# The study on the Smartphone strategies of Samsung and LG before and after the iPhone launch in Korea

**By**

**Dae-Won Kim**

**THESIS**

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
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Committee in charge:

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## ABSTRACT

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In Korea, domestic mobile phone brands take up almost 90% of market share. Such market dominance was mainly driven by high customer loyalty to Korean brands and advanced technological prowess of Korean handset manufacturers.

However, upon its arrival, iPhone started to reshape the market landscape. Smartphones became a new market trend. Hit by so called ‘iPhone shock’, Korean mobile phone makers lost their market hegemony and ended up falling behind the trend.

Against this backdrop, this thesis aims to study why Samsung and LG Electronics lost ground to Apple, a newcomer in the mobile phone business, by analyzing the competitiveness of iPhone, the mobile phone industry before and after the launch of iPhone, and relevant policies and the strategies of Samsung and LG.

It was the absence of ability to create new market that made them underperform in the smartphone market at the beginning. They adhered to shortsighted policies and second-mover strategies under which they only focused on maintaining existing profits instead of creating new market.

I also found it interesting to see the gap in the market share between Samsung and LG since the iPhone shock swept the Korean market. Samsung managed to manufacture new products that rival Apple; whereas, LG saw its brand value falling. Behind this gap were their different positioning strategies. While Samsung strived to be the best, LG only tried to stay in the top tier. This determined the pace and quality of response to the rapid change in market environment, which ended up widening the gap in the market status.

## ACKNOWLEDGEMENTS

Before this thesis, I published a book entitled “Apple Shock” which explains to general readers about before and after the launch of Apple’s iPhone in Korea. The book describes the change in the Korean society after iPhone and reasons why Korean companies belatedly advanced into the smartphone market in chronicle order. While my book “Apple Shock” was focused on recording, this thesis analyzed corporate strategies and outcomes, which was completely different from documenting facts. To make this thesis as accurate and coherent as possible, I thoroughly looked through and analyzed relevant data that I had found, searched new material and had interviews. Those in related firms, journalists and professors supported me in this endeavor. I would like to express my gratitude to Professor Lee Seung-joo for supporting me to study and approach this issue from management strategy perspective. He has provided me with thoughtful and insightful advice.

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# I. Introduction

## A. Background and purpose

The mobile phone market in Korea was dominated by Samsung Electronics and LG Electronics which took up approximately 50 and 30 percent market share respectively. Pantech tried to catch up with them by maintaining about 10% of market share. (Exhibit 1~2) In the meantime, global cell phone manufacturers strived to penetrate into the Korean market where nine out of ten handsets sold are Korean brands. For example, Nokia and Motorola challenged Korean producers with their flagship phone models that enjoyed huge popularity in the global market. With TV commercials starring world-renowned celebrities, they highlighted their globally-renowned brands, only to grab around 10 percent market share. Nokia, the undisputed market leader on the global stage, ended up holding even less than 10 percent market share in Korea. The same goes to Motorola. Most of its models other than StarTec, RAZR and RAZR 2[1] failed to attract Korean customers. This is why the Korean market was nicknamed "the graveyard for foreign brands."

It was in November 2009 when situation was overturned with the release of iPhone in Korea. Surprisingly, it was Apple, a company which started mobile phone business less than three years ago, that shook the market where no foreign player had successfully survived. Upon its debut, it posed a formidable threat to its rivals—Samsung and LG—with recording the highest sales in its first week. iPhone drove the market share of smartphones in Korea up from 3 to 10 percent in a week. Before iPhone, cell phones sold at home were all about feature phones. (Exhibit 3~5)

As smartphones began reshaping the market landscape, Samsung and LG had to find ways to regain their market dominance. This led many to believe that two top handset makers

[1] Sales of Startac, RAZR, and RAZR 2 combined exceeded 1 million units.

were facing unprecedented crisis. As such, despite their dominant status, leading mobile phone makers in Korea were hit hard by iPhone. This thesis analyzes causes of change in market landscape and companies' desirable strategies to predominate the market in the era of smartphone.

This study is significant in that the popularity of iPhone in the Korean market was analyzed from historical perspective of the Korean IT industry rather than consumption culture aspect. I also analyzed corporate strategies on the mobile phone industry and market based on the change in trend. It was meaningful to analyze the impact that differences in strategies had on corporate performance and market landscape.

Products delivered to customers are like weapons of corporate management strategies. When starting this study, I set hypothesis that the iPhone shock was driven by management strategies. Since there was little reference available, I was not able to do my study in a way of setting the clear hypothesis and verifying it. Thus, I only set the major premise that the Apple shock that hit Korea was the byproduct of corporate strategies. This study has its significance since I myself set the basis for hypothesis by studying the area where little study had been conducted and that I found the correlation between corporate strategies and outcomes based on the hypothesis.

## B. Research Topic

1) Success factors and competitiveness of iPhone

2) Reasons why Korean handset makers lag behind Apple

3) Changes in their market strategy since the launch of iPhone

## C. Research Hypothesis

Domestic manufacturers' defeat against Apple was attributable to their unwise strategies. This thesis analyzed marketing strategies of leading Korean handset manufacturers and studied why they failed in the high-end mobile phone competition. Companies' IT strategies at large were also analyzed based on their approach to mobile handset. In addition, I studied whether the second or third shock would hit the IT industry in case they failed to realize the repercussion of so-called "Apple shock" and how domestic cell phone makers responded to iPhone shock.

Seven fundamental questions[2] (see Table 1) suggested by Seung-Joo Lee (2004) were used as the basis for strategic analysis. Five questions, which were considered the most appropriate tools for analysis, were mainly used for study. Lee's conceptual framework built upon the questions of Markides (2000).

1) Who will be my targeted customers?
2) What products and services should I be offering?
3) How should I offer these products and services to my targeted customers in an efficient and innovative way?

Table1. Lee's Conceptual Framework; Seven Key Questions for Growth

[2] Seung-Joo Lee, "Growth Strategy : A Conceptual Framework", KDI School of Public Policy and Management, 2004, KDISchool Working paper

| Key Questions | Key Considerations |
|---|---|
| 1. Where to compete? | Establishing strategic focus in terms of<br>-Business Domain<br>-Geographic markets |
| 2. Who to Target as Customers? | Choice of target customers<br>-Market segmentation<br>-Key decision-makers |
| 3. What to Offer? | -Product/Service Offering<br>-Value proposition to customers |
| 4. How to Compete? | -Business system & Value chain design<br>-Core competence & competitive advantage<br>-Resource allocation & development |
| 5. With Whom to Partner? | -Partnership/alliance design<br>-Choice of partner |
| 6. When to Compete? | -Timing and speed of strategic moves |
| 7. What If? | -Scenario-based contingency planning<br>-Uncertainty & Risk management |

Among questions above, I focused on question three through seven since the scope of this thesis is limited to the domestic mobile phone market.

### D. Research Method

iPhone was introduced in Korea in November 2009. The change brought about by iPhone is still ongoing as of June 2010. However, there have been few researches done on its impact.

Due to lack of references, media reports and corporate marketing activities related to iPhone were mainly referred to. Interviews with experts were quoted to supplement unclear information.

## Ⅱ. Success factors and competitiveness of iPhone

### A. iPhone History

1. What is smart phone?

Mobile phones are divided into two categories in broad terms: smart phone and feature phone. However, there is no clear standard. Until 2005, there was not even a fixed definition for smart phone.[3] It was 2006 when Silicon.com, British website on IT, introduced various interpretations for smart phone.

Table2. Definitions about smart phone posted on silicon.com[4]

| Analyst | Definition |
|---|---|
| Gartner | : "A large-screen, data-centric, handheld device designed to offer complete phone functions whilst simultaneously functioning as a personal digital assistant (PDA)." |
| Jason Langridge (UK mobility business manager at Microsoft | "For us, smart phones combine traditional communication devices and provide rich applications and rich data applications." |
| Nic Evans (silicon.com's CIO Jury member;European IT director of Key Equipment Finance) | “The smart phone is a management, support and security nightmare. There's the cost of media messages and 3G, the waste of time with Palmistas trying to get their PDAs to sync with their laptops, the security risk from carrying corporate databases around on a fashion accessory that screams 'steal me'." |

Since early 2010, smart phone has been defined as a mobile phone that offers more advanced computing ability and connectivity than a basic 'feature phone'[5]. As for the

[3] David Needle, , “Smartphones Take Center Stage”, www.wi-fiplanet.com, 27 Sep, 2005, In the article, he said, “The gathering of communications and mobile device executives and developers featured positive comments and analysis of the current and future state of so-called smartphones. Ironically, though, there was no clear agreement on just what a smartphone is.”

[4] source=”Analysis: What is a smart phone?”, silicon.com, 13 Feb 2006, http://www.silicon.com/technology/mobile/2006/02/13/analysis-what-is-a-smart-phone-39156391/

Korean definition of smart phone, another important feature is added to computing ability and connectivity, which is application. Naver, the leading portal site, defined smartphone as follows: smart phone is an intelligent mobile handset which comes with computer features such as web search and the Internet, and users can install applications they want.[6] Simply put, smart phones enable users not only to enjoy the Internet and computer functions but also to set up various applications. As of 2010, iPhone was the only mobile phone in Korea that allowed users to access the Internet while downloading multiple applications.[7]Omnia2, which was released a month before iPhone, failed to position itself as a smart phone model. It was considered nothing more than a touch phone model following Haptic. It was almost impossible for users to enjoy applications through Omnia2.

Then, what factors of iPhone differentiated it from others? The following is the definition of iPhone from the perspective of Apple: "iPhone is more than just a phone. It combines three devices in one: a revolutionary mobile phone, a widescreen iPod, and a breakthrough Internet device. All that and more makes it the best phone you'll ever use." It is safe to say that iPhone has become a standard for smartphones in Korea. The formula that smartphone is the combination of voice call, computer, and applications is the generalized characters of iPhone. For Korean customers, iPhone has come to equal smartphone.

### 2. The first Smartphone of Apple

iPhone is the second mobile phone manufactured by Apple. In 2005, Apple and Motorola unveiled a candy bar style phone named ROKR E1. (Exhibit 6) The Motorola ROKR was the first cell phone equipped with a version of Apple's iTunes software, which is why ROKR was called "iTunes phone." Apple CEO Steve Jobs described the ROKR as "an

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[5] Source: Wikipedia.org(30 May 2010)
[6] Source: Naver Dictionary(30 May 2010)
[7] In Apr 2010, Samsung created application market as it released Android-based Galaxy A. Yet it was not as popular or developed as AppStore

iPod shuffle on your phone, saying " it would use Singular Wireless' wireless phone network in the U.S."

It was very similar to iPhone except applications through App Store and the Internet use through 3G network. However, ROKR was only a music phone while iPhone is a smart phone with advanced Internet feature. The key strength of ROKR was the convergence of iPod—MP3 player—and mobile phone. Apple expected customers would buy ROKR model to enjoy the features of mobile phone and iPod at the same time, only to be disappointed by sales result.

The customer base of ROKR overlapped with that of iPod for iTunes users were iPod users. Thus, customers were not tempted to purchase ROKR whose MP3 player features were no better than those of iPod. Many experts predicted its failure, saying the limited storage space would hurt the ROKR's appeal. While iPod allows users to store over 1,000 songs, only 100 songs were loaded to ROKR at any time.[8]

As a mobile phone, ROKR had no distinctive advantages other than its MP3 player feature. As a result, some criticized that ROKR failed to live up to its hype. Furthermore, its design was too common to appeal to customers, letting down those who expected something creative just like other products of Apple. In retrospect, the failure of ROKR gave a hard lesson to Apple, which served as the basis for success of iPhone which is known for its great features and design.

3. The history of iPhone

iPhone was a byproduct of iPad. Though not widely known, Steve Jobs started developing tablet PC before iPhone. He ordered his employees to develop multi-touch display that responds to finger input. Six month later, the touch display was handed to user-

[8] Apple rolled out iPod nano along with ROKR in Sep 2005. Nano was only 1/5 of iPod in its size and 1/3 in its weight. Yet its storage capacity was as good as previous iPod models.

interface[9] experts. After Jobs realized that he could scroll[10] display screen with fingers, he put aside the tablet PC project to focus on developing iPhone. (Exhibit7)

iPhone was officially unveiled at Macworld 2007 Conference and Exhibition held on Jan 9, 2007. Steve Jobs declared to "reinvent the phone," marking his official start of mobile phone business. His first product, iPhone 2G, was launched in June 2007. iPhone 2G adopted GSM[11]. Mainly used by European countries, it is often referred to as European style. (Exhibit8) Since Korea uses CDMA[12] and WCDMA[13] for its mobile communications, on the other hand, it was not able to import iPhone 2G which was not compatible with CDMA-based technology. iPhone 2G was divided into 4Gb[14] and 8Gb in terms of memory size. The price of 4Gb and 8Gb model was $499 and $599 respectively.

In July 2008, iPhone 3G was released. This was followed by the opening of App Store—one of important pillars of iPhone—in Oct 2008. A year after the launch of iPhone 3G, Apple introduced iPhone 3GS in June 2009. "S" of 3GS stands for speed. Living up to its name, 3GS is twice faster than 3G in all features. In addition, its battery life increased two to three-fold compared to previous models. While its performance was enhanced, its price was cut by half with 8Gb selling at $199 and 16Gb at $299. (Exhibit9) Phillip Shiller, Apple's senior Vice President of worldwide product marketing, released 3GS on behalf of Steve Jobs who was on sick leave. He emphasized the 3GS comes packed with new features inside, though it features a similar look to the iPhone 3G.

iPhone 3GS yet again proved the iPhone law. Furthermore, it was offered at much cheaper price as mentioned above. Every time Apple released new version of iPhone, it cut the product price by half, doubled the storage, and enhanced the performance twofold. (Exhibit

[9] User Interface is a system through which humans interact with computers
[10] Scrolling means sliding text or image across a screen
[11] Acronym of Global System for Mobile Communications
[12] Acronym of Code Division Multiple Access
[13] Acronym of Wideband Code Division Multiple Access
[14] Gb=Gigabyte

10) New iPhone's operating system (OS), CPU, quality and price started to be considered market standard. In particular, its price competitiveness was breakthrough innovation. The price of iPhone was $100 to 200 cheaper than that of its rivals. On the occasion of launching iPhone 3GS, Apple renamed itself from "Apple Computer" into "Apple Inc," which well illustrated its resolve to positioning itself not just a computer producer but an electronic devices and digital entertainment company.

iPhone was introduced in Korea on Nov 28, 2009. A week before the launch of iPhone, on Nov 22, Korea Telecom (KT) officially announced the release of iPhone 3G and 3GS in the Korean market. iPhone 4 was made public on June 8, 2010. Few significant differences between iPhone 3GS and 4G have been found in terms of storage and prices. Yet one should not be misled to believe 4G has not evolved from its previous models. It was upgraded from its predecessors in a way completely different from the evolution from 2G to 3GS. If changes from 2G to 3G for the last three years were mainly about functionality such as speed and storage, 4G was the evolution that took iPhone to the next level.

When Steve Jobs introduced iPhone 4 at the Worldwide Developers Conference at Moscone Center West, he said, "It is the biggest leap we've taken since the original iPhone." He claimed that new iPhone would offer 100 new features. Given that 4G is the upgraded model of 3GS, its specification has enhanced while price was lowered. (Exhibit 11)

There are mainly two distinct features offered by iPhone 4. The first one is video call. Unlike iPhone 3G which only has a rear camera, the new version of iPhone has both front-facing and rear camera, enabling users to make a video call.

iPhone 4 users can use the feature called "FaceTime" anytime, anywhere without charge as long as they are in WiFi zone. To make a video call with non-iPhone users, users have to pay fee for video call. The second is multitasking. With previous versions, users were only allowed use one feature at once; in other words, they were not capable of sending email while

listening to music. In contrast, new iOS 4 operating system allows for multitasking, so users can enjoy multiple applications simultaneously. All in all, iPhone 4 addressed most of shortcomings of 3GS except DMB.

Its display has been dramatically enhanced. The iPhone 4 has a “retina display” whose pixel density is four times higher than the previous version. Its vivid and crisp graphics are beyond human eye’s limit of distinction. iPhone used to be considered falling behind Samsung’s mobile phone models in terms of display resolution. This is because while iPhone 3GS used LCD, Omnia 2 and other models of Samsung Electronics were equipped with AMOLED[15]. AMOLED has far higher resolution than TFT LCD with 1,000 times faster video response time. In that sense, iPhone 4 has overcome the definitive limitation of previous models. The retina display of 4G has even 1.5 times higher resolution than that of AM-OLED of Samsung’s Galaxy S. Such remarkable improvement in display was interpreted as the evolution of iPhone. Customers were so satisfied with the merits of iPhone that they did not care about its display. They seemed to think it was too much to ask Apple to even upgrade the quality of display. With improved display of iPhone 4, iPhone was finally regarded as the complete package encompassing hardware, software, service and price.

With its sleek lines, sharp display screen and speedy, customized chip, Apple's latest iPhone, iPhone 4, would be a formidable threat to any manufacturer of high-end smartphone models. On June 24, iPhone 4 went on sale in five countries—the U.S., the U.K, France, Germany and Japan, followed by 18 countries including Australia, Canada and Denmark in July and 88 countries in September.

[15] AM-OLED : Active Matrix Organic Light-Emitting Diode

4. Sales volume

Once a computer and MP3 player manufacturer, Apple started its mobile phone business in earnest with the roll-out of iPhone. The global cell phone market before iPhone was dominated by Nokia, Motorola and Samsung Electronics. As of Dec 2006, three companies occupied 69.6% of market share. (Exhibit12) Likewise, there used to be definite winners in the market. In the meantime, service providers had upper hands over handset manufacturers in the market structure.[16] This is why the success of a newcomer was not guaranteed.

When unveiling iPhone 2G back in January 2007, Jobs announced, "Apple aimed to sell 10 million units of the device by the end of 2008." Before year 2008, the total number of smart phone sold in the world was 151.1 million units.[17] In other words, Steve Jobs wanted to break the 1% mark of market share one year after launching iPhone. The total sales of iPhone 2G were 300,000 and 1.1 million respectively in the 2nd and 3rd quarter of 2007. This boosted Apple's global market share from 0.1% up to 0.4%. Back then, iPhone only sold in the US market. As soon as the company put its model on the global market for sale, with Europe as a starting point in November 2007, the sales of iPhone skyrocketed. Up until the end of 2007, 3.7 million units of 2G were sold. The accumulated sales increased to 6 million in June 2008 when Apple was about to release 3G. With 7.7 million units of iPhone sold during the second half of 2008, total sales volume reached 13.7 million units in 2008. In 2009, newly launched 3GS model enjoyed huge popularity with 25.1 million units sold.[18] In the first quarter of 2010, 7.5 million more were purchased. On April 8, 2010, Steve Jobs announced that Apple sold 50 million units worldwide. (Exhibit13) To put it another way, approximately 1.66 million units of iPhone has sold every month since July 2007.

[16] Mobile phone business is broadly divided into handset manufacturing, telecommunication network and distribution channels. Among them, telecommunications network and distribution channels are controlled by service providers. Thus, handset makers lose market share unless their products are chosen by service providers, which is why most of them dare not to go against service providers. For Apple, mobile carriers as well as its rivals were obstacles to overcome.
[17] Strategic Analysis outlook
[18] Strategic Analysis

5. Market share in the smartphone market

Smartphone has become a market trend. The market is expected to grow from 170 million in 2009 into 500 million by 2012.[19] Nielsen Research Company predicted that by 2012 more than half of mobile phones sold in the US market would be smartphones. It has become a key product not just in the mobile but also in the IT industry at large. The shipments of Smartphones are likely to exceed those of PCs by 2011. (Exhibit 14)

iPhone is rapidly expanding its presence in the global market. For instance, the share of iPhone in the global smartphone market dramatically rose from a mere 3% in 2007 to 9& and 14.4% respectively in 2008 and 2009. Most smartphone producers except Research In Motion (RIM) witnessed their market share declined or stagnated during the same period (Exhibit15)

[19] Samsung Mobile Display Forecast, Strategic Analysis forecasted smartphone market would grow to 460 million units by 2012

## B. Strength of iPhone[20]

1. WiFi

WiFi[21] and 3G[22] allow iPhone users to access the Internet just like computers. Though non-iPhone users were also allowed to use the Internet with their cell phones, due to exorbitant cost, wireless data service was nothing but a "pie in the sky." On Feb 15, 2006, a teenager living in Iksan, North Jeolla Province, ended up committing suicide after receiving a bill for about 3.7 million won in data charges for playing games on his mobile phone. Back then, text message service like news message was 6.5 won per packet[23] while 2.5 won for multimedia and 1.3 won for video clip. It cost 2,000 won for downloading a ring tone called "coloring,"[24] and 1,300 out of 2,000 won was for data charge.

The suicide of the teenager fueled political debate on wireless Internet charge. Roh Jun-hyeong, then-Minister designate of Information and Communication[25], said in his confirmation hearing on Mar 22, 2006, "Call volume per packet was not notified in advance. We are committed to developing flat-rate data billing plans." On Apr 12, leading mobile phone operators in South Korea—SKT and KTF—[26] announced that they would cap the monthly data costs at 200,000 won from Apr 2006. Under the new rule, the data usage exceeding the ceiling was not charged.

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[20] This is based on the comparison between iPhone and Samsung Omnia 2

[21] WiFi stands for wireless fidelity, which enables users to access the Internet in the short distance if access point is installed

[22] Acronym of 3Generation. 1G refers to analogue mobile phone in the 1970s and 80s, and 2G is cell phones released after the 90s. 3G models evolved one step further, so they can transfer data through wireless network. The reason why wireless data bill is excessively high is the investment made to develop base stations or relay stations for 3G service. Indeed SKT and KT are said to have invested over 5 trillion won for 3G service infrastructure.

[23] Data transmission unit for easier transfer via the Internet or network. Combined word between package and bucket.

[24] Coloring is the name of SKT's ring tone service through which callers hear the music until receivers pick up the phone. The name started to be used in 2002 when SKT first launched this service. source: skstory.com (SK telecom Corporate Blog)

[25] The Ministry of Information and Communication was responsible for policies on telecommunications, radio wave management, mail, money order, postal deposit, and postal insurance. In Feb 2008, however, it was abolished under the government reshuffle plan, and its work was transferred over to the Ministry of Knowledge Economy and the Ministry of Culture, Sports and Tourism.

[26] It was acquired by KT on June 1, 2009

Despite such efforts, customers' complaints about wireless Internet charge only intensified. Some politicians even used the issue of data charge for political maneuvering. [27] That excessive data charge served as an obstacle to promoting wireless Internet was well illustrated in the 2009 report of Korea Internet Security Agency (KISA) on "wireless Internet use in Korea." When asked how to promote wireless Internet, 88% of respondents answered lowering data charge. (Exhibit16)

This does not necessarily mean that iPhone is immune to an excessively large phone bill. While subscribers are given free access to WiFi networks, they should pay for the data usage on 3G. KT came up with special payment packages that provide fixed-rate wireless data for iPhone subscribers, enabling them to enjoy wireless data without incurring additional cost. (Exhibit17)

The role wireless LAN technology plays in the success of iPhone is clearly shown in China's case. iPhone was introduced in the Chinese market by China Unicom on Oct 30, 2009. The launch of iPhone did not draw great interest from customers, which is in stark contrast with Korea and Japan where shops were crowded with those waiting to buy iPhone for too long. It took only 10 days for iPhone to break the 100,000 mark in Korea compared to 40 days in China. Low sales in China were partly attributable to its high price of over 1,000 dollars and "used phone markets" which were rampant in Hong Kong.[28] Another factor that hurt sales was the lack of WiFi chipset in the device.

[27] The administration and then ruling Democratic party announced on Sep 27 2006 that wireless Internet bill will be cut by 30% in 2007.

[28] The Chinese government regulated iPhone's use of wireless LAN on the ground of China's telecommunications law. Indeed Apple and the Chinese government engaged in negotiations on wireless LAN for two years since 2007. Having failed to persuade the Chinese government, Apple launched wireless LAN-free iPhone on Oct 30, 2009. Over 2 million units of iPhone are known to have been sold through underground market in Hong Kong before it was launched in mainland China. .

2. App Store

App Store (Application Store), which is operated by Apple, has three major stakeholders: Apple, content providers, and consumers.[29] Apple serves as an operator. It is responsible for screening applications created by content developers based on its strict policies and standard. The store was opened on July 10, 2008, when iPhone 3G was soon to be released, which means iPhone 2G users were not fortunate enough to enjoy the era of applications. That was the beginning of the heyday of iPhone.

There are two ways to access App Store. One is through iTunes installed in users' PCs connected to the Internet. The other is WiFi or 3G via iPhone or iPod. Anyone is welcome to upload applications as long as they do not violate Apple's internal policies.[30] The prices of applications are set by developers, and 30% of profits go to Apple. According to Apple, it receives a part of profits for server management.

For content developers, App Store is a land of new opportunity as they can possibly generate massive profits. As a result, the number of applications soared to reach 210,000 as of June 2010, 23 months after the opening.[31] In 18 months after the official launch of App Store, on Jan 6, 2010, the number of application downloads exceeded 3 billion. (Exhibit 18~20) "Three billion applications downloaded in less than 18 months—this is like nothing we've ever seen before," said Steve Jobs, Apple's CEO. "The revolutionary App Store offers iPhone and iPod touch users an experience unlike anything else available on other mobile devices, and we see no signs of the competition catching up anytime soon."[32]

App Store is mainly classified into 20 categories such as entertainment, business, news, sports and health. Among them, one out of five applications is game. (Exhibit 21) Majority of

[29] Basic date:6 Jan 2010
[30] Pornography is the most controversial issue for smartphone applications. Bikini is allowed, but not nudity. In contrast, Android app store does not have censorship in place. There is high likelihood for Android store to have sexually explicit content without screening process. Steve Jobs even said porn fans can go to Android, which shows his confidence in censorship system of Apple AppStore
[31] apptism(Apple AppStore monitoring company), Basic date : 5 Jun 2010
[32] Apple Press Information, "Apple App store, 3 billion downloads in 18 months" , 7 Jan 2010

applications are provided for free. Paid applications only account for two to six percent. What is interesting is the download of paid applications takes up 25 to 60 percent out of total on average.

3. Capacitive sensing screen

What attracted Korean customers most was the capacitive sensing screen. Omnia 2, which Samsung Electronics rolled out one month before the launch of iPhone, was equipped with resistive sensing screen. Like Omnia 2, all touch-screen cell phones released before iPhone had resistive touch screen. (Exhibit 22) In principle, resistive touch screen responds to pressure on its surface. On the upside, not only are its costs relatively low, but people can use a stylus[33] to operate the touchscreen very accurately. Customer complaints were reported, however, since unintended calls were made by cellphones in their pockets or bags as their touch screen responded to external pressure. One of its major weaknesses was insensitive touchscreen.

In contrast to this, the capacitive touchscreen uses the electricity in human body to activate the screen. Unlike the resistive screen that uses pressure, it consists of a piece of two layers of compound glass coated with a thin indium tin oxide material that conducts continuous electrical currents across a sensor. In order for the capacitive technology to work, it must be touched by something that also exhibits electricity. Since human body stores electrons, when a person's finger touches the screen, it sends an electric current and signals an action. Sensors which are located at corners of the screen measure the capacitance formed between the finger and the sensor grid during the touch.

Capacitive touchscreens are easy to use and scroll, and they provide multi-touch functions through which users can simultaneously touch multiple points on the screen. However, it

[33] Computer input device used to write text or draw lines

does not work with any non-conductive input such as stylus, gloves or nails. Also, as its sensors are very sensitive, it can be affected by other electronic devices.

iPhone overwhelmed Omnia 2 with the soft touch of its capacitive screen. This led Samsung to turn to capacitive touchscreens for its next smart phone model. Indeed, for the marketing of "Galaxy A,"[34] it promoted the capacitive screen as major strength[35] because it realized that the failure of Omnia 2 was largely attributed to its screen.

4. Contribution of iPhone to enhancing Apple's corporate value

iPhone, since its launch in 2007, has contributed greatly to the performance of Apple. The total revenue for 2007 rose 27.2% compared to the same period of last year as the revenue from iPhone sales for the second half of 2007 was taken into account. Apple's sales figure in 2008 even surged 52.5% from 2007. Maintaining such growth momentum, Apple again showed year-on-year double digit growth with a 14.4% increase in its growth figure. (Exhibit23) In addition to the increase in sales, iPhone drove the real profits of Apple up. Operating profits have risen since 2007, and the figure increased from 12.7% in 2006 to 17.9% in 2007 and from 22.2% in 2008 to 27.4% in 2009. Gross margin rose from 29% in 2006 to 40% in 2009.

This was in stark contrast with Samsung, world's second largest mobile phone maker. Samsung generated 42 trillion in sales, selling 227 million units of handsets in 2009. Its operating profits, however, stood only at 4.1 trillion or 9.8%. Apple sold 25 million units of iPhone, generating 17 trillion in sales. Its operating profits stood at 5 trillion, which put its operating profit rate at 28.8%. This shows that while sales of iPhone were merely 11% of

[34] Samsung's first Android-based smartphone rolled out on Apr 27 2010

[35] Samsung opened "Samsung mobile.com" to introduce its IT appliances from mobile phones, lap top computers and MP3 players. In the overview on Galaxy A at the website, capacitive touch screen was introduced as the third strength of Galaxy A. Capacitive touch screen enable touch and sophisticated touch.

Samsung's handsets, the percentage of operating profits was 22% higher than that of Samsung. (Exhibit24)

Such high operating profit was reflected in Apple's share price which soared from $83.8 in early 2007 to $270.83 on Apr 23, 2010. Given that share value is a yardstick for measuring corporate value, Apple's corporate value has increased by 223.2% since the launch of iPhone.[36]

On May 26, 2010, the market capitalization of Apple stood at $221 billion, overtaking an undisputable market leader Microsoft whose market cap was $219 billion as of May 26, 2010. From the early 2007 to the launch of iPhone 4, Apple's share value increased 205.4% while Microsoft saw its price decrease 13.6%. (Exhibit25) The rise of Apple and the decline of Microsoft reflect the transition of the IT industry from Internet era into mobile one.

5. The Future of iPhone

Google Android is an enemy of iPhone. While iPhone comes with exclusive operating system (OS) developed by Apple, Google phone runs the Google Android OS. Any manufacturers can use Android OS at low cost if they desire to make smart phones. The openness of Android, which allows anyone to freely use Android OS, differentiates it from iPhone. Service providers and cell phone manufacturers chose Android to win the smartphone competition against Apple.

In the US, Verizon Wireless and Sprint decided to go with Android as a push against the iPhone of AT&T.[37] Verizon unveiled Motorola Android-based "Droid" as the 4th quarter flagship model, and Sprint began selling two Android-based handsets—Samsung "Moment" and HTC "Hero." Similarly, Korea's leading carrier announced that 12 out of 15 smartphones

[36] Apple unveiled iPad in Jan 2010, reflecting profits iPad could generate. It started to be sold online on Apr 3.
[37] In the US, AT&T is the only mobile carriers permitted to sell iPhone. Only one service provider has the right to sell iPhone. It is Softbank in Japan and KT in Korea.

for 2010 will run on Android OS. Not to be outdone, LG Telecom is going to launch two to three Android-based smartphones in 2010. After falling behind Apple with its Omnia 2, Samsung ambitiously unveiled Android-powered Galaxy A and Galaxy S.

As companies are rushing to develop Android-based smartphones, Android phones along with iPhone are expected to see their market share increase in 2010; whereas Smartphone OS of Nokia, RIM and Microsoft are likely to fall. (Exhibit26) The war between iPhone and Android phoned is drawing great attention in that two companies with totally different strategies are pitting against each other. iPhone OS is an extremely closed platform. This is why other software programs cannot be installed in the iPhone OS. Digital Multimedia Broadcasting (DMB), which is ubiquitous in Korea, was not allowed in iPhone. Those who want to unlock Apple's exclusive OS jailbroke iPhone. About 10% of iPhone users in Korea tried "iPhone jailbreak."[38]

Android is all about openness. It is available to any mobile phone manufacturers who want to adopt Google platform. That is why cell phone makers give higher marks to Android than Apple. Indeed, Google Android phone was considered the best platform for cell phone makers struggling to fight against Apple's iPhone OS.[39] For service providers, Google is more attractive than Apple due to its profit sharing structure. As mentioned, Apple receives 30% of profits generated in the App Store while the rest goes to content developers. Yet 30% of profits created in the Android market are provided to service providers not Google, and developers of applications get remaining 70%.

Apple's major strategy to win over Google is customer loyalty. For this purpose, the company provides its customers with high quality service on a sustainable basis through regular updates of iPhone OS and application management.

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[38] KT Economic Research Institute, "Analysis on application use of iPhone users. 800 iPhone users were chosen in random, and applications on their iPhone desktop were analyzed from Jan 14 to 29.

[39] Roa Group, "Service providers are not happy with Apple's overly controlling OS. Android is the optimal platform as it goes beyond a mere smartphone to provide e-book, digital TV and electronic photo frame.

Apple and Google are competing with each other in various areas such as smartphone and advertisement. It is expected that who wins the smartphone competition would have great influence on the IT industry as a whole.

## Ⅲ. Competitiveness of Korean-made cell phones

### A. The history of Korean mobile phone in light of Samsung Electronics

1. Developing the first mobile phone on the occasion of Seoul Olympics

Samsung Electronics unveiled its first mobile phone model, SH-100, on the occasion of 1988 Seoul Summer Olympics. It was exclusively developed by Samsung. Yet it was far different from models of today. Not only was it bulky, but also its battery life was quite short. Since users had to connect the handset to their vehicles, the model was even called "car telephone"

It was 1984 when mobile phone service started in Korea. The total number of subscribers of Korea Mobile Telecom[40] (SK Telecom) stood only at 2,658. After it began selling Samsung mobile phones in 1998, the number of subscribers skyrocketed with exceeding 1 million in 1996 and 10 million in 1997. In Mar 2009, the penetration rates reached 95% with over 46 million subscribers, and mobile phones became daily necessity for Korean people.

The world's first commercial cellular phone was DynaTAC 8000X of Motorola. It weighed 785g and measured a 300x44x89mm. Back then, the model cost 2.4 million won in Korea. Samsung imitated DynaTAC to produce its first hand-held phone SH-100. Samsung wireless development research team purchased 10 units of DynaTAC, which were as expensive as three apartments, dissembled them and copied their technology. In fact, it was developed with a national aim that a Olympic hosting country should be capable of making a cellular phone.

On Sep 17 1988, the opening ceremony of Seoul Olympics, the phone was first unveiled

[40] KMT was established in March 1984 and acquired by SK Group through public bidding. The name 'KMT' was maintained for the time being after the acquisition. However, the corporate name sounded confined to telecommunications business, and KMT misled foreigners to believe that it was government-led company, hampering its overseas market expansion. Thus, it changed its name to SKT in March, 1997. source=Sktelecom blog (www.sktstory.com), wikipedia.org

to 47 state guests including IOC members.[41] It came onto the market back in May 1989. However, its quality of voice was lower than DynaTAc and it cost almost 4 million won after taking into account extra cost. The handset itself was 2.4 million won, and people had to pay 650,000 won more to activate. It was outrageously expensive given that a unit of the Hyundai Pony sold at 5 million won. Not surprisingly, Samsung's first portable mobile phone, which was high in prices and low in quality, soon disappeared from the market. Weighing as much as 771g and measuring 200x46mm, SH-100 got a notorious nickname "briefcase phone." It still had its own accomplishment in that it was relatively smaller than DynaTAC of Motorola.

