



Smartphones, PDAs, eReaders, & Tablets

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Technical Hierarchy & Outline

1. PCs
2. Tablets
3. eReaders
4. PDAs
5. Smartphones
6. Cell phones

6. Cell phones

- A **cell phone** is an electronic device used to make phone calls through cellular carriers, served by many public cells (or towers) allowing the user to be *mobile*
- Most cell phones permit calls anywhere in the country for no additional long distance charges.
- See PCWorld:
http://www.pcworld.com/reviews/collection/1671/top_10_cell_phones.html

- Domestic Voice Service is now as inexpensive as \$6.67 per month (33 min./mo. @ Virgin Mobile = \$.20 per min.)
- Data Service (Internet Access) is usually an expensive addition to voice service (\$35/mo. for unlimited Internet Access @ Virgin Mobile or \$1.50/MB.)
- Texting Service is usually an addition to voice service, at per message rates (\$.15 per msg @ Virgin Mobile.)

Cell Phone Generations

Speed, Cost, Coverage

- 1G (“Bag Phones” & Motorola DynaTAC “brick”) = 1st generation available using Bell Labs network -1984
 - “Low Speed”
- 2G (now EDGE-2003) -00.70-1.40Mbps for about \$25/mo and up.
- 3G (HSDPA-about 2005) -01.40-3.10Mbps for about \$40-80/mo.
- 4G (2011) -14.00-100.00Mbps for about \$40-80/mo.
- Source – Wikipedia and cell carriers
- See Cellular company website for coverage maps.

5. Smartphones

- **Smartphones** are high-end mobile phones, that offer more advanced capabilities than contemporary low-end cell phones.
- A smartphone combines the functions of a [personal digital assistant](#) (PDA) and a mobile phone. Today's models typically also serve as [portable media players](#) and [camera phones](#) with larger high-resolution [touchscreens](#), [GPS](#) navigation, and [Wi-Fi Broadband Access](#), in addition to Cell Phone access.
- See PCWorld
http://www.pcworld.com/reviews/collection/1671/top_10_cell_phones.html

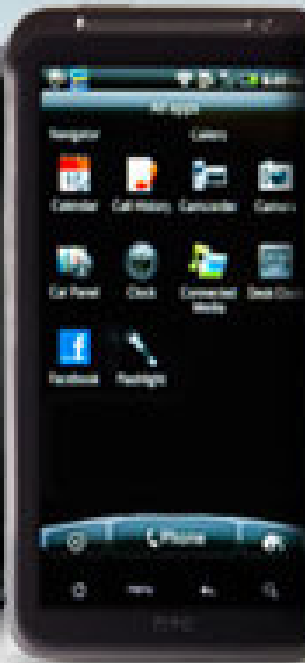
Examples of Newer Smartphones

Smartphones

Get the latest and greatest



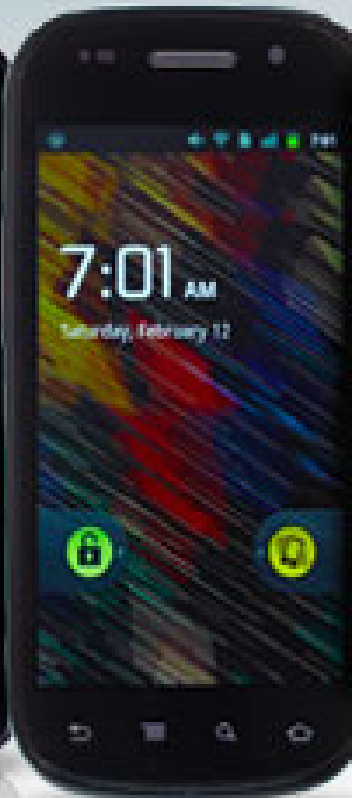
Samsung
Vibrant 4G



HTC
Inspire 4G



Motorola
ATRIX



Samsung
Nexus S



Apple
iPhone 4

4. PDAs

- **Personal Digital Assistants (PDAs)**, also known as a **palmtop computers**, are mobile devices that functions as personal information managers. A PDA has an electronic display, enabling it to include a web browser, and some newer models also have audio capabilities, enabling them to be used as mobile phones and portable media players. Many PDAs can access the Internet, via Wi-Fi, and also employ touchscreen technology.

