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## The Mobile Industry – Morphing Perceptions

*This report provides a general overview of the mobile industry and addresses several current industry trends.*

The mobile industry has been growing rapidly, driven largely by continued enthusiasm for Apple’s constantly evolving iPhones, Android’s new and innovative devices, the various new tablets, and the wide adoption of mobile apps. In 2007, Apple’s innovative iPhone triggered an unprecedented demand for smartphones. Since then, top cellphone manufacturers have released their own smartphones to compete in this emerging subsector. These manufacturers have been introducing many notable innovations in smartphone hardware, including improved camera technologies, mobile payment options, and improved screen strength and resolution - all in order to keep up with the unyielding growth in consumer demand.

Recently, tablets have gained market acceptance due to the fact that their processing power, wireless connectivity, and battery life finally allow several hours of quality consumption. However, within the tablet world, real contenders to Apple’s iPad 2 are still few and far between. One notable contender is the Samsung Galaxy Tab 10.1, which still has a lot of room for improvement. In general, further developments are expected in tablet size, weight, battery life, connectivity, screen quality (HD, 3D), durability, and accessories.

App developers have created a whole new industry to respond to emerging trends in the mobile hardware space. There has been an evolution of apps for both smartphones and tablets, providing end users with more entertainment and interaction. This report will concentrate on major trends that are expected to fundamentally affect the mobile industry and the way we use mobile devices.

### Leadership shift?

In Q2 2011, Android achieved a 52% global market share in the smartphone sector. This growth is projected to continue due to the expected introduction of several Android-based mobile phones, including the highly anticipated NFC supporting devices. While market share should remain high, overall sales growth may slow down due to the economic uncertainty affecting the world’s economy. Google’s announced acquisition of Motorola Mobility may lead to a significant slowdown in Android’s growth, and a decrease in its market dominance - due to the reluctance of other manufacturers (Samsung, HTC etc.) to compete directly with Google on hardware. The expected release of Apple’s iPhone 5, Blackberry’s 7 new phones, and Windows’ highly anticipated Mango Phone will allow consumers to experience innovative devices and alternative platforms.

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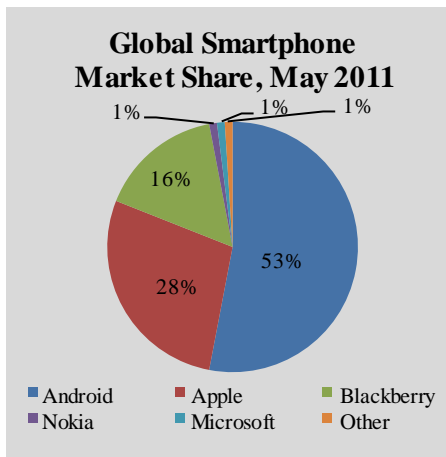
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**Hardware evolution continues**

The constant demand for phone improvements has pushed hardware manufacturers to focus on creating slimmer and lighter phones with faster processors, longer battery life, and higher resolution. The major players in the industry are also focused on devices with more sophisticated cameras that can compete with standalone digital cameras in the market, as well as other innovations that will differentiate their product in the eyes of the consumer. Future innovations should include: improved connectivity (infrared, satellite, Bluetooth v4, two-way radio, zigbee, etc.), longer battery-life, better portability, and more convergence.

**M&A activity expected to continue**

This year has been an eventful one for M&A activity in the telecom industry. AT&T’s potential large-scale acquisition of T-Mobile, Google’s purchase of Motorola Mobility, Microsoft’s buyout of Skype and its collaboration with cell phone giant Nokia all made headlines. These deals may be a signal of further consolidation in the near future within the telecom space. Apple and Google are currently dominating the industry - in terms of both market share and sales. They face increasing competition from Samsung and HTC, as well as a fading attempt to compete from the former market leader Research in Motion.