Until 1992, Samsung cell phones lagged far behind Motorola in terms of their quality. Samsung developed SH-200 in 1992, but it was not rolled out in the market. The company decided not to launch SH-200 for its performance fell short of that of MicroTAC series. MicroTAC2 of Motorola, on the other hand, was released in Korea in 1992 and was even selected as one of top 10 new products. An innovative flip MicroTAC phone[42], which weighed 219g, was given high marks with its smaller and lighter handset. At that time, Motorola enjoyed a whopping 63% of market share in Korea.

2. Anycall beats Motorola

Samsung made a turnaround by unveiling its new model "SH-700" in Oct 1993. The candy-bar style handset was more compact than the previous models as it weighed less than 200g and measured 14.5cm. Its voice quality was substantially improved thanks to the double antenna design developed by Samsung. It is said that developers of Samsung tested voice call quality at various regions by visiting all places in Korea nationwide in person. The efforts Samsung made to develop competitive cell phones is well illustrated in "Frankfurt declaration" of Samsung Chairman Kun Hee Lee. In Apr 1993, Chairman Lee brought about

[41] Phone Museum & Gallery(www.phonemuseum.co.kr)
[42] StarTac series released in 1996 are considered the completion of MicroTac

200 executives from all around the globe and had lectures and discussions for more than 8 hours everyday for over a month. On June 7, Lee announced a new management initiative called “Samsung New Management.” “Change everything other than your wife and children. The second place is remembered by no one,” he said, “If we let our guard down, Samsung would disengage itself from the mobile business.”

The voice call quality was the major concern of mobile phone users back then. Indeed, Around 78% of respondents were dissatisfied due to high call blocking rate, noise, and low received signal strength indicator (RSSI).(Exhibit 27)

The SH-700 was launched under the brand name “AnyCall” which means making a call anytime anywhere. To promote the idea of strong voice quality, the company came up with the slogan, “Strong in Korea’s extraordinary topography,” and its aggressive marketing strategy turned out to be a big success.

Thanks to its tireless marketing efforts, the Korean market share of Samsung handsets surged from 26% in 1994 to over 50% in July 1995, becoming a market leader. In the same period, Motorola saw its market share drop from 53% to 42%, losing its market dominance.

Though the growth of Anycall was pronounced, LG’s mobile phone brand “Cyon” and Pantech & Curitel on their part were expanding their market share by keeping foreign brands at bay. (Exhibit28) This is when the Korean mobile phone market started to be led by domestic models. Since then, Samsung has positioned itself as the top mobile phone producer in Korea.

In fact, there was a turning point for Samsung to be recognized for its voice quality in 1995. Chairman Lee presented 2,000 Samsung mobile phones and wireless phones to executives and staff as new-year gifts. To Chairman Lee’s disappointment, what he received was not words of gratitude but complaints about voice quality since many of those presented with gifts were unhappy about low call quality. In March, Lee ordered his staff to recall all

products in the market and burn them in front of factory workers, saying "Aren't you afraid of our customers?" Following his order, 150,000 units of mobile phones and wireless telephones, which worth 5 billion won, were recalled. On Mar 9, 1995, they were burned before the eyes of 2000 factory workers in Gumi, North Gyeongsang Province. Workers chanted slogan, "Quality First. Quality is our pride." Chairman Lee used a shock therapy to remind his employees of the importance of quality with his belief that one shock worth hundred words.

### 3. Samsung goes global in 1996

The year 1996 marks three major milestones in Samsung's mobile phone business. First of all, Samsung Electronics became the first in the world to commercialize CDMA[43] service in Korea in Apr 1996. Secondly, the company transformed the mobile phone network from analogue to digital in 1996 by adopting CDMA PCS.[44] Lastly, it signed a contract with Sprint PCS to export its CDMA PCS handsets. This contract enabled Samsung to make its first foray into the global market. It pursued a "premium strategy" for its export. At that time, companies often adopted low price strategy to offset its low brand recognition when making inroads into foreign markets. Instead Samsung chose completely opposite direction based on its experience of beating Motorola and exporting its electronic goods overseas.

To build on the momentum, Samsung developed its first GMS phone model, the SGH-200, in Feb 1997 to advance into the GSM market. In Sep 1998, it unveiled the SGH-600, another GSM handset and penetrated into markets in Germany, Italy and the UK. In addition

[43] Short for code division multiple access, it is a digital cellular technology that uses spread-spectrum technology developed by Qualcomm. As users transmit signals by sharing spectrum and time, CDMA provides subscribers better capacity for voice and data communications than AMPS. Led by the government, Korea embarked on developing commercial CDMA mobile phone system back in Jan 1993. This project was also joined by LG Electronics, Samsung Electronics and Hyundai Electronics.

[44] Short for personal communication services, PCS is a telecommunications system that was first suggested by British Telecom in the late 1980s. It is called 2.5G telecommunications. Major advantage is affordable and high quality intelligence network service, but its strength was not fully fulfilled as it was not commercialized.

to the European market, it went further to expand its market by entering the Chinese market. Though the price of the SGH-600 was set 10% higher than that of its rival products, more than 2 million units sold in 9 months. This proved that Samsung's premium strategy was headed in the right direction. In Mar 1998, the SPH-4100, which was the lightest PCS handset, was released. With the development of its new model, Samsung was considered to open the era of light and compact cell phones. This was followed by the introduction of SPH-6310 two months after, which was as light as 77g. Furthermore, Samsung became the first to launch a 9.8mm ultra-slim mobile phone, SPH-N2000, in June 2001. Developing a mobile phone slimmer than 1cm was believed to be impossible. To many people's surprise, however, Samsung did it.

4. Samsung and LG dominate the domestic market

Since 2000, Samsung and LG Electronics have competed with each other in hardware features such as color LCD, sound system, camera and MP3[45], leading the cell phone market. Samsung rolled out the SGH-T100 in 2003, which was loaded with TFT-LCD[46] for the first time in the world. As the first TFT-LCD phone, it shifted the paradigm of global mobile phone industry from black-and-white to color display. The SGH-T100 has significance in the TFT-LCD as well as its emphasis on spectacular design. Chairman Kun Hee Lee ordered his employees to adopt ergonomic design to make it more comfortable to hold the handset. This is why it was called "Lee Kun Hee phone," named after then-Chairman of Samsung Group.[47] As of Sep 2003, the model became a 10 million seller for the first time. Samsung has made six 10 million sellers since then. (Exhibit 29)

As of Dec 14, 2005, the accumulated sales of handsets manufactured by Samsung topped

[45] MP3 function became a basic feature of mobile phone
[46] Thin film transistor liquid crystal display (TFT-LCD) is a variant of liquid crystal display (LCD) which uses thin-film transistor (TFT) technology to improve image quality.
[47] The nickname for Galaxy S was also "Lee Geon-hee phone," which indicates Samsung bet its fate on Galaxy S.

100 million units since it started its mobile phone business in 1988. (Exhibit30) To produce 100 million units in 18 years, at least 300,000 units per day or three units per second had to be made. During that period, Samsung's market share soared from approximately 10% in 1998 to more than 50%. (Exhibit 31) Thanks to such remarkable growth, the brand value of Anycall, Samsung's cell phone brand, increased tenfold from $400 million in 1998 to $4.3 billion in 2008.[48] (Exhibit 32) Its accumulated sales figure broke one billion mark in Sep 2009.

Samsung focused on developing the lightest and smallest handset with multiple features. In 2007, it unveiled 8.9mm and 5.9mm slim phones in turn, which were called "card phone" as they were as slim as a card. Samsung's cellular phones are particularly outstanding in terms of display. The company took step ahead of others by unveiling super AMOLED screen phones providing a screen resolution five times higher than existing AMOLED screens used in previous phones in Feb 2010 at the World Mobile Congress. Other cell phone manufacturers used LCD display whose resolution is lower than AMOLED screen. The camera mounted on the handset displayed high quality. In 2004, the company developed a 5 million pixel camera phone for the first time in the world. It released the first camera phone (SCH-V200) in 2006 in Korea.

5.Samsung in crisis

Samsung, which was equipped with cutting-edge hardware, faced a great challenge in 2006. The challenge was Motorola's new model—RAZR. With cumulated sales of more than 100 million, RAZR sent a shockwave to the mobile phone market which only focused on the hardware-oriented competition with state-of-the-art functions. When asked the secrets behind its popularity, then head of Motorola Korea Kil Hyeon-chang said, "Our rivals may produce

[48] Source=Samsung Electronics, The Analysis of Professor Chan-soo Park(Korea University)

models similar in features and design, but they will never be able to copy our unique and extraordinary design and feel that come from Motorola's fundamentally different concept of design."

Motorola's RAZR showed that appealing design can come before cutting-edge hardware. Taking the lesson seriously, Samsung Electronics changed the trend of the Korean cell phone market with new design in 2008. Back then cell phone makers were not certain about the success of touch screen. Defying their doubts, Samsung rolled out its full touch-screen phone SCH-W420 or Haptic phone. It was huge success. Haptic fostered a new trend of a full-screen "touch phone" in the Korean market.

Ironically, while a touch-screen phone was what led Samsung to dominate the domestic market from 2008 to 2009, it contributed to hampering Samsung's market dominance in 2010. Samsung focused its all energy on touch-screen models instead of investing in smartphones out of belief that it would take a long time for smartphones to become popular. This ended up undermining the competitiveness of Samsung's smartphones. Soon another challenge hit Samsung in Nov 2009 when Apple's iPhone was introduced in Korea. As Samsung was hit hard by the launch of iPhone, many people pointed out that Samsung was not vigilant enough to compete against Apple. The truth is, however, it has been years since Samsung started developing smartphone models. Its first smartphone was SCH-M620 released in 2007. Before Galaxy S, Samsung rolled out 11 smartphones in total.[49] (Exhibit33)

[49] According to Samsungmobile.com, which is the designated home page for Samsung mobile product, 12 smartphones were rolled out until June 2010. (including Galaxy S)

## B. Korean cell phone market before iPhone

### 1. WIPI that blocked the introduction of iPhone

Until Apr 2009, cell phone manufacturers were required to install the WIPI platform which stands for wireless internet platform for interoperability. WIPI was a national project to avoid the unnecessary waste from inconsistent operating systems. Before the WIPI standard came into force, different mobile phone makers had used different operating systems. The Korean government believed that the standardization of platform would bring economy of scale benefits and ease content developers' burden of investing in platforms. The WIPI project, which kicked off in 2001, brought together various stakeholders from cell phone manufacturers (Samsung Electronics, LG Electronics), mobile phone carriers (SKT, KT, LGT) to state-sponsored research institutes (the Electronics and Telecommunications Research Institute, Telecommunication Technology Association, Radio Research Laboratory). In June 2006, LG Electronics made the first mobile phone that includes the WIPI platform. The government made it mandatory for mobile phone manufacturers and content providers to use the WIPI standard in Apr 2005.

The standardized operating system discouraged the import of foreign smartphones such as iPhone and Google phone which used their own operating systems. With the global handset market rapidly shifting from closed to open platform thanks to the smartphone boom, the Korean government could no longer afford to adhere to the Korean standard. The Korea Communications Commission abolished the mandatory installation of WIPI in the 42nd general meeting held on Dec 10, 2008, and service providers can choose whether to use the WIPI platform. This clearly indicates that the government accepted the new global market environment where more and more handsets adopt open platforms.

2. The cartel of service providers delayed the debut of smartphones

On Nov 28, 2009, iPhone pre-sale began in the Korean market. This was when iPhone was finally introduced to Korean customers. iPhone brought about great changes in Korea upon its launch. To begin with, it changed the landscape of the Korean mobile phone market, which was followed by the shift in the IT policy direction. Korea's leading handset makers, Samsung and LG Electronics, were put under fire as they belatedly responded to the new trend of smartphones. Some criticized that they were incapable of reading the future trend, and some experts went further to predict that the shock brought about by Apple would trigger the crisis of Korean conglomerates.

However, iPhone was considered nothing but a toy for some early adopters up until six months before its launch. There were few people other than early adopters knew about iPhone. This does not mean there were no mobile phones with the Internet access. A number of handsets allowed users to access the Internet through wireless data. The problem was exorbitant cost of wireless data service. As pointed out before, users had to pay 2,000 won for downloading a ringback tone, and 1,300 won was for the wireless Internet use. Some people, who naively enjoyed the wireless data service, were shocked to receive millions won phone bills. A teenager, who could not afford to pay the bill, ended up taking his own life.

Afraid of the excessive cost, most users were reluctant of using the wirelss data service from the beginning. Consequently, the share of wireless data service out of total revenue was much lower than that of other nations. It was less than half of the US and China and about a quarter of Japan. (Exhibit34) Despite stagnant growth of wireless data market, service providers preferred the existing system. Not only was the wireless data tariff extremely high, but service providers had dominant presence in the wireless data business model. Indeed they controlled the whole market including a variety of content for wireless data service, and they obviously had upper hand over content developers in dividing profits. So much so that

content developers, which had affiliation with mobile carriers, had to do whatever it took to please them. In other words, service providers were so powerful in their market status that content providers couldn't risk their business by going against them. In particular, software companies were like slaves for service providers. For them, service providers were the ones who determine their survival as majority of their profits were coming from the wireless data service.

Service providers also admit that they were quite powerful in the wireless data market before the introduction of iPhone. It was almost impossible for the mobile software industry to grow under such a market structure. As a result, domestic mobile content market has been stagnant for quite a long time. (Exhibit 35) In a nutshell, the existing wireless data service environment secured market dominance and sound profits to service providers. In 2006, SK Telecom, Korea's largest mobile operator, generated 1.2 trillion won in sales from wireless data which accounts for 11.8% of total sales. The sales volume declined to 1 trillion won or 9.2% of total sales in 2008 as many subscribers couldn't afford high mobile Internet cost.[50] (Exhibit36~37) Since smartphones were introduced in the Korean market, mobile operators have lost their dominant control in the market.

What distinguishes Apple's App store from wireless data services provided in Korea? As briefly explained earlier, when content developers upload their content to App store, they are only subject to Apple's screening process. Unless they violate Apple's internal policies, they are allowed to sell their applications at App Store. As for the profit sharing, 30% of application profits go to Apple while the developers receive the rest. Service providers have no voice in the process let alone no profits.

Android market provides easy access to content providers. Since they do not have to

[50] Yong-gyung Lee, congressman of The Creative Korea Party, "Service providers' profits from additional service peaked in 2006 and have been on the decrease. Users are turning their back on wireless Internet due to its excessive cost." (parliamentary inspection of the administration government offices, Oct 2010)

undergo the screening process, it is far more convenient for them to upload applications they created. The screening process was the big difference between iPhone and Android system. Jobs said in his email to customers, “We do believe we have a moral responsibility to keep porn off the iPhone. Folks who want porn can buy an Android phone.” (San Francisco Chronicle, Apr 20, 2010) When one customer said that he was concerned about Apple’s practice of not approving some apps, Jobs told the customer that some cases were “mistakes,” but that porn won’t find a home in the Apple AppStore. His remark shows his confidence in iPhone application management system. Apple filters out sexually explicit content through its application management system. For instance, though bikini is permitted, nudity is completely banned in AppStore, which is why AppStore is porn-free. Unlike Apple’s AppStore, Google’s App store is open to sexual content, and Jobs took aim at Android for being open to porn.

Developers are permitted to directly upload their content to Android market. Furthermore, profit sharing is more favorable to service providers than that of App store. Developers receive 70% of application profits, and the remaining profits go to mobile operators. It was still undeniable that service providers could not enjoy the dominance of the past. Having known this fate, three big telecom operators—SKT, KT and LGT—tried hard to maintain their monopoly by creating a cartel. This served as a stumbling block for the launch of smartphones.

Meanwhile, it is said that negotiations with Apple were not favorable to Korean service providers. This is well illustrated in the issue of handset subsidy. Mobile carriers provide about 300,000 to 400,000 won subsidy to Samsung Electronics and LG Electronics. Apple demanded that they should provide handset subsidy amounting to 400,000 to 500,000 won and guarantee the annual supply of more than 1 million units. As rumors about the negotiations spread out, both KT and SKT decided not to disclose the negotiation process and

conditions for the iPhone introduction.

3. Another obstacle to negotiations: Apple's global standard policy

In addition to handset subsidy, Apple's global standard policy contributed to the late launch of iPhone in the Korean market. In the negotiations with Korean carriers, it insisted that service providers should stay away from the operation and management of App Store. Apple requested them to limit their role to provide telecommunications network and serve as a distribution channel. Later KT, the mobile operator of iPhone in Korea, confessed that since Apple controlled almost everything there wasn't much it could do with it. For example, KT asked Apple to eliminate wireless LAN from the handset only to be rejected. As an alternative strategy, KT wanted to control the wireless LAN by requesting users to sign in to use the service.[51] Apple again did not give a greenlight, saying it goes against its global standard policy. Such a strict policy was applied not only to Korean service providers but also mobile carriers in all parts of the world who desire to introduce iPhone in their countries. Apple made it clear that no exceptions would be allowed for its global policy.

Apple has been excessively adamant in "no-exception principle," which was clearly demonstrated in the release of iPhone in the Korean market. Apple applied for business license for location-based services prior to its roll-out of iPhone in Korea. On Sep 24, 2009, the KCC decided to allow Apple to sell iPhone without the license for location-based service if the company meets one condition. That is, location-based service is controlled by service providers not Apple itself. (Exhibit 38) Apple was not happy about the requirement. For a company which distributes the same handset to all over the globe, Apple may have found it outrageous to have no control right for the GPS service—the core feature of iPhone. An official from the KCC said that Apple seemed to dislike any intervention from service

[51]KT attempted to restrict wireless LAN in order to promote Nespot and expand FMC service instead of risking reduced profitability by allowing users to freely use Skype

providers in its operation. As it could no longer sit on its hands, the company tried to get the direct permission from the KCC. At last, Apple Korea successfully received the final approval from the KCC on Nov 18, 2009.[52] This allowed Apple to collect location information through wireless LAN repeater and base stations and GPS service, thereby offering various location-based services like compass service.

Apple, however, excluded the services the Korean government took issue with from the first place. A case in point was "Find My iPhone," a service that helps users find their lost iPhones, on the ground of privacy protection. In order to provide Find My iPhone service, the company had to undergo complicated approval process of the KCC again which ranges from user agreement, data security encryption, and immediate removal of personal location information. Apple Korea announced that it is planning to offer "Find My iPhone," but whether the US headquarters or Korean branch would provide the service has yet to be confirmed. In response, the KCC made it clear that the service was not among approved services and that Apple should go through the approval process of the KCC and get the prior consent of users. Since server locations are not critical issues for "Find My iPhone" service, the commission intended to approve the service as long as Apple follows due process.

Apple did not accept Korea's games rating rules. Under the Korean law, all games should go through censorship in advance for games rating. As for applications uploaded on App Store, the only approval that content developers should get is Apple's consent. That is to say, they are not subject to an independent censorship system. This is why, Korean App Store does not have games category, which means games applications are not permitted in the official manner. However, games content is provided by entertainment category. There was a controversy over Korean card games called "Gostop." Though it was R18+ rating, it was on the site which anyone over 12 years old can have access to. Apple opted to run against the

[52] Apple Korea received 77.53 in terms of its finance, sales and technology. Approval is given to those which get higher than 70

games rating censorship of Korea rather than breaking its global standard.

Apple's no-exception strategy might be a matter of necessity for its survival not a matter of choice. In the past, the one who had an upper hand in the mobile phone market was not a manufacturer but a mobile operator. If service providers refused to use models manufacturers developed, there would be no way to put them on the market. To meet the demand of carriers, cell phone makers had to make tailored operation system and programs for different companies. For instance, Cell phone producers had to make handsets that could meet the needs of different service providers, SKT, KT, and LGT. For this reason, some even said that the success in the mobile phone market was more dependent on how close manufacturers are with service providers than the quality of their products itself.

Domestic cell phone makers had enough reasons for predicting Apple was doomed to fail in the Korean market. Apple had no market base in the mobile phone market as its main products were computers and iPod. If Apple follows the relationship-oriented business strategy like other domestic cell phone producers, the fate of iPhone will be in the hands of service providers. Furthermore, if the company accepts exceptions in one country, service providers in a new market will request Apple to do the same. In this case, Apple will not have as much control as now over service providers when it expands its market.

### 4. With iPhone, KT seeks to become No.1

As of June 2010, SKT held 50.7% of market share in Korea.[53] It has been long since SKT dominated more than half of market share. Such a dominant position of SKT was regarded as market monopoly, and some said proper measures should be taken to resolve this phenomenon. SKT has continued to enjoy its dominance. Its rivals—KT and LGT—have not been competitive enough to threaten SKT's mighty position. SKT, on its part, has been

[53] Korea Telecommunications Operators Association

determined to secure its leading stance. Its internal policies were focused on maintaining its market dominance. Marking 100 days anniversary of his inauguration on Apr 9 2009, CEO of SKT, Jeong Man-won, stated in the press conference that SKT would never give up its strategy to keep its 50.5% market share.

The problem was the competitiveness of its rivals. KT, which had the second largest market share, lagged far behind SKT. Indeed, it was far from strong enough to stop SKT from maintaining its market dominance with holding 50.5% market share from 2005 to 2009. (Exhibit 39~40) KT's share price well illustrated people's perception toward the company. Think about the stock price of KT after it was merged with KTF. As of Jan 20 2009, when proposal for merger was approved by the board of directors, the market cap of KT and KTF was 10.9 trillion won and 5.5 trillion won respectively, reaching approximately 16.4 trillion won in total. But the current market cap of KT as of June 18 stood only at 9.6483 won.

Institutional investors said that even after the M&A, not KT but the market leader SKT was in the limelight of investors. Before the launch of iPhone, share value of SKT was often appraised by stock analysts. Analysts did not hesitate to choose SKT as top pick, citing SKT's strong capability to maintain its market dominance and a reliable source of capital with stable cash flow.

To beat its seemingly indomitable rival, KT turned to iPhone. Meeting KT's ambitious goal, iPhone made KT a leader in the smartphone market. KT chairman Lee Seok-chae said, "We should have introduced iPhone earlier. Thanks to iPhone, we turned ourselves from a declining company into one with the greatest growth potential."

5. The approach of Samsung and LG toward smartphones in light with their marketing strategies

Corporate strategies are reflected in their marketing strategy, which is best shown in advertisement. Advertisement is a tool to read company's sales promotion strategy given that it reflects the key appeal of products and services. In the summer of 2009, when people's eyes were on the launch of iPhone, Samsung Electronics released a new model, Jet phone. Samsung Jet phone was simultaneously unveiled in London, Singapore, and Dubai on June 15 2009.[54] In the launching ceremony of Jet phone, Shin Jong-Kyun, Samsung's Mobile Business Division President said Jet phone is the culmination of the full-touch phone technology for the last two years, expressing his confidence of advanced performance and convenient usage.

Indeed, it excelled any other models in terms of resolution, performance and speed. The Samsung Jet has a full AMOLED touch screen measuring 3.1 inches, which made up for the weakness of LCD screen under sunlight. The model was also equipped with an 800MHz application processor. Multi-tasking is available, and the fast processor enabled users to run 20 multiple applications in sync with each other. Furthermore, the Jet included a 5 megapixel resolution camera and the DVD quality video recording which is played at high-definition TV quality. State-of-the-art hardware was the marketing point for the European market.

Samsung promoted its Jet phone through the video clip specially designed for the purpose of viral marketing.[55] The one and half minute viral video features bungee-jumping elephants.

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[54] It was launched in Korea under the name of Haptic AMOLED

[55] Viral marketing is a marketing method which is designed to make Internet users spread the word of products or services and help promote them via e-mail or other transferable media. The name derives from computer viruses as it spreads rapidly and widely just like viruses. It has drawn attention as a new Internet advertisement method since the end of 2000. For viral marketing, companies identify fad and trend, create unique and fun web animation that appeals to the taste of Internet users, and upload it to Internet websites for free. It indirectly advertises its products by including its logo or products in the animation. Those who found it interesting transfer it to others, and in that way, it goes viral and promotes company's products.

An UFO suddenly shows up over Piccadilly Circus in London. While shoppers, who were taken aback by the Jet branded UFO, are rushing around in confusion, the door at the bottom of the UFO opens and two elephants bungee jump out of it. Their ankles are fixed at the inside of the UFO. Two bungee jumping elephants bounce back into the spacecraft in the blink of an eye, so does the UFO. People check whether they captured this superfast stunt with their phone cameras. Only one woman managed to get a photo of the elephants, holding her Samsung Jet phone.

Samsung intended its new handset to compete with iPhone. That is why the Jet phone was dubbed as "a phone smarter than the smartphone." Put simply, Samsung claims the Jet to be better than iPhone. The media paid keen attention to the competition between the Jet phone and iPhone, focusing more on the Samsung's Jet. This is well illustrated in the news articles in Korea. Samsung outperforms Apple in its features while its user interface, which has been considered short of iPhone, is as good as that of its rival. On the other hand, iPhone would have price competitiveness since the Jet is expected to be more expensive considering its strong customer base, brand recognition, and cutting-edge features. But the price issue can be resolved with aggressive marketing strategies of service providers. In sum, the Jet excels iPhone. While the only concern is the affordability as its great quality can lead to expensive prices, subsidy from mobile operators can supplement this issue. The biggest strength of iPhone is its fan base.

The media predicted the competition between Korean made handsests and iPhone would be features versus customer base. In the mean time, LG Electronics, which had not made much effort to develop smartphones, struggled to catch up with Samsung Electronics by unveiling its full-touch smartphone LG-GM730 in early 2009. This model was among global strategic products for the second half of 2009.

LG-GM730 boosted user convenience, and its user friendly features enable even beginners to use the model without difficulties. In detail, it offers Windows Mobile OS 6.1 and 3D S-class user interface in addition to a 5 mega pixel camera and other various multi-media features.

Both Samsung and LG smartphones lacked the wireless Internet, which is the core feature of iPhone. Even before the introduction of iPhone, Korean cell phone manufacturers tried hard to cool off the iPhone boom with high-end feature phones. On Sep 29, Samsung released the AMOLED 12M phone which contains a 12 megapixel camera with a 3x optical zoom for the first time for a camera phone. On the very same day, LG Electronics unveiled new chocolate phone (BL20). It is the successor to the highly-acclaimed LG Chocolate, a mobile which has sold 21 million units worldwide since 2005. Its full-touch screen features a 21 to 9 ratio display which is differentiated from the previous 16 to 9 screen ratio. It also comes with Mobile Dolby Sound System that creates an environment like users are in a movie theater. The Chocolate BL40 won the Mobile Phone of the Year at 2009 What Mobile Awards ceremony, following previous year's award winner—iPhone. What Mobile is the UK's longest running consumer mobile phone magazine. Girl's Generation, one of the most popular idol stars in Korea, was the advertisement model for the product.

Samsung and LG Electronics doubted about the success of iPhone. Samsung believed that iPhone would not appeal to general public even if it attracts manias. LG also predicted that the demand for iPhone in the Korean market is limited and it would not have big influence on the mobile phone market at large. Their overwhelming market dominance was the basis for their confidence.

In particular, their market dominance peaked in June and July 2009. The market share of Samsung and LG was 53% and 32.3% respectively, reaching 85.3% in combined. Thus, it is not an exaggeration that 9 out of 10 handsets sold in Korea were made by Samsung and LG.

(Exhibit41~42)

Such market dominance misled one out of five customers to believe iPhone was made by Samsung.[56] Backed by its T-Omnia released in Nov 2008, Samsung was considered to occupy almost 90% of smartphone market. People thought it as a weapon against iPhone 3GS. Blinded by such a strong market base, domestic handset providers believed there was nothing to worry about. CFO Kim Sang-don of LG Electronics said in the 2009 second quarter conference call, "It will take quite a long time for foreign smartphones to be localized. Its impact on market will be minimal."

They had every reason to be confident as smartphone was only a small part of Korean market. As of June 2009, the number of smartphone users barely exceeded 400,000, reaching 1% market share. SKT had 240,000 subscribers, and KT and LG combined had 160,000. As for handset, 90% were Samsung's models in which Microsoft's Windows Mobile was installed. As such, underdeveloped smartphone market was one of reasons why domestic mobile phone producers downplayed the shock iPhone could send to the Korean market. Not taking into consideration the growth potential of smartphone, they jumped to the conclusion that even if iPhone takes up more than half of market share, they will be okay. Such a view is based on the assumption that iPhone's 50% smartphone market share is only 5% share in the mobile market as a whole.

This turned out to be complete misjudgment. But it was too late to turn the clock back. Vice President Nam Yong of LG Electronics once said, "We went through very difficult time as we fell behind our rivals in smartphone business. Our staff and I went to the US, purchased iPhone and studied it day and night."

[56] According to the survey conducted by Micromill, the biggest Japanese online research company, 20.9% of respondents believed iPhone was manufactured by Samsung. Among them, people in 30s and 40s were 23.7% and 27.6% respectively.

In 2010 CES[57] held in Jan 2010, he was even more honest. "Now is time of transformation. We are now even competing with unexpected new players like Apple. Under such circumstances, unless we become a major player in the global market, we will not survive." His remark clearly indicates that he did not expect iPhone was the next big thing.

6. Lagging competitiveness of Samsung and LG smartphone

It is not true, however, that there were no smartphones sold in the Korean market before iPhone. As of July 2009 when iPhone 3GS was released, seven models were already rolled out or soon to be released. Only four were equipped with wireless LAN unlike foreign brands. Smartphones without wireless LAN was half success. Even the KCC was aware of this problem. One KCC official said, "We already know the problem. To promote wireless Internet, we are committed to reviewing policy on wireless LAN in smartphone. Setting aside policy issues, Korean brand smartphones themselves were far less competitive than feature phones.

Ironically for Samsung and LG, 2009 had been the greatest ever before iPhone came into picture in Nov. Samsung's annual sales surpassed 200 million units for the first time in its history with its global market share exceeding 20%. With LG's global market share exceeding 10%, it widened the gap with its competitors like Sony Ericsson and Motorola and secured its market presence as the third largest cell phone maker in the globe. The market share of Samsung and LG combined was likely to overtake that of Nokia in a not distant future. (Exhibit43~44)

Unfortunately, they hardly had presence in the smartphone market. The smartphone market share of Samsung and LG was 3.9% and 0.2% respectively in 2008. According to

[57] The International Consumer Electronics Show is the biggest exhibition for electronic goods, which is annually held in Las Vegas

AdMob survey in Oct 2009, SGH-1617 was the only Korean brand among global top 20 smartphones, (Exhibit45) By contrast, when it comes to feature phones, six out of 20 best-selling handsets—Samsung's SCH-R450, M800, R810, R210, T919 and LG's CU920—were made by Korean companies. Thus, it is convincing that Samsung and LG did not pay attention to smartphone business. The mobile phone industry pointed out Korean manufacturers tended to maintain status quo, which is why they belatedly entered the smartphone market.

Mobile phone analysts agreed that they were so satisfied with huge popularity of feature phone models that they failed to see new market trend. In particular, they were too immersed in creating more profits by expanding their foothold in the emerging market with low-end handset models. This is why development efforts for high-end handsets like smartphone were not made.

## Ⅳ. Change in the Korean cell phone market since the launch of iPhone

### A. iPhone became the market trend

1. iPhone's two-day presales surpassed sales of Omnia 2 for a month

In two days since its presale, the sales of iPhone exceeded a monthly sale of Omnia 2. On Nov 22, 2009, KT announced the official release of iPhone. Before the official launch, KT started presale of handsets, which is unprecedented in the Korean market. Customers were allowed to preorder iPhones through the online shopping mall called "phonestore."[58] The website was inundated with so many visitors who wanted to look through purchase terms and conditions that it was paralyzed on the very first day of preordering. The number of preorders soared from 33,784 on 20th, 24,559 on 21st to 119.279 on 22nd and 117.866 on 23rd.

Phonestore, which was opened in Aug 2009, never saw its visitors exceeding 40,000 a day before iPhone despite its tireless promotional efforts like website visitor mileage. For customers, iPhone preorder was far more interesting than other promotional events. Visitors to the website did not come without any purpose. Thus, their visit translated into iPhone reservation.

To put it in numbers, preorders on the first day stood at 15,000, which increased to 27,000 and 36,000 on the second and third day respectively, totaling 65,000 units. It is not that difficult to see how popular iPhone was if compared with the sales volume of rival phones. For example, the annual sales of T-Omnia were 18,000 units and the monthly sales of T-Omnia2, which was released in Oct, were 20,000 units.

Impressed by Apple's hot debut in the Korean market, Wall Street Journal published an article entitled "iPhone tries to crack Korea."

[58] Phonestore.show.co.kr was opened in Aug 2009 by KT to ensure reliable online purchase of mobile phones.

2. iPhone shock hit SKT hard

On Nov 28, 2009, the domestic mobile phone market had a milestone event. It was day when preorder customers finally received their long-awaited iPhones. Some of them lined up in front of Jamsil Sports stadium. Over 100 customers, who preordered iPhone, stayed in a long line a day before the official launching day though the event was held at 2 pm. Since winter was just around the corner, the weather was quite cold. But no one seemed bothered. There was a couple who brought hand warmers and thick jumpers to stay up all night waiting on the street. A man on the line said it was so cold at night that he could not even move his mouth, but he was more than happy to wait for his new smart phone.

It was not iPhone's peripheral devices or call time gift cards which attracted them to wait all day long in the chilly weather. They did it in order to become on of those who first activate iPhone. The media described such phenomenon as the iPhone fever. The iPhone fever rapidly swept the market with 65,000 units presold in a week. In the first week of Dec, iPhone became the most sold mobile phone. (Exhibit 46)

Thanks to high sales of iPhone, the monthly sales volume increased for the first time since the second half of 2009, rebounding from the decrease for four consecutive months since July. The market size as of Nov was 1.45 to 1.49 million units, which is a 7 to 10 percent increase from monthly sales of 1.35 to 1.37 million in Oct. (Exhibit 47)

Thanks to iPhone, the number of switchers[59] to KT doubled that of SKT. (Exhibit 48) KT had lagged behind the market leader SKT in service provider switch. In that regard, the change in ranking of service provider switch is very significant. Though some of customers

[59] Korean service providers use two methods to attract customers. The first is "mobile number portability." Before the unified number 010 was introduced, each service provider had used its own identification number. For instance, SKT used 011 and 017, KT 016 and LGT 019. Accordingly, change in numbers meant switching of service providers. Second one is new activation. It is like activating a mobile phone for the first time. Provided with great subsidies through above two methods, many customers in Korea tended to choose between the two instead of being loyal to their providers. In the process, mobile carriers are engaged in cutthroat competition to steal as many as subscribers from their rivals.

Service providers favor the second method over the first one because new activation eliminates all cell phone usage record. As a result, they do not have to provide mileage or additional services based on the usage records. The amount of subsidy for new activation is higher than that of provider switching.

migrated from LGT to KT, a big share of them were from SKT. Most smartphone users are those who are willing to pay relatively high phone bill. They chose SKT due to its high call quality, which is why SKT had a huge number of loyal customers.

The mobile identification number subscribers were used as standard for customer loyalty of each service providers because service provider switching often translates into the change in the identification number. As of Nov 2009, a share of customers with SKT's mobile identification numbers, 011 and 017, stood at 19.4% and 3.1% respectively. This means that one out of five SKT subscribers never changed its carrier. Meanwhile, the figure was only 4.9% for KT and 6.7% for LGT.

3. With iPhone, smartphone becomes mainstream

Even experts did not predict iPhone was the next big thing. Until its introduction to the Korean market, many people thought iPhone was doomed to fail. They predicted the demand for iPhone would be around 100,000 to 300,000 units. Such a pessimistic prediction was based on the iPhone sales in the Japanese market. About 520,000 units were sold in Japan for two years. It was lower than expected sales figure given that wireless data service is more advanced and market size is bigger. This is why people thought the sales of iPhone in Korea would be as high as that in Japan at best.[60]

In fact, sales volume of iPhone in 2008 was 300,000 units and smartphone accounted for 2 to 3 percent. Only 52.6% of mobile phone subscribers used the Internet through their mobile. Furthermore, 80.5% of the wireless Internet use was for downloading ring tone and bell sound. [61] In a nutshell, the market size of smartphone was small and customers were not familiar with devices, so that it was highly unlikely for smartphone to appeal to customers.