Typical Newer PDAs

- A Personal Digital Assistant (PDA) is usually a Smartphone with Wi-Fi communications instead of Cellular communications, although it may have both.
- See PCWorld:
<http://www.pcworld.com/zoom?id=108406&page=1&type=top100chart&zoomIdx=1>

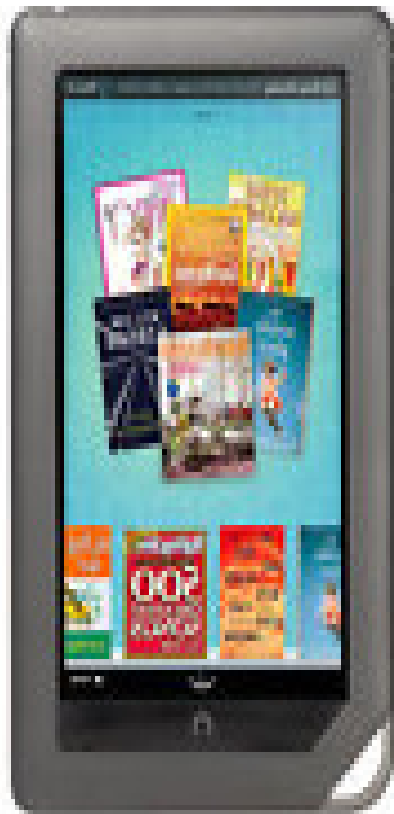
3. eReaders

- **eReaders**, also called **e-book readers**, are portable electronic devices, designed primarily for the purpose of reading digital books and periodicals.
- An eReader is similar in form to a [tablet computer](#), however a tablet computer typically has color, and a faster screen capable of higher refresh rates.
- The main advantages of eReaders, are better readability of their screens, especially in bright sunlight, and longer battery life.

Typical Newer eReaders

Barnes & Noble

Nook Color



Amazon

Kindle



Typical Newer eReaders

- Amazon
 - Kindle (B&W) Cheap (\$79-WiFi) but is not a tablet computer.
- Barnes & Noble
 - Nook (B&W) Cheap (\$139-WiFi) but is not a tablet computer.
 - Nook Color (\$249-WiFi) NOTE: There are several SSD cards available on eBay that can convert this eReader into a tablet computer and add memory.
- There are many others (Aluratek, E-fun, Ectaco, Kobo, Pandigital, Sony, Velocity, etc.) \$65-\$400 see: http://en.wikipedia.org/wiki/Comparison_of_e-book_readers