Sources: Millenial Media

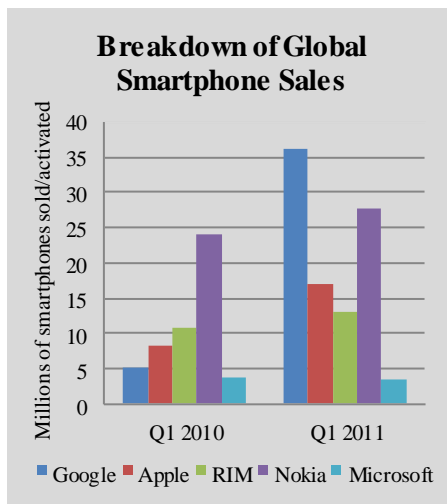
**Smartphone market overview**

**Android – the current frontrunner**

Google introduced its Android mobile operating system in 2007. The open-source platform immediately attracted the attention of mobile phone and app developers across the world. In only a few years, it has been able to attain the number one spot among all mobile operating systems, commanding a 52% market share within the smart phone sector. This places Android significantly above its nearest rivals Apple iOS, RIM, and Symbian.

**Google’s game changing acquisition of Motorola Mobility**

On August 15<sup>th</sup>, 2011, Google announced the acquisition of Motorola Mobility for \$12.5 Billion dollars and has changed the dynamics of the mobile phone industry. The announcement creates an unprecedented level of uncertainty in assessing the future of both Google and its competitors. The new Google is a stronger contender to Apple, as it will have the capacity to develop both software and hardware for its new devices. In addition, Google gained control of Motorola’s vast patent portfolio (17,000 patents and over 7000 pending patents), providing much needed protection against potentially expensive litigation costs. It currently offers over 300,000 apps and we expect the number of apps will continue to increase in the foreseeable future. However, the deal seems to contradict the company’s core mobile strategy as a provider of a free operating system platform for third party manufacturers. It is expected that Google’s hardware partners (Samsung, HTC, LG, Sony and others) may want to compete with Google by developing more devices based on Microsoft’s OS or by developing their own alternative operating systems. While this move may prove to be a successful one for Google, it is risky and is expected to have long-term implications for the company and the industry.



Sources: Gartner

2010 Top Deals		
Acquirer	Target	Price
HP	Palm	\$1.2B
Lenovo	Mobile Communication Technology Ltd.	\$200M

2011 Top Deals		
Acquirer	Target	Price
Intel	Infineon Technology AG Wireless Unit	\$1.4B
Nokia Siemens	Wireless network infrastructures	\$975M

2012 Top Deals (Expected)		
Acquirer	Target	Price
AT&T	T-Mobile	\$39B
Google	Motorola Mobility	\$12.5B

Sources: Company Data

**Microsoft – the “old” new player**

Microsoft, which until recently was on the fringe of the smartphone market (highest market share to date was 7%), is set to launch its new “Mango” operating system in September. Despite its lackluster performance thus far in the industry, the company now has the potential of capturing a larger market share through its technological innovations and user-focused approach. This growth potential depends on the quality of Microsoft’s investments in application development, as well as the effectiveness of its marketing campaign. The company is attempting to stimulate development by initiating training programs and releasing development materials to the public. This move has been met with approval by app developers, and as a result the size of the Windows Marketplace is growing rapidly. It currently offers over 30,000 apps and we expect that the number of apps will continue to increase in the foreseeable future. Microsoft’s future in the market will depend solely on its own strategic decisions in the next few months. Due to the Google-Motorola deal, the company is in a solid position to gain lucrative partnerships with Google’s current partners that might be looking for alternatives.

