iPhone: Surviving The Shakeout

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1 Executive Summary

The Apple iPhone was released on June 29, 2007 (Apple Inc), after over six months of anticipation since Apple’s first public hint of the product (Inc). Across the country, tens of thousands of people waited in line hours in advance—in some cases, over 24 hours—despite the steep $500+ price tag, in hope of being one of the first to buy one of the smartphones before they sold out. Apple has mastered leveraging its consumer-oriented brand to generate hype for their new convergence device.

However, the cell phone market is established with multiple players on both the software and hardware fronts. In addition to the iPhone, powerful new players such as Google’s Android (Google) and the Linux Mobile Foundation (Foundation) are entering the software markets in the near term. With this new influx of entrants, along with potential wireless service disruptors such as Clearwire (Clearwire), we anticipate a shakeout in the smartphone market, as the market cannot sustain more than a handful of mature software platforms open to third-party development.

Apple’s primary goal for the iPhone should be to survive the upcoming shakeout by gaining market share. We propose the following recommendations for Apple to maintain a successful business strategy over the long term:

- Encourage 3rd party software development.
- Release multiple versions of the iPhone at different price points.
- Focus on the consumer market, leveraging integration with other products.
- Expand into the international market immediately.

2 History

Apple Computer, Inc ousted founder and innovator Steve Jobs in a power struggle over the future direction of the company in 1985 (Hornby). Following several unproductive years, Apple bought Steve Jobs’s company NeXT in 1997, to allow Jobs to lead the company (Computer). Jobs killed Apple’s Newton PDA product line to better focus the company’s efforts. Meanwhile, Apple enjoyed huge success as the dominant player in the portable digital music industry, and Newton fans hoped that Apple could replicate the iPod’s simple and innovative design in a PDA. Jobs, however, believed that PDAs and phones would converge into ”smartphones” that would become a user’s mobile digital hub. Handspring’s Treo and Research in Motion’s Blackberry pioneered the smartphone market, but these devices were clunky and unintuitive.

Apple’s first ventured into the cell phone market by partnering with Motorola, in an effort to follow up on the success with the then-impossibly thin RAZR. When the fruits of this effort, the music-based ROKR, didn’t live up to Jobs’ (or the markets’) expectations, Jobs directed his engineers to investigate touchscreen technology to revolutionize the smartphone user interface from the ground up (Rose).
After years in development, the iPhone was released to much media attention. Apple differentiated the iPhone by marketing it as a convergence device, integrating the best features of a phone, PDA, iPod, and internet tablet. Apple tied it all together with an intuitive touchscreen interface (Apple, Inc).

Apple also demonstrated the advantage of a cooperative joint venture by forming an exclusive partnership with Cingular (now AT&T Mobility), the biggest cell phone carrier in the United States. The day the iPhone was announced, Apple Computer, Inc dropped the word “Computer” from its corporate name to better reflect their ongoing expansion into the consumer electronics market (Jobs).

Based on its feature differentiation and partnership, the iPhone boasted a second-place 27% market share within 6 months of its introduction (Canalys). Sales continue to increase month-over-month, with over 2.3 million units sold in the first quarter of the 2008 fiscal year alone. Time Magazine named the iPhone the 2007 Invention of the Year (Grossman 2007). Apple followed up on the iPhone with a new portable music player called the iPod touch, which is identical to the iPhone in virtually every way (including WiFi capabilities), leaving out only the mobile phone hardware (Apple).

3 Six Forces Analysis

3.1 Competition

Like many other Apple products, the iPhone leverages vertical integration between software and hardware. Although this provides an edge in development, Apple is forced to compete simultaneously on both the software and hardware fronts.

On the hardware side, Apple competes with Nokia (53% global market share), Research in Motion (11%), and Motorola (7%), with Apple tying for third with 7%. Other competitors include LG, HTC, Palm, Samsung, and others.

On the software side, Apple competes with Symbian (65% global market share), Windows Mobile (12%), and Research in Motion (11%), having a 7% share itself. Apple also competes with Palm, Danger, and others.

However, these statistics are skewed by the fact that the iPhone has very limited legal exposure outside of the United States. Domestically, the iPhone currently holds the #2 spot with 28% market share, behind RIM’s 41% (Canalys) despite only being on the market for less than a year! This provides powerful evidence that Apple should attempt to repeat its domestic success in the global market.