2. Tablets

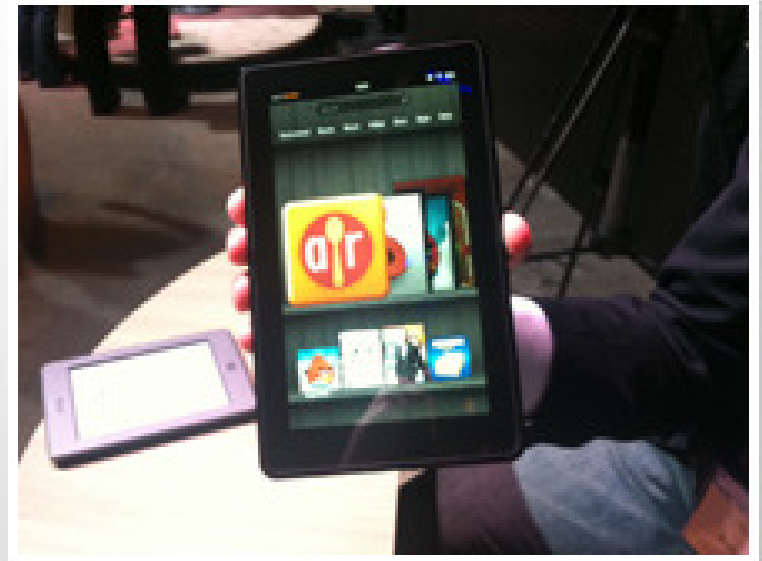
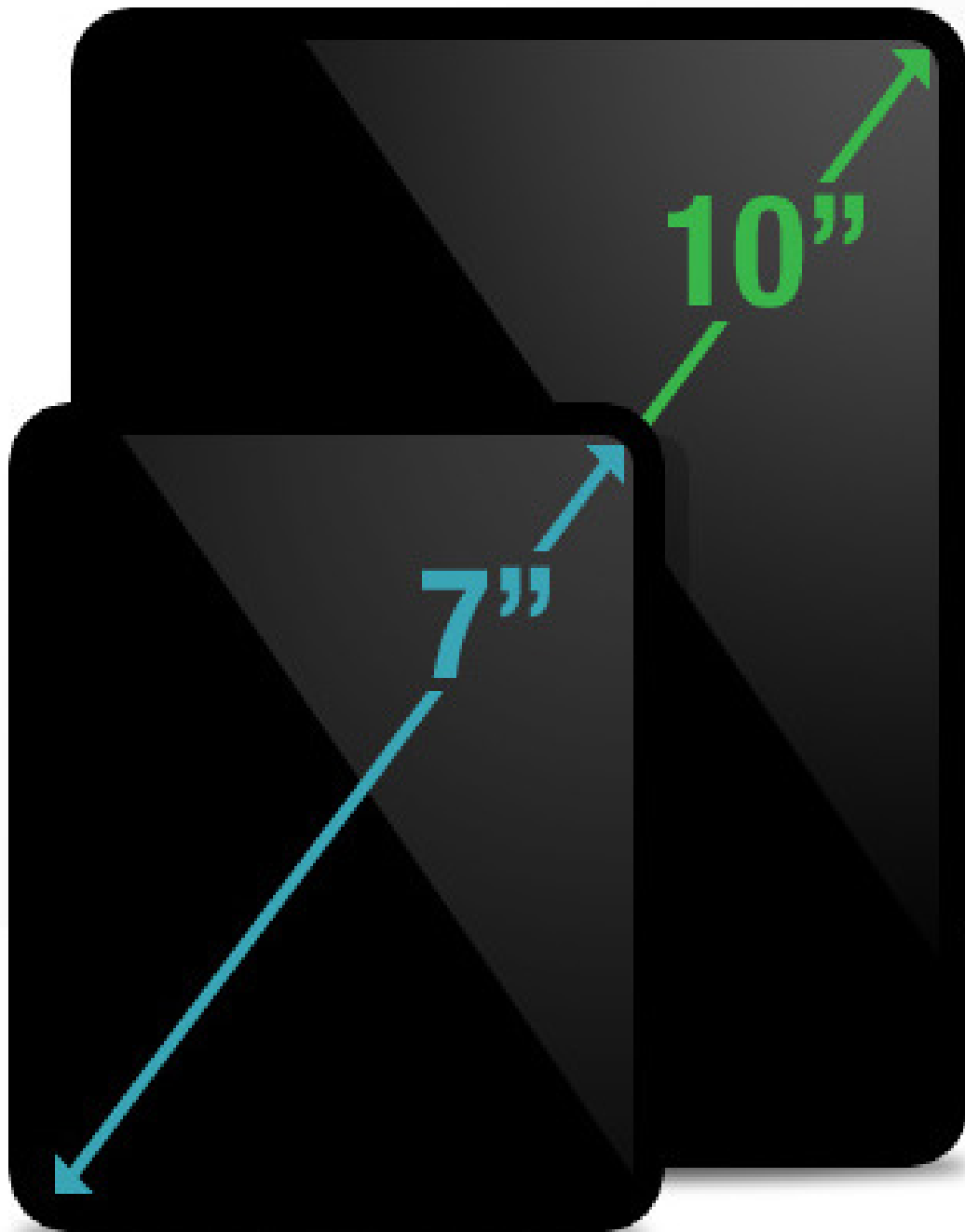
- A **tablet computer** or **tablet PC** is essentially a small laptop computer, equipped with a rotateable [touchscreen](#) as an additional [input device](#). Typically, it does **NOT** run a standard PC operating system like Windows7 or Linux, it runs a Tablet Operating System like Google Android (a Linux derivative,) Windows8 or Apple iOS.
- The term was made popular with the [Microsoft Tablet PC](#) concept, presented by Microsoft in 2001. Today, the term **tablet** is used to refer to [computer-like devices](#), operated primarily by a touch screen but running a Tablet Operating System and standard APPS (applications.)