**Research in Motion – on the way out – acquisition candidate?**

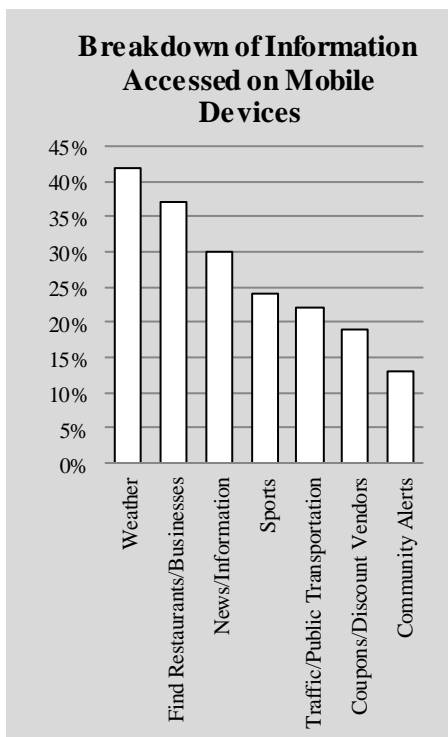
Research in Motion (RIM) recently announced that it is cutting more than 10% of its global work force, including its Chief Operating Officer. Though the company’s performance is strong overseas, sales in North America have been declining over the past twelve months. In addition, increasing competition from Apple, Google, and Microsoft has reduced RIM’s global market share considerably since 2010. The company needs innovative marketing strategies and more current devices to remain a viable contender in this market. RIM’s new Blackberry Torch and some other expected releases could assist in slowing down or preventing its current decline. However, the delayed release of its new operating system, based on QNX’s acquisition, may convince prospective and existing customers to look elsewhere.

**Current, developing, and future trends**

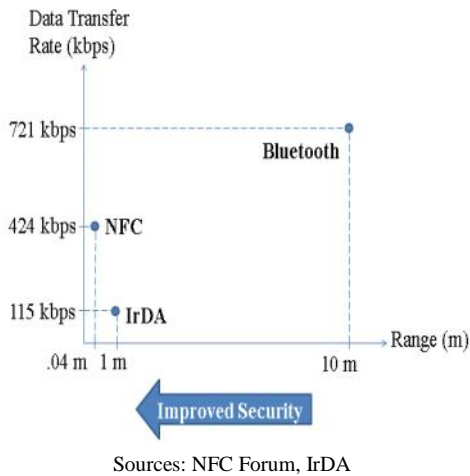
1. Current trends indicate that mobile payments, specifically Near-Field Communication (NFC), have tremendous growth potential. Payment technology in cellphones will play a pivotal role on how consumers will use their devices. The platform that best utilizes this technology will gain significant consumer adoption.
2. The increased development of web-based mobile apps, coupled with the increased availability and adoption of 4G connectivity will increase the usage and interactivity of users with web-based platforms.
3. The development of alternative and wireless charging methods are expected to improve power utilization and availability in the near future.

**Mobile payment – the future is here**

Current mobile payment systems rely on hardware attached to phones, or mobile accounts, which can be used to transfer funds (i.e. PayPal). The adoption of these technologies and payment methods has yet to become mainstream in the US, as it is in Japan and Korea. There are multiple reasons for this, including few compatible devices, consumer concerns regarding security, the limited availability of supporting financial institutions and the lack of agreed upon standards.



Sources: Pew Research Center’s Project for Excellence in Journalism and Internet and American Life Project



However, these shortcomings are rapidly being addressed and there are new players with innovative technologies and services entering this market daily. Google’s NFC champion, Nick Pelly, has recently announced that dozens of NFC enabled Android smartphones will be launched in 2012. Apple has yet to disclose any official plan to equip upcoming iPhones with comparable technology; however, the company has recently hired Benjamin Vigier, recognized NFC expert and PayPal mobile service developer. This move indicates that Apple could very well be introducing its own mobile payment system to further increase its margins and lock-in effects with regard to customer loyalty and dependency on Apple’s ecosystem.

**NFC – focus on security**

NFC, a joint venture between Nokia, Phillips and Sony created in 2004, produces a set of short range wireless signals, adding convenience and security to mobile payment transactions. NFC chips use magnetic induction between two looped antennas, allowing quick short-range communication between devices. NFC puts a strong emphasis on protecting its customers’ private information by only allowing signals to transfer for a maximum distance between sources of 4 centimeters (1.57 inches). While this may seem inconvenient and counter-intuitive towards attaining customer satisfaction, the short distance reduces the chance of identity theft, thus allowing for improved security. Additionally, most mobile payments take place between a device and a receiver, such as an electronic cashier, making the 4cm range a non-issue.

