping were the new normal, as were people staring down at their phones on streets, subways and buses.

Then, once again, following the 2008 launch of the App Store, the mobile app industry was rediscovered, and begat an entirely new gold rush as developers looked to get in on the smartphone juggernaut.

Simply put, without the iPhone, there likely would be no Uber, WhatsApp, AirBnB or Instagram, just to name a few.

Amazon Kindle makes ebooks readable

The dream of the ebook goes hand in hand with the potential of the Internet: It promises the ability to have the world's entire body of knowledge accessible by anyone, anywhere.

But despite existing in some form or another for years, no one seemed to crack the code of creating a device or platform that would get people to want to read them.

Amazon solved the problem and in the process further sank the already moribund publishing industry into even more turmoil with the launch of the Kindle in 2007.

Unlike competing model, it had an e-ink screen that sipped at batteries and worked even when turned off. And to make sure it was easy to get ebooks and periodicals loaded up, the company provided a free mobile Internet service to its ebook store, which was populated with an ever-expanding library.

As the iPhone did with apps, Kindle made interacting with ebooks a commonplace and frankly delightful experience. No surprise that within just five years, ebooks surpassed annual hardcover sales.

For better or worse, semi-autonomous cars need computer vision

Image-recognition technology has been around since the 1950s, but it really started to take off in the past half-decade, thanks to a convergence of more affordable and faster computers, mind-boggling reams of visuals shared online more than 3 billion images a day and deep learning.

While it has been quietly and constantly improving everything from auto-organization of your photos collections on Google Photos to serving premium contextual ads in editorial images, it took a technology that almost everyone owns cars to make the idea clear to people.

After all, how can cars drive themselves without AI-powered vision, whether in the form of **cameras, radar or sensors**? Even when it gets blamed for accidents, as in the recent case with Tesla, computer vision is now a part of the national conversation.

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