Since wireless service providers are eager to provide hardware with the newest features to differentiate themselves from other carriers, Apple can gain market share by having the best features. Apple has proved this by leveraging the AT&T marketing machine for the iPhone launch, gaining AT&T’s cooperation by being a
phone of many firsts: touchscreen user interface, desktop-class web browsing, and best-in-class media playback.

3.2 New Entrants
Despite the smartphone market being crowded, two giants are set to enter the smartphone software market.

The first is Google, which is entering the market with the Linux-based Android mobile platform, working with the founders of the early Danger smartphone (marketed in the US as the T-Mobile Sidekick). Google is reacting to Apple’s thriving hacker ecosystem by making the platform open from the beginning, and funding top ideas from third-party developers.

The second is a conglomeration of handset manufacturers Motorola, Samsung, and LG; network providers NTT DoCoMo (the largest provider in Japan), Vodafone (the largest provider in Europe), and Orange (another large European provider); and others. They are developing another Linux-based mobile platform called Linux Mobile (LiMo).

Both of these new entrants will be based on Linux, an attractive platform for third-party software development. To compete, Apple must focus on making its software platform as easy-to-develop for as possible, to attract enough developers to support a valuable ecosystem of software to the iPhone.

3.3 Buyer Bargaining Power
As the exclusive wireless service provider offering the iPhone, AT&T has considerable bargaining power acting as a monopsony liaison for the users. Apple doesn’t have the industry expertise or capital to develop its own wireless network, so it would have to form new partnerships with other existing networks to share in subscriber service fees. Without any partnerships, the iPhone can be hacked to run on competing GSM networks such as T-Mobile, but Apple would not see any monthly revenue besides the initial sale of the hardware.

3.4 Supplier Bargaining Power
The microprocessor chip, memory and other electronic component markets are currently very competitive, leaving suppliers with little bargaining power. None of the suppliers have the capability to integrate forward to create a competitor to the iPhone. Additionally, the current and potential future versions of the iPhone and the similar iPod touch come with similar components, which translates to huge volume discounts on the buy side as well as significant differences between price and cost increases between various models on the sell side. Further, opening up the platform to third-party software developers doesn’t leave them with much bargaining power either.
3.5 Substitute Products
Substitutes to smartphones include regular “dumb” phones lacking advanced features such as music, web browsing, and email, as well as Voice over Internet Protocol (VoIP) and satellite phones that skip the traditional wireless phone grid entirely. Additionally, notebook computers, Internet-enabled PDAs, and Amazon’s new Kindle product are substitutes for some uses of the iPhone, but none provide all the features of the iPhone in such a cheap, portable, and integrated package.

3.6 Complements/Synergies
Apple’s biggest complement for the iPhone is iTunes, which is installed on 100 million computers running both Windows and Macintosh. In addition to being the users’ media player, iTunes also seamlessly syncs with and manages the iPhone.

In terms of development synergy, the iPhone runs a modified version of Apple’s Mac OS X desktop operating system, allowing Apple to leverage decades of OS experience, including multithreading capabilities (the ability to run multiple programs simultaneously) which are not available on other phones. (Apple) The iPhone also runs Safari, tested as the fastest web browser on the market. (Apple)

Apple’s largest strategic synergy has been the Apple TV, which Apple leveraged with the iPhone to convince YouTube (the world’s 5th most popular website) to transcode all of their videos into a format that cell phones and integrated devices can play back.

Finally, an external complement to the iPhone is Clearwire’s upcoming national WiMax network. Clearwire was founded by Craig McCaw, who has experience disrupting industries with nationwide networks, having consolidated cellular networks (creating what became AT&T Mobility), cable television, broadband, and satellites. In addition, with over $3 billion in funding from Google, Comcast, Time Warner, and Intel, Clearwire has both the funding and leadership to make this happen. (Clearwire) Clearwire can complement the iPhone by removing Apple’s dependence on individual wireless carriers.

4 SWOT Analysis
4.1 Strengths
State of the Art Features
- **Touch screen:** The iPhone’s touch screen has a higher resolution than competing products, and is extremely intuitive, recognizing multi-touch gestures which emulate how the hand normally behaves.