[60] iPhone models before 3GS were not very popular in Japan. So much so that they were even relegated to free phones which subscribers could purchase if they sign a two-year contract. But 3GS model became the best selling handset, overtaking Sharp and Panasonic in July 2009 right after its launch.

[61] Korea Internet & Security Agency, "Internet use report (2009)"

Against people's prediction, however, iPhone shook the mobile phone market landscape in Korea. The handset, which was considered a mere toy of some early adopters, has sold like hot cakes with its sales exceeding 400,000 in 100 days and 700,000 in a half year. (Exhibit 51) The popularity of iPhone boosted mobile phone import by 148.7% year on year. The import was concentrated from October to Dec.

The import volume during this period accounted for whopping 72.4% of the total amount in 2009. Such import growth momentum continued in the first quarter of 2009, so the units of imported mobile phones and total import increased 255% and 369% respectively from previous year. iPhone was even designated as "30 items on the watch list[62] which the government keeps an eye on to ensure price stability. This was because iPhone was one of top ten import items. The smartphone penetration rate, which was only 1% in June 2009, is expected to rise up to 10% in 2010, 20.3% in 2011 and 33% in 2012.[63] As smartphone was all the rage and the technological trend has shifted from PC to mobile, Korean customers rushed to use smartphone. In a survey conducted on CEOs a month after the iPhone launch, about 86% of respondents said they would buy smartphones next year.[64]

[62] It was released on June 29, 2010. 30 items, which are closely related to people's daily life or consumer price index, are designated. Criteria for the list are ▲daily necessities that are monitored by the government ▲items that have high industrial concentration ▲pricey goods ▲10 top imported goods ▲items that have great impact on CPI ▲new technology ▲ items that media pays keen attention to

[63] KT Economic management research institute

[64] The survey of Institute of Global Management on 128 CEOs

**B. The decline of Korean cell phone manufacturers in light of stock prices of LG Electronics**

1. LG was not ready for smartphone competition

Since iPhone was introduced in the Korean market, people's eyes have been on smartphones. Unlike Apple and Samsung, LG, the second biggest cell phone maker in Korea, has not drawn attention in the market. The reason was simple. In the smartphone competition, LG Electronics even lagged behind Samsung. Until the first half of 2009, the company unveiled three smartphone models, KS 20, KT 610 and SU 200 (INCITE). During the same period, Samsung Electronics rolled out six models including Omnia.

Furthermore, LG Electronics fell behind its rivals in terms of sales volume. The domestic sales of its flagship smartphone "INCITE" which had been released in March 2009 stood only at 9,000 units. Even in the US market, only 200,000 units were sold until July 2009, In contrast, 14 million units of Samsung's T-Omnia were sold during the period from Nov 2008 to June 2009. Industry experts said that Samsung's Omnia would control the domestic smartphone market and that the reason why customers turned a cold shoulder on LG Electronics products was its failure to proactively respond and secure an early foothold in the smartphone market.

The bigger problem is LG has lost its dominance in its target market-feature phone. Its Cooky and Lollipop phones enjoyed popularity during the first half of 2009, but new models for the second half such as Areana and New Chocolate showed disappointing results. As for New Chocolate, only 40,000 out of 105,000 units supplied to the market were sold. Not only did the market witness the downturn in Oct when New Chocolate was released, but it was dwarfed by Samsung's full-touch Haptic AMOLED.

LG's market share, which peaked at 33.2% in June 2009, has been on the decrease. The

figure fell to as low as 22.5% in Oct. This shows start contrast with Samsung whose market share rose for seven consecutive months to 56%. Even Pantech, Korea's third-largest phone maker, trailed right behind LG with its market share of 15%. It was not too much to say LG was faced with great crisis. To overcome the challenge, it abruptly created a division in charge of smartphones in Nov 2009. That's how the smartphone division within Mobile phone business department was created on Nov 1. The emphasis LG put on the smartphone business can be seen from the appointment of Vice president Lee Jeong Jun as the head of new division.

Smartphone researchers of MC R&D Center[65] in Seoul were reassigned in the beginning of Nov. Smartphone development teams were integrated into the SP development project team. [66] A senior researcher of LG Electronics explained that as smatphone development became the core task for MC R&D center, it was inevitable for MC center to overhaul its overall system and establish a dedicated team for smartphone development.

After announcing the third quarter profits on Oct 21, the CFO Jeong Do-hyun of LG Electronics stated that the company was committed to clearing inventory and reinforcing its R&D efforts to launch new models next year. He expected that this will help the company reduce the losses in the fourth quarter compared to the third quarter. LG Electronics is aiming to develop more than 20 smartphone models in 2010.

Unfortunately, however, the market was not so favorable to LG Electronics. In the mobile business, LG has been more of a trend-follower than a trend-setter. The company had a tendency of incurring great losses in the face of new market trend and again recovering its market share by belatedly developing trend-following models. (Exhibit52) The industry believed that the same will go to the smartphone business as well. There was harsh criticism against LG that its global market share of 10% in 2009 was hollow victory. The securities

[65] Mobile Communications
[66] Smart Phone

industry said that LG Electronics was so immersed in selling low-end models that it was not vigilant enough to read the market trend. Some even said that LG would not be able to catch up with its rivals if it lags further behind in the smartphone war.

Not surprisingly, LG Electronics has seen its profits fall since the fourth quarter of 2009 since it didn't have competitive smartphone models and its feature phones lost its popularity. The operating profits plummeted from 460 billion won in the third quarter of 2009 to 9 billion won in the fourth quarter. It was 28 billion won in the first quarter of 2010. The operating profit rate, which stood at 10.5% in the third quarter, was a mere 0.2% and 0.9% respectively in the fourth quarter of 2009 and the first quarter of 2010. (Exhibit53)

2. Target price was cut half, reaching new low

Thanks to the iPhone boom, smartphone shares were created in the stock market.[67] Industries that manufacture smartphone parts and smartphone content developers attracted investors, thereby boosting their stock prices. By contrast, the share prices of LG Electronics decreased. Analysts criticized LG was not ready for smartphone business. LG's underperformance was well illustrated in its share prices. On Dec 1, 2009, KB Investment & Securities analyst Cho Seong-eun revised the target share prices of LG Electronics down from 194,000 won to 101,000 won, which is a 47.9% decrease. This is because LG does not have competitive smartphone models and its underperformance in the high-end mobile phone market was inevitable. On Nov 30, LG's closing price was 103,000 won. Target price is analyst's projection on the extent to which stock price can go up. Thus, that target price was cut half means the corporate value dropped to a half of the past.

For analysts, it was a rare case to lower target price in such a dramatic manner. As a matter of fact, it was unusual for them to even present unfavorable view of companies in

[67] Types of share that were created by new event or phenomenon tend to gain popularity. The factor which changes share prices is called theme and its shares are referred to as 'theme share'

Korea. For instance, analysts remained silent even in the wake of financial crisis in 2008 when stock prices plummeted. From Sep to Nov 2008, there was not a single analyst who spoke out.

Raising possibility of stock selling itself became a source for news. This is because the independence of analysts is not guaranteed. Securities companies had to attract investment capital from companies, which means companies have upper hand over them. When a research center under a securities firm displeases its client company, sales department takes issue with it. Furthermore, companies prevent additional negative reports from coming out at the fundamental level by banning the analyst on visiting or by rejecting to provide any information to him or her. This results in stopping analysts from analyzing the company in the first place, threatening their job security. Such a vicious cycle is what keeps them from voicing out to let the public know the truth.

The new heads of research centers have rolled up their sleeves to bring about changes since 2009, saying "We will be bold in providing our selling recommendations," to no avail. One securities firm employee said, "Since most CEOs are salesmen-turned-heads, they stick to expanding corporate client base and increasing profits. Accordingly, they do not seem to care much about the independence of research centers."

Even under circumstances where securities firm tend to be favorable to large companies, LG Electronics got harsh reviews. Stock price of LG Electronics plunged after the iPhone launch in Korea. From Jan to Sep 2009, its stock price remained slightly higher than Samsung and KOSPI average. The situation started to change, however, in the fall of 2009 when iPhone was about to enter the Korean market. (Exhibit54~55)

Right after the introduction of iPhone, LG witnessed its share price rollercoaster unlike Samsung whose share value remained stable. There were mixed views of LG's future outlook. Pessimists said LG could not survive in the IT era without its smartphone capacity. On the

other hand, others were more optimistic about company's future, believing its competitiveness in the core business can complement weakness in smartphone. On June 10, 2010, LG's share price fell down to 96,700 won, reaching new low. Such shameful result was due to its defeat in the smartphone war and a profit decrease in home appliances in the wake of Europe's financial crisis. Instead of bottoming out, its price further declined later. (Exhibit56)

While losing ground to Apple and Samsung, LG ambitiously prepared for the launch of Arena phone, its new smartphone model. It also released Chrystal phone by converging a transparent keypad and a touch-screen phone for the first time in the world. Unfortunately, both of them were not enough to stop the smartphone boom led by iPhone. Though it again tried to regain its competitiveness by launching Optimus Q in June 2010, it still fell behind iPhone 4G and Galaxy S in terms of popularity. Compounded by Europe's financial crisis, share prices of LG Electronics fell to all time low on June 10, 2010.[68](96,700 won). Instead of hitting the bottom, the price fell even further to around 90,000 won.

[68] The lowest in the past 52 weeks

### C. Galaxy S for iPhone catches up

1. Samsung bet on Galaxy S

As Omnia 2 failed to beat iPhone, Samsung came up with its new smartphone model, Galaxy S. Galaxy S was specially designed to compete with iPhone. Samsung decided to unveil its new model by the time of the official debut of iPhone 4G. This indicates that the battle of Galaxy S versus iPhone 4G was more about Samsung's pride than a mere competition.

In spite of its dominance in the Korean market, Samsung was completely defeated by Apple in the first round of competition. The problem was not confined to the defeat of one model. That Samsung lost its competitive edge in the smartphone market made people uncertain about company's future competitiveness. Such a sense of crisis was what led Chairman Kun Hee Lee to make a comeback. Chairman Lee said, "Now is the real crisis. We cannot afford to be complacent. Samsung's flagship products can disappear from the market 10 years from now."

As soon as he returned to the management in Mar 2010, he overhauled the mobile communication division and ordered his staff to make anything similar to iPhone promptly. This is why Galaxy S was nicknamed so-called "Lee Kun Hee phone." Just three months after, Galaxy S was unveiled to Korean customers.

This period is the time when the entire company focused all energy on overtaking iPhone under the leadership of Chairman Lee. It is said that while it takes about a quarter to manufacture a feature phone to compete with the top brand, at least one year is required for a smartphone. This is because not only hardware but various software systems are installed in the smartphone. The resources injected into a smartphone are estimated to be five times greater than those of a feature phone.

Unveiling its latest smartphone model, Shin Jong-kyun, head of Samsung's mobile division said, "The Galaxy S represents our 20 years experience in the mobile business." Andrew Rubin, Google Vice President, applauded the Galaxy S, saying it is the best Android phone in the market.

2. Galaxy S is the culmination of Samsung's second-mover strategy

The Galaxy S was as great as iPhone 4G in terms of hardware, boasting its 4 inch super-AMOLED screen and a 1 GHz processor. It features a full capacitive touch screen instead of resistive display that was pointed out as one of the greatest weaknesses of Omnia 2. To compete against Apple's AppStore, Samsung made it possible for Galaxy S users to download a variety of applications from three major app stores, Google Android market, SKT T store and Samsung Apps.

The Galaxy S looks and performs just like iPhone. Yet it lacked its own color. Samsung seemed too focused on catching up with Apple's iPhone to create something totally new which can differentiate itself from its rivals. Since the company could no longer afford to turn a blind eye to iPhone's lead in the market, it had to produce a model that is on par with iPhone.

Samsung can get high mark in a sense that it offered a new choice to customers other than iPhone. It managed to bridge the gap with Apple in only six months. Yet again Samsung proved its capacity in the second-mover strategy. The first 200,000 Galaxy S units were sold only in 10 days. The demand for the Galaxy S was so high that the device was in short supply, so people had to be on the waiting list for purchase.

However, the leap of the Galaxy S was not just driven by customers. It seems that Samsung and SKT artificially raised the sales volume. For instance, Samsung Electronics expanded "Mobile Office" which had only been used by executives and provided Galaxy S to

all 88,000 employees for free. As such, a massive number of Galaxy S were given to insiders,[69] which cannot be seen as the choice of customers. Political relationship between Samsung and other companies somewhat contributed to increasing sales of Galaxy S. SKT on its part focused its all energy on promoting the Galaxy S. So much so that it was criticized for neglecting other smartphone models.

Not to be outdone, LG also strived to secure its presence in the smartphone market by releasing its new model Optimus Q. About 35,000 units of Optimus Q were sold in two weeks. Like Samsung, employees of LG Electronics, LG display and LG U+ were provided with free Optimus Q handsets as well as subsidy for communications bill.

Rolling out the Galaxy S, Samsung sought to capitalize on the time gap between the official debut of iPhone 4G and its release in the Korean market, thereby expanding its share in the smartphone market. The specification comparison between iPhone 4G and Galaxy S shows why. Samsung's cell phone is known to be the best of its kind in terms of hardware. The specification of the Galaxy S falls short of that of iPhone 4G even if it is better than that of iPhone 3GS. Simply put, the Galaxy S lies somewhere between iPhone 3GS and 4G in its hardware.

3. Galaxy S, the copycat cell phone of iPhone

As mentioned before, Samsung focused more on copying the iPhone than developing its differentiated and unique smartphone model. Though new market trend of smartphone emerged, the company failed to create something new and become a trend-setter. It only followed in the footstep of its rival, Apple, by imitating iPhone. Its me-too strategy was pronounced in the Galaxy S UI (user interface) including the arrangement of applications.

[69] For most employees had to pay cancellation fee to change its cell phone to Galaxy, the number of Galaxy S handsets that were activated by Samsung Electronics employees can be only half of what was distributed. The company did not go as far as to provide cancellation fee. Thus, whether to accept it or not was up to employees.

Those me-too qualities are reflected in the significant metric: Apple's $226bn market capitalization is almost 2.5 times Samsung's.

On the other hand, iPhone 4G, which was unveiled on the very same day with the Galaxy S, included a new feature called "Face Time." With its new feature "Face Time," iPhone users can make a free video call as long as they are connected to WiFi network. Free exchange of information through video calling is likely to bring dramatic changes in the mobile culture. Furthermore, if Face Time is combined with Skype, which allows users to make a free call via the Internet, it can cause service providers to lose the profits from video call.

### D. Different choices made by Samsung and LG

1. Samsung's strategy: to become a winner in both hardware and OS

Since iPhone hit the Korean market, Samsung and LG revised their mobile phone strategies to be centered around smartphones. Yet their strategies showed significant differences, which were clearly shown in the Mobile World Congress (MWC) held in Spain on Feb 17 2010.[70]

"Samsung has been a hardware-oriented company, but we will focus more on software and content and pursue differentiation. The development of Bada[71] will play an important role in advancing the software industry in Korea," said Lee Ho-soo, executive vice president for Samsung Electronics' Media Solution Center.

As for smartphone OS, Apple's iOS and Google Android OS are leading the market. While handsets with iOS and Android OS lagged behind Nokia in terms of the handset market share (Exhibit57), they excel any of their rivals in terms of their usage. (Exhibit58)

Samsung set a new direction. It decided to compete with leading smartphone manufacturers in all aspects from handset to OS. It came to realize that becoming the leader in the handset market without competitive edge in the OS market is only a half victory. Its new strategic direction was attributable to its confidence that it can overtake global leaders in terms of OS as well as handsets.

As a matter of fact, Samsung Electronics has reinforced software business through Mobile Solution Center (MSC) since 2008. The MSC is a specially designed division for developing platform and application store. The company believed that it could compete neck and neck through its OS based on two years efforts and knowhow.

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[70] 17 Feb 2010, Barcelona in Spain

[71] It is the mobile OS Samsung developed by itself and was unveiled in London on Dec 8, 2009.

2. LG Electronics' strategy: to focus only on handsets by giving up OS

Different from Samsung, LG Electronics decided to put emphasis on differentiated handsets rather than diverting its energy to developing competitive OS. When asked whether LG Electronics had a plan to develop its independent smartphone OS, Ahn Seung-kwon, LG's head of Mobile Communications replied as follows. "It is true that we have concentrated on hardware, and we are well aware that an increasing number of customers are putting value on solution. Yet our understanding is that it is a long shot for us to dominate smartphone eco system. Against this backdrop, we are determined not to develop our own platform within two to three years. Instead, we are going to adopt Android and Window Mobile 7 for the next one or two years. At the same time, efforts are being made to differentiate ourselves in the basic features."

LG's differentiated strategy can be interpreted from two perspectives. First, the company decided to pursue the selection and concentration principle. For it was too late to become a leader in the OS market, differentiation in hardware could be better investment for the company. This strategy was formulated by reflecting the trend of smartphone market and LG's position. It chose to make more efforts to develop better smartphone handsets rather than jump into the competition where its defeat was a foregone conclusion.

LG might have had no other choice, but its strategy should not been just seen in the negative light. Smartphones have yet to be widely used in the market. Its market is at the growth stage. When the market grows, its OS and parts become cheaper and there is more room for latecomers. Not having own technologies, it is difficult for them to enter the market where parts are very expensive. If parts become cheaper, market conditions can be more favorable to latecomers. At the mature stage, the smartphone market can witness the leap of latecomers like Motorola which differentiated its products. In this regard, LG's strategy of outsourcing OS is not a bad idea.

The OS outsourcing strategy is closely related to LG's response to the change in cell phone trend. LG Electronics has always followed the trend instead of leading the market, producing cell phones that fit a new trend. As a result, it has shown its greatest competitiveness at the mature stage.

Second, LG lagged behind Samsung in developing smartphone. Looking back on Apr 2009 when mandatory WIPI installation was abolished and people paid keen attention to the iPhone introduction, domestic cell phone makers and carriers announced their plan to open their own app stores. Although they were criticized for prematurely announcing their plan without concrete plan and thorough review, it was meaningful effort to secure an early foothold in the market. In fact, some market research surveys predicted domestic app stores could outdo Apple App Store. (Exhibit60)

Samsung was geared up to create its own app store back then, whereas LG Electronics remained silent. This is an important fact when comparing Samsung and LG in how prepared they were in the face of iPhone shock. While Samsung was strengthening its software business to win the smartphone competition, LG was not vigilant enough to the changes. Belatedly, on Nov 1, 2009, it created smartphone business division.

It was the strategy of LG group that led LG to engage in the smartphone business too late. In the 3rd quarter conference call in Oct 2009, the CFO of LG Telecom said, "Apple iPhone is not likely to fuel the competition among service providers. Considering the smartphone market size in Korea, there is little possibility for the smartphone competition to trigger the fierce competition in the mobile phone market at large." In the 2nd quarter conference call, he commented on the implication of the launch of iPhone, saying, "Since it takes time and energy for foreign smartphone which are not localized to penetrate into the Korean market, their impact on the market is limited."

## Ⅴ. The growth strategies of Korean mobile manufacturers

### A. Analysis tool : Seven Key Questions for Growth

As for the analysis tool for domestic cell phone makers' strategies, five questions among seven fundamental questions suggested by Seung-Joo Lee (2004) were used. Lee's conceptual framework built upon the questions of Markides (2000).

1) Who will be my targeted customers?

2) What products and services should I be offering?

3) How should I offer these products and services to my targeted customers in an efficient and innovative way?

Table3. Conceptual Framework; Seven Key Questions for Growth (Lee, 2004)

| Key Questions | Key Considerations |
|---|---|
| 1. Where to compete? | Establishing strategic focus in terms of<br>-Business Domain<br>-Geographic markets |
| 2. Who to Target as Customers? | Choice of target customers<br>-Market segmentation<br>-Key decision-makers |

| | |
|---|---|
| 3. What to Offer? | -Product/Service Offering<br>-Value proposition to customers |
| 4. How to Compete? | -Business system & Value chain design<br>-Core competence & competitive advantage<br>-Resource allocation & development |
| 5. With Whom to Partner? | -Partnership/alliance design<br>-Choice of partner |
| 6. When to Compete? | -Timing and speed of strategic moves<br>-Scenario-based contingency planning |
| 7. What If? | -Uncertainty & Risk management |

B. **"Where and when to compete?"**

Key Question 1 and 2 analyze the surrounding of mobile phone market

The business scope and strategies are reflected in the quarterly or annual report. Investors can see the situation facing different industries, the competitiveness of companies and future plans. The following is the summary of quarterly and half-yearly reports from 2006 to 2010 of Samsung and LG.[72]

1. Samsung and LG are paying keen attention to the growth of the emerging market

[72] Listed companies are required to publish reports every quarter. Quarterly reports after first and third quarter, half-yearly report after second quarter, and business report after fourth quarter are released. Samsung's report II. Project details >project overview >business current status>finished good>mobile communications business, LG's report II. Project details>project overview>market and sales situation>MC business headquarters

The business strategy of Samsung and LG in 2008 is divided into two. Targeting domestic and advanced market, on one hand, they opted for high-end (premium) phone strategy. For an advanced market which has been saturated in terms of the penetration rate, mobile phones go beyond daily necessity to become accessories that represent individual characters.

On the other hand, they pursue low-end phone strategy for the emerging market like Latin America, East Europe, and Central Asia. Low-end phones are less competitive in their technology. Yet emerging markets are very attractive in that inventory of old-fashioned low-end handsets can be sold. Furthermore, as markets are at expansion stage, predominating these regions has been a top priority for Samsung and LG which were heavily dependent on foreign markets. In 2008, 85% of their sales came from overseas. Though the sales growth in the emerging market was stagnant in 2008, it was still promising for domestic manufacturers. LG Electronics said that the sales in the emerging market increased to large extent in 2008.[73] Samsung forecasted that while the growth rate in Latin America and East Europe would slow down due to the increase in penetration rates and the decrease in demand, the Asian market would continue to grow to drive market expansion.[74]

The export of Samsung mobile phone increased dramatically in 2008. The revenue of mobile phone business increased 5.3% year on year in 2007, but the figure soared to 31.1% in 2008. The growth rate in domestic demand was 15% and 15.2% respectively in 2007 and 2008. Driven by the growth in overseas sales, the sales, which grew by 6.9% in 2007, surged by 28.3$ in 2008.[75] (Exhibit61)

[73] LG Electronics 2008 1st quarter report published at 15 May 2008
[74] Samsung Electronics 2008 1st quarter report published at 15 May 2008
[75] Samsung Electronics 2008 annual report published at 31 March 2000

2. Samsung in 2007 and LG in 2009 recognized the importance of smartphone

Samsung mentioned smartphone in the first quarter report of 2007 which was released on May 15, 2007. It unveiled its future smartphone strategy in its report on new business and future outlook. According to its report, Samsung was planning to develop the second ultra edition model and smartphones which can emotionally appeal to customers with more advanced features, thereby leading the premium market.

Since then, its plan to promote smartphones has been included in the report. The smartphone strategy has been focused on expanding its line-up. Samsung said, "We will release a series of premium products such as G800 with 5 million pixel camera and full touch-screen F490 to lead the multi-media market. At the same time, we aim to position ourselves as a leader in the 3G and mobile Internet market with our expanded line up of smartphones and new products like HSUPA. (2007 business report[7677])

Its strategy to reinforce its smartphone line-up indicates that Samsung believed it had its own smartphone models. In its 2008 business report[78], Samsung explained the current status of its business as follows. "In the midst of difficult business environment, we managed to sell about 200 million units of handsets thanks to high-end products like Soul and Haptic during the first half of 2008, newly launched model with 8 million pixel camera Pixon and smartphone Omnia during the second half. In the same report, Samsung unveiled its plan to expand high value-added product line-up such as smartphones and touch-screen phones to enhance user convenience and strengthen cooperation with service providers.

Two facts can be found from reports above. One, Samsung believes Omnia falls into the smartphone category. Two, it considered itself as a company armed with best-selling smartphone models. Omnia was a mobile phone Samsung released overseas in 2008 to

[76] High Speed Uplink Packet Access
[77] Published on 31 March 2008
[78] Published on 31 March 2009

compete against iPhone. SCH-i900 was rolled out in Singapore in June, 2009 and in November SCH-490, which was redesigned to meet the Korean customers' taste, was launched.

On the other hand, LG Electronics started to show its interest in smartphone business in the first quarter of 2009. It stated in its first quarter report[79] that it is strengthening product leadership through strategic partnership with Microsoft. It said, "The demand for smartphone is on the rise in the advanced market," mentioning smartphone for the first time in its 2010 first quarter business report[80]. In other words, LG started to have interest in the smart phone market one year after Samsung did in Mar, 2008.

Taking into consideration public opinion back then, LG's strategy fell behind the market trend in Korea. It was early 2008 when smartphones began to draw Korean customers' attention. That was when Blackberry of RIM was introduced by the media as the key item for political campaign of then-candidates Senator Hillary Clinton and Barack Obama. At that time, news on smartphone use of Hillary and Obama such as "Hillary carries her Blackberry 24/7" and "Obama checks email from his advisors with his Blackberry as soon as getting off the plane" were reported in Korea. This made many curious about what a smartphone is. Furthermore, Google, following Apple, decided to enter smartphone business, leading people to believe the market trend was being shifted to smartphones.

In Nov 2008, Samsung in cooperation with Microsoft and SKT moved ahead of LG by releasing SCH-490 (T-Omnia), creating the smartphone market in Korea. SCH-490 was a project that Samsung and SKT worked on since Feb 2008, 8 months after iPhone had been launched in June 2007. Though not as swift as global players, it was far more vigilant than LG. That is why Samsung was considered a rival for Apple amid declining market status of domestic manufacturers. In contrast, failing to read the market trend and adopting a wrong

[79] Published on 15 May 2009
[80] Published on 31 March 2010

strategy, LG has been losing ground in the smartphone market.

Samsung Electronics was vigilant in enhancing software competitiveness, which was deemed as one of major causes of iPhone shock. In the first half of 2010, Samsung recruited software experts. An official in the mobile phone industry said, "Samsung aggressively attracted those involved in the software industry whether they have expertise in planning or development. The number of software experts hired by Samsung during the first half of 2010 would reach at least six million.

In the meantime, SKtelesys, subsidiary of SK Group, is considered to have failed to predict massive change iPhone would bring about in Korea. SKtelesys is the only manufacturer among SK Group's telecommunications subsidiaries. Major products are repeaters and transmission equipment. When the 3G network project was completed, SKtelesys turned to the mobile phone business as a new source of revenue. The company appointed Yoon Min-seung, the executive director of Pantech, who is often called the founder of Sky[81], as the new head for the mobile business. Chairman Choi Shin-won of SKC—the parent company[82] of SKtelesys—was also very attached to the business. Chairman Choi is known to have led the entire process of mobile phone development by going to not SKC but SKtelesys to get update on the development process. Such enthusiasm was the reason why SKtelesys brand was even called "Choi Shin-won phone." Since the official announcement of W brand in August 2009, three models had been rolled out until August 2010. All of them were feature phone with emphasis on design and UI. The result was quite disappointing. The sales of W phone (SK-700) for six month since November 2009 only stood at 100,000. To appeal to customers, the global celebrity "Rain" has been hired as the advertisement model for the second (SK-800) and third model. Amid the smartphone boom, they were overshadowed by smartphone models such as iPhone and Galaxy S. Some in the mobile

[81] Owned by Pantech, Sky is one of three top mobile phone brands along with Samsung Anycall, LG CYON.
[82] SKC holds 77.13% share of SKtelesys as of June 30, 2010.

phone experts said the failure of W phones was foregone conclusion as SKtelesys had miscalculated the repercussion of iPhone.

C. **"Who to target as customers?"**

1. Samsung's target point and positioning in light of its first smartphone

SCH-490 was sold via Korea's leading carrier, SKT. The accumulated sales surpassed 150,000 units as of June 2010, only eight months after its release. This enabled Samsung to take up about 90% of the market. However, its market dominance was not interpreted as the competitiveness of its smartphone models. As a matter of fact, smart phone market was in infancy in the first half of 2009, so there were few models sold in the market. INCITE, the model LG had produced to challenge Samsung SCH-490, was so unpopular that its sales figure had to be kept secret. For this reason, the fact that Samsung occupies 90% of market share was considered as abnormal phenomenon and only the result of Samsung's high brand value. In the eyes of customers, SCH-490 was not a smartphone but another premium touch-screen phone. Indeed, mobile phones deemed as smartphone in the foreign market were nothing but ordinary high-end phones in the Korean market.

This is illustrated in Samsung's positioning strategy. The brand name of SCH-490, Omnia, refers to everything in Latin. As its name indicates, it was aggregate of previous models, not something totally new. On hardware side, encompassing user interface, the Internet and screen resolution, SCH-490 was as advanced as Galaxy S. Instead of highlighting the Internet and mobile business, the core features of smartphone, however, Samsung put more emphasis on add-on features such as UI, screen resolution, DMB and camera.[83] The model came with differentiated content. For example, news and stock information were provided to subscribers

[83] Refer to the page of SCH-490 overview at Samungmobile.com

for free. Users were allowed to access SKT's music service, Melon music, without charge. They were allowed not only to use Micro word, excel and powerpoint but also to play video clips without additional software.

On the flip side, it was not convenient enough to be used as a portable PC. Operating the product was not as easy as it looked. It should have enabled users to get necessary information with simple clicks just like PC. Instead, they had to endure a complicated process from opening Internet browser with touch pen to typing the site address. Inconvenient UI adversely affected Omnia, and later its weakness in UI was one of the main reasons why it defeated against iPhone. Unlike Omnia, iPhone appealed to customers with its commercial that emphasized "easy to operate."

Samsung did not emphasize Internet feature that is the most distinct characteristic of smartphone. It focused its energy on upgrading the existing premium mobile phone. SCH-490 targeted top-tier customers. With its price topping 1 million won, SCH-400 was criticized for being as expensive as a two-door refrigerator.

Its prices varied depending on storage capacity. The 4GB model was sold at 968,000 won and 16GB was 1.06 million won. The model has been at the center of people's attention from the beginning as it was developed through the affiliation of Samsung, SKT and Microsoft. Slow Internet connection was pointed out as another shortcoming. SKT was mainly blamed for this problem. The Internet speed of smartphones in 2009 was only one fourth of that of PC due to its underdeveloped wireless data transmission technology Even if a handset is good, low communication speed was inevitable without advanced communications technology. Against this backdrop, SKT and KT have raced to expand wireless network since the era of smartphone ushered in.

2. Uncertainty about demand for smartphones

Still SCH-490 has its significance as a smartphone model. To begin with, it was equipped with WiFi feature that enables users to access wireless Internet. The Internet has been the most frequently used service since iPhone.[84] SCH-490 is a proof that domestic carriers came to grips with the fact that lowering wireless data bill was the first step to promote smartphones and that they turned their understanding into an action. It also proves that Samsung Electronics and SKT knew what features of smartphone appeal to customers, which include SNS service and real-time information like news, weather and stock prices.

Samsung and SKT seem to have been hit by iPhone shock as they miscalculated the timing of the smartphone era; put in another way, they had a chance to predominate the smartphone market before the introduction of iPhone. If they had identified potential demand for smartphone, put in place policies to foster the smartphone market, and created Korean-style app store in advance, they could have competed with Apple on an equal footing.

Samsung knew the trend was changing. In its 2009 business report, the company said, "Ushering in the mobile Internet era, mobile phones are getting smarter. And smartphones with PC-level performance and capacity are drawing great attention. In response, leading service providers are preparing for or already developing their own content and applications." Though it read where the market was headed, it failed to put enough emphasis on the growth of the smartphone market. Some in Samsung and SKT confess that they did not expect the market would grow to this extent. Samsung, however, was at least in a better position than LG in the smartphone market. With the release of Omnia 2 in Oct 2009, it managed to position itself as the leading smartphone manufacturer. Meanwhile, LG adhered to premium feature phone. In the same month, the fourth version of Black Label,[85] New Chocolate phone,

[84] Survey of KCC and KISA (14 July 2010)
[85] Black label, which is originally a terminology for the fashion industry, refers to expensive premium clothes with luxurious design and material. It is the opposite term of inexpensive 'white label' which targets young generation. Black

was rolled out by LG. Though ambitious, its sales fell short of expectation. Before long, in Nov, the company created the smartphone business division.

### D.“What to Offer?” and “How to Compete?”[86]

1. Bipolarized market

Both Samsung and LG thought the global mobile phone market was polarized. While high-end phone models including smartphones gained popularity in North America and Europe, low-end models appealed more to customers in the emerging markets where penetration rate was till low. Competition in high-end as well as low-end markets tended to get fiercer.

In regards to high-end handset, smartphones in addition to expensive premium phones were expanding their presence. Samsung said, “As smartphones drive mobile phone market growth, the influence of their manufacturers continue to grow, undermining the presence of conventional handset makers such as Nokia, Samsung, LG and Sony Ericsson.” In the low-end phone market, Chinese cell phone makers were emerging, which was of course not welcoming news for Samsung and LG. For them, markets in developing nations have played a decisive role in expanding the global market share since the 2000s. Indeed, the importance of emerging markets has been well described in business reports since 2006. In particular, the expansion of the Chinese market has been of great interest for both companies. In the first quarter business report in 2008, Samsung divided the emerging market into two. It predicted that South America and East Europe were expected to see their demand fall due to increased

label series revitalized LG’s mobile communications business and played a determinant role in leading LG to become one of top three in the mobile phone market. Chocolate phone one, launched in 2005, enjoyed huge popularity with its total sales exceeding 20 million units. Chocolate 2, Shine, was launched in 2006, and Chocolate 3 (Secret) in 2008. Shine hit the market with its sales topping 13 million units while Secret showed quite disappointing sales figure of 2 million units.

[86] The basic data for the analysis is quarterly report and business report published by Samsung and LG in 2009.

penetration rate while Asia would drive the market growth thanks to their growth momentum. Unfortunately, Chinese mobile phone makers stood in the way of their market expansion by solidifying their presence in the low-end market.[87]

Emerging markets are less mature than advanced ones. Customer loyalty is not high, which is why product price is more determinant factor than its specification in their decision making. Thus, it was inevitable for Samsung and LG to be taken a toll by inexpensive Chinese brands. In 2010, they analyzed that competition is going to get only fiercer due to low cost Chinese cell phone.

2. Customer values delivered by smartphones are in line with feature phones

Though threat was looming, they were still confident. This is because the market presence of specialized smartphone manufacturers[88] was limited. They perceived smartphone as something that began drawing people's attention in the market. Samsung Electronics in the first quarter of 2009 explained about the telecommunications industry, saying "In the mobile Internet era, a smartphone, which is as advanced as PC, is drawing great attention as features of mobile phones are expanded to the scope of PC.[89]

However, it did not give details about the change in the smartphone market. When writing its report, the market analysis of Strategy Analytics replaced external and internal market condition. The analysis on the conditions of emerging markets showed that emerging markets, which have been the driving force for growth for the last two or three years, are likely to witness slowdown due to the increase in penetration rate and the repercussion of global economic downturn.

[87] Samsung Electronics quarterly report of 1Q 2009
[88] The expression made by Samsung
[89] Samsung Electronics quarterly report of 1Q 2009

Since it published the 2009 half-yearly report, Samsung has put more emphasis on smartphone. It said in its report, “As multi media and the mobile Internet are more advanced, content and software are becoming more and more important. Cell phone makers are preparing or engaged in their own content and application projects.” Samsung was fully committed to being ready for the era of smartphone by announcing its app store plan in 2009. By contrast, LG Electronics did not seem to care about the new trend.