**Wireless Technologies Comparisons**

NFC	
Introduced in	2004
Set-up Time	< 0.1s
Range	~4cm
RFID Compatibility	Yes

Bluetooth	
Introduced in	1994
Set-up Time	6s
Range	~10m
RFID Compatibility	No

RFID	
Introduced in	1983
Set-up Time	< 0.1s
Range	Varies
RFID Compatibility	

Infrared - IrDA	
Introduced in	1993
Set-up Time	2-3s
Range	~1m
RFID Compatibility	No

Sources: NFC Forum, June 2011, Popular Science Magazine

**NFC versus Bluetooth and RFID**

NFC Technology is similar to Bluetooth technology in that they are both short-range wireless communication technologies that are integrated into mobile phones. However, the similarities stop there. NFC data connections operate at slower speeds than Bluetooth and require less power for information exchange. Unlike Bluetooth, NFC also allows for passive-active interaction. This means that mobile devices employing NFC technology can communicate with active devices, bar-codes, and passive devices when engaging in a transaction. In addition, NFC’s setup time is 1/10<sup>th</sup> of a second, significantly less than Bluetooth’s 6 second average setup time. Detailed cross-comparisons are shown in the tables on the left.

**NFC technology – work in progress**

Although NFC’s shorter communication range allows for improved security, complete protection of data transfer is not ensured. The danger of using wireless communication comes from potential data destruction, modification, insertion, and eavesdropping. These threats exist with all current mobile payment methods, including NFC. Citing a recent survey from Javelin, 65% of the people who said they were not comfortable paying with contactless cards stated fear of theft as the number one reason. 33% of participants considered mobile banking “too risky.” With only 3.5 million of the current 100 million U.S. residents who use mobile payments, it is evident that the U.S. population still needs to be convinced that mobile payments are convenient, inexpensive, and safe. This cannot be achieved until providers of wireless payment systems, hardware manufacturers, and the carriers who distribute them improve overall awareness.

<b>Projections: Percentage of NFC-enabled Devices</b>	
2011	3%
2013	20% - 32.8%
2015	53%

Sources: IEMarket Research, Juniper

### **NFC and the mobile payment sector**

Industry experts are making bold predictions about the future role of NFC technology in the mobile payment industry. In April 2011, Juniper claimed that 1-in-5 smartphones worldwide (nearly 200 million) will be NFC enabled by 2013. Two months later, Juniper estimated that the annual global gross transactions value of mobile phone payments would grow by more than five times over the next two years. Within that same report, mobile phones equipped with NFC technology were also forecasted to generate approximately \$75B in payment transaction revenue within five years – with the top 3 mobile regions – South East Asia, North America, and Western Europe representing 90% of this market by 2013.

IE Market Research estimated that mobile phone payments via NFC will represent 32.8% (\$1.13 Trillion) of global mobile phone payment transactions by 2013. Within the industry, NFC chip makers posted an article last October in the NFC Times, announcing that there will be at least 40 million NFC phones on the market by December 2011. This number is based on orders received for NFC chip sets and is still on track to be realized.

### **Mobile payments outlook**

Paypal recently introduced an NFC-based application that allows two users to transfer money between accounts by simply tapping their phones together. The application is still in its early testing stages, but represents the introduction of a new era of interpersonal and commerce payments. Telstra, an Australian company and the Australian National Bank, have recently introduced trials using NFC, capitalizing on the steady shipment of NFC supporting handsets to Australia. Recent press reports have declared the trial a “success” with 90% of consumers expressing satisfaction with the system, 95% pledging to use the system again in the future, and 78% stating a preference for NFC based payments over cash payments.

On May 26, 2011, Google introduced its “Google Wallet” platform which claims to “turn your phone into a wallet.” The technology connects credit and debit cards to smartphones, which then use tap-and-pay technology to complete transactions. The software giant is partnering with Citibank, MasterCard, Spring Mobile, and hundreds of thousands of merchants across the United States to develop its new initiative. It is expected to show strong growth until the end of the year.