- **Web browser:** The iPhone has the full power of the Safari web browser, displaying full web pages with an intuitive zooming UI, instead of scaled-down web pages with limited features like most other cell phones.
**Synergy with other Apple Products:**

- *iPod and iTunes:* The iPod media player on the iPhone is even more powerful and easier to use than Apple's standalone iPods. The iPhone's iPod also integrates with iTunes, the leading desktop software media player. Additionally, since it uses the same dock connector as the iPod line, the iPhone works flawlessly with many of the same accessories.

- *Mac OS X:* By running the same operating system on Apple's desktop, the iPhone shares all the benefits, including the ability to run multiple applications at the same time, familiarity, security, and stability.

**Brand awareness:** Apple's brand was recently rated the seventh most valuable in the world (and the top mover in the top 10) *(Millward Brown)*, being well known for powerful and intuitive gadgets such as the iPod and Macintosh.

**Quality:** Every component of the iPhone is of superior quality. For instance, not only does the iPhone's screen have more pixels (screen real estate) and brightness than the competition, but it is also made of scratch-proof glass instead of cheap plastic like other phones.

### 4.2 Weaknesses

**Corporate image:** In the enterprise-heavy smartphone market, the Apple brand is seen by enterprises as consumer-friendly but not business-savvy, especially when it comes to security and on-demand email.

**Price:** Although the price is reasonable for the offered feature set, it is still too expensive for the average consumer. All cell phone providers subsidize most other phones, some to the point of being free, whereas the iPhone is unsubsidized and expensive.

**No third-party applications:** The iPhone software platform is currently closed, limiting the user to only the 18 applications built-in to the iPhone. Competitors such as Windows Mobile have thousands of available applications.

### 4.3 Opportunities

**Huge unmet global demand:** iPhones are being purchased in the U.S. and resold overseas for double the price. Some estimates claim that up to one quarter of all iPhones sold in the U.S. have been resold overseas. *(BBC)*

**Protectable UI advantages:** Some features, including multi-touch gestures, create an opportunity for unique applications to leverage those features to differentiate from competitors.
**Unstable Market:** Evolving technology and usage habits leave market dominance up for grabs. Case in point: the market share the iPhone has gained in less than a year.

**Cross-market Leverage:** The convergence of smartphones and media players positions Apple to leverage its dominance in iPods into dominance in smartphones.

### 4.4 Threats

**Competition from RIM:** RIM may not remain focused on the corporate market, and may accelerate its efforts to compete with Apple on the consumer side.

**Competition from Entrants:** Competitors may develop innovative UI features that rival those of the iPhone. Other multitouch-based phone have been released, but users rate the software as being more difficult to use.

**Price Competition:** Competitors are likely to offer products at lower price points, necessitating the release of lower-margin iPhone models.

**Corporate Market:** Bad press about security issues may hinder adoption, especially among corporate customers.

### 5 Strategy

The challenge for Apple is to survive the shakeout in both the hardware and software spaces, leveraging their brand, features, and synergies with their other products to rapidly gain market share both domestically and globally. Apple should focus on the consumer market rather than the corporate market to avoid a costly war with RIM, which has a first mover advantage with enterprises, and instead increase consumer market penetration through product differentiation with multiple versions of the iPhone. Apple must also encourage third party software development and the resulting network effect by maintaining a powerful software development API and opening the software installation process.

#### 5.1 Focus on the Consumer Market

Apple’s successes over the past three decades have been in computer hardware, software, and consumer electronics. Apple’s iPods are the best-selling personal media players in history, and have reenergized Apple’s brand equity to the point that iPod owners are much more likely to buy a Mac as their next computer than non-iPod owners. The Apple TV was the first device to deliver movies from all five major studios to the home television, and the iPhone was a device of many firsts.

Meanwhile, Apple has little brand equity with enterprises. Apple sells high-end Mac Pro workstations for graphics professionals and Xserve network servers for Internet companies, both of which are too expensive and too powerful—and therefore inappropriate for—the average desktop computer in the corporate market. Apple’s
MacBook Pro laptop, which is popular as a mobile workstation for corporate and professional users, cannot emulate a desktop in the enterprise because there is currently no reasonable docking station solution.