LG had clear misunderstanding of smartphone. As previously explained, it was only 2009 when LG realized the significance of smartphone while Samsung has taken smartphone seriously since 2007. A high-ranking official in the Mobile Business Division of LG said in a news report as follows: there is no clear definition for smartphone. Smartphone refers to not only a product with commercial OS such as window mobile but also smart handset that offers features that customers need. His remark indicates that LG saw smartphone not as a product completely differentiated from feature phones but as another feature phone with better functions.

Based on Consumer Insight, it tried to enhance user experience through R&D capacity and product planning. For smartphone development, it did no more than laying the basis by forming strategic alliance. The only smartphone strategy adopted by LG in its 2009 first quarter report was the strategic alliance with Microsoft, which shows that the company wanted to lay the groundwork for smartphone development in response to the possible market changes in the future.

Even Pantech, the third largest cell phone maker, commenced the development of smartphone in the fall of 2008. Vice President Park Byeong-yeop said that he was confident that the strong wind of iPhone boom was going to sweep Korea. For Pantech which was under workout back then, developing a smartphone was a life-or-death issue. Another name for project “EF-10” was “dream project” in which 20% of 1,300 researchers were involved.

Despite its early start, Sirius, its first smartphone was released in Apr 2010, six months after the launch of iPhone. This was due to prolonged research and testing period with frequent upgrade of its OS Android.

3. Samsung and LG felt sense of urgency in the face of iPhone shock

Samsung and LG started to be concerned as iPhone was finally introduced to the Korean market and smartphones became the market trend in Nov 2009. In its 2o1o first quarter report, it showed its determination to regain its glory in the smartphone business as well. LG declared that it would maintain its product leadership by strengthening the competitiveness of smartphone based on its capability.

Samsung was even more determined. When giving an overview of the sales outlook, the first thing it mentioned was smartphone. It said, “With smartphone leading the growth of the mobile phone market, Apple, RIM and HTC are expanding their presence. In the meantime, conventional handset makers like Samsung Electronics, LG Electronics, Motorola and Sony Ericsson are losing ground in the market.” Strategy analysis data on the market condition showed the change in market share of smartphones and feature phones. (Exhibit 61) It set an ambitious aim of maintaining growth momentum regardless of market circumstances, publically announcing its market expansion strategy on a sustainable basis. Under its goal, it decided to lay the basis for smartphone market while maintaining its efforts to develop full-touch phone, high resolution camera phone and music phone.

4. Paying attention to the imminent challenge in the emerging market

Global players in the mobile business, Samsung and LG, focused on short-term performance. This led them to be more sensitive to the imminent challenges facing them

rather than to prepare for the future ahead of others. They deemed smartphones as little shock triggered by a few specialized phone makers. Both of them were aware of change. Samsung recognized the wind of change as early as 2007, and LG Electronics came to grips with the significance of smartphone after the change became reality. Though reading the trend in advance, they made efforts to lay the basis for following the trend to adjust to market change rather than to lead the trend. Even Samsung, which had recognized the power of smartphone two years earlier than LG, did not put much effort into smartphone business before the iPhone shock. According to the survey conducted on analysts, Samsung and LG were uncertain about smartphone. One analyst in a securities company criticized domestic mobile phone companies, saying, "They were too focused on generating profits in the emerging market to pay attention to R&D for a future-oriented business like smartphones."

They did not see smartphones as an urgent challenge. An official of Samsung Group said Samsung failed to predict iPhone could accelerate the growth pace of the smartphone market. In sum, Samsung and LG Electronics were more driven by the short-term profits than the long-term outlook. Their focus was the threat from low-cost Chinese companies not the potential challenge of smartphone manufacturers.

5. Subtle difference between Samsung and LG in their positioning strategy

Samsung highlighted in the 2009 first quarter business report that it has maintained its NO1 market share for 14 consecutive years. It believed its remarkable accomplishment was attributable to strong brand value and differentiated product and service. On the other hand, LG, the second largest phone maker, labeled its market status as product leadership.[90] It emphasized that it would sustain its efforts to reinforce product leadership as its competitive edge.

[90] Expression came from 2009 1st quarter business report published on My 5 2009

Difference between “NO1” and “product leadership” is translated into the difference in the market approach. Samsung, as the market leader, has spared no effort to differentiate itself in order to secure its leading position. It was somewhat obsessed with keeping itself at the top. After it was defeated by Apple, it declared that it would enhance business competitiveness with an aim of maintaining growth momentum under any circumstances, thereby continuing to increase market share in the future.[91] Such obsession was the driving force that made Samsung more sensitive to global trend than LG.

In the case of LG Electronics, until 2008, it was geared up to direct its capacity to mobile phone business which enabled the growth of companies. Since 2009, it has used the word “product leadership” when explaining company’s competitive edge. LG lists its future plans and concludes with the expression of “expanding product leadership.” Since LG Electronics is not the No1 in the market though its goal is obviously the highest market share, it used the expression “product leadership.” The word “product leadership” was supposed to show its superior position in the market. However, it could have adverse impact on LG. Market leadership can be exerted not only by the top but by the second and the third player. Therefore, expanding leadership was not as desperate as maintaining NO1 position. It is safe to say that Samsung was one step closer to the future trend than LG in that it has always pushed itself to create a new market to keep its market dominance and avoid the stagnation in the market share.

[91] Samsung Electronics quarterly report of 1Q 2010

## E. “With Whom to Partner?”

### 1. Collusion between cell phone makers and carriers

As mentioned, the mobile phone business has three key players—phone manufacturers, service providers and customers. Mobile carriers have reigned over software companies, sold telecommunications services, and dominated distribution channels through their nationwide branches. Cell phone producers and carriers maintain their cooperation in tension. Strictly speaking, carriers have upper hand over manufacturers since they have right to choose which models to put into the market and sell through their channels.

In some sense, it is inevitable phenomenon as most customers purchase mobile phones from mobile carriers instead of retail shops of Samsung and LG. Customers tend to choose the brand of service provider first and then mobile phone model. As some models were provided by a certain service provider, customers had to change their carriers in order to buy what they want. Under such a market structure, the dominance of carriers made it difficult for handset makers who lacked bargaining power to enter the market. The relationship between manufacturers and carriers was one of the reasons why people were pessimistic about Apple’s market entrance. The hierarchical relations between carriers, producers and customers and the de-facto collusion between them contributed to delaying the introduction of foreign smartphones, which later plays a big part in breaking down such a strong market structure.

### 2. Strained relations between Samsung and KT after iPhone

The relations between service providers and handset makers were hinted at the tension between Samsung and KT after iPhone. On Jan 6, 2010, Hankook Ilbo reported that Vice President of Samsung Electronics Lee Jae-yong asked SK Group President Choi Tae-won to

reserve its decision to import iPhone for the time being. According to its report, Chairman Jeong Man-won, who had been enthusiastic about importing iPhone, changed his mind and put off the import. Both SKT and Samsung Electronics denied the report.

It is reported that in the working-level meeting between KT and Samsung Electronics on Dec 3 2009, Samsung expressed its dissatisfaction, saying, "KT is too focused on iPhone, which will not do any good to our future relations." When selling its model, Omnia, via KT, Samsung did not use a distinct official name unlike T-Omnia for SKT and OZ-Omnia for LGT. As a result, KT had to sell Omnia with its model number Anycall SPH-M8400. The model name for KT Omnia was used even in newspaper ads. The industry thought this reflected Samsung's discontent.

Its price was another problem. The price of Omnia sold by KT was set higher than that of SKT T-Omnia 2 as well as LGT OZ-Omnia. SKT and LGT sold Omnia at the price of 924,000 won while KT had to sell the same model at 956,000. Worse yet, the real price customers pay, which is affected by the subsidy of carriers and handset makers, was far higher. While customers only have to pay 240,000 won for purchasing Omnia via SKT and LGT, they spend 405,900 won for the very same handset via KT. In other words, price of KT Omnia was almost twice as expensive as that of SKT and LG. KT put tireless effort into Omnia from the manufacturing stage only to lose ground in the market with low price competitiveness. Regarding this issue, some raised possibility of Samsung's revenge for KT's introducing iPhone. For KT, software support was also limited.

Samsung opened "Samsung application store" in SKT's T Store, enabling Omnia 2 users to access the wireless Internet and buy or sell software. Since Jan 2010, SKT subscribers have been allowed to buy software for Omnia from T Store. By contrast, whether to provide software support to KT was not decided until Dec 18. Industry experts believed that Samsung took revenge of KT. As Samsung kept limiting its handset supply to KT, KT Chairman Lee

Seok-chae criticized Samsung, saying, "There is no permanent friend or foe in the business world, but emotions should not be involved when doing business. It is an act of closing its own door."[92]

3.The core of smartphone—eco system

The key difference between feature phones and smartphones is platform. A platform cannot be defined in one word. A computer system consists of hardware and software. It is a structured device with IC chip at the bottom, firmware and OS at the second level and applications at the top. Application program architects call both hardware and software platform because both of them provide support for applications.[93] Platform came to have various implications as it started to be used in industries other than the computer industry. Software that supports service deployment is also refers to as platform. Though it is defined in various ways, there is one thing in common. As its dictionary definition implies, platform means something necessary to use service. Since it is at the center of value chain between suppliers and customers, dominating platform leads to the hegemony in the industry.

In the pre-smartphone era, service providers played a central role in the mobile phone industry. At that time, customers used nothing but basic features of telecommunications such as voice call and text message. Carriers which deliver such basic value served as platform in the era before smartphones. Differentiating OS was not necessary as hardware and software were not at the center of value chain under the standardized WIPI platform.

Things have completely changed. In addition to telecommunications service, new values including the Internet and applications were added. Applications shifted the center of telecommunications service from carriers into customers and content developers. Before smartphones were developed, customers could only use services carriers and handset

[92] 22 Apr 2010, seminar held by KITA at Intercontinental hotel
[93] Korean Telecommunications Technology Association

producers selected. Manufacturers and carriers were the ones who reflected customer complaints in developing next handset models like other hardware products.

It is not the case for smartphones. Services customers want to use are created through application developers. As customers and applications developers directly communicate with each other without engaging service providers, the value of smartphone was enhanced. The application market created by Apple became the core platform for the smartphone value chain. This is the reason why SKT and Samsung Electronics have been expanding the size of their own application market after losing ground to KT and Apple.

On May 24, 2010, SKT abandoned its existing content service system which only permitted SKT subscribers to use and open its T Store to KT and LGT subscribers as well. Explaining its purpose of opening its T Store, SKT said "We believe it is meaningful to practice the spirit of "openness" and "sharing" in the age of open market and wireless Internet." But it was more about expanding its application market to keep KT and Apple at bay. Under its strategy to expand application market, content developers were exempted of application registration fee and annual membership for T Store. One of the main reasons why customers were reluctant to turn to Android phone was underdeveloped application market compared to iPhone App store. In this context, SKT chose to further develop its application market in order to promote Galaxy S through which it expected to regain its predominance.

4.There is no such a thing as win-win relations between Conglomerates and SMEs[94]

To ensure the success of smartphone platform, the collaboration between large companies, which include handset makers and carriers, and SMEs is critical. Unlike the past when manufacturers and carriers determined customer efficiency, customers became a central part in the smartphone era. For large companies, cooperation with SMEs has become very

[94] I summarized interviews I had on Korean companies

important to meet customer needs in a timely manner. Though their partnership was gaining importance, cooperation between them was nowhere to be seen in the pre-smartphone era. Instead, it was like a one-way street. Large corporations considered SMEs not as partners but as mere subcontractors. Such perception undermined the culture of SME that is represented by creativity and flexibility.

If taking a look at the value chain before smartphone, handset manufacturers were at the top of the pyramid, maintaining hierarchical relations with part manufacturers. Large handset makers were in a dominant position over small-sized parts producers. Parts manufacturing companies were pressured to cut their selling price by 5 to 10%. This of course resulted in deteriorating their profitability every year since they were heavily reliant on the domestic market.

The relations between handset makers and parts manufacturing companies are well illustrated in the profitability of Shell Line and KHVatec which supply hinge[95] to handset manufacturers. The operating income of KHVatec soared from 2.9% in 2007 to 11.3% in 2008 and 16.4% in 2009. In the meantime, the operating profit of Shell Line decreased from 15.3% in 2006 to as low as 8.8% in 2009. (Exhibit63) Their opposite fate was driven by their sales structure. While Shell Line depended only on Samsung Electronics, KHVatec had various customers from Samsung to Nokia and RIM. Stock analysts believed the diversified customer base was the reason why they were able to increase their margin.

People in the parts industry say that foreign and domestic handset manufacturers treat part manufacturing companies in different ways. For instance, domestic companies like Samsung Electronics set extremely tight deadline when making orders. Sometimes they outrageously require part manufacturers to deliver their orders in less than a week. In preparation for sudden request, they had no choice but to overproduce and keep inventory. It

[95] Part that connects screen and keypad

was like bearing the inventory management cost of handset producers. Worse yet, when profits were high, they were almost forced to cut the selling price by 5 to 10%. On the other hand, foreign manufacturers tended to be more generous. One CEO said foreign handset makers specified the share of profits to allocate to part manufacturers in their contract. Informed of the supply schedule for the next six month to a year, they were able to produce appropriate amount of components. The situation was not favorable to software developers either. One mobile software developer confessed that it was very difficult to form business relations with Samsung.

Service providers were not different in abusing the hierarchical market structure. For example, when it comes to the department that decides which software should be included, even a junior employee acted like a king. One official from a mobile software company, a subsidiary of a large financial institute, said “Service providers unilaterally reported whether they would renew their contract. If big developers like us are treated like this, it is not too difficult to imagine the hardship small software companies have to endure.” So much so that, the mobile software industry believed once they were out of favor with those in service providers, their very survival was at stake. The department in charge of telecommunications service management was so mighty that even insiders admitted how great their authority was.

**F.“What if?”**

1.Unexpected popularity of iPhone

Samsung and LG did not expect smartphone would become the yardstick to measure the competitiveness of handset makers up until early 2009. A Smarphone was thought of no more than a new model which started to draw people’s attention. They never expected iPhone would become the next big thing which overturns the market landscape. They put iPhone under the premium feature phone category instead of creating a new category for smartphone. Their strategy was formulated and implemented based on such perception. According to their counter-strategy, they released a number of premium models to divert customers’ attention from iPhone. AMOLED 12M was rolled out on Sep 29, 2009, only two months before the introduction of iPhone, to continue the popularity of Haptic AMOLED. It was a 12 mega pixel camera phone that featured for the first time 3x optical zoom.

LG released New Chocolate on the same day. It was successor to the global best-selling product “Chocolate Phone” which enjoyed huge popularity with its sales reaching 21 million units. As mentioned before, New Chocolate stretched its screen wider than the previous model to the screen aspect ratio of 21:9 from previous 16:9. Added with Dobby mobile sound system, New Chocolate aimed to make users just feel like staying in a movie theater. Moreover, the most popular idol group “Girls’ Generation” and a rising girl group “f(x)” appeared in New Chocolate TV commercial.

Launching new models, they ruled out the possibility of iPhone’s success. Samsung predicted that it would appeal only to its fans not to the market as a whole, and LG said the demand for iPhone was too limited to affect the Korean mobile phone market. They believed there was little likelihood of the rapid expansion of the smartphone market which had accounted for less than 1% before the launch of Omnia 2. They were convinced that

while attracting early adopters and Apple manias, it would not be a determinant factor to change the market trend. T Omnia 2 (SCH-M715), the upgraded version of SCH-490, was put into the market for sales just one month before the launch of iPhone in Korea. On hardware side, of course, Omnia 2 excelled iPhone. Its AMOLED screen was better than iPhone's LCD display in its quality. Its 5 megapixel camera was far better than that of iPhone. Furthermore, its CPU, which determines operation speed, was 800MHz, exceeding 624MHz of iPhone 3GS. Video call was available. In terms of handset features, Omnia 2 was ahead of iPhone.

That does not mean Omnia was without shortcomings. iPhone was armed with Apple's well-built App Store and capacitive full-touch screen.[96] Different from iPhone, Omnia 2 used resistive screen[97], which was not as sensitive to users' touch as capacitive screen though it enables sophisticated touch. To only highlight the strength of Omnia, one news report said, "Through resistive screen of Omnia 2, users can accurately touch."

Until iPhone was introduced, T Omnia 2 released on Oct 16 by SKT had enjoyed the highest sales in the market. Vice President Shin Jong-gyun of Samsung Electronics said, "With our Omnia series, we will capture the rapidly growing smartphone market at home and abroad. We are going to lead the smartphone era." Yet again, Samsung moved fast. It prepared itself for the threat posed by iPhone in advance. Samsung also unveiled its plan to double smartphone line-up by 2010 out of belief that smartphones were more profitable.

As of second quarter of 2009, Apple sold 5.2 million units of iPhone, which was only 9.9% of Samsung's 52.3 million. However, it topped the market in terms of its operating income rate which stood at 33%. Samsung's operating income rate was only 10%, less than 1/2 of Apple. In the product launching event, Kim Jong-in, the Senior Director of product planning team at Samsung Electronics, said Samsung would install wireless LAN feature in

[96] Touchpad senses electric current that flows in skin. Its touch is very soft as it is operable with slight touch
[97] It senses touch when pressing the screen with pressure

all mobile phone models from early 2010. He wanted to send a message to customers that they should not be tempted by iPhone only to use the Internet since the wireless Internet is available in Samsung mobile phones as well.

2.Samsung's low-end strategy

If Samsung had expected the iPhone shock, it should have come up with the counter-strategy to alleviate the external shock. Not having a proper defensive measure, Samsung ended up adopting low-end strategy in response to iPhone shock. On Nov 26, two days before the official release of iPhone, Samsung announced to lower the prices of T Omina 2. T Omnia 2 was rolled out on Oct 15, 2009. The price for M710 (2GB) was 924,000 won and M715 (8GB) was 968,000. Yet customers received handset subsidy and phone bill discount of which amount ranging from 350,000 to 700,000 won if they subscribe to a two-year contract and smartphone bill plan called "All-in-one." For instance, a subscriber, who uses monthly plan of 95,000 won, could purchase T Omnia 2 at the price of 224,000 won. T Omnia 2 became much cheaper than iPhone. Consequently, under monthly plan exceeding 45,000 won, T Omnia 2 was cheaper than iPhone 3GS (32GB). (Exhibit65)

The problem was its price was lowered by whopping 200,000 won in a month. Before its price was adjusted, customers with a 2-year contract were offered 300,000 to 700,000 discount. In a month, however, the purchasing price went down to as low as zero to 280,000 won due to price adjustment.[98] What was strange was the smartphone model Omnia was even cheaper than AMOLED. Samsung lowered the price of 2GB Omnia 2 from 924,000 to 880,000 won and the price of 8GB from 968,000 to 924,000 won. On the other hand, the price of AMOLED remained unchanged at 899,800.

[98] It is said that SKT had to endure more burden than Samsung when adjusting the price of T-Omnia. Final price a customer pays is the price after subsidies from service providers, manufacturers and branches were subtracted from the original price. Additional discount for T Omnia 2 had to be provided by carriers like SKT.

Smartphone was often more expensive than feature phones due to its more advanced performance and functionality. Regarding price adjustment of Omnia 2, Samsung was considered to have collapsed handset price system in order to respond to iPhone. Given that Omnia 2 outperformed AMOLED, a more advanced handset strangely came with a lower price tag. (Exhibit66)

## 6. Conclusion

### A. Summary of Key findings

1. Changes in the Korean market before and after the introduction of iPhone

Apple's iPhone became a turning point for the Korean mobile phone industry. The history of mobile phone business in Korea can be divided into the pre-iPhone and post-iPhone era. Before it was introduced, state-of-the-art handsets were all about screen quality, high resolution phone camera, DMB and video call feature. Wireless Internet was nothing but a pie in the sky for Korean customers. They were not brave enough to endure outrageously high cost of mobile Internet. As of 2008, subscribers to flat-rate wireless data plan took up only 10.8%. In other words, one out of 10 customers subscribed to a monthly wireless Internet plan to access the Internet via their mobile phones. This figure is about 1/4 of Japan's 41%.

Yet even those who subscribed to monthly plan were not able to freely use the Internet. Their usage was limited to downloading screen wallpaper or MP3 files. They could not even dream of surfing the Internet in a way they did through their PC. They were given a limited amount of data within the framework developed by service providers. The data service was determined by the taste of mobile carriers. Their power was so dominant that content developers had to do whatever it took to make those in charge of telecommunications service happy. They put content developers under their knees with their authority to decide which content should be included in the telecommunications service.

No one expected Apple, which only developed MP3 players and computers up until recently, could threaten undisputed market leaders like Samsung and LG. However, it was an unprecedented threat. Though holding more than 80% of domestic market share, their

smartphone models lagged behind iPhone. Omnia 2, the flagship smartphone model of Samsung, was powerless in the competition with iPhone. Two-day preorders of iPhone surpassed the accumulated sales of Omnia 2. The number of customers preordered iPhone on the second day was 27,000 while the total sales of Omnia 2, which had been released a month ago, stood at 20,000 units.

Domestic carriers took iPhone lightly since its dominance in the smartphone market would have little influence on them considering the market size. The total number of smartphone users stood at 400,000 as of June 2009. However, iPhone increased the size of smartphone market itself. Only after a smartphone, which is based on wireless LAN, became the buzzword, service providers started to install related system. One hundred days after the launch of iPhone, each service provider announced its plan to set up wireless LAN in feature phones and other devices like lap top computers. They could have done it much earlier, but they just didn't.

In the market economy Companies exist for generating profits. They maximize benefits while abandoning what's unnecessary without a second thought. Customers felt betrayed when they saw service providers belatedly changed their direction after the external shock from iPhone. They complained that customers' right has been put on the backburner under the monopoly of three top service providers. It was only one handset model. Yet the IT industry seemed to undergo the seismic transformation.

Web-oriented business was rapidly reshaped into mobile-centered one. In the process, NHN, the leading portal company, was taken a toll. It was a company that enjoyed over 50% market share, having indomitable influence on search advertisement and games—the major source of income for portal sites. Its No1 market position gained by so-called "knowledge search" was likely to be permanent. In the meantime, the second largest portal company, Daum, secretly prepared for the mobile business era. Indeed, iPhone ushered in mobile-

centered era, which gave Daum an opportunity to threaten its formidable rival NHN. Belatedly NHN rushed to create mobile business model.

On the other hand, the media put great efforts into mobile to regain its past glory lost by portal companies. They hurriedly developed their applications for iPhone and established a dedicated mobile news department. The paradigm shift in the industry led to the rollercoaster ride of share prices. iPhone or smartphone share prices skyrocketed. One KOSDAK item, which was categorized as the share benefited from the smartphone boom, saw its price tripled from its initial offering price in less than a month.

Before iPhone, smartphones took up mere 3% in the domestic market. In a week after its introduction, the proportion soared up to 19%. About 400,000 units were sold in 100 days. The number was as high as the total sales of previous year. Likewise, change brought about by iPhone was too strong to be played down as "obsession" of some early adopters. To cool off the iPhone fever, Samsung and SKT together implemented comprehensive marketing strategy to no avail. Even their unrivaled PR capacity fell short of the popularity of iPhone. Worse yet, their marketing backfired. Their negative strategy reinforced iPhone users' loyalty. They did not seem to be bothered by its shortcomings like short battery life, unsatisfactory after-sales service system and vulnerability to hacking.

The Apple shock that sent through iPhone has hit virtually all sectors. People's lifestyle has changed accordingly. Companies have adopted mobile office to enable people to work anytime anywhere as long as they carry their mobile phone with them. To survive in a new working environment, workers in their 40s bought iPhone. They knew better than anyone where they will stand in the near future unless they prepare themselves for such dramatic change. For the first time in their life, they purchased iPhone screen protector and carefully attached it to the handset. Even for people in their 20s, who are known to be tech-savvy, confessed difficulties in learning iPhone. One said, "The more you put efforts into learning it,

the more you enjoy." If it is the case, it is understandable that iPhone was headache for middle aged men. They called iPhone "stress phone."

In the meantime, affluent middle aged women included iPhone in their must-have list. Those in the fashion industry, who lead trend, embraced the image of iPhone and associated it with their own brand. iPhone went further to trigger Twitter boom. In countries like the US where smartphone became common, Twitter also became one of key communication tools. It was Twitter that let the world know the death of Michael Jackson. Despite its popularity, it did not draw much attention in Korea. Since it limited length of message to 140 letters, it was not effective communication medium for PC users. It was suitable for smartphone. As smartphone gained popularity, however, Twitter started to position itself as new mobile communication source following blog and social networking sites.

### B. **Implications from Korean Companies**

#### 1. Decreased customer loyalty to domestic brands due to iPhone shock

Most Korean customers believed it would be difficult to use the Internet through mobile phones. They naively thought if it is difficult in IT powerhouse, Korea, it will not be possible in other countries. Korea is a country with WiBro which enables customers to use the Internet in a car running at 100km per hour. In this context, customers thought high wireless Internet bill was reasonable as it requires cutting-edge technology. Also, they believed that handset makers and service providers would address this problem in the near future. There was no doubt that Samsung Electronics and SKT were the best companies in Korea. Though in the second position, LG Electronics and KT were also competitive. Their brand power was so great that their simple brand advertisement led to the purchase of customers. However, their

trust in domestic brands was changed into disappointment and betrayal, leading them to turn their back on domestic brands.

Since 1997 Asian financial crisis, Korean customers have grown their loyalty to domestic products. They strongly believed in times of economic crisis, reviving domestic firms leads to revitalizing the economy. Such sentiment naturally led to the purchase of domestic brands. For Korean companies, appealing to such consumer sentiment became an important marketing strategy in competition against foreign brands. When iPhone was gaining popularity in the Korean market, they yet again tried to resort to consumer loyalty. Unfortunately, this strategy did not work in the battle against iPhone. Worse yet, it backfired as some iPhone lovers criticized them for pursuing negative strategy instead of competing on a fair basis. Though iPhone fever was sometimes seen from negative perspective due to some extreme customers, it turned out that the huge popularity of iPhone was driven by high customer satisfaction.

In the market survey conducted six months after the iPhone launch in the Korean market [99], 69% of iPhone users replied that they were content with iPhone while only 27.9% of respondents who use other smartphones were satisfied the service they used. iPhone users showed higher satisfaction in basic features like "response time and processing speed," "operation convenience," and "design and size" than others. They said that smartphones are beneficial to enhancing productivity in work or study and that communication and information searching activities increased thanks to smartphones.

According to the KCC survey on the reasons for smartphone use, the highest number of respondents said “installation and use of various applications” (76.4%) and “free use of the Internet.”(72%) Only 29.2% said they desired to have “handsets with high specification.”

[99] Survey conducted by Korea Communications Commission and Korea Internet Security Agency (KISA), survey period: May 10~ 19, 2010, subject: 1578 smartphone users ranging in age from 12 to 59, publication of survey result: July 14, 2010, 33 smartphone models : Samsung Electronics (18). LG Electronics (6), Pantech (1), Nokia (2), HTC(2), RIM(1), Motorola (1), Sony (1), Apple (1)

The survey result shows that iPhone shock was triggered by the misunderstanding of domestic carriers and handset manufacturers about Korean customers' demand for new technology and the wireless Internet. (Exhibit67)

2. Limitation of second-mover strategy

In fact, Samsung recognized growth potential of smartphones in 2007, but it was not bold enough to become an early mover. LG Electronics realized how great the threat of iPhone was only after it hit the Korean market. As such, even though they are global companies, it is nothing new that they just follow the market trend rather than form a new trend and new market. They have always adopted second-mover strategy through which they followed pioneers after market becomes mature.

It is true that the strategy has its advantages in that companies can generate profits on a stable basis. Yet in the product life cycle, second-movers tend to have little presence in the market until growth stage. If a product has long life pan, it does not matter since latecomers have enough market to capitalize on. The problem is the rapid pace of technological development in the IT industry. Companies, which come later, have less chance for success. According to Disruptive innovation strategy (Clayton M. Christensen, 1995), firms, which achieve innovations that improve a product or service in ways that the market does not expect, create huge profits in no competition and build on this to make another innovation.

Domestic companies' defeat in the smartphone competition led to deterioration in profits. In the second quarter of 2010, Samsung generated all-time-high operating income of 5.1 trillion won, which was 87.6% increase from previous year. (Exhibit71~73) What drove such dramatic growth were semi-conductor and LCD. Sales in these sectors increased by 55% and 31% respectively in the 2$^{nd}$ quarter of 2009 while operating income rose by 765% and 252%. However, telecommunications business that includes mobile phone undermined its

remarkable performance. Sales and operating income of telecommunication business fell by 3.5% and 35.7% respectively year on year. Deteriorated profitability was somewhat inevitable because before Galaxy S Samsung failed to release a model to compete with iPhone. The European economic downturn also contributed to the decrease in sales.

This is also attributed to the decrease in average prices as competition over smartphones got fiercer with an increase in sales. Furthermore, the more popularity smartphone gained, the cheaper average consumer prices of feature phone became. All of these factors combined contributed to deteriorating profitability. The operating income of Samsung mobile communications division, which was over 10% on average, decreased to as low as 7.2% in the second quarter of 2010. (Exhibit72~73)

For LG Electronics, Apple shock turned into earning shock. Securities industry forecast LG's operating income to be around 150 to 260 billion won. To their disappointment, its operating income in the second quarter stood only at 126.2 billion won. The figure freefell by 89.9% from previous year mainly because Mobile communications division incurred huge sales losses amounting to 132.6 billion won. Its smartphones were released too late to attract customers, which was aggravated by an increase in R&D cost and decrease in consumer price.

### C. **Implications from Korean Government**

The government realized behind the success of Apple was its "Soft power" or the competitiveness of software. The soft power of Apple was not coming from large companies but from SMEs. On Feb 4, 2010, the 68th day of iPhone launch in Korea, President Lee Myung-bak declared, "We will do our best to provide more opportunities to SMEs given that majority of software developers are SMEs. His remark was followed by the promotion policies for embedded software, a plan to promote manufacturing as well as software industry.

Under the plan, total of 1 trillion won was going to be funneled into the industry for the next three years. When setting aside such a huge amount of budget for promoting the software industry, the government cited the gap of operating income rate between Samsung and Apple. In other words, it was Apple shock that drove the government to take action. President Lee said, "Korea should have someone like Steve Jobs."

Government's change in the policy direction was not welcomed by the software industry. After sitting on its hand for two years, it was seen to develop a make-shift policy to appease those in the industry and customers. Many were doubtful about its effectiveness from the first place. Lee administration abolished the Ministry of Information and Communication (MIC) when it reshuffled the overall government organization, and the Ministry of Knowledge Economy came to be responsible for promoting the software industry. In the process, "software promotion division" was relegated to "software promotion team." As a result, policies on software promotion lost momentum. President Lee once said, "Why can't we develop game players like Nintendo?" Unfortunately, he was the one who hampered the growth of Korean software industry.

Policies that neglected software should lead to deterioration in IT competitiveness. Though the software market accounted for 30% and hardware took up 22.4% in the global IT market, Korean government policies have been overly focused on hardware. (Exhibit69~70) According to the OECD report published in Jan 2010, Korea's investment in telecommunication was ranked 16$^{th}$ out of 21. Software investment was at the very bottom with its ranking of 21st out of 21. This resulted in the gap between competitiveness of hardware and software. Hardware accounted for 73% of total IT output, which was in stark contrast with 8% of software. Apple awakened the Korean government to the retreat of Korean IT industry.

The Apple shock revealed the limitation of government-led IT policies. Budget allocation as well as government regulations were put under fire. WIPI was pointed out as one of the major causes for belated introduction of iPhone. The government was criticized for staying behind the curve on the ground that it undermined smartphone utility through Active X promotion policy. The shockwave sent by iPhone also shed limelight on unbalanced relations between large companies and SMEs. The government came to grips with the fact that creative SMEs have no place to stand as long as large companies continue to rule over them. Indeed, iPhone served as catalyst for drawing people's attention to their business relations which became a hot issue in summer of 2010.

## D. **Conclusion**

### 1.Limitation of second-mover strategy

iPhone meant more than a simple technology. It transformed the trend of mobile phone market, Korean culture and government policies. People realized the market trend was shifting from the Internet into mobile. They recognized that at the center of added value would no longer be hardware but software. Korean companies came to realize that Korea was lagging behind in the global IT market and that the future could be totally different. They finally grasp why that happened. Samsung and LG Electronics at last realized that they could lose their market dominance if they focus only on the short-term market share, neglect bold innovation for the future and fail to read changing needs of customers. Put simply, iPhone shock sent them a warning message that their complacent strategy would lead them to lose their hegemony in the market overnight. Even if it means they risk losing their dominance, they have to follow new paradigm.

In particular, what Korean manufacturers should understand is that they stand to lose as long as they adhere to second-mover strategy. Korean firms have been more of latecomers, who try to compete against pioneers with high quality and prices, than innovators who create new market. Showing competitiveness in the second mover strategy, they have managed to compete neck and neck with market leaders. For instance, Korean businesses were late in entering the semi-conductor and LED TV markets. Not only did they catch up with global players but they went further to become NO1.

Unlike hardware, however, the strategy does not seem to work for mobile-oriented smartphones. First, software as well as hardware is very important value for smartphones. Creating market is one of the most important steps for applications. Once market is created between application providers and customers, applications are traded and their market grows accordingly. A coordinator, who formed the market, only has to play a role as a moderator. In the same context, what Apple does in AppStore is managing the market for application developers and customers. It is the trade between suppliers and customers which expands the size of market. Bigger application market delivers various values that the handset market does not offer. Customer loyalty to the application market in turn translates into the loyalty to the handset.

Apple created virtuous cycle of iPhone, App Store to iPhone, solidifying the market influence of its product. It created market sentiment where users chose iPhone not because of iPhone itself but because of App Store. Against this backdrop, latecomers had to take different approach from feature phones. They had to create the application market in addition to directly providing applications to customers. Creating market is much harder than delivering services. Though they can engage in promotion activities to attract customers to the market to some extent, artificial marketing has its limitation. This is due to the market

character. Loyalty and willingness are what make customers repeatedly use the same market. Loyalty driven by their willingness is not easy to earn with quality products only.

Secondly, second-mover strategy is not as effective as in the past any more with rapidly changing technology. In the infant and growth period, leading companies bear fruits of their innovation. They enjoy high profits in a competition-free market which they created. At mature stage, companies that later enter the market start to gain attention. Firms with quality and price competitiveness win the competition and generate profits. To guarantee the success of the second-mover strategy, however, product life span should be long. Unless the cycle is long, the size of market where they can create handsome profits decreases. Unfortunately, however, product life cycle is getting shortened as the pace of IT technology development picks up. After early movers enjoy great profits, a number of latecomers fiercely compete to capture limited market pie. In other words, they are fighting in the red ocean.

2. The importance of strategy

Samsung and LG Electronics had different positioning strategies against Apple shock, and this made a big difference. Samsung, the leading mobile phone maker, was more vigilant in responding to the external market changes with its belief that it should lead the market as No1. They developed smartphones faster than LG. Its prompt action led Samsung to stay ahead of LG in the smartphone boom afterward. Galaxy S, which was introduced by Samsung seven months after the launch of iPhone, was well received in Korean and overseas market. LG, on the other hand, failed to develop appealing smartphone models, witnessing its profits plummet during the first half of 2010.

iPhone revealed the problem of organization management of Korean companies like Samsung and LG. Their rigid corporate structure was not in line with creativity-driven mobile era. The organizational structure that values low cost and high quality did not fit software-

centered mobile products that emphasize flexibility and innovation. Recognizing this problem, Samsung overhauled its hierarchical organizational structure. In the past, after working-level officials drew a project proposal, it was submitted and approved by executives. When developing Galaxy S, the company took a completely different approach. Executives and staff alike of its Mobile Communications Division participated in the decision making process by reviewing raw data and resources together. Once guideline was set, they engaged customers in the product development process. Unlike the past when they provided completed prototype of products to foreign service providers, Samsung shared information related to Galaxy S development before completion. As a result, one-way and unilateral product making process was turned into the comprehensive and simultaneous one. Some said the entire organizational management strategy was shifted thanks to the Apple shock.