Newer Tablet Market

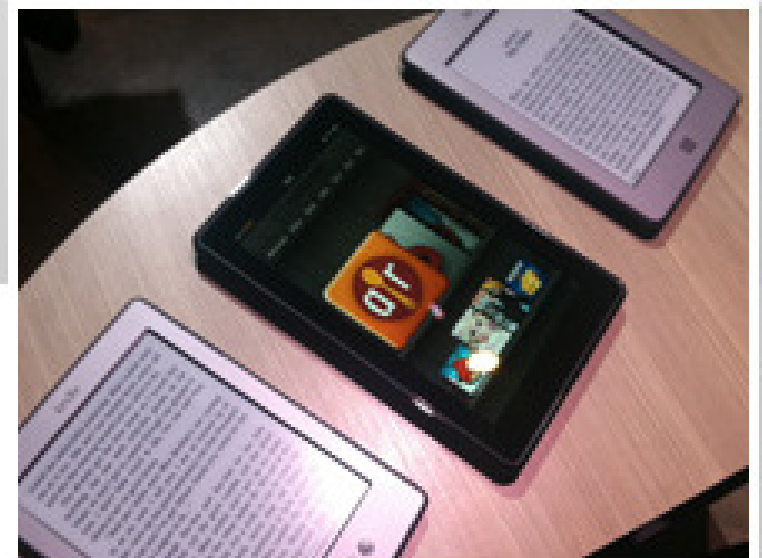
- 1. Tablets are now about 17% of PC market.**
- 2. Apple now has fallen to about 61% of market – iPhone5 and iPad3 coming soon?**
- 3. Google Android has risen to about 30% of market.**
- 4. Google Android now has purchased Motorola cell phone/tablet business.**
- 5. HP now back in tablet market after dumping old tablets for \$99 last Summer.**
- 6. MS Windows Mobile now has 4.6% of market, and 5000 Win8 tablets given to developers in mid-Sept.**
- 7. RIMM Blackberry now has only 3% of market, (price slashed to \$200 at Best Buy.)**
- 8. Amazon now offering \$199 "game-changer" Fire tablet which was shipped and in stores Nov 15.**

Amazon Kindle Fire





The new Amazon Fire - Amazon's answer to the iPad



The new Kindle family, Kindles now start at only \$79

What you need to know about Amazon's Kindle FIRE tablet

- **Price:** Amazon's tablet comes in at \$199, which is *only 40%* of the entry-level iPad2 \$499 price. That's an attractive price point, but it also comes at the expense of some hardware limitations listed below.
- **When can you buy it?** Nov. 15, 2011.
- **Hardware:** As predicted, the Kindle Fire looks quite a bit like [RIMM PlayBook](#) tablet, since Amazon [reportedly outsourced the hardware design](#) to **Quanta**, the company that manufactures the PlayBook. The screen is 7-inch, a size that's quite a bit smaller than the 9.7-inch screen size Apple uses in iPad designs.