In the corporate smartphone market, Research in Motion is the clear market leader, with their BlackBerry smartphones representing 42% of all devices sold in the past year. The BlackBerry supports dozens of enterprise-friendly features, including multi-factor authentication, remote device cleansing for stolen devices, instant push email, and Microsoft Exchange integration. Additionally, the BlackBerry has over a decade of brand equity in the global market, with features designed specifically for Fortune 500 companies.

The iPhone, on the other hand, has zero of these corporate-friendly features, and thus none of the Fortune 500 companies support the iPhone. As RIM has the clear first mover advantage, Apple’s best use of marketing power is to leverage its brand equity in the consumer market for rapid growth to solidify its place post-shakeout, and avoid an expensive war with RIM in the short term. However, Apple should not ignore the corporate market completely, as devices sold to enterprises have higher profit margins and can provide a tremendous growth opportunity. Apple has already started along this path with its support of Microsoft Exchange ActiveSync. If RIM decides to violate this implicit cooperation (or tacit collusion) by making a strong push in the consumer smartphone market, this will blur the lines between the consumer and corporate sides, giving Apple more credibility in the eyes of the enterprise.

We recommend that Apple launch comparable features to the BlackBerry, but that they hold off on marketing the iPhone to Fortune 500 enterprises. Apple should market the iPhone to small- to medium-size companies that already use Apple products such as the Mac Pro, MacBook Pro, and Xserve, since these companies will be more willing to trying additional Apple products, and have fewer employees to transition over. Apple should then let the network effect expand their influence to some of the larger companies in the short term. If trade magazines write favorably about the corporate features of the iPhone, putting iPhone on the enterprise radar, then Apple will be in a position to market itself as an enterprise product without initially declaring a direct war on RIM.

5.2 Embrace Third-party Software Development

We are at a key juncture in the evolution of mobile computing devices. Now that the current generation of smart phone devices and platforms are becoming sophisticated enough to become substitutes for notebook computers for many tasks, this emerging space is reaching a transition point. Although smartphones are physically too small to be perfect substitutes, recent devices have more than enough computing power for many commonly used applications, such as media playing, web browsing, email, camera and video recording. If Moore’s Law continues to hold
for processors and disk space, it will not be long before smartphones have as much computing capability as today's laptops and desktops.

This evolution will drive the need for serious third party application development for smartphone platforms. As was the case for the PC industry in the early 1990s, the usefulness of a mobile device will start to depend heavily on available software. One of the reasons Apple lost the shakeout war with Microsoft in the personal computer market in the 1990s was that the incompatibility of the Windows and Macintosh operating systems meant that third party software developers had to choose one platform or the other for their development, leading to a shakeout in which most software developers chose the Windows platform for having the most users. This feedback effect resulted in a single dominant market leader. (Kirkpatrick)

Currently, there are several different mobile computing operating systems. If they all remain mutually incompatible, software developers will have to choose which platform(s) to develop software for. Since the smartphone market is still young, application developers may be the ones to choose the next market leader, choosing the target platform based more on unique development features than the one with the largest user base. Smartphone users will then choose the device with the best software. For example, if a developer writes software that depends on a touchscreen, they will develop for the iPhone, leading users who want that software to buy an iPhone.

The alternative to a platform war is compatibility. If API adapters are developed that allow, e.g., software written for the iPhone to run on a BlackBerry, then the feedback cycle is broken and multiple platforms can be supported. This situation is analogous to what happened in the instant messenger software market. Users wanted to use the software that had the most users, but there were several competing networks that emerged around the same time. The fact that users could install multiple IM clients on a single computer retarded the shakeout effect, but the losers staved off their defeat by introducing compatibility between instant messaging protocols. Today, Google Chat and AOL have merged their IM networks, as have Microsoft and Yahoo.

Looking forward, a mobile platform must either have the best and/or widest variety of software written for it, or it must be compatible with the platform that does. In the event that the iPhone platform fails to quickly become the market leader in mobile device software, Apple must respond by quickly releasing an adapter that allows software developed for the leading platform to run on iPhones—without releasing it too early, which will only encourage development for other platforms. If Apple releases the adapter too late, they risk a repeat of their defeat in the PC market. However, as long as Apple has a good chance of winning a shakeout war independently, Apple should not focus on an adapter.