In retrospect, corporate strategies were what made Samsung and LG lose ground to Apple in spite of their unrivalled dominance and favorable market conditions. Service providers and the government also played their part in relegating them to powerless position in the smartphone market. Yet this thesis focused on summarizing the causes of failure of handset makers.

The research result was clear. In spite of their dominant market share, domestic mobile phone makers were outdone by Apple mainly due to their corporate strategies. Simply put, Samsung and LG avoided destructive innovation. They stick to the second mover strategy rather than solidifying their market status by creating new market. Samsung Electronics read the change in the market trend yet failed to turn it into action. LG Electronics was too pleased with the profits from feature phones to worry about the new trend. Such inappropriate strategies drove them to relegate themselves in the market.

### 3. Limitation of Research

This thesis has its shortcomings as it failed to follow typical structure. I was not able to follow the original style of thesis under which I should set the hypothesis first and prove it afterwards. Since there were few well-summarized reference documents for the latest issue like iPhone, I had no choice but rely on news reports and articles to build the basis for my research. I also had to collect materials for hypothesis and had interviews with experts. As I had to correlate various materials and put them into historical context, I was not able to pay enough attention to academic depth. However, I believe the study on the pre and post iPhone society and the process will be valuable reference for future researchers.

I also paid keen attention to explaining related context, which is why repetition in some parts was inevitable. Though repetition can make the thesis look too long or too detailed, it was necessary to clarify my view. Focusing on cell phone makers, I was not able to have in-depth study on service providers—another pillar of mobile phone industry. Instead, they were used as control variables in this thesis. Another culprit that delayed the development of smartphone in Korea was the telecommunications industry. They pursued conservative, complacent and closed management strategies in the monopoly, undermining public good. Marketing competition came before product quality and value, which served as a stumbling block for the growth of Korean telecommunications market. I would like to study the problems and solutions of service providers, and I will spare no efforts to follow new trend in the IT market and understand the historical implications of such a change.

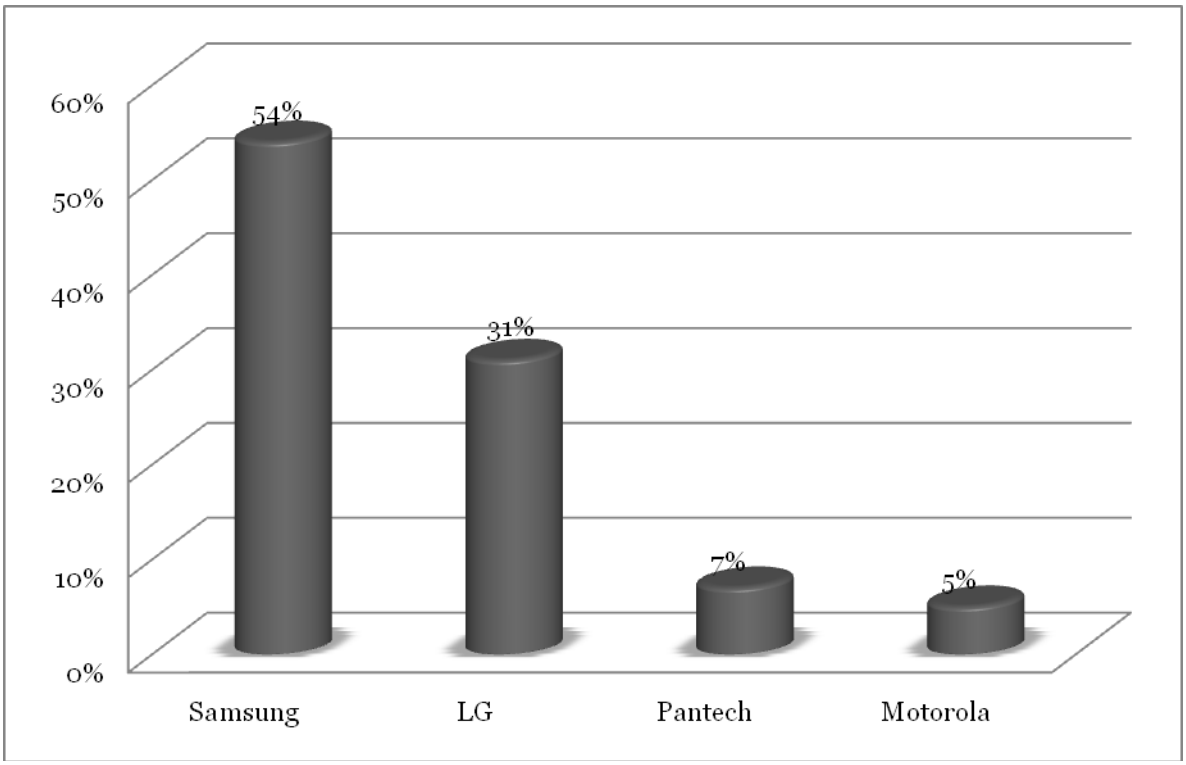
# APPENDICES

Exhibit1. 2009 monthly handset sales volume and market share of Samsung & LG

| Month | Sales volume | Samsung | LG |
|---|---|---|---|
| Jan | 1500 | 49% | 29.3% |
| Feb | 1680 | 50% | 29.4% |
| Mar | 1880 | 49% | 30.7% |
| Apr | 2080 | 48% | 30.1% |
| May | 2580 | 50% | 30.3% |
| Jun | 3040 | 52% | 33.2% |
| Jul | 2570 | 53% | 32.3% |
| Aug | 2000 | 55% | 28.3% |
| Sep | 1440 | 55.8% | 27.5% |
| Oct | 1370 | 56% | 22.5% |
| Nov | 1450 | 50% | 22.1% |
| Dec | 1930 | 49% | 20.9% |
| Total | 2350 | 51.20% | 28.6% |

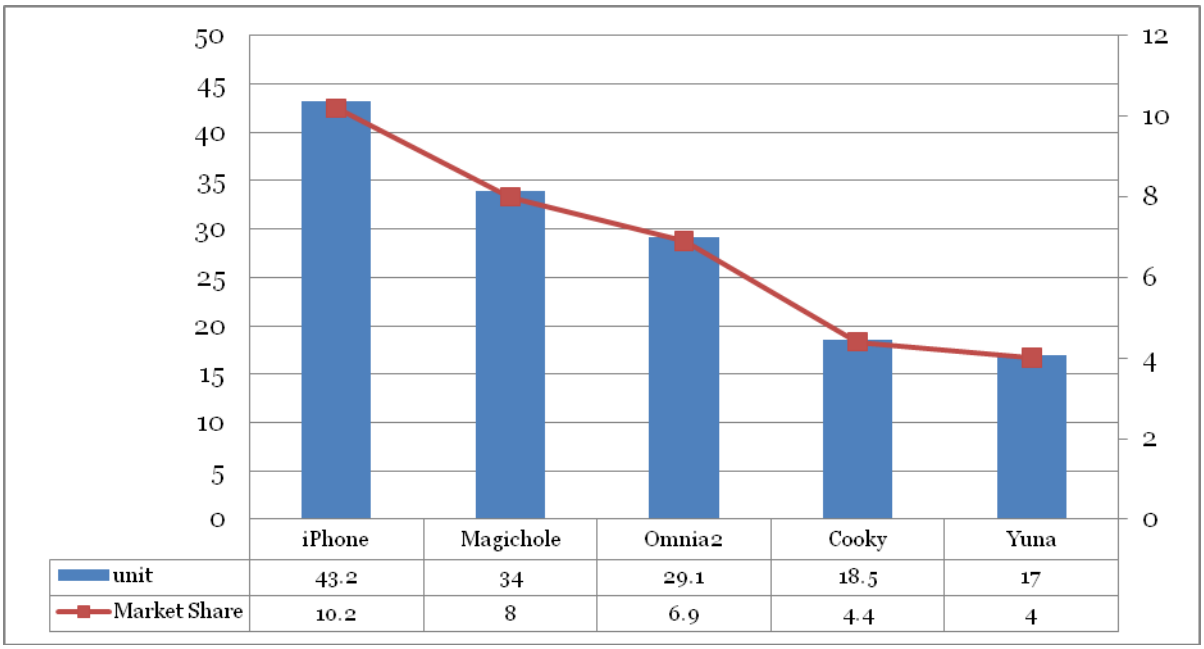
*unit=thousand, source=Newsis, “Change in market share of Samsung and LG in the domestic market” Jan 4, 2010

Exhibit2. Mobile Phone Market Share in Korea




*source=JD Ha, “Industry’s issue and outlook—implication of the launch of iPhone”, The Shinhan Investment Corp., Dec 2009, Base date=2Q 2009

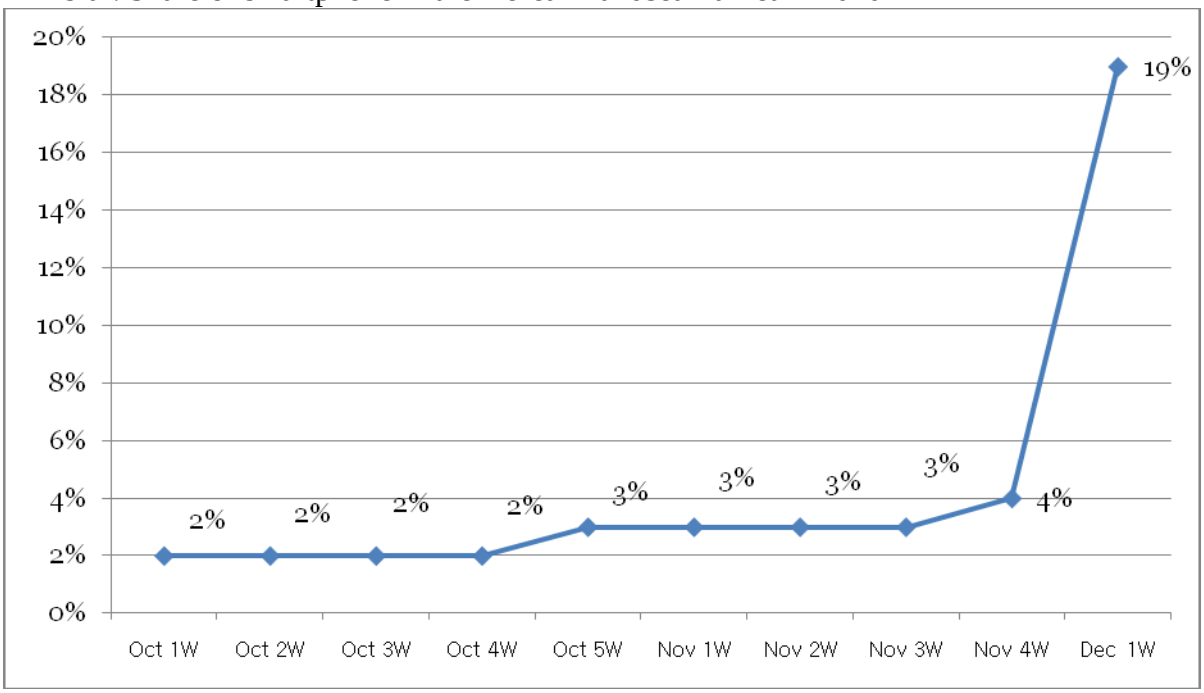
Exhibit3. Mobile phone sales volume in the first week of Dec 2009




*Unit = thousand, Market share= %

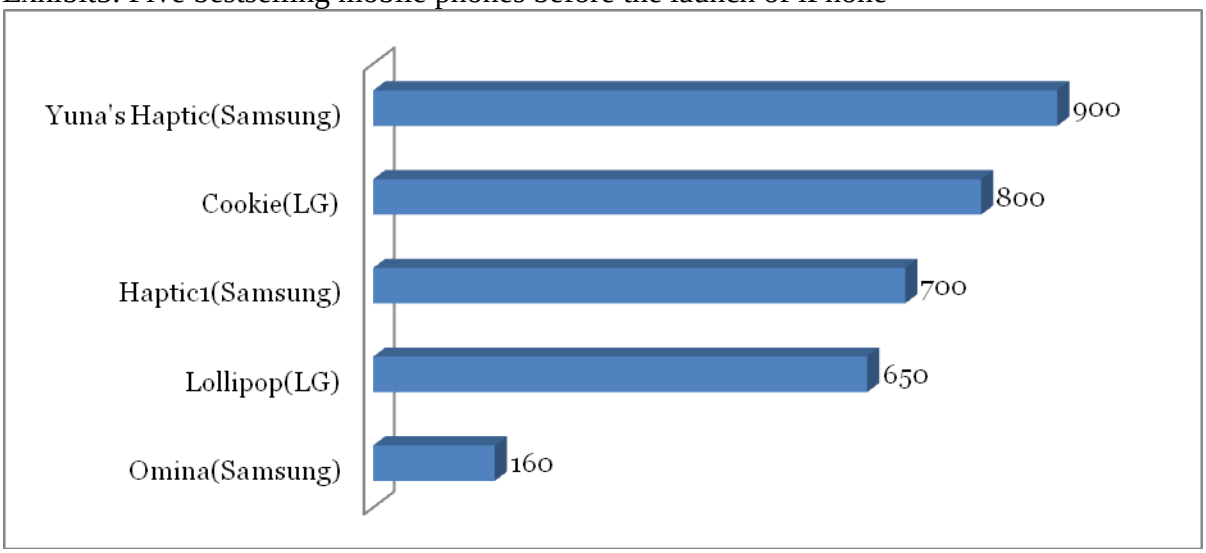
Source : Ha, JD, "Domestic smartphone market was transformed by iPhone boom," Shinhan Investment Corp Research center, Jan 2010

Exhibit4. Share of smartphone in the Korean handset market in 2010




Source : Ha, JD, "Domestic smartphone market was transformed by iPhone boom," Shinhan Investment Corp Research center, Jan 2010

Exhibit5. Five bestselling mobile phones before the launch of iPhone




*unit=thousand, Source=The Segye Times, period=Jan 2009~Nov 2009(before iPhone launch)

Exhibit6. ROKR E1 Phone

*source="iPod?", ZDnet, Sep 9 2005

Exhibit7. iPhone specifications

| item | Features |
|---|---|
| launch date | iPhone 2G : Jun 29 2007<br>iPhone 3G : Jul 11 2008<br>IPhone 3GS : Jun 8 2009 |
| Size & Weight | 115 ×61 × 11.6(mm), 135g |
| Screen | 3.5inch |
| Camera | 200million pixel |
| Operating System | iPhone OS 2.2 |
| UI | Touch Screen, Screen Keyboard |
| Recognition method | electrostatic wet scrubber |
| Shape | Bar Type |

Exhibit8. Connections by Bearer Technology (Q2 2009)

| | |
|---|---|
| Total | 4,310,295,611 |
| CdmaOne | 2,449,937 |
| CDMA2000 1X | 309,907,068 |
| CDMA2000 1xEV-DO | 118,688,849 |
| CDMA2000 1xEV-DO Rev. A | 12,644,062 |
| GSM | 3,450,410,548 |
| WCDMA | 255,630,141 |
| WCDMA HSPA | 133,286,097 |
| TD-SCDMA | 825,044 |
| TDMA | 1,480,766 |
| PDC | 2,740,320 |
| iDEN | 22,172,858 |
| Analog | 9,593 |

*source=GSM World

Exhibit9. Comparison of iPhone 3G and 3GS

| Category | 3G | 3GS |
|---|---|---|
| Price | $199(8Gb), $299(16Gb) | $199(16Gb), $299(32Gb) |
| Camera resolution | 200 mega pixel | 300 mega pixel |
| Battery life | 10 hours | 16~24 hours |
| Processing speed | _ | Twice or three times faster than 3G |

*Battery life is based on talk time

Exhibit10. Prices of different iPhone models

| Launch Date | Version | 4Gb | 8Gb | 16Gb | 32Gb |
|---|---|---|---|---|---|
| Jun-07 | 2G | 499 | 599 | _ | |
| Jul-08 | 3G | _ | 199 | 299 | _ |
| Jun-09 | 3GS | _ | _ | 199 | 299 |
| Jun-10 | 4G | - | - | 199 | 299 |

*unit= $

Exhibit11. Technical Specifications of iPhone4G and iPhone3GS
(1) Size and Weight

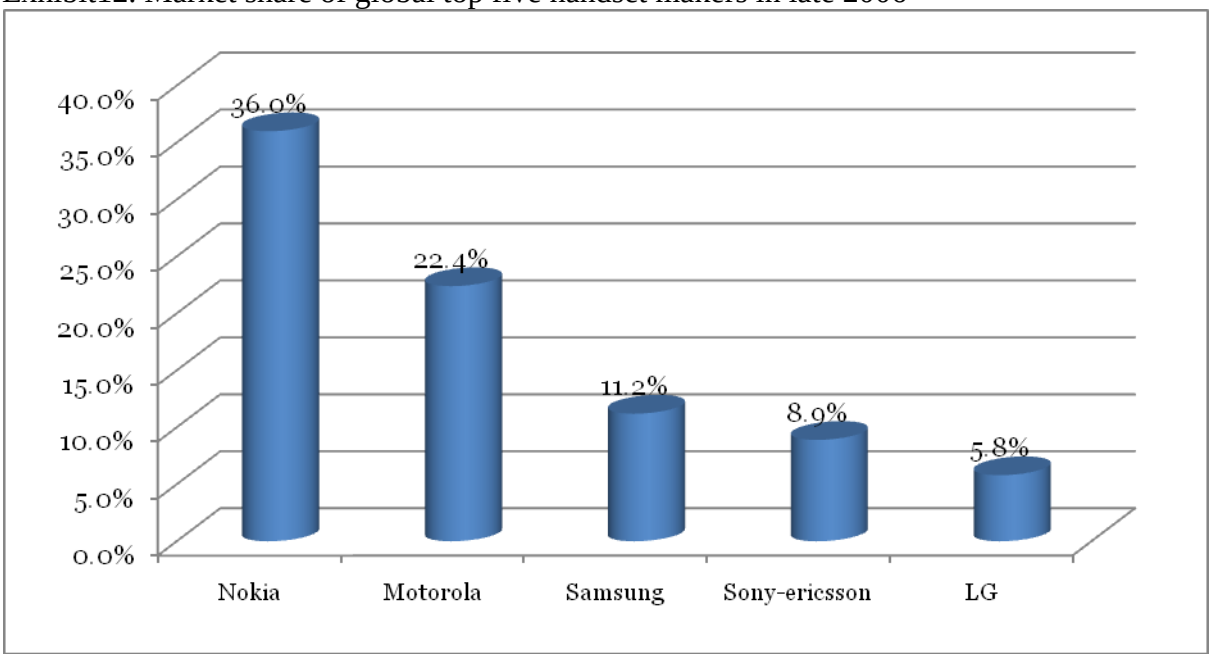
| | iphone4 | iphone3GS |
|---|---|---|
| Vertical | 115.2mm | 115.5mm |
| width | 58.6mm | 62.1mm |
| thickness | 9.3mm | 12.3mm |
| weight | 137g | 135g |

(2) Battery

| | 4G | 3GS |
|---|---|---|
| talk time | 7hours(3G), 14hours(2G) | 5hours(3G), 12hours(2G) |
| standby time | 300hours | 300hours |
| Internet use | 6hours(3G), 10hours(WiFi) | 5hours(3G), 9hours(2G) |
| Vide playback | 10hours | 10hours |
| Audio playback | 40hours | 30hours |

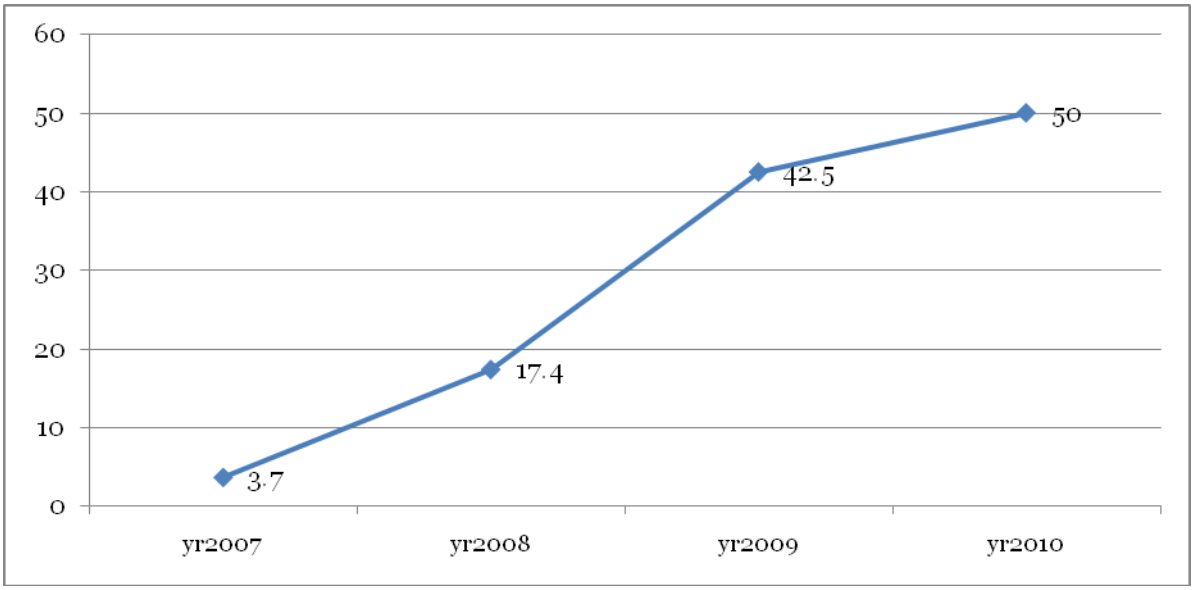
*Source=Apple

Exhibit12. Market share of global top five handset makers in late 2006



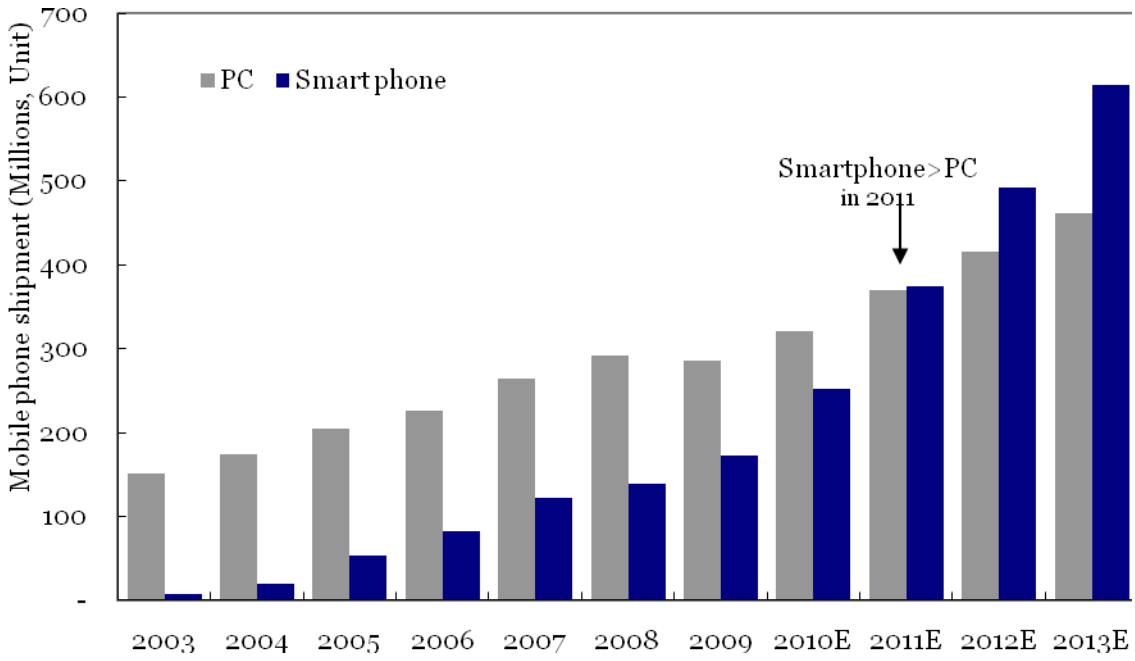

*source=Cho SH, “Shaking global mobile phone market”, The DigitalTimes, Jul 23 2007
*raw data source= Strategic Analysis, Nokia, Motorola, Samsung, Sony-Ericsson, LG

Exhibit13. Accumulated sales volume of iPhone




*unit=million unit, source=Apple, Strategic Analysis
*period=sales volume of yr 2007 is from Jul 2007. Yr2010 is until 8 April.

Exhibit14. Change in PC and smartphone shipments



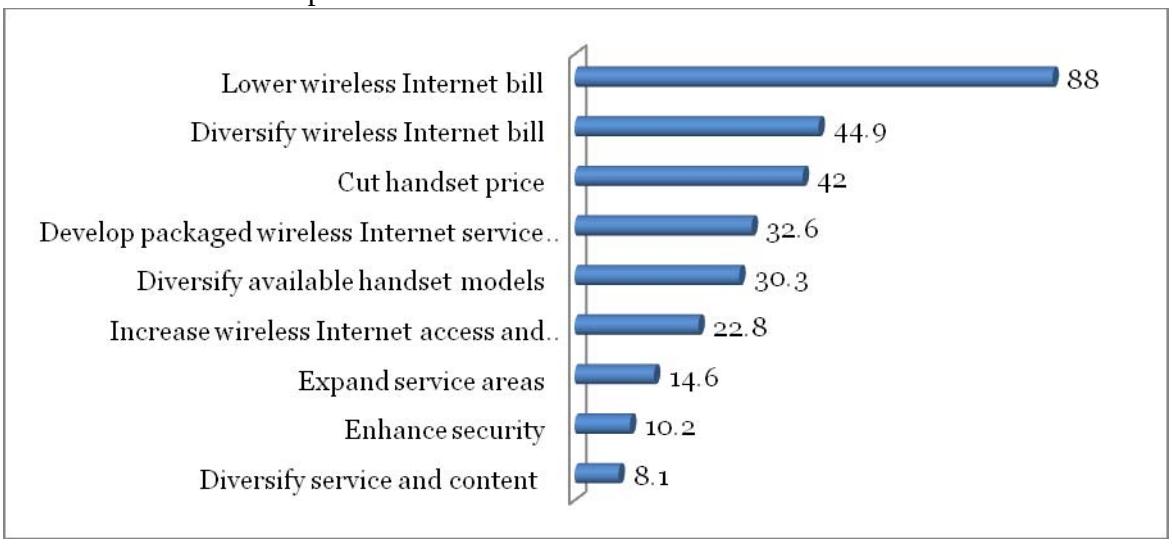

*source: Gartner

Exhibit15. Global smartphone market share by manufacturer

| Company | Year 2007 | Year 2008 | Year 2009 |
|---|---|---|---|
| Nokia | 49.3 | 39.8 | 41.1 |
| RIM | 9.9 | 15.5 | 19.9 |
| Apple | 3 | 9 | 14.4 |
| HTC | 5.1 | 6.3 | 6.3 |
| Samsung | 1.8 | 3.9 | 3.4 |
| LGE | 0.2 | 0.2 | 0.3 |

*source= Strategic Analysis, Gartner, unit=%

Exhibit16. Measures to promote wireless Internet



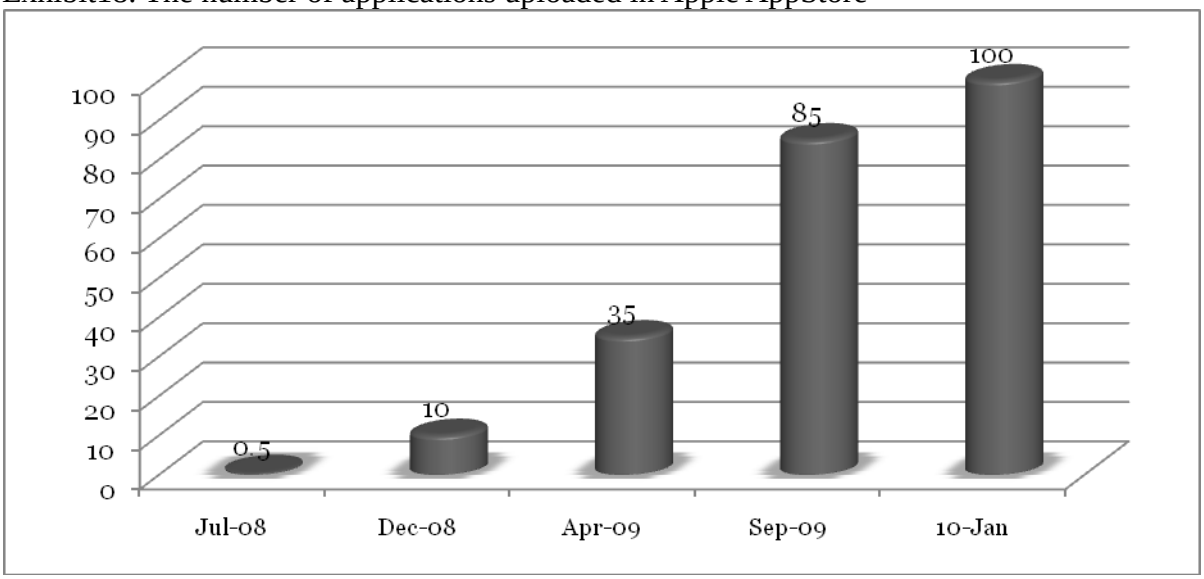

*source=Korea Internet & Security Agency, “2009 survey on wireless Internet use”, Nov 16 2009

Exhibit17. iPhone payment plan and available service

| The flat rate | | i-Light | i-Medium | i-Premium |
|---|---|---|---|---|
| Monthly minimum (won) | | 45,000 | 65,000 | 95,000 |
| Free service | Voice call (min) | 200 | 400 | 800 |
| | Text messages | 300 | 300 | 300 |
| | Data(MB) | 500 | 1,000 | 3,000 |
| Real price | iPhone3GS 32GB | 396,000 | 264,000 | 132,000 |
| | iPhone3GS 16GB | 264,000 | 132,000 | - |
| | iPhone3GS 8GB | 132,000 | - | - |

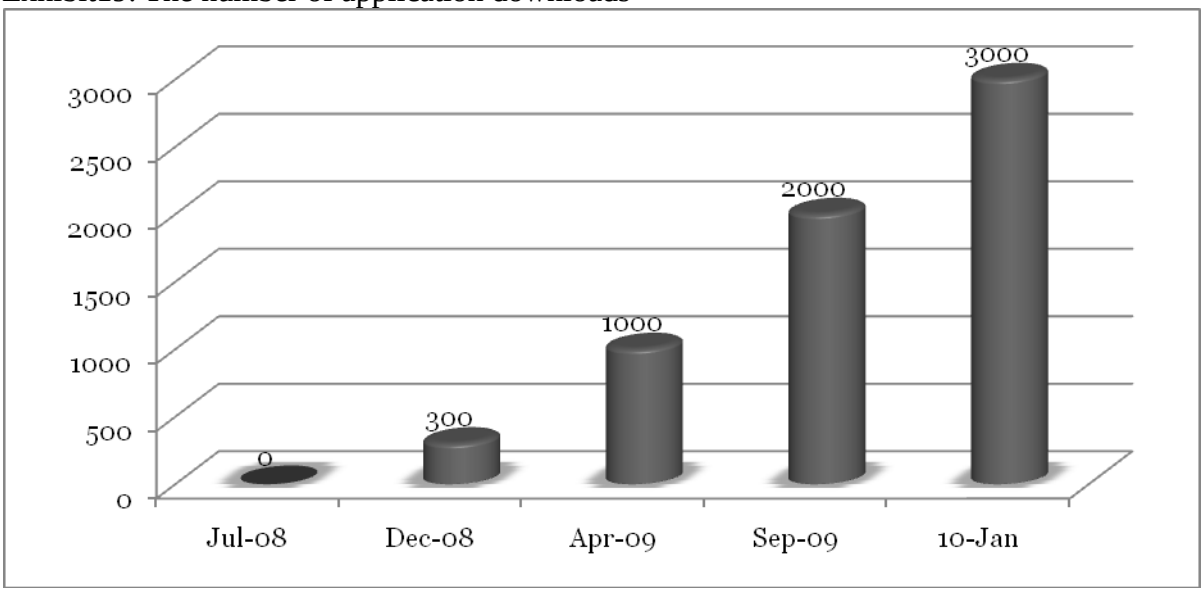
* source=KT

Exhibit18. The number of applications uploaded in Apple AppStore




*source=FierceMobile, FierceDeveloper, unit=million

Exhibit19. The number of application downloads



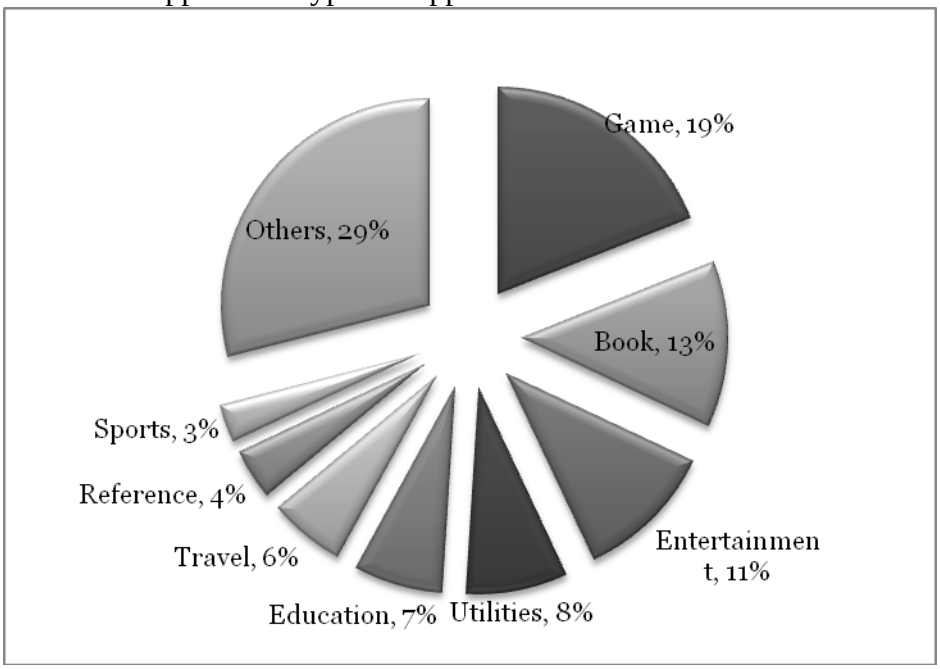

*source=FierceMobile, FierceDeveloper, unit=thousand

Exhibit20. Overview of Smartphone Operating Systems and AppStores(as of March 2010)

| Operating System | Owner | Major Handset Vendors | Licensing Fee | App Store | Number of Available Apps |
|---|---|---|---|---|---|
| Symbian | Nokia | Nokia, Sony, Ericsson, Samsung | No | Ovi Store | NA |
| Mac OS X | Apple | Apple | Proprietary | App Store | 185,000 |
| Black Berry | RIM | RIM | Proprietary | Black Berry App World | 6000 |
| Windows Mobile | Microsoft | HTC, Samsung, LG, Sony Ericsson | Yes | Windows Marketplace for Mobile | 700 |
| Android | Open Handset Alliance | HTC, Motorola, Samsung | No | Andorid Marketplace | 30000 |
| Palm Web OS | Palm | Palm | Proprietary | Palm | 2100 |
| Meego | Nokia, Intel | Nokia | No | Ovi Store | NA |