Kindle FIRE @ \$199

- The tablet is 7-in only, has no camera, there's no mention of HDMI-out support, and it is Wi-Fi only (no phone,) meaning users won't have the option of getting 3G/4G data service from telecom partners such as **Verizon** or **AT&T**.
- If you were hoping for a next-generation processor like **NVIDIA**'s new five-core Kal-El processor, you're out of luck. The demo looked zippy, however. And the company did announce it uses a 1-Ghz dual-core processor, like Apple & Motorola Xoom.
- Storage is a meager 8 GB, so Amazon repeatedly emphasizes the use of cloud-based storage. Amazon's tablet runs a modification of **Google**'s Android, but this ain't your father's Droid. The user interface is unique to Amazon. It's a novel approach that's distinct from other Android tablets. The Apps appear to be Amazon-sourced, not Android Market-sourced.

Tablet Comparison

• <u>Tablet</u>	<u>Kindle Fire</u>	<u>Apple iPad2</u>	<u>Motorola Xoom</u>
• Price	\$199.00	\$499.99	\$448.76
• Screen size	7-in.	9.7-in.	9.8-in.
• Connection	Wi-Fi	Wi-Fi/3G	Wi-Fi/3G
• Software	Mod. Android	iOS	Android 3.0
• Content	AmznAppStore	iPad AppStore	Android Market
• Processor	1Ghz dual-core	1Ghz dual-core	1Ghz dual-core
• Camera	None	Front/back	Front/back
• Available	11/15/11	Since Mar '11	Since Feb '11

- **Added services:** Amazon's main emphasis was other services you get with the Kindle Fire. It's a unified package that effortlessly combines Amazon's cloud-based storage options, its digital downloads and streaming services, and even leverages Amazon's famed EC2 cloud-computing platform to reduce strain on the processor and make Web browsing more snappy.

Newer Tablets

#1 tablet (Growth) = **Android**

#1 tablet (Sales) = **iPad2**



#2 tablet Sales = Asus Transformer

ASUS Eee Pad Transformer Tablet

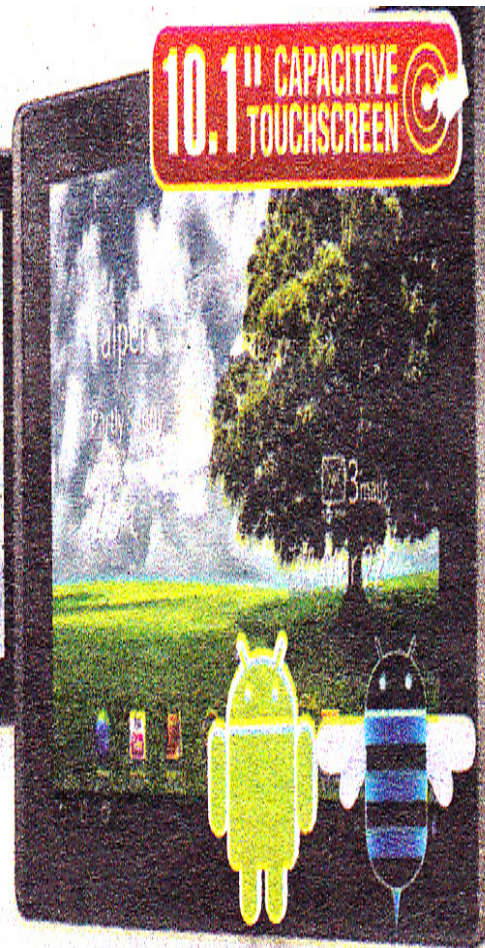
- Android™ 3.0 Honeycomb™
- NVIDIA® Tegra™2 Dual-Core Mobile Processor
- Dual Cameras

Bluetooth™ Mini HDMI

Surf the web, play games and access millions of web pages.