For Apple to solidify initial market share, Apple must rapidly attract the best third-party software talent. Developers have been writing software for the iPhone’s beta
API in anticipation of its public release. Apple must leverage its decisive advantage in user interface and consumer markets into superiority in the emerging mobile software market by attracting even more software developers with unique iPhone features and the easiest-to-use API. If these features are either protected by patents (e.g., multitouch) or are simply unavailable in competing phones, this could be a great differentiating factor for the iPhone to establish market dominance.

### 5.3 Product Differentiation

In addition to third-party applications, product differentiation will be key to Apple’s strategy if it wants to boost its sales of future versions of the iPhone. Apple had already employed this strategy with much success with its market-leading Personal Media Player (PMP) device: the iPod. The current line of iPods manages to capture price points within almost every $50 range, starting from $49 to $499. (Apple Computer)

Not only has this strategy made the iPod affordable to a wide range of consumers, but it has also enabled Apple to compete a wide range of rivals as well, using its brand equity and unique features to grab in a consumer at every price point. This strategy has helped Apple capture its 75.6% share in the PMP market (MacDailyNews). Apple employs a similar strategy with their range of laptops, differentiating both between the standard MacBook premium MacBook pro, and chic MacBook Air lines and within each line with upgrades and extra features, leading to increased adoption in the past couple of years.

By releasing the iPod Touch as a phone-less version of the iPhone, Apple is on the right track in terms of pursuing this strategy. The iPod Touch offers similar features available in the iPhone to those customers who want all the features but the phone, and also to non-AT&T customers who have a high switching cost of adopting the iPhone due to the AT&T’s exclusivity. If this partnership is abandoned in the future, Apple will need to further differentiate to maximize market penetration.

Given our recommendation that Apple should focus primarily on the consumer market, it is important for Apple to pursue an iPod-like strategy whereby it uses its already established reputation to offer high quality products in a segmented market and thereby maximize profits. With its current price tag of $399 for the 8 GB version and $499 for the 16 GB version, the iPhone is quite expensive compared to many other smartphones. To make the iPhone worth the extra cost, Apple should add faster 3G internet speeds to match the competition. Additionally, to further differentiate the base model from premium versions marketed to a wealthier clientele, Apple should add additional premium features such as GPS location tracking and videoconferencing with a second camera on the front of the phone. We envision three versions of the iPhone:

1. $400 – 8 GB, similar to the current iPhone except with 3G technology
2. $500 –16 GB, 3G, GPS, and videoconferencing
3. $600 –32 GB, 3G, GPS, and videoconferencing

iPhone: Surviving the Shakeout
Although Apple had initially disallowed AT&T from offering its standard $200 subsidy in order to first establish the iPhone as a premium brand, we believe Apple should allow AT&T to subsidize the prices to bring the price points down to $200, $300, and $400 respectively, making the iPhone a much more attractive buy for most consumers. The iPhone will still be seen as a premium product due to its touchscreen, 3G internet speeds, and 3rd-party software across the entire line.

5.4 International Market
To maintain rapid growth of market share, Apple should expand into the international market as quickly as possible. The quantity of illegally unlocked iPhones that were resold in Europe and Asia almost immediately after its release is a sign of the iPhone’s potential success in international markets. Currently, Apple has secured deals with O2, T-Mobile, and Orange to be the sole distributors of iPhone in the United Kingdom, Germany, and France, respectively (Wray). There are also confirmed reports that the iPhone will be released in almost two dozen more countries in 2008. Like its plan with AT&T, an agreement with a sole distributor proved to an effective tool in entering a market by having the carrier market the phone instead of Apple itself. We recommend, however, that Apple should eventually break free from these restrictive ties to maximize market share amongst users of all carriers.

Another important aspect in entering international markets is i18n (internationalization) and l10n (localization) of the software, adapting the interface to individual cultures and regions. For example, a viable strategy for Europe may be to install a soccer program to the home screen providing statistics and reports for the Europe’s most popular sport next to the iPhone’s existing weather and stocks programs. As another example, Apple should put scrollbars on the left side of the screen for countries such as Saudi Arabia and Israel with right-to-left languages. Appealing to a country’s culture can be the most important aspect of entry into the market.