On August 1, 2011, American Express and Verizon Wireless announced a partnership to integrate the company’s PayPal-like “Serve” platform into the carriers’ selection of mobile phones and tablet devices over the next few months. Serve will speed up the checkout process by linking existing mobile numbers to respective Serve accounts. The online checkout experience will be simplified by allowing consumers to make on-screen purchases with just a click. The Serve card is currently accepted by millions of merchants in the United States who also accept American Express.

We believe that these developments in conjunction with several other pending mobile payment initiatives point to a fundamental shift over the past fifteen months in the way that consumers view and use mobile phones and tablets. In the past, mobile customers saw their devices as a means to communicate, enhance productivity and provide entertainment. Now consumers are increasingly aware of and open to the idea of using their mobile devices to engage in transactions.

It should be noted that although growth in the United States has been relatively slow to date, the use of NFC technology and mobile payments in general has exploded in Asia. Further innovation in NFC-based payment applications, as well as in other mobile payment technologies, will only fuel the global growth of the industry in the years to come.

### Apps - a catalyst for smartphone sales

The most celebrated feature of the smartphone industry is the use of apps, or add-ons, that utilize the phone's operating system and hardware to provide communications, information and entertainment to its users. Some of the most popular categories for smartphone apps are contacts and calendars, social media platforms, games, instant messaging, and global positioning systems. Within these categories a few of the most frequently downloaded apps are Facebook, Twitter, and Angry Birds.

App uses can range from general to community or user specific. Some communities even share important news solely over mobile devices. The speed and ease of providing information on smartphones suggest that app development will only continue to grow. This will significantly extend the reliance on the platforms they are developed for, thus increasing use and sales of new phones and other mobile devices.

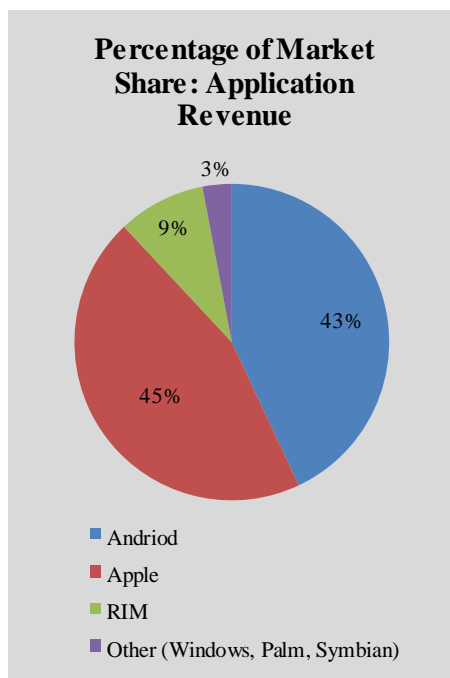
### The App marketplace – real revenue generation and more to come

Developers have realized the potential of selling applications in marketplaces like the Apple App Store, Android Market, Windows Marketplace and Blackberry App World. Apple is the industry leader in the number of apps provided, boasting 425,000 apps. Google's Android comes in at second place with about 300,000 apps, while Windows Mobile ranks a distant third with only 30,000 apps. More apps for Windows-based phones are expected to be available after the release of the Windows Mango OS. A similar increase is predicted for RIM's Blackberry, whose paltry 18,000 apps are expected to increase with the introduction of 7 new QNX OS-based phones within the next twelve months.

The potential revenue from the different app markets is considerable. In 2010, Apple generated \$1.78B in revenues from the App Store, while BlackBerry generated \$165M and Android generated \$102M. We expect that Android application revenues will surpass Apple's App Store revenues in the next 24 to 36 months, as more developers take advantage of an ever increasing customer base and the ease of submitting apps to the Android Market. However, the new paradigm created by Google's acquisition of Motorola Mobility might turn the tide towards Microsoft's Mobile Marketplace. If hardware manufacturers decide to install the Windows Mango operating system on their new devices instead of Android, it could lead to surge in revenues for Microsoft.