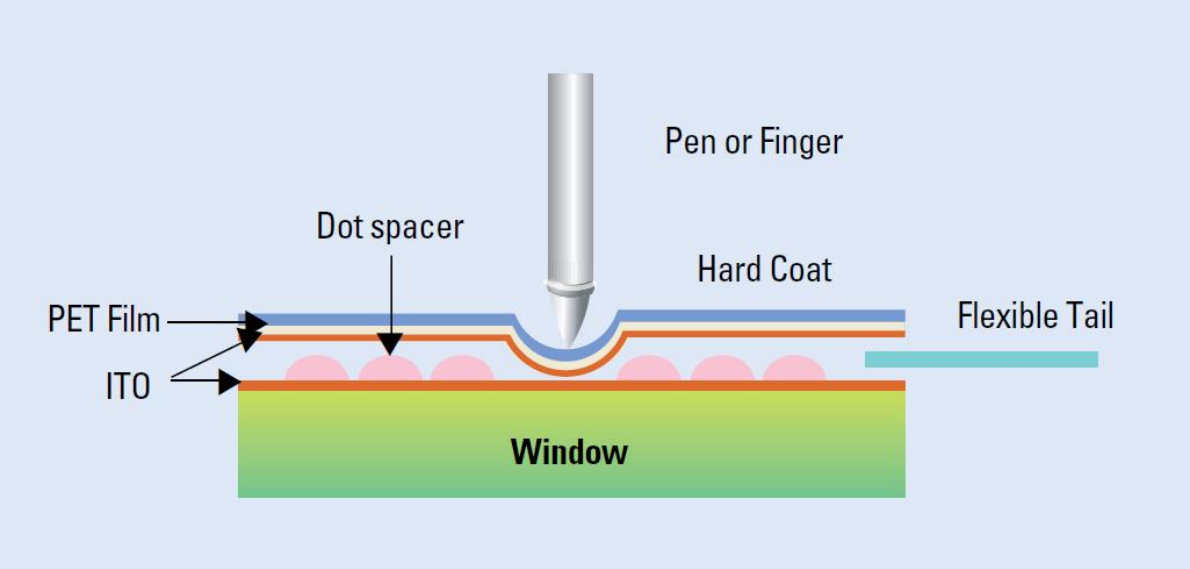
*source=Harvard Business Review, 13 Apr 2010, raw data was created by case writer based on various public sources. *Note : NA=Not Available or Not Applicable

Exhibit21. Application types at AppStore



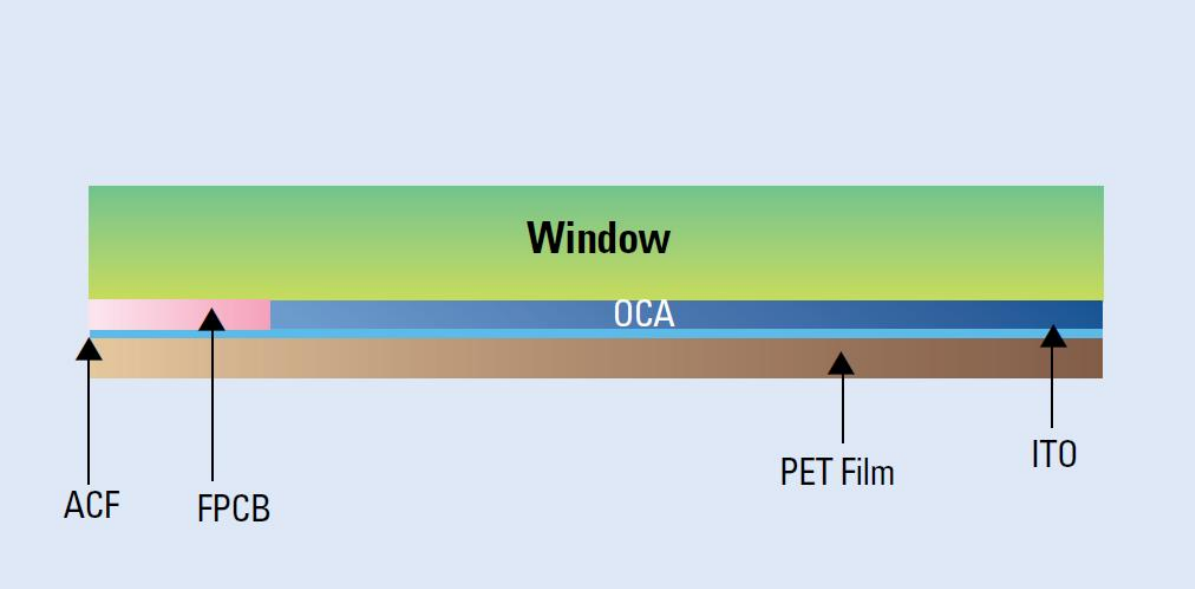

*source=The Hanwha Securities, raw data from apptism, Jun 2009

Exhibit22. Capacitive and resistive screen (source=The KTB Securities)
(1) Resistive sensing screen




*PET File=Polyester File
*ITO=Indium tin oxide

(2) Capacitive sensing screen




*FPCB=Flexible Printed Circuit Board
*ACF=Anisotropic Conductive Film
*OCA=Optically Clear Adhesive

Exhibit23. Apple Inc Selected Financial Information-Balance Sheet

| A title of account | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|
| Cash & Equivalents | 6,392 | 9,352 | 11,875 | 5,263 |
| Short Term Investments | 3,718 | 6,034 | 10,236 | 18,201 |
| Cash and Short Term Investments | 10,110 | 15,386 | 22,111 | 23,464 |
| Accounts Receivable - Trade, Net | 1,252 | 1,637 | 2,422 | 3,361 |
| Total Receivables, Net | 2,845 | 4,029 | 4,704 | 5,057 |
| Total Inventory | 270 | 346 | 509 | 455 |
| Prepaid Expenses | 208 | 417 | 475 | 309 |
| Other Current Assets, Total | 1,076 | 1,778 | 2,207 | 2,270 |
| **Total Current Assets** | **14,509** | **21,956** | **30,006** | **31,555** |
| Property/Plant/Equipment, Total - Gross | 2,075 | 2,841 | 3,747 | 4,667 |
| Accumulated Depreciation, Total | -794 | -1,009 | -1,292 | -1,713 |
| Goodwill, Net | 38 | 38 | 207 | 206 |
| Intangibles, Net | 139 | 382 | 352 | 353 |
| Long Term Investments | - | - | 2,379 | 10,528 |
| Other Long Term Assets, Total | 1,238 | 1,139 | 772 | 1,905 |
| **Total Assets** | **17,205** | **25,347** | **36,171** | **47,501** |
| Accounts Payable | 3,390 | 4,970 | 5,520 | 5,601 |
| Accrued Expenses | 803 | 772 | 1,320 | 1,293 |
| Other Current liabilities, Total | 2,250 | 3,538 | 4,521 | 4,612 |
| **Total Current Liabilities** | **6,443** | **9,280** | **11,361** | **11,506** |
| Deferred Income Tax | 381 | 619 | 999 | 2,216 |
| Other Liabilities, Total | 397 | 916 | 1,514 | 2,139 |
| **Total Liabilities** | **7,221** | **10,815** | **13,874** | **15,861** |
| Common Stock, Total | 4,355 | 5,368 | 7,177 | 8,210 |
| Retained Earnings (Accumulated Deficit) | 5,607 | 9,101 | 15,129 | 23,353 |
| Other Equity, Total | 22 | 63 | -9 | 77 |
| **Total Equity** | **9,984** | **14,532** | **22,297** | **31,640** |
| Total Liabilities & Shareholders' Equity | 17,205 | 25,347 | 36,171 | 47,501 |
| Total Common Shares Outstanding | 855.26 | 872.33 | 888.33 | 899.81 |

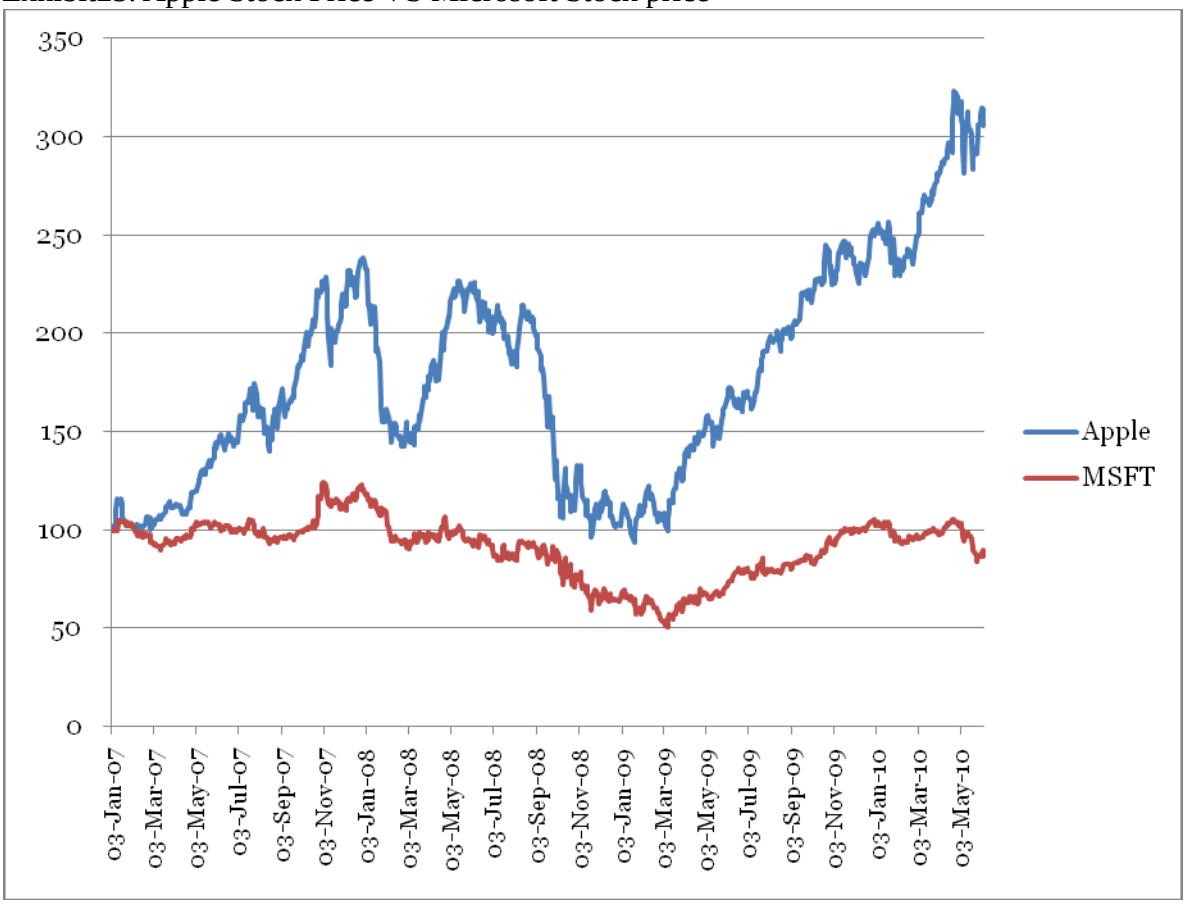
*source=google.com/finance, *In Millions of USD (except for per share items)
*all data based on Apple's fiscal year that ends in September

Exhibit24. The profitability of Apple and Samsung

| Maker | The number of sales | Total sales | Operating profit | Operating Profit Percentage |
|---|---|---|---|---|
| Apple | 25 | 17.9 | 5 | 28.8 |
| Samsung | 227 | 42.1 | 4.1 | 9.8 |

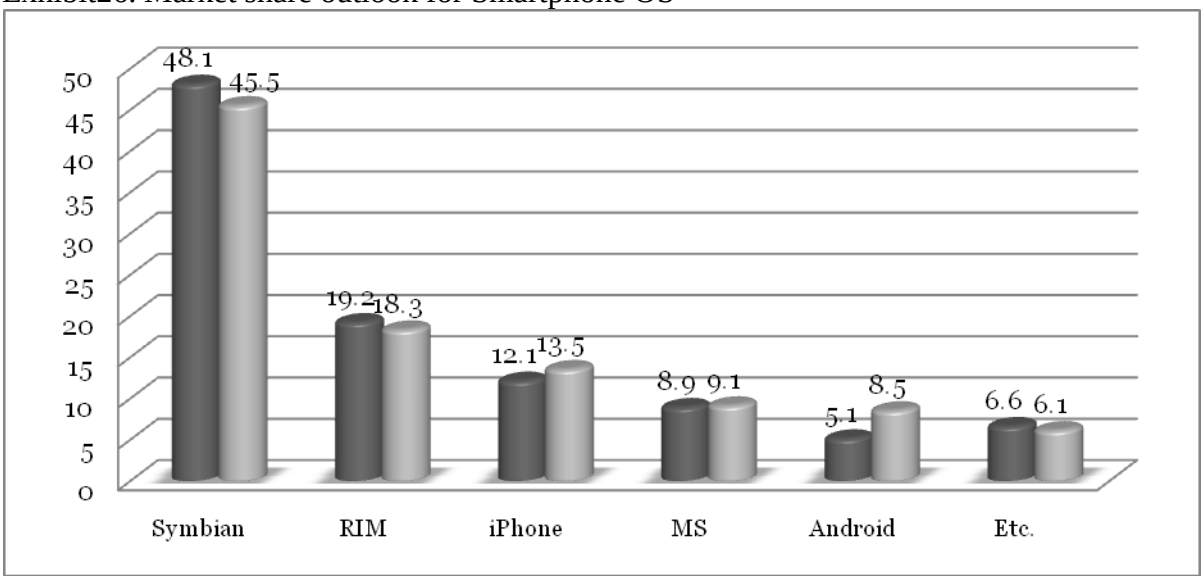
*source= The Ministry of Knowledge Economy, “IT Korea turning to Software powerhouse!”, Feb 4 2010
*the number of sales=million unit
*the total sales, operating profit=trillion won
*operating profit percentage=%

Exhibit25. Apple Stock Price VS Microsoft Stock price



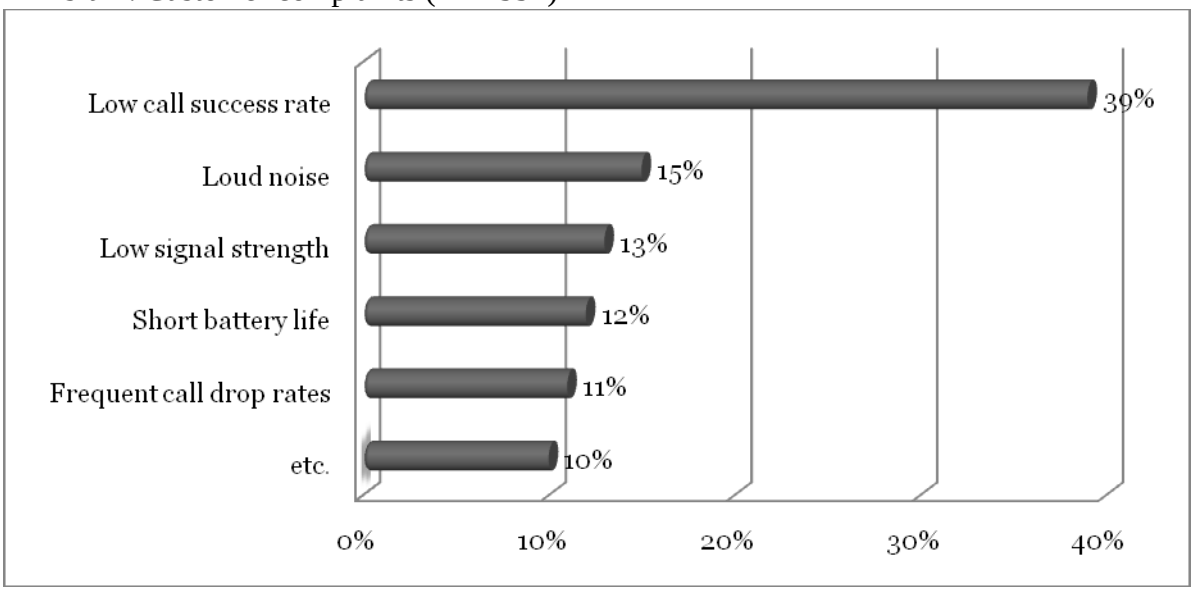

*source=data from google.com/finance, 3 Jan 2007=100

Exhibit26. Market share outlook for Smartphone OS



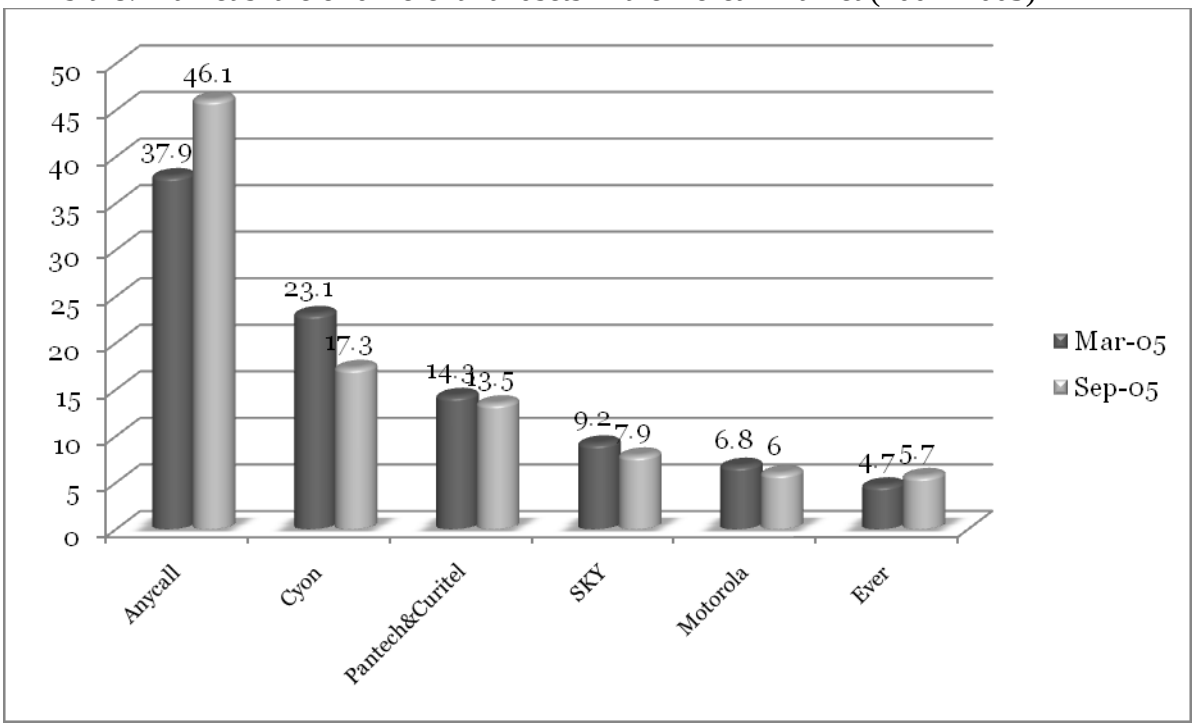

*unit=%. source=Gartner(2009)

Exhibit27. Customer complaints (FY 1994)




*source=BC Lee(The phonemuseum Director)

Exhibit28. Market share of different handsets in the Korean market (2004~2005)




*unit=%, source=Marketing-Insight
*Mar 2005 =mobile phone buyers(Sep 2004~Feb 2005)
*Sep 2005= mobile phone buyers (Mar 2005~Aug 2005)

Exhibit29. Samsung Electronics' ten million seller phone

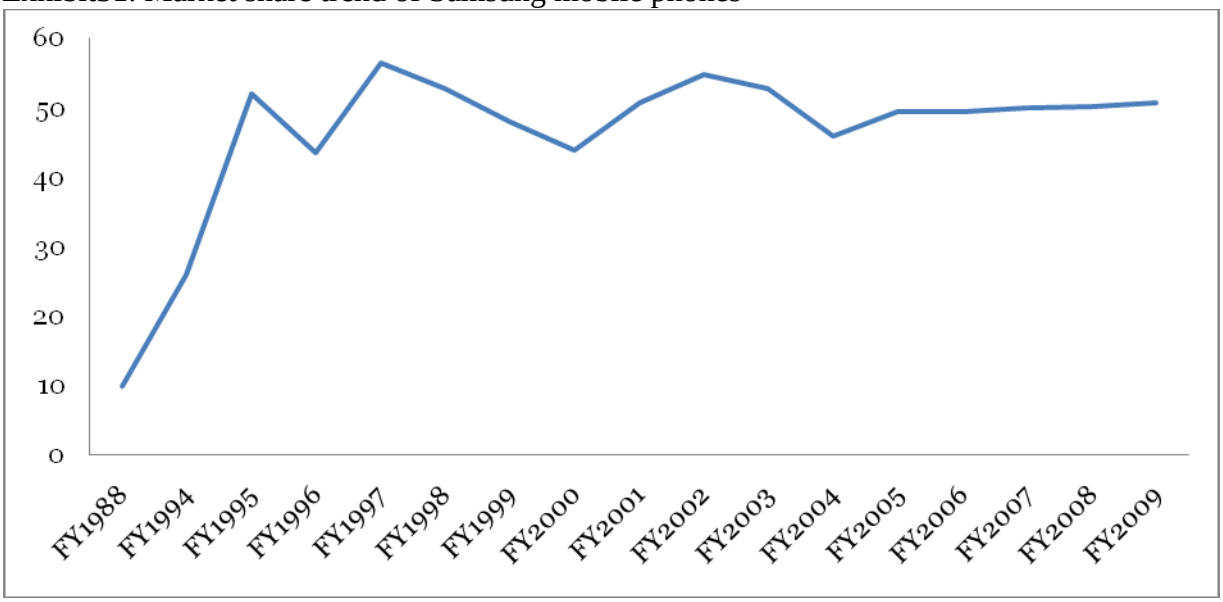
| model | breakthrough date |
|---|---|
| SGH-1000 | Sep-2003 |
| SGH-E700 | Sep-2004 |
| SGH-D500 | Nov-2005 |
| SGH-E250 | Aug-2007 |
| J700 | Jan-2009 |
| S5230 | Nov-2009 |

Exhibit30. Samsung Electronics Mobile History after Anycall birth

| Year | History |
|---|---|
| 1994 | Rolling out the first model, SH-700 |
| 1995 | Overtaking Motorola in the Korean market for the first time(52% : 46%) |
| 1996 | Releasing first CDMA handset (SCH-100) |
| 2001 | Selling 1.3 million units of SCH-X350, the highest sales ever |
| 2002 | Enjoying huge popularity in the Chinese market and becoming the third largest phone makers in the world |
| 2003 | Manufacturing 50 million unites on an annual basis |
| 2004 | Developing world-first five mega pixel camera phone |
| 2005 | Making more than 100 million units of handsets per annum |
| 2009 | The accumulated handset sales surpassed 1 billion units, following Nokia and Motorola |

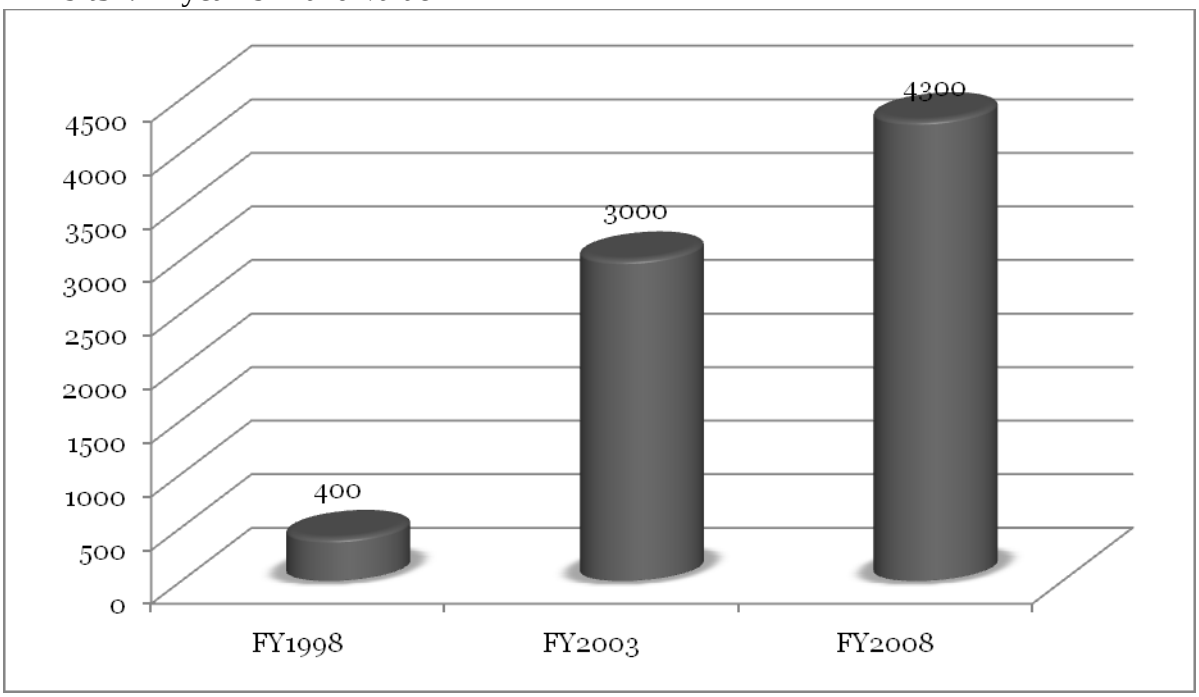
*source=Samsung Electronics

Exhibit31. Market share trend of Samsung mobile phones




*unit=%, source=Samsung Electronics' annual report, Strategy Analytics, Media

Exhibit32. Anycall's Brand Value



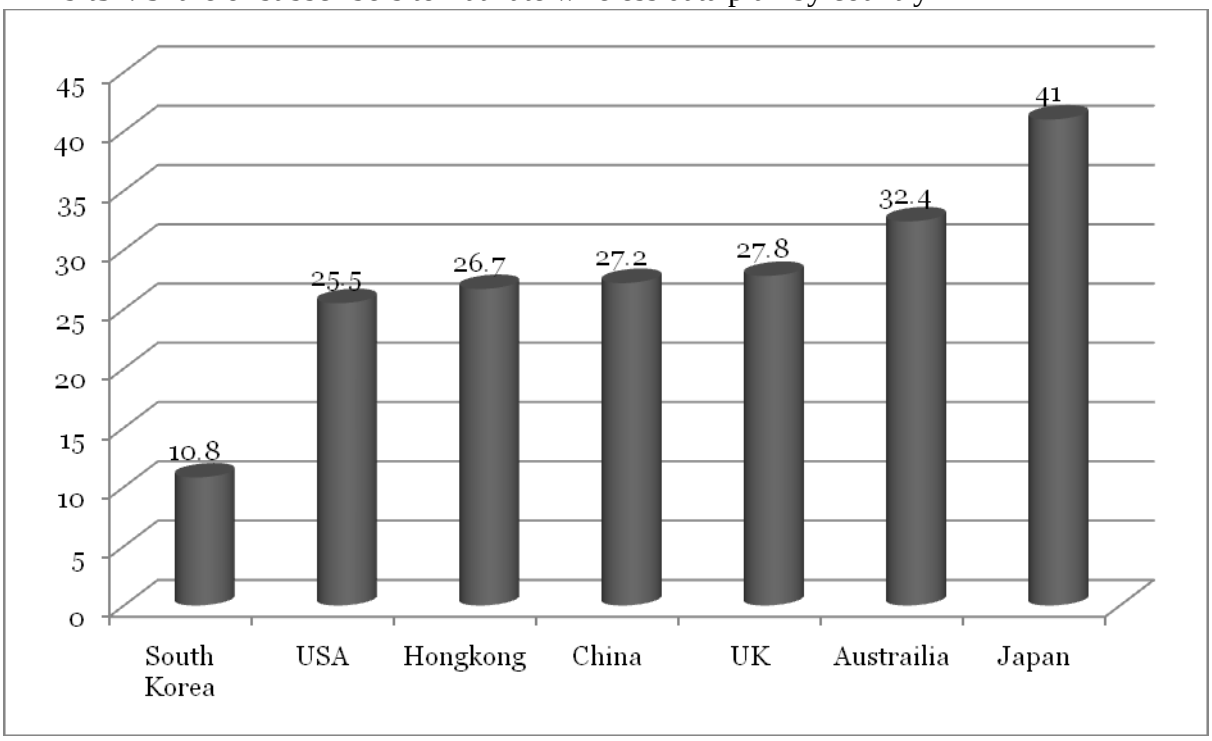

*unit= million dollar, source=Samsung Electronics
*The Analysis of Chan-soo Park(Professor of Business Administration , Korea University) EQUITYMAP III, a method to estimate brand asset, was used

Exhibit33. Samsung's Smartphone

| Model | Launching Date | Sales Network |
|---|---|---|
| SCH-M620 | Mar-07 | SKT, KT |
| SPH-M4650 | Nov-07 | LGT |
| SCH-M470 | Apr-08 | SKT |
| SCH-M480 | Jul-08 | SKT, KT |
| SPH-M4655 | Jul-08 | LGT |
| SCH-M490 | Nov-08 | SKT |
| SCH-M710 | Oct-09 | SKT |
| SCH-M720 | Oct-09 | SKT, KT |
| SPH-M8400 | Nov-09 | KT |
| SPH-7350 | Jan-10 | LGT |
| SHW-M100S | Apr-10 | SKT |
| SHW-M110S | Jun-10 | SKT |

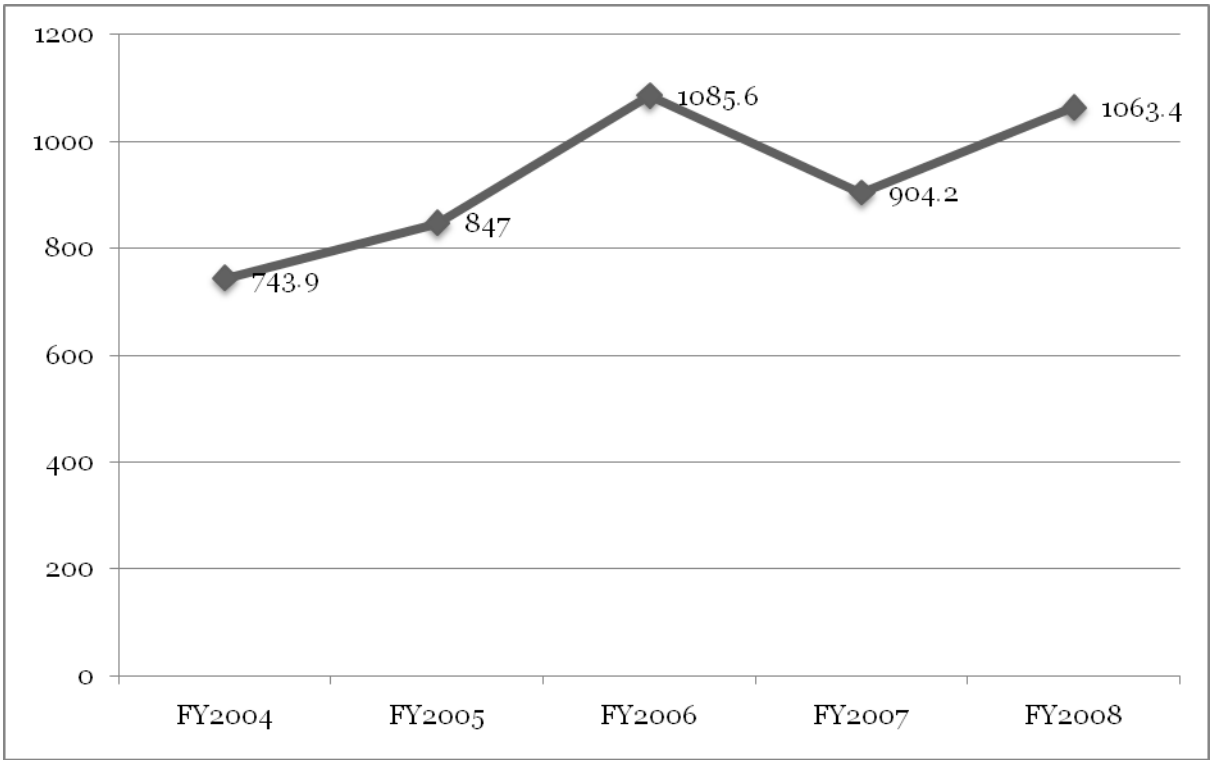
*source=samsungmolible.com

Exhibit34. Share of subscribers to flat-rate wireless data plan by country



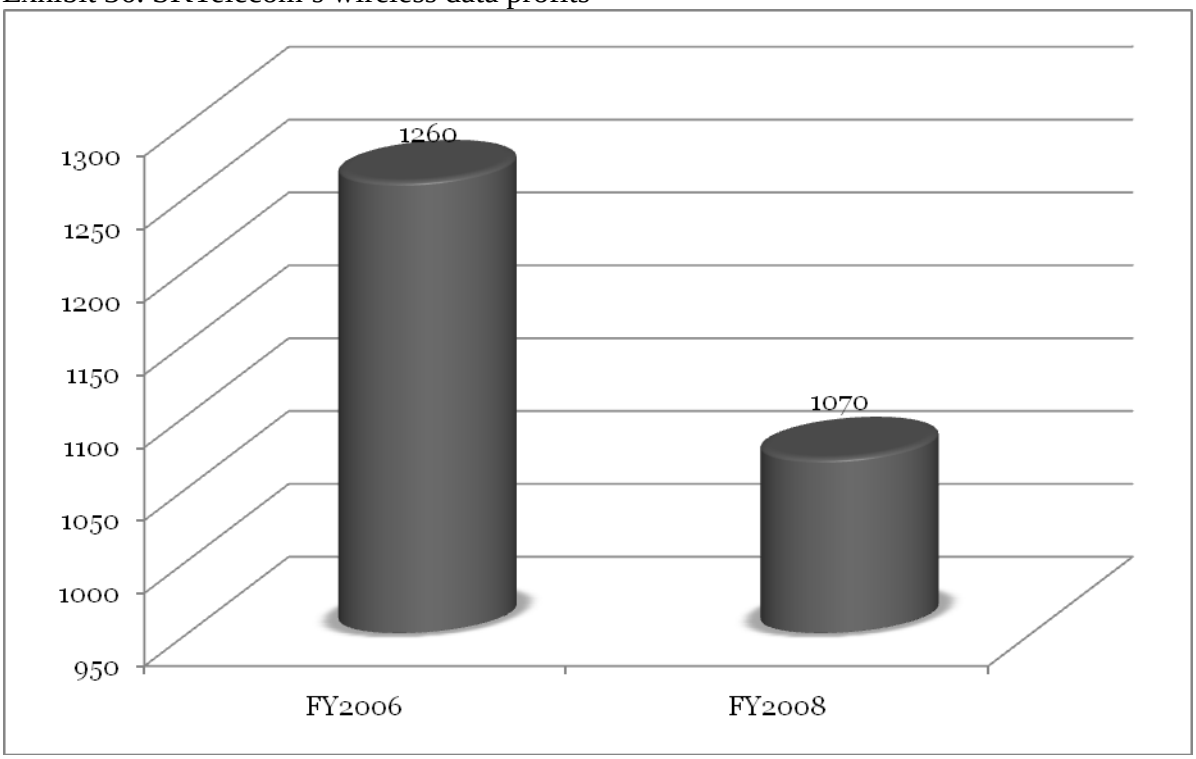

*unit=%, source=OECD, Korea Communications Commission, *FY 2008

Exhibit35. Korea's mobile content market size



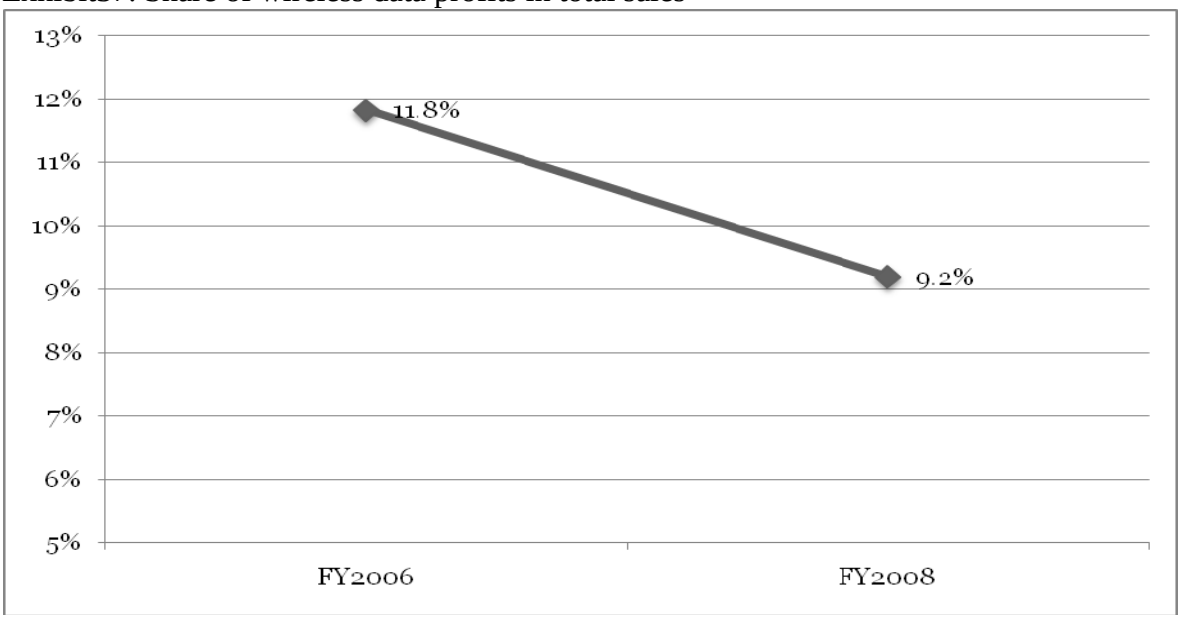

*unit=billion won, source= Korea Communications Commission

Exhibit 36. SKTelecom's wireless data profits




*unit=billion won, source=HJ Chung, "Will iPhone launch hit the Korean mobile market?", The Hankyoreh21, Dec 4 2009
*revenue=Data call tariffs + information tariff