POWERED BY
NVIDIA TEGRA



Gear up your ASUS TABLET

ADD THE DOCKING
STATION **\$120**
For Only
with purchase of either
Transformer Tablets



A50-20000
Reg. \$529.99

A50-101201 16GB Eee Pad Transformer Tablet ... \$379.99
A50-101202 32GB Eee Pad Transformer Tablet ... \$479.99

Newer Tablets

ANDROID TABLETS

MOTOROLA Xoom WiFi Tablet

- Android™ 3.0 Honeycomb™
- Dual Cameras

POWERED BY
NVIDIA TEGRA

†Refurbished

\$399⁹⁹†

ADD A CASE
For \$39.99
M152-2010

10.1" CAPACITIVE TOUCHSCREEN

32GB



BONUS DOCK

With Purchase
a \$34.99 Value
\$203-7207



10.1" CAPACITIVE TOUCHSCREEN



Galaxy WiFi Tab

- Android™ 3.1 Honeycomb™
- Adobe® Flash® Player Compatible
- Built-In Dual Cameras

POWERED BY
NVIDIA TEGRA

16GB

32GB

\$499⁹⁹

\$599⁹⁹

Ipad/Ipad2 Features

- 1. 9.7” Touchscreen**
- 2. Apple Ios Operating System – 8, 16, 32, 64GB**
- 3. WIFI & 3G phone access**
- 4. Apple Store Applications – Apps**
- 5. Email access**
- 6. Music, Photos & Videos**

Check Tablet Features

- 1. 7 to 10 inch Touchscreen with G-sensor**
- 2. Android-type Operating System – 8 to 64GB**
- 3. Front & back side cameras (replace Point & Shoot Camera if resolution is high enough)**
- 4. GPS with antenna**
- 5. WIFI (802.11 b, g, and n radio communications)**
- 6. 3G or 4G cell phone communications**
- 7. Local Bluetooth communications**
- 8. APP Store applications**
- 9. Download & play videos (Flash Player 10.1)
Music, Photos**
- 10. Built-in Speakers, Volume Control, Headphones port, 4-USB ports, Printer port, Microphone, SSD memory port (TF card slot,) HDMI port.**

Check current Tablet news & info

- **Phandroid.com for Android news & info**
- **Apple.com for iPad**
- **TigerDirect.com for Tablet Central**
- **Android.com for Press/Media**
- **Google for Android vs iPad**
- **Frys.com for Tablets & iPads**
- **Windows 8 Developer Tablets Selling for \$2,000 on eBay – Google Tablet News – Microsoft gave away 5000 Win8 Samsung tablets to developers in mid-Sept.**

1. PCs - Netbooks

- **Netbooks** are a category of small, lightweight, and inexpensive [laptop computers](#).
- At their inception in late 2007 as smaller notebooks optimized for low weight and low cost — netbooks omitted certain features (e.g., the [DVD drive](#)), featured smaller screens and keyboards, and offered reduced computing power when compared to a full-sized laptop.
- Over the course of their evolution, netbooks have ranged in size from below 5" screen diagonal to 12". Typical screen size is 10" and weight is 2–3 pounds.
- Often significantly less expensive than other [laptops](#), by mid-2009, some wireless data carriers began to offer netbooks to users "free of charge", with an extended service contract purchase.

PCs - Laptops

- A **laptop**, also called a **notebook** is a personal computer for mobile use.
- A laptop integrates most of the typical components of a desktop computer, it is powered by mains electricity via an AC adapter and can be used away from an outlet using a rechargeable battery.
- As portable computers became smaller, lighter, cheaper & more powerful, and as screens became larger and of better quality, laptops became very widely used for all sorts of purposes.

PCs - Desktops

- A **desktop computer** is a [personal computer](#) (PC) in a form intended for regular use at a single location, as opposed to a mobile laptop or netbook .
- Desktop and tower computers are two different styles of computer case that use desk space in varying ways. Desktop computers are designed to lay flat on the desk, while towers stand upright.
- Prior to the widespread use of microprocessors, a computer that could fit on a desk was considered remarkably small. "Desktop" indicates a horizontally-oriented [computer case](#), usually intended to have the display screen placed on top to save space on the desktop.