### Apps – issues with local installations

Mobile applications require constant updates due to their relative immaturity (requiring frequent bug fixes) and the constantly changing nature of platforms and operating systems they reside on. In contrast, PC based applications only require users to update their software periodically. Additionally, most apps are not compatible with all operating systems (Windows, Blackberry, Android, and iOS). These factors will change in the next couple of years as apps mature and standardized platforms start to be used by the different providers.



Sources: Millennia Media, May 2011

App Top Deals: 2010		
Acquirer	Target	Price
Google	Slide	\$182M

### Advantages of web-based apps

The difficulties with maintaining current applications have led to the rise of web-based apps, which bypass most of the problems discussed above. Apps that are solely web-based can be accessed by anyone and from anywhere. The app interface can be developed to appear exactly the same on different web browsers, operating systems, and their varying versions. Developers can provide updates without user involvement, rendering the update process seamless and enabling glitches to be fixed earlier.

App Top Deals: 2011		
Acquirer	Target	Price
EA Games	Popcap	\$1.3B
Doro	Prylo SAS	€1.35M
eBay	Zong	\$240M
Microsoft	Skype	\$9.08B

Both independent and large app development companies have realized the importance of web-based apps on future mobile phone design and revenue streams. In 2011, the top mobile companies made more acquisitions of web apps than in 2010, indicating that high app growth rates, and more specifically web apps will continue as phones/tablets with better connectivity are demanded by consumers.

### Challenges of transitioning to web-based apps

Web-based apps have several drawbacks when compared to locally installed apps. One significant challenge is that in order to use the app, users must be connected to a network at all times. This requires either a constant Wi-Fi connection or a wireless data connection through a wireless carrier (often requiring a faster connection than 3G). A second drawback is that web-based apps cannot take advantage of the phones' hardware components (cameras, GPS, memory, etc.), interact with other apps, or access the content embedded within the phones (i.e. contact and calendar data). A third major downfall is that developers have to design individual checkout systems to sell their content, which is less efficient than the payment methods currently provided by smartphone carriers and app store providers (i.e. iTunes, Microsoft, Google, Verizon, etc.). The option of a local copy (of the app) exists to address these issues, but this defeats the very purpose of web-based apps.

### Web app market outlook

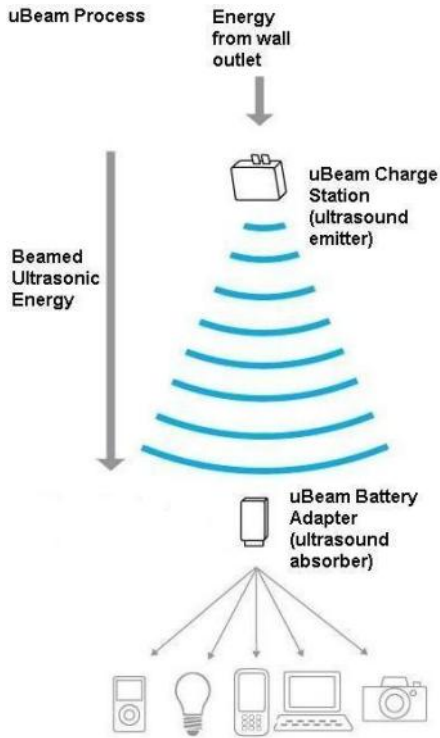
Google Acquisitions of App Companies (2011)		
Date	Target	Price
1/13/2011	eBook Technologies	n/a
1/25/2011	SayNow	n/a
1/26/2011	Fflick	\$10M
3/7/2011	Beat-ThatQuote	£ 37.7M
4/8/2011	PushLife	\$25M
4/26/2011	TalkBin	n/a
5/23/2011	SparkBuy	n/a
6/18/2011	SageTV	n/a
7/8/2011	Punchd	n/a
8/1/2011	DealMap	n/a

Web apps have great potential to become profit centers for developers. Increased development within the industry over the next few years will allow developers to create apps at lower costs and with significantly reduced development and maintenance times. Total revenues from the four app marketplaces run by Apple, Nokia, Google, and Research in Motion are projected to reach almost \$4 Billion by the end of 2011 (with Apple accounting for almost \$3B, Android accounting for over \$400M, and Nokia, RIM and others accounting for the remainder). Web app developers are expected to be on the fringe of this market in 2011, but we expect their share to grow faster in the coming years as wireless connectivity becomes more ubiquitous and mobile platforms are designed for continuous connectivity.