Exhibit37. Share of wireless data profits in total sales




*source=SKTelecom's Annual Report(FY2008), HJ Chung, "Will iPhone launch hit the Korean mobile market?", The Hankyoreh21, Dec 4 2009

Exhibit38. Overview of LBS

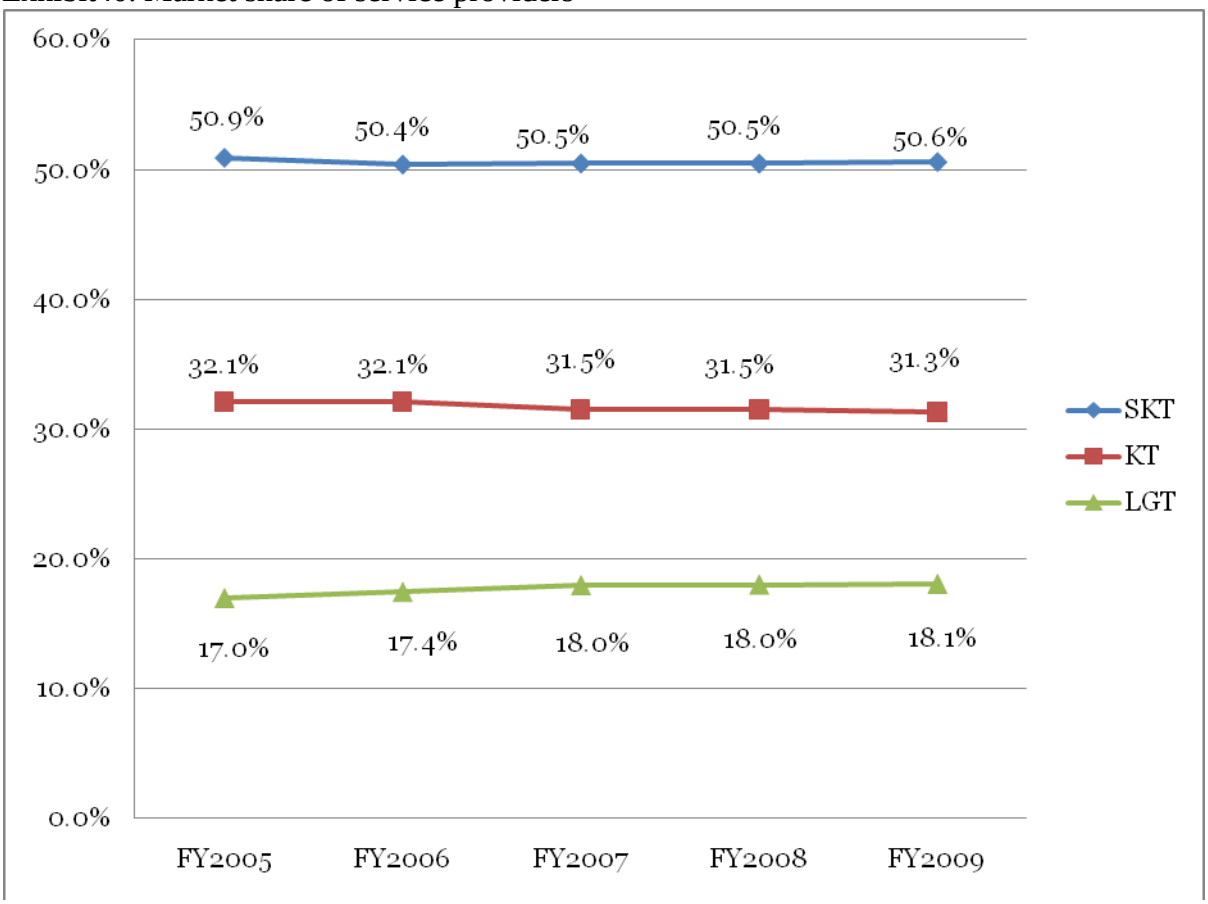
| Category | Content |
|---|---|
| Name | Location-based service (LBS),<br>Also called Location Services(LCS) |
| Definition | Wireless content service through which certain information is provided according to change in location of wireless Internet users |
| Strength | Even if users move from place to place, they do not have to input addresses for further information |
| Usage | -GPS technology made it possible for users to access wireless Internet more conveniently through LBS<br>- PC-based wired Internet service is facing demand for convergence with LBS |
| Example | -Search for nearby ATM or restaurants<br>-Search for nearby gas stations that provide discount<br>-Real time traffic flow information service<br>-Find friends' location |

Exhibit39. The number of subscribers per service provider

| Company | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
|---|---|---|---|---|---|
| SKT | 19,530,117 | 20,271,133 | 21,968,169 | 23,032,045 | 24,269,553 |
| KT | 12,302,357 | 12,913,699 | 13,720,734 | 14,365,233 | 15,016,195 |
| LGT | 6,509,849 | 7,012,283 | 7,808,638 | 8,209,706 | 8,658,474 |
| Total | 38,342,323 | 40,197,115 | 43,497,541 | 45,606,984 | 47,944,222 |

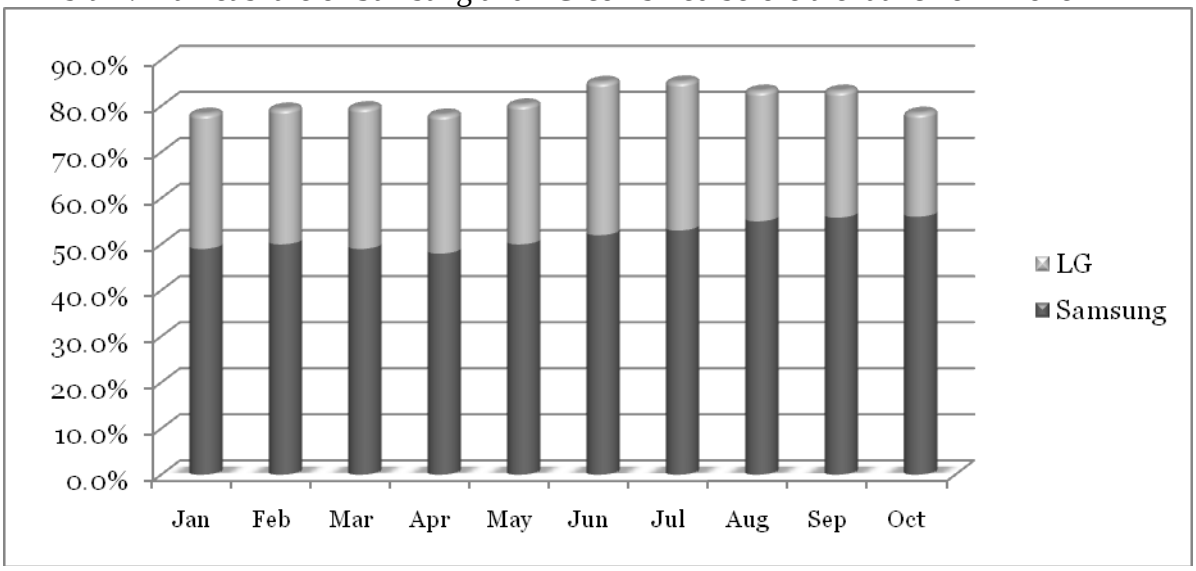
*source= Korea Telecommunications Operators Association

Exhibit40. Market share of service providers




*source= Korea Telecommunications Operators Association

Exhibit41. Market share of Samsung and LG combined before the launch of iPhone




*source=Newsis, “Change in the domestic market share of Samsung and LG”, Feb 1, 2010
*period=From Jan 2009 to Oct 2009

Exhibit42. Market share of Samsung and LG before the launch of iPhone

| Month | Samsung | LG | Others |
|---|---|---|---|
| Jan | 49.0% | 29.3% | 21.7% |
| Feb | 50.0% | 29.4% | 20.6% |
| Mar | 49.0% | 30.7% | 20.3% |
| Apr | 48.0% | 30.1% | 21.9% |
| May | 50.0% | 30.3% | 19.7% |
| Jun | 52.0% | 33.2% | 14.8% |
| Jul | 53.0% | 32.3% | 14.7% |
| Aug | 55.0% | 28.3% | 16.7% |
| Sep | 55.8% | 27.5% | 16.7% |
| Oct | 56.0% | 22.5% | 21.5% |

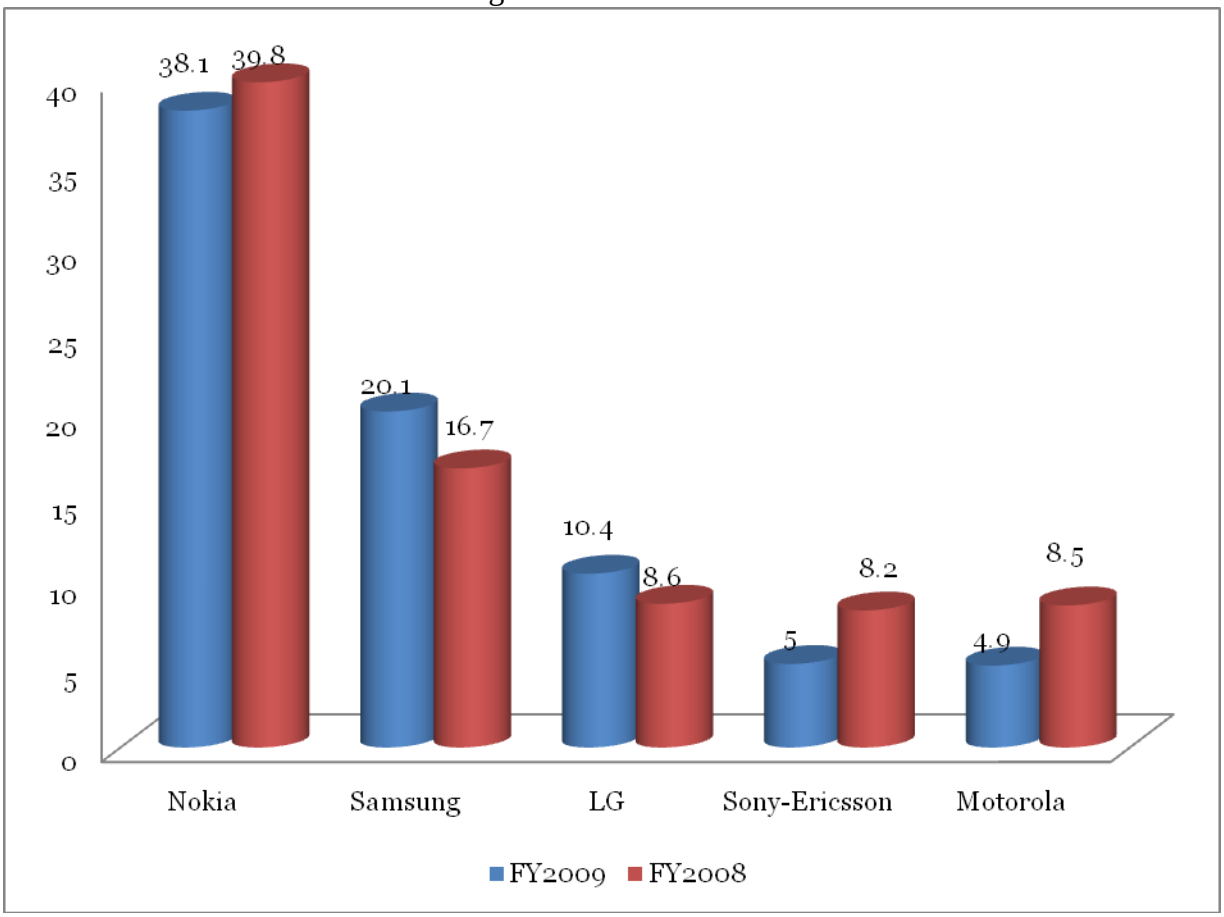
*source=Newsis, “Change in the domestic market share of Samsung and LG”, Feb 1, 2010
*period=From Jan 2009 to Oct 2009

Exhibit43. Global sales of leading handset manufacturers

| Company | FY2009 | FY2008 |
|---|---|---|
| Nokia | 431 | 468 |
| Samsung | 227 | 196 |
| LG | 117 | 101 |
| Sony-Ericsson | 57 | 96 |
| Motorola | 55 | 100 |

*unit=million, source=Strategy Analytics

Exhibit44. Global market share change



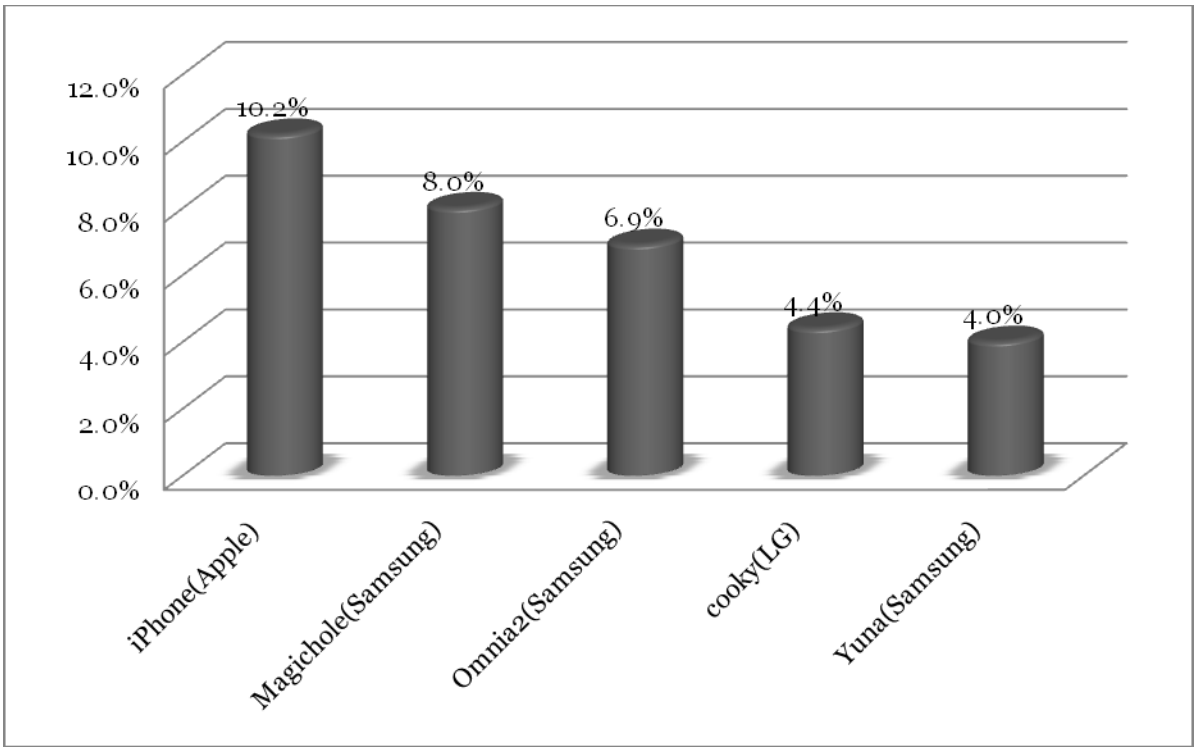

*unit=%, source=Strategy Analytics

Exhibit45 Smartphone market share

| rank | Brand | Model |
|---|---|---|
| 1 | Apple | iPhone |
| 2 | HTC | Dream |
| 3 | Palm | Pre |
| 4 | RIM | Black berry 8300 |
| 5 | RIM | Black berry 8100 |
| 6 | Palm | Centro |
| 7 | HTC | Magic |
| 8 | RIM | Black berry 9530 |
| 9 | Danger | sidekick3 |
| 10 | Danger | sidekicd4 |
| 12 | Samsung | SGH-1617 |

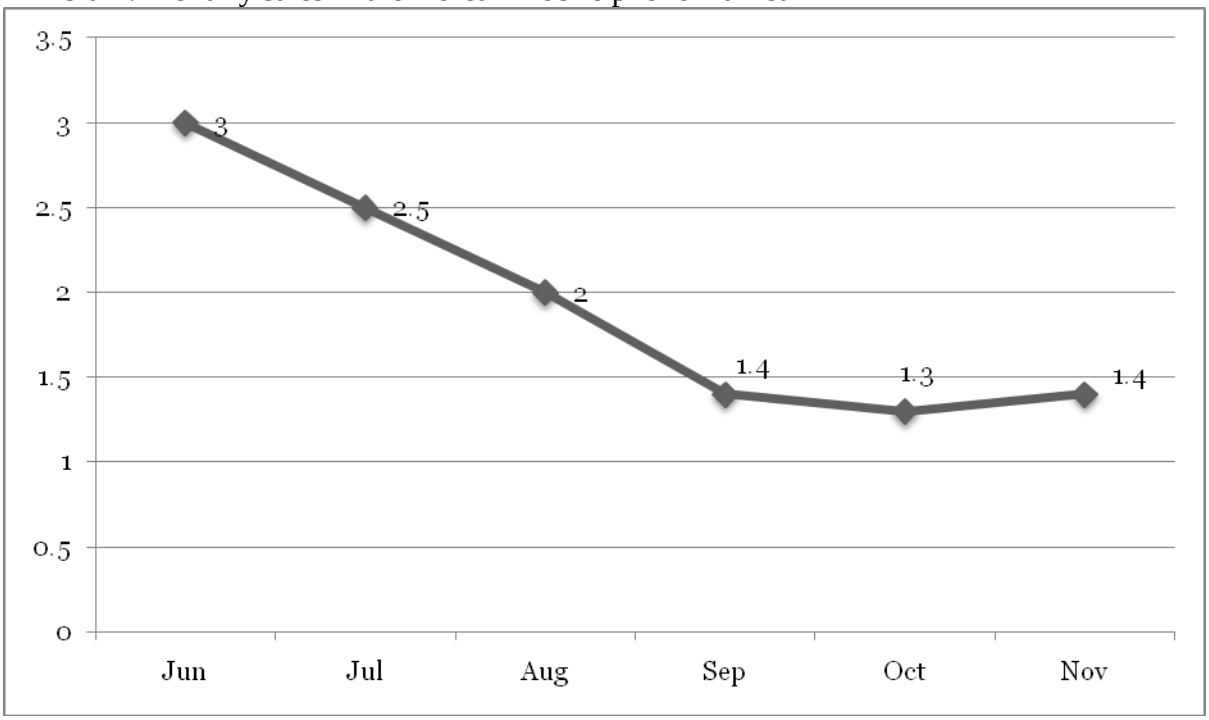
*source=AdMob, ‘Mobile Matrix, Oct 4 2009

Exhibit46 Market share in the first week of Dec 2009



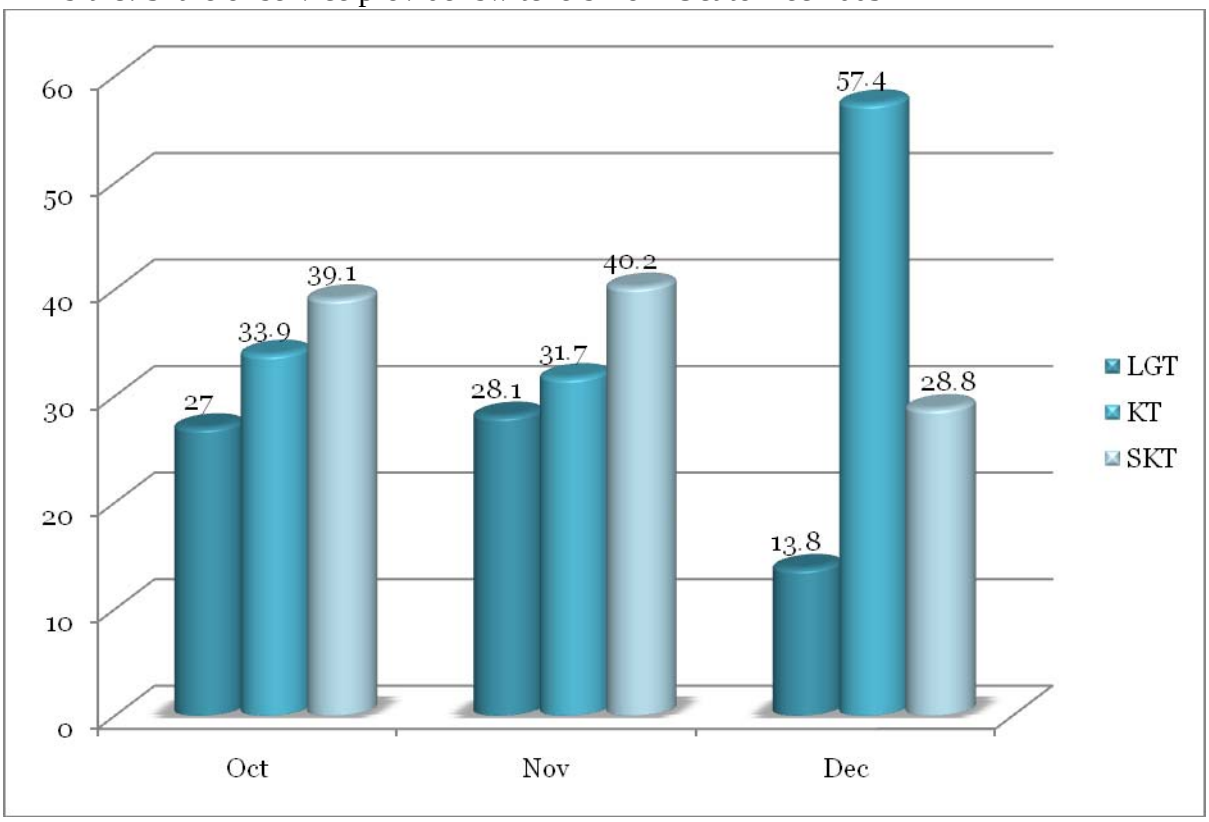

*source=Shinhan Investment Corp, “iPhone fever enlightened the Korean smartphone market”, Dec 30 2009

Exhibit47. Monthly sales in the Korean mobile phone market




*unit=million, source= JR Song, “Mobile phone rebounded in five months thanks to iPhone effect”, The Moneytoday, Dec 1 2009

Exhibit48. Share of service provider switchers from Oct to Dec 2009



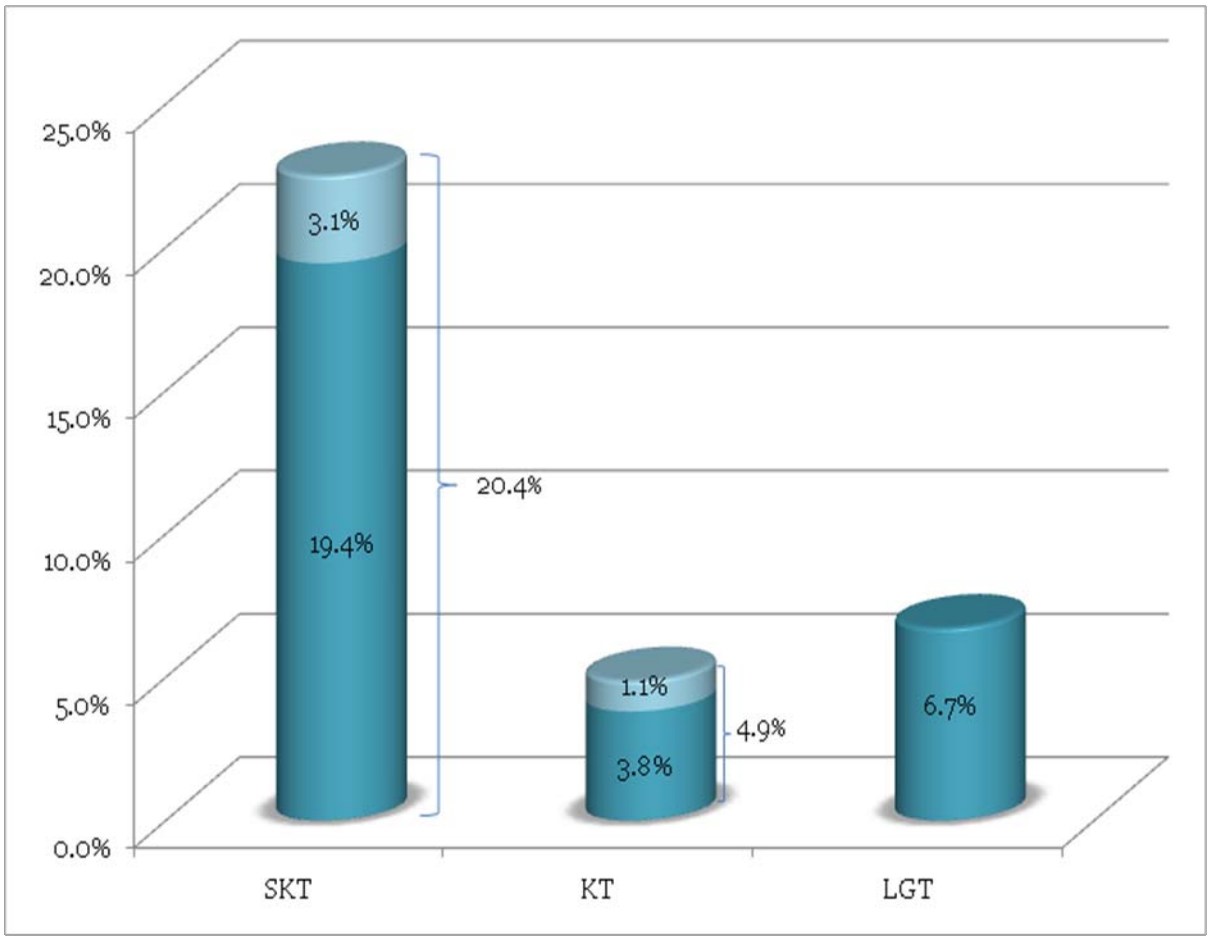

*source=Korea Telecommunications Operators Association
*Figure for December is from Dec 1 to 3 (Indicator that shows iPhone fever at the beginning)

Exhibit49. The number of subscribers using service provider identification numbers

| Carriers | Subscribers | Market share | 010' | 011' | 016' | 017' | 018' | 019' |
|---|---|---|---|---|---|---|---|---|
| SKT | 24220 | 50.6% | 17500 | 4710 | 740 | 740 | 200 | 330 |
| KT | 14980 | 31.3% | 13420 | 580 | 570 | 100 | 160 | 140 |
| LGT | 8640 | 18.1% | 6620 | 770 | 400 | 150 | 120 | 580 |
| Total | 47840 | 100.0% | 37540 | 6060 | 1710 | 990 | 480 | 1050 |

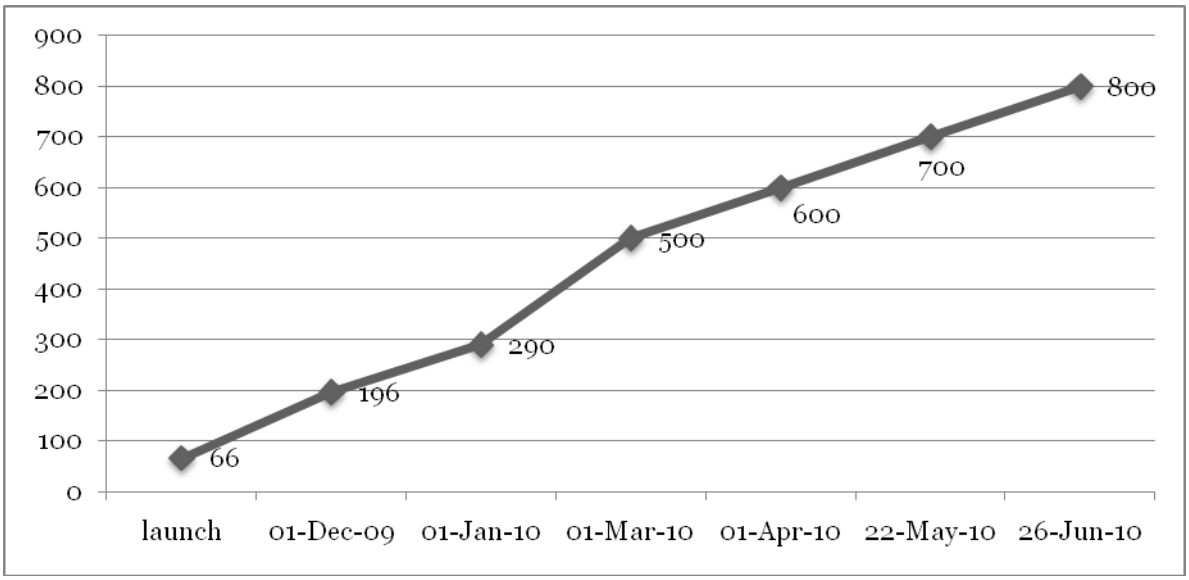
*unit=thousand, source=service providers, Korea Communications Commission,
*As of late Nov 2009, Round off numbers to 10,000 to the nearest ten