6 Conclusion
To survive the impending shakeout, Apple must leverage its unique features and brand equity in the consumer market to rapidly gain market share both domestically and internationally. Apple should attack multiple levels of the market with product differentiation, expand into multiple markets with rapid international growth, and create a network effect by encouraging third-party software development. Once the shakeout is over and Apple maintains a competitive edge, Apple should continue to drive growth with innovation in additional convergence and by finally entering the corporate market.
7 Appendix

Exhibit A

North American Smartphone Market Share, Q3 2007

Source: Canalys
Exhibit B – Global Smartphone Hardware Market Share Q4 2007

- Nokia: 53%
- RIM: 11%
- Apple: 7%
- Motorola: 6%
- Other: 23%
Exhibit C – Utilizing the Convergence offered by the iPhone
Percentages of Customers That Utilize Their Mobile Devices for Various Uses

Source: M:Metrics, 2008
Exhibit D

Cell Phone Satisfaction Rating - By Manufacturer

Customers Who Say They Are Very Satisfied With Their Current Cell Phone

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple (iPhone)</td>
<td>82%</td>
</tr>
<tr>
<td>RIM</td>
<td>51%</td>
</tr>
<tr>
<td>Sanyo</td>
<td>46%</td>
</tr>
<tr>
<td>LG</td>
<td>44%</td>
</tr>
<tr>
<td>Nokia</td>
<td>36%</td>
</tr>
<tr>
<td>Samsung</td>
<td>36%</td>
</tr>
<tr>
<td>Palm</td>
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</tr>
<tr>
<td>Motorola</td>
<td>33%</td>
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<tr>
<td>Sony/Ericsson</td>
<td>31%</td>
</tr>
</tbody>
</table>

Exhibit E

RIM vs. Palm vs. Apple
Future Smart Phone Buyers
Percentage of Respondents Planning on Buying a RIM, Palm or Apple Smart Phone Over the Next 90 Days

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### Exhibit F – RIM’s Corporate Dominance

![Corporate Market: RIM/Blackberry vs. Palm](image)

**Exhibit G – Feature Comparison Chart – iPhone, Blackberry Curve 8320 (Major Domestic Smartphones) and Nokia N95 (Major Global Smartphone)**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Apple iPhone</th>
<th>RIM Blackberry Curve 8320</th>
<th>Nokia N95 8 GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networks</td>
<td>GSM Quad Band, EDGE</td>
<td>GSM Quad Band, EDGE</td>
<td>WCDMA2100(HSPDA), EGSM, GSM Quad Band, EDGE</td>
</tr>
<tr>
<td>Operating System</td>
<td>OS X iPhone</td>
<td>Blackberry</td>
<td>Symbian</td>
</tr>
<tr>
<td>Display</td>
<td>3.5”&quot;, 420 x 380, 163 ppi</td>
<td>2.5”, 320 x 240</td>
<td>2.8”, 240 x 320</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB</td>
<td>64 MB + up to 4GB SD</td>
<td>8 GB</td>
</tr>
<tr>
<td>Web Access</td>
<td>Full (Apple Safari)</td>
<td>Quasi-full (Blackberry Browser)</td>
<td>Quasi-full (Nokia Browser)</td>
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<tr>
<td>Music</td>
<td>Audio files</td>
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<td>Video Player</td>
<td>Up to 640 x 480</td>
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<td>Bluetooth</td>
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<td>2.0</td>
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</tr>
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<td>WiFi</td>
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<td>802.11b/g</td>
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<tr>
<td>Camera</td>
<td>2 MegaPixel</td>
<td>2 MegaPixel</td>
<td>5 MegaPixel</td>
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<tr>
<td>Keyboard</td>
<td>QWERTY On-Screen</td>
<td>QWERTY Keyboard</td>
<td>Keypad</td>
</tr>
<tr>
<td>Other</td>
<td>Google Maps, YouTube</td>
<td>Corporate Data Access, Blackberry Maps</td>
<td>GPS</td>
</tr>
</tbody>
</table>
Exhibit H

**Top Features iPhone Users Would Like to See**

What feature would you most like to see added to the Apple iPhone?

- 3G Capability: 19%
- Third-Party Software: 18%
- GPS: 15%
- E-mail Integration: 10%
- Voice Recognition: 8%

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Exhibit I – Projected 3G Penetration in North America – Various Technologies

**North America Subscribers: Technology Share**

Source: Average of Strategy Analytics (January 2006) and Yankee Group (March 2006) subscriber forecasts

* Other includes AMPS, cdmaOne, IDEN and TDMA
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