### The future of wireless power

As the mobile industry has evolved, battery power capacity has consistently been the limiting factor in enhancing the overall mobile experience. Sophisticated mobile phone (and tablet) features, such as streaming, navigation, and gaming are extremely taxing on the battery and limit the user's ability to consume more data, minutes, and advertising, which is a negative outcome as viewed by the mobile carriers. In addition, running multiple functions such as GPS, music/video player, and Wi-Fi simultaneously reduces most smartphones battery capacities to less than five hours. These factors have played a large role in the evolution of the wireless charging market.

**Fundamental Principal behind**



Sources: Wireless Power Planet

As consumers have demonstrated a need for improved charging methods and uninterrupted connectivity, companies have stepped up to the task by providing a large number of unique charging platforms such as wireless inductive charging and Over-The-Air (OTA) charging. In 2011, companies such as Texas Instruments, Volvo, and Yazaki North America announced projects in alternative charging.

**Powermat leads industry – competitors closing in**

Powermat has emerged as the industry leader in producing and distributing charging pads. The main caveat of the Powermat wireless charging system is that consumers must buy specific charging packs and battery doors that fit their smartphones. The company’s competitors have attempted to exploit this weakness by creating pads that work easily with a wider variety of phones. This increased competition has put pressure on Powermat and should lead to more innovations and higher quality products in the near future.

LG, Duracell, and Energizer have all debuted competitive inductive charging methods. Duracell’s myGrid Starting Kits work with a multitude of phones, including BlackBerry, Nokia, Motorola, and iPhone. Energizer’s Inductive Charger boasts compatibility with an even wider array of smartphones. LG has recently introduced the WCP-700, a sleek, small, and thin charge pad that has similar capabilities to the Duracell and Energizer Products.

**Power of Qi – demand for wireless charging certification**

The Wireless Power Consortium (WPC) recently finalized the Qi interoperability standard, issuing a series of requirements that will help to create a universal wireless charging industry. The new standard will help to ensure that any Qi-powered phone will be able to charge on any Qi-verified base station. Furthermore, the consortium has launched an independent lab to certify all electronic devices that seek wireless charging certification. To help facilitate the demand, WPC partnered with Tuv Rheinland, a company that offers wireless charging certifications in Taiwan. Engadget’s analysts expect the number of Qi powered devices to grow at a rapid pace to meet industry demands.

**The state of OTA charging**

Mobile and car manufacturers have been actively investing in the development of OTA solutions over the past few years. OTA chargers for cell phones have been available since 2007, but fully commercialized and easily consumed OTA technology is not yet widely available.

**WiTricity – magnetic resonance OTA charging**

WiTricity’s technology is based on magnetic resonance, transferring power through the air via a magnetic field. The current version is expected to provide coverage for a standard room, so it can only be implemented in small enclosed spaces (i.e. homes, offices, and schools). However, WiTricity has recently partnered with Toyota to develop devices that are powerful enough to charge electric vehicles OTA. This level of OTA power transmission will allow for a full-recharge of mobile devices at a fraction of the time currently required.

Notable Announcements in OTA Charging	
Date	Partnership
2007	Philips—Powercast
2011	WiTricity—Toyota
2011	Evatran™ Installs Plugless Power™ Electric Vehicle Charging Unit at Google Headquarters
2011	Yazaki North America, Inc. — Evatran
2011	S.A. Tech Firm developing power source for cell phones
2011	Volvo to develop Wireless Charging for Electric Vehicles
2011	Texas Instruments Aims to Bring Wireless Charging

Sources: Company Data

### Fundamental Principal behind WiTricity Products



The WiTricity power source, up, is connected to AC power. The blue lines represent the magnetic near field induced by the power source. The yellow lines represent the flow of energy from the source to the WiTricity capture coil, which is shown powering a light bulb. Note that this diagram also shows how the magnetic field (blue lines) can wrap around a conductive obstacle between the power source and the capture device.

Sources: WiTricity

### uBeam's OTA technology

uBeam's technology uses ultrasound waves and microscopic vibrating crystals to transmit energy across short ranges, making it simple to implement and easy for consumers to use. The current uBeam model transmits energy up to 7m (21 feet) but has not yet been designed for outdoor use. uBeam's smart charging technology automatically terminates charging when the battery is full. As with most other innovative new entrants to large markets, one of the main hurdles uBeam faces is the cost of wide-scale implementation necessary to make it a viable charging option for consumers on the move. These difficulties have delayed the product's official launch plans, but uBeam's simplistic approach and novel technologies make it a viable contender in this innovative market.

### OTA as a "green" charging solution

Currently, there are only a few practical "green" alternatives to charging mobile devices: solar power, hydrogen fuel cells, and kinetic power. Consumers have found solar powered chargers, as well as fuel cells to be inconvenient, and so kinetic power charging has quickly risen to be the most favored energy alternative. With this form of technology, nPowerPeg generators are used to harness a person's kinetic energy in a small battery, which is then used to charge anywhere from one to even multiple USB-supported devices. Recently, there has been a wave of notable startup companies in the kinetic energy field. One such company is High Tide, whose \$500 bicycle-linked RollerGen battery needs only a 30 minute ride to recharge an iPhone three times over. Another example is Bionic Power, which attaches to a person's leg and needs one minute of walking time to power a cell phone for 30 minutes of talk time. A third company is Lightning packs, whose \$300 power-generating backpack provides a full iPhone charge with only a half hour walk.

### Wireless charging outlook

Wireless charging technologies have already attracted the attention of savvy investors, mobile phone companies, and electric car manufacturers. They will likely become more prevalent as public awareness of OTA electric charging increases. In addition, the demand for innovative charging methods such as uBeam, WiTricity, and Kinetic Energy charging will likely continue to increase. However, capitalizing on these opportunities will still require extensive research into the efficiency, price and speed of the chargers as well as the level of interactivity required by consumers in order to gain the desired energy.

### The best is yet to come

With a wide variety of new mobile devices expected to be released in Q3 and Q4 2011, the mobile industry shows no sign of slowing down. Investing in this sector provides one of the most challenging and intriguing opportunities in the current unstable global economic environment.

Within this constantly evolving industry, mobile payments will be particularly relevant. We expect a significant increase in the number of internet-based payment processing companies, credit card companies, and banks that will line up to partner with smartphone manufacturers to be included in various mobile payment methodologies. Google's "Wallet" is currently leading this charge, but its competitors are not far behind in developing their own solutions in order to establish a foothold in this fast growing market.

### nPowerPeg Product



Sources: Company Data

Web-based apps will continue to evolve and gain mainstream acceptance with the increased adoption and availability of 4G, as well as the continued development and implementation of faster, more ubiquitous Wi-Fi connectivity. In addition, as the apparent shortfalls and interactivity issues of these apps are eventually addressed, consumers' experience will improve, generating greater demand.

It is expected that it will take several years for wireless charging and other alternative charging methods to enter mainstream. As new wireless charging solutions are introduced and the benefits become evident, larger players will enter the market and bring the technology to more homes and offices. This transition will facilitate the reduction in component and implementation costs and lead to large scale availability.

The mobile industry will continue to beat analysts' expectations in the years to come, new technologies will revolutionize the market every few years and change its direction. Finally, we expect the stream of acquisitions by top players to continue despite current economic conditions due to the underlying need to maintain a technological edge and provide better products to consumers.

### Oberon Securities

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For more information please visit [www.oberonsecurities.com](http://www.oberonsecurities.com).

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