Exhibit50. Share of subscribers who used identification numbers



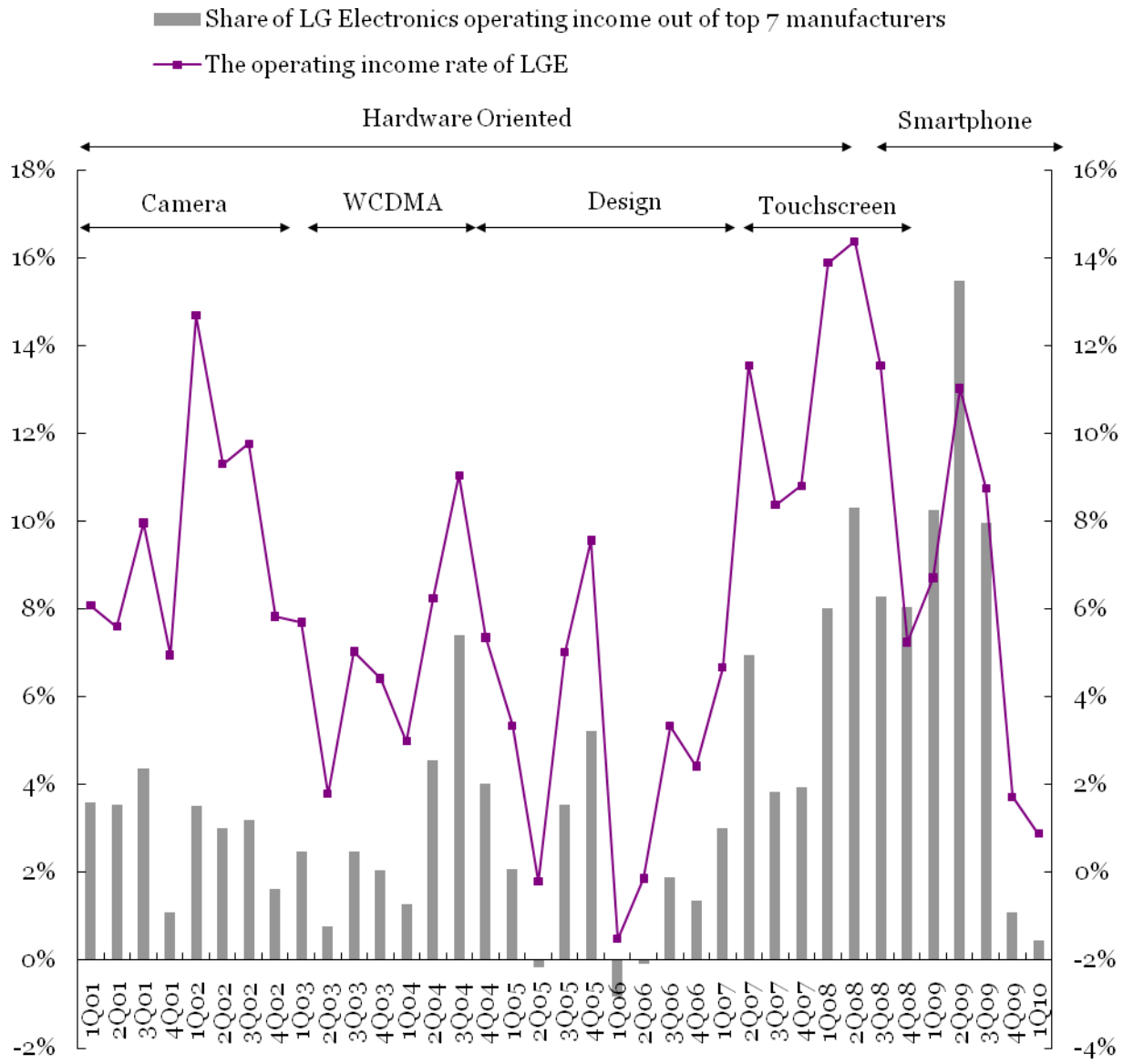

*source=service providers, Korea Communications Commission

Exhibit51. iPhone sales volume



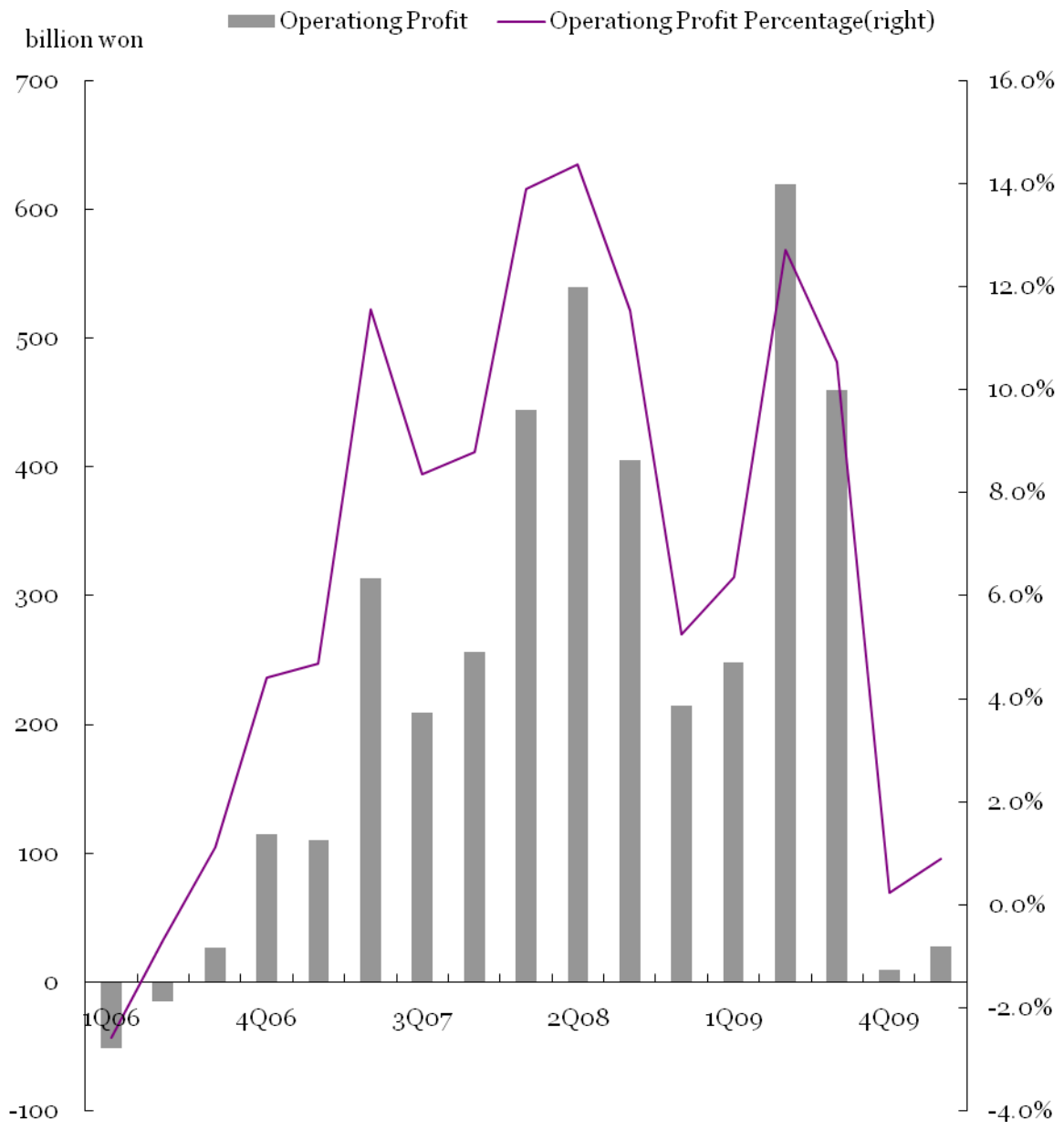

* unit=thousand, source=Korea Media article

Exhibit52. LG mobile phones fell behind market trend



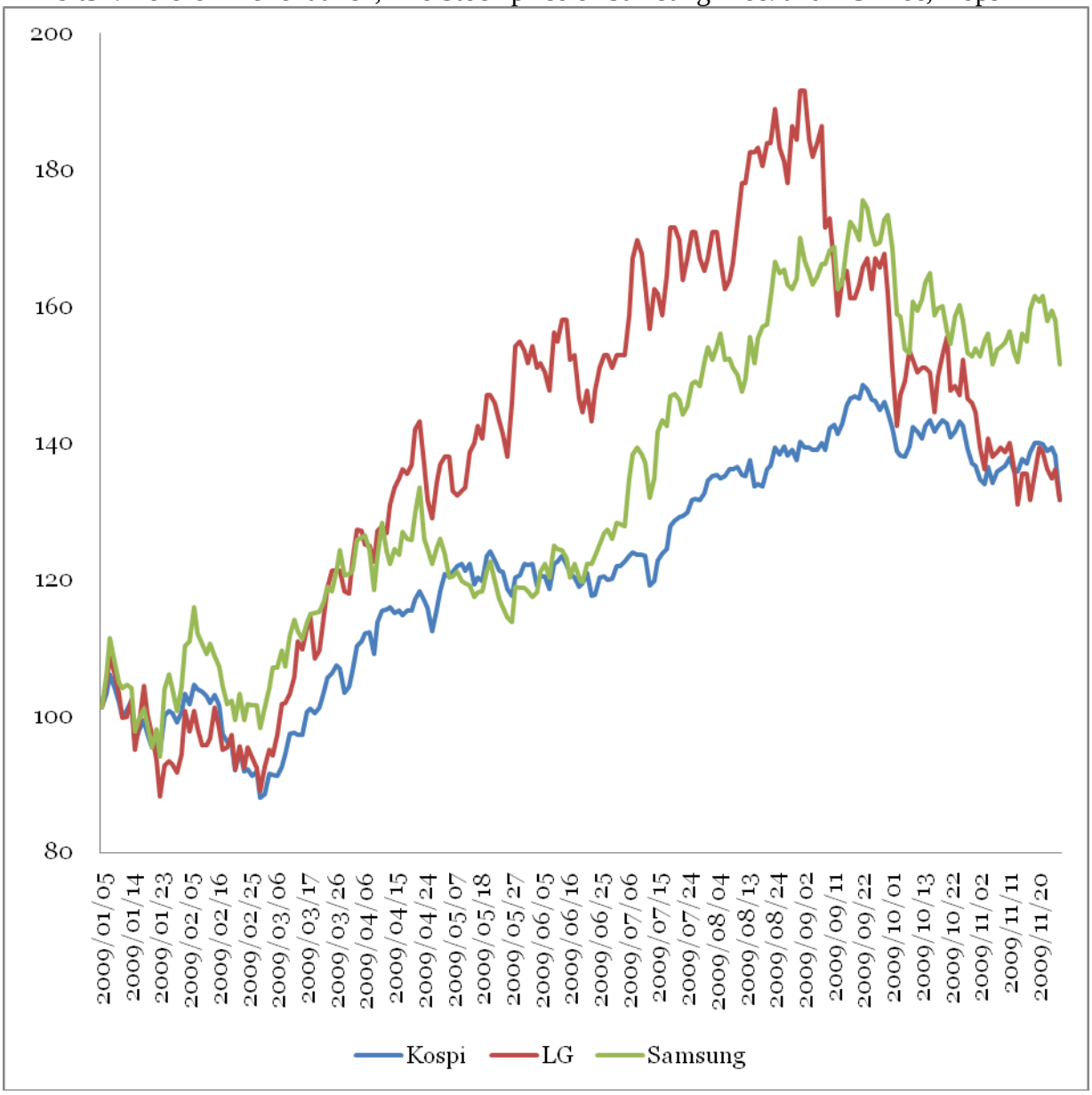

*source=Strategy Analytics, Korea Investment&Securities Co.
*base report=YS Chang and JH Yang, “the reinterpretation of LGE”, Korea Investment & Securities Co, May 26 2010
* Share of LG Electronics operating income out of top 7 manufacturers = (Operating income of LG Electronics) / (Total operating income of Samsung Electronics, LG Electronics, Nokia, Sony Ericsson, Apple, RIM and HTC)

Exhibit53. Mobile Communication Operating Profits and margins



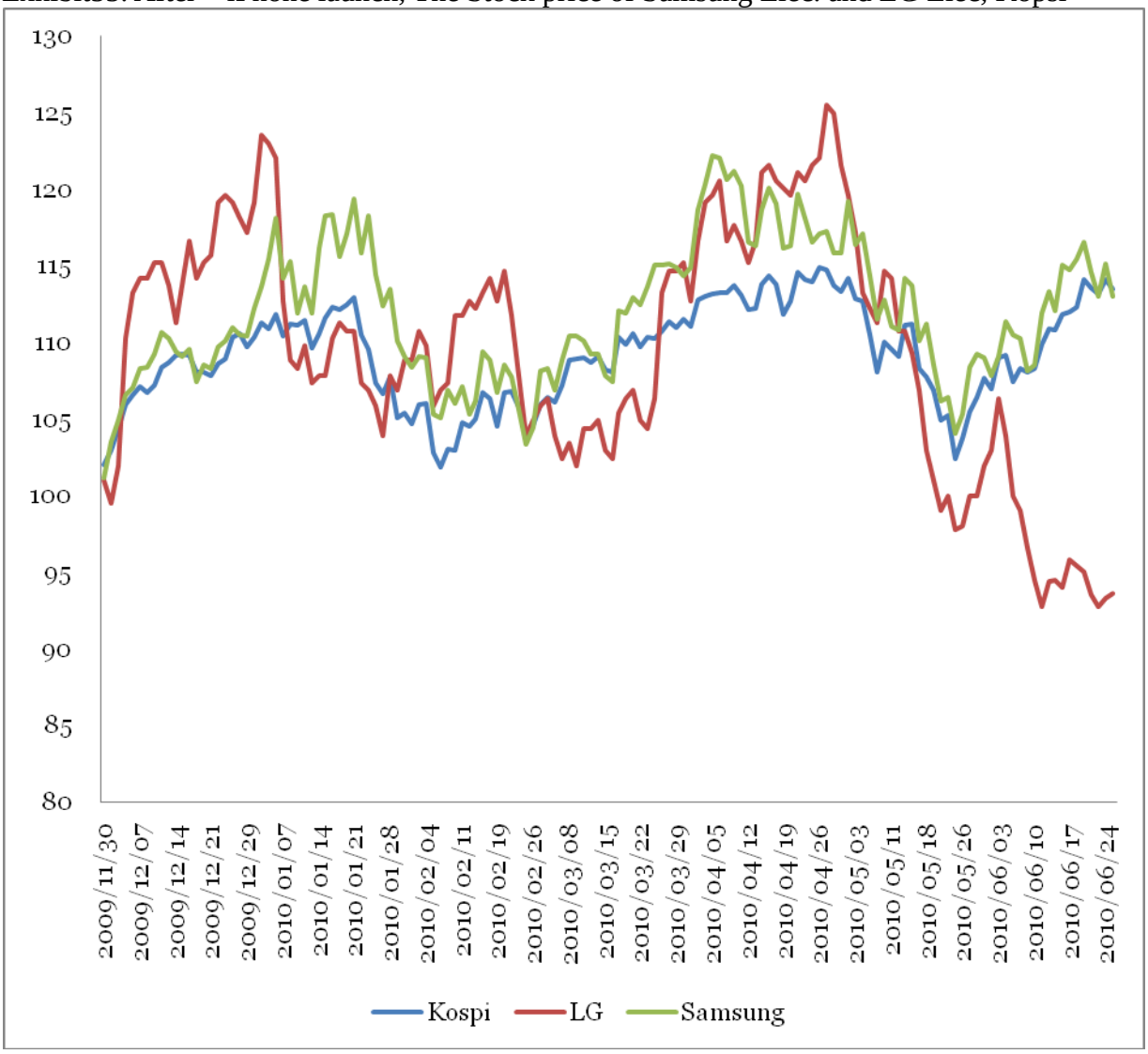

*source=LG Electronics, Korea Investment&Securities Co.
*base report=YS Chang and JH Yang, “the reinterpretation of LGE”, Korea Investment & Securities Co, May 26 2010

Exhibit54. Before iPhone launch, The Stock price of Samsung Elec. and LG Elec, Kopsi




*initial point=Jan 5 2009, Stock Price=100

Exhibit55. After iPhone launch, The Stock price of Samsung Elec. and LG Elec, Kopsi




*initial point=Jan 5 2009, Stock Price=100

Exhibit56. LG Electronics Stock Price per day

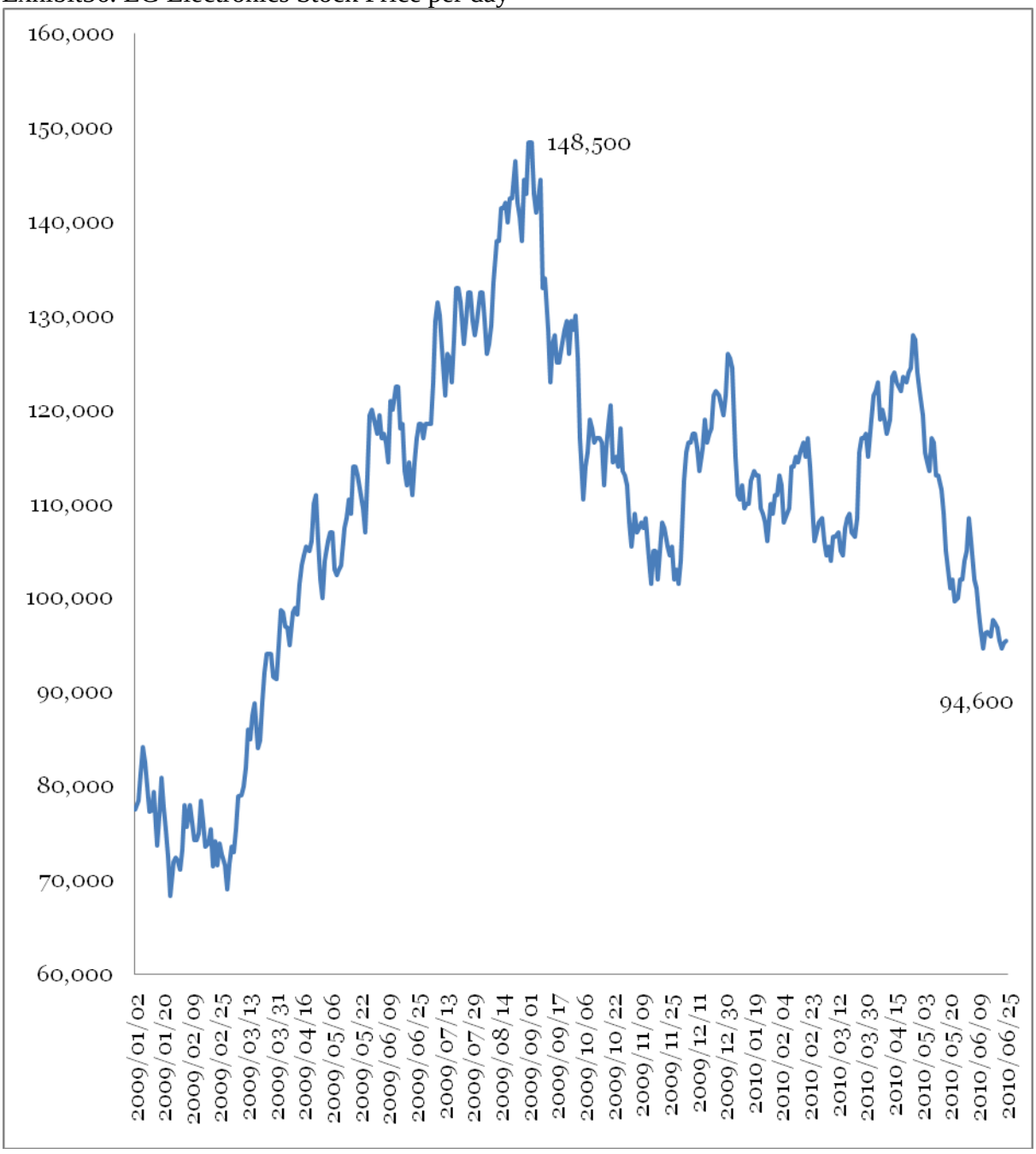
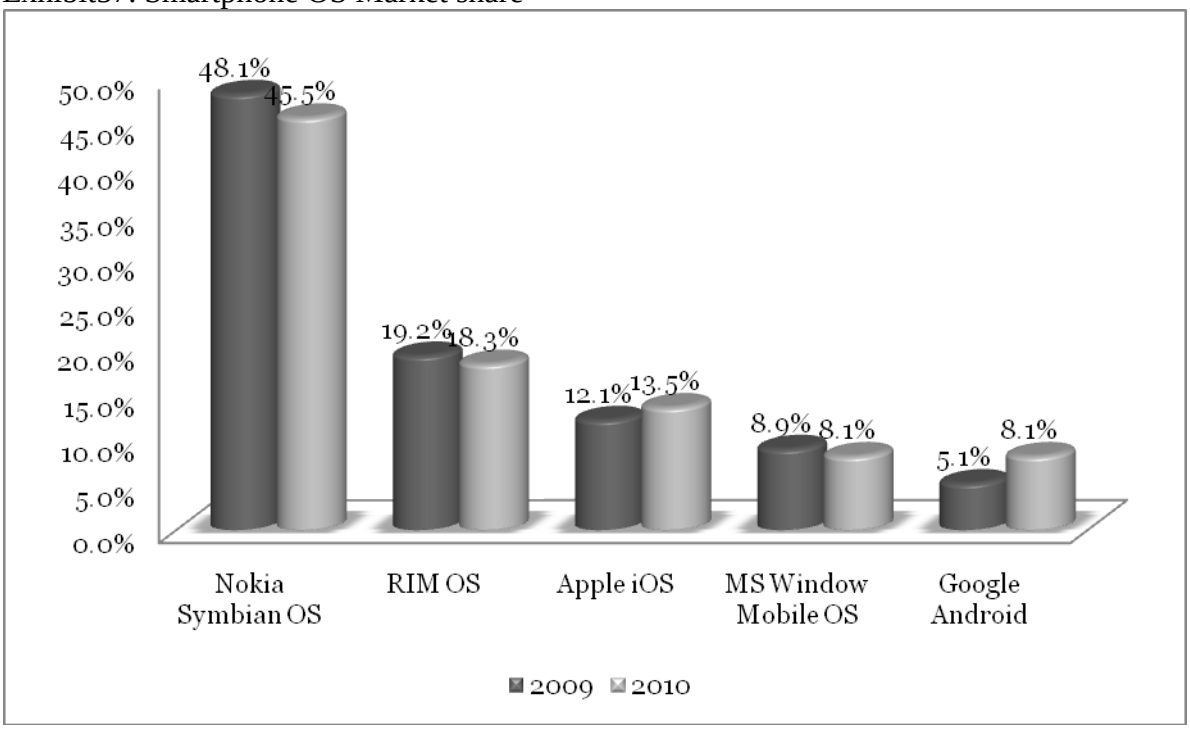
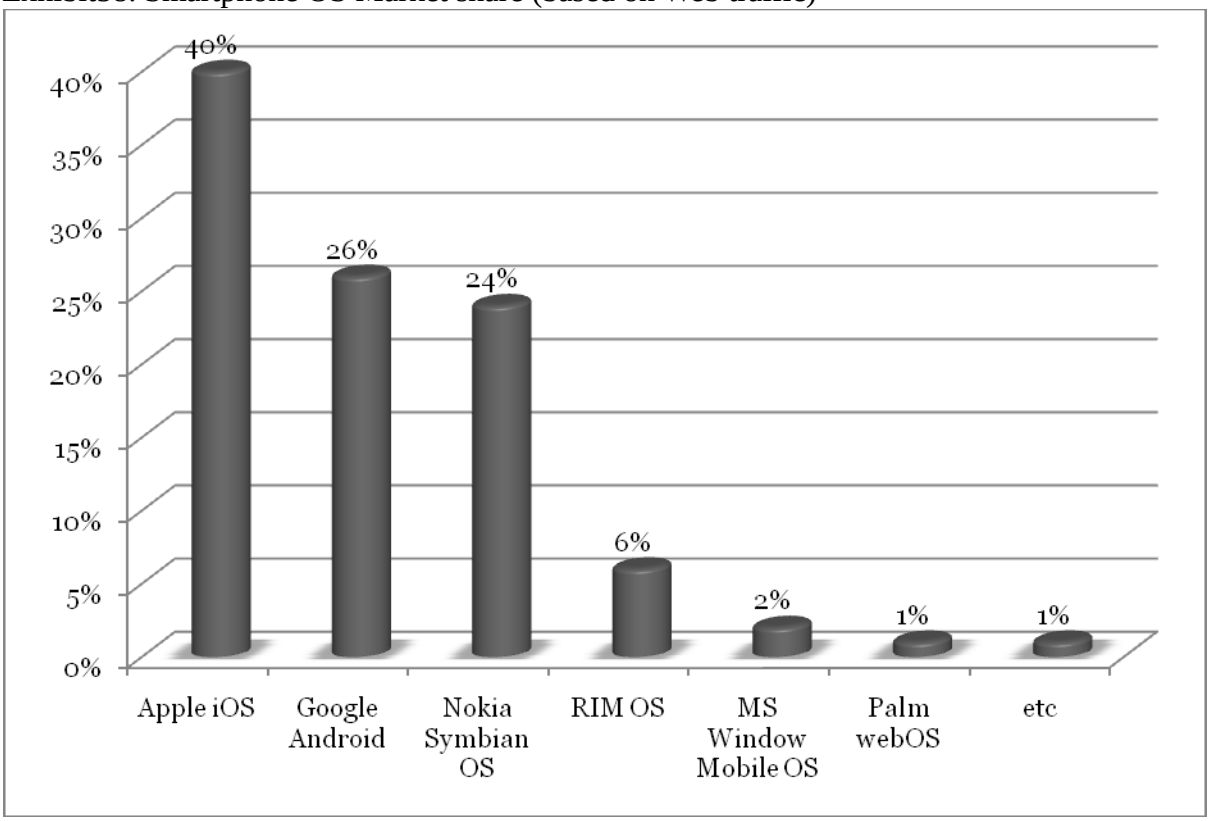


Exhibit57. Smartphone OS Market share



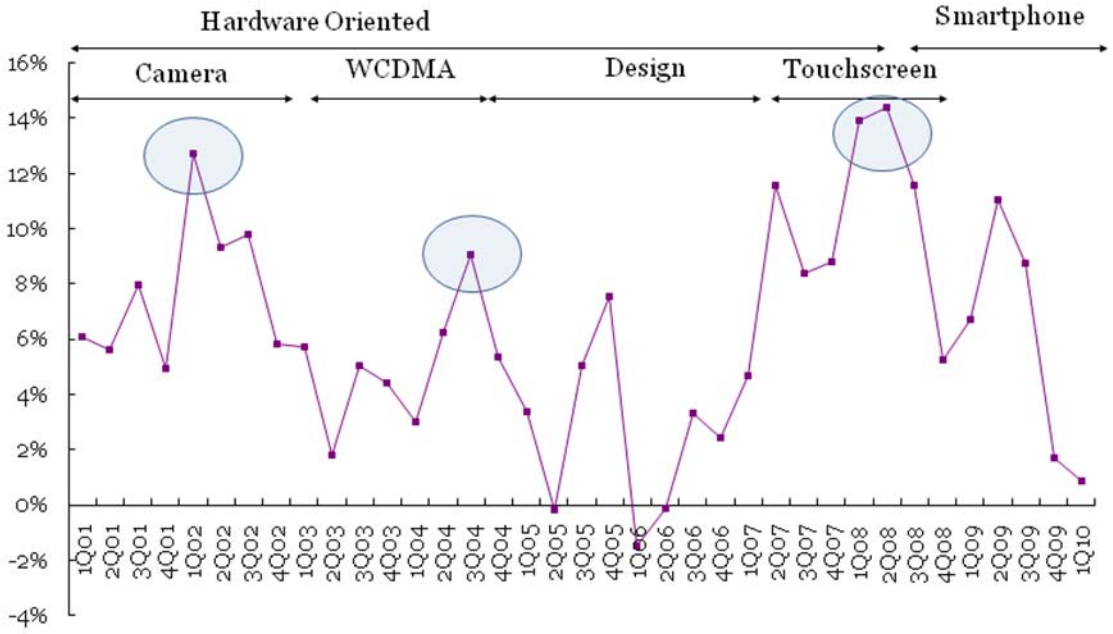

*source=Gartner, unit=%, 2010=forecast

Exhibit58. Smartphone OS Market share (based on Web traffic)



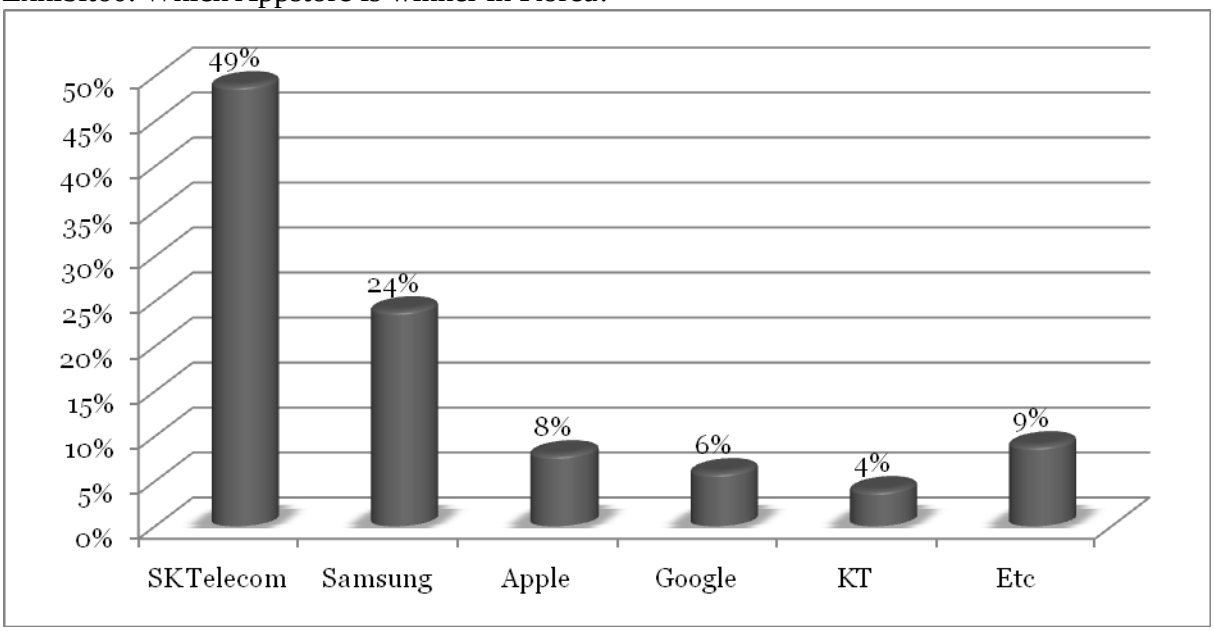

*source=AdMob, “Mobile Metrics Report(May 2010)

Exhibit59. LG Electronics Mobile Communications return on net sales



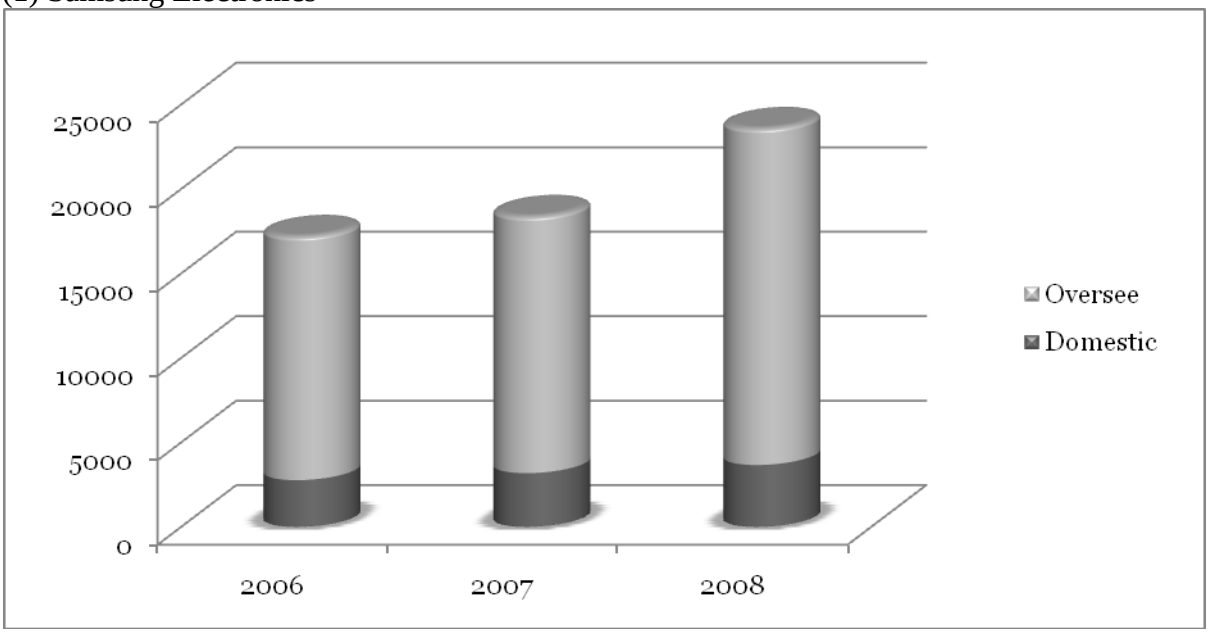

*source= LG Electronics, Korea Investment&Securities Co.
*base report=YS Chang and JH Yang, “the reinterpretation of LGE”, Korea Investment & Securities Co, May 26 2010

Exhibit60. Which Appstore is winner in Korea?




*source=ATLAS Research & Consulting,
survey period=7 Apr 2009 ~13 Apr 2009, pollee(number)=Korean IT employee(160)

Exhibit61. Mobile Phone Sales (unit=billion won)
(1) Samsung Electronics




(2)LG Electronics

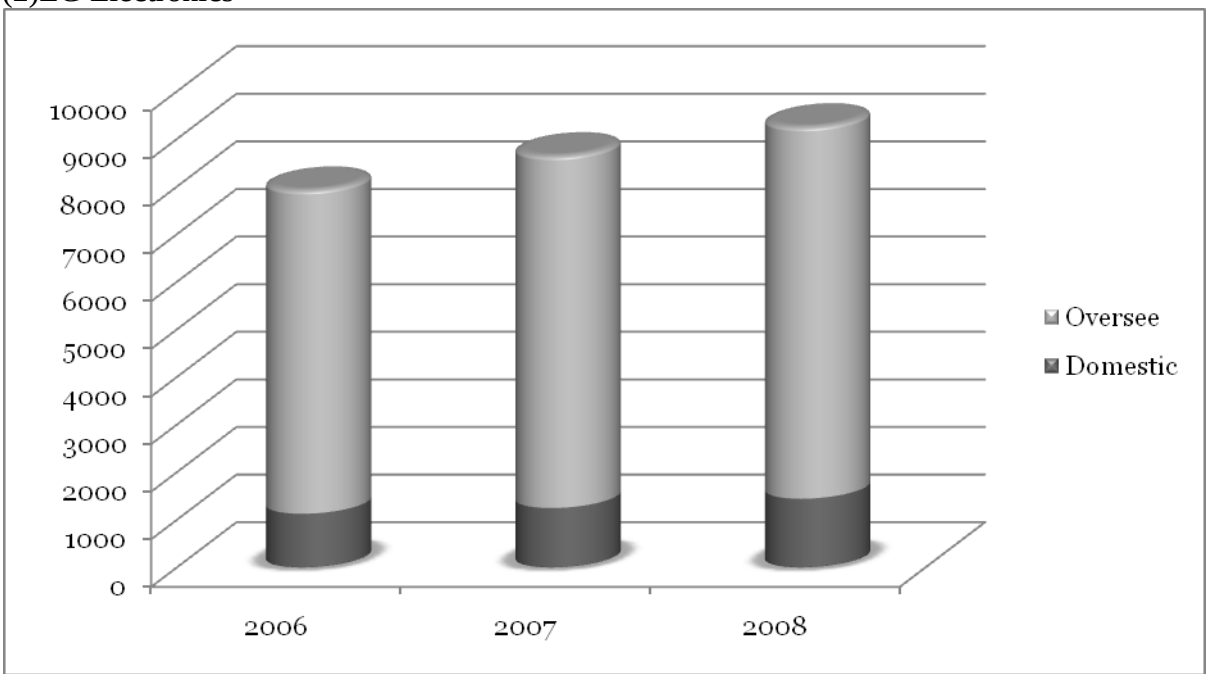
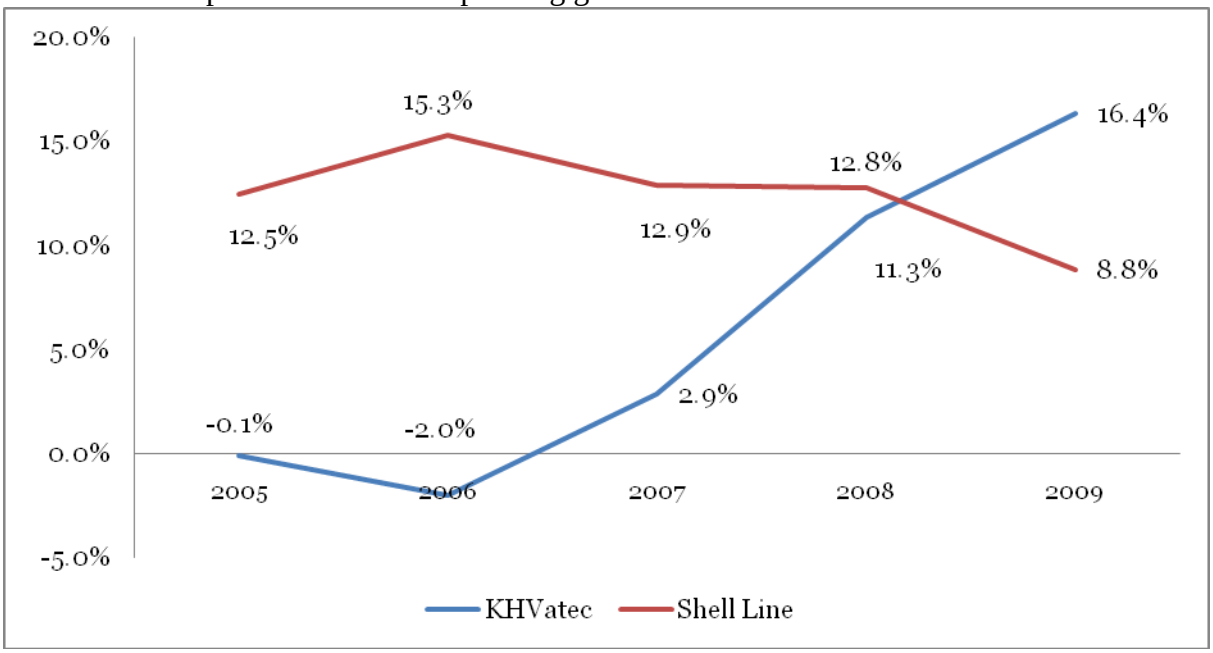


Exhibit62. SCH-490's Special Features


| Item | Contents |
|---|---|
| UI | Haptic UI |
| Screen | 3.3inch, WVGA LCD |
| Camera | 500 million pixel |
| Function | S-DMB, Internet Explorer, Mobile Business(Email etc) |

*source=Samsungmobile.com

Exhibit63. Comparison of ratio of operating gain to revenue




*source=2009 year Annual report of Both Company

Exhibit64. Omnia 2 price comparison

| Brand | T-Omnia2(SKT) | Show-Omnia (KT) | Oz-Omnia(LGT) |
|---|---|---|---|
| Factory price | 924,000 | 955,900 | 924,000 |
| Consumer price | 240,000 | 405,900 | 240,000 |

* If subscribers sign two-year contract to use 45,000 flat-rate smartphone payment plan, they are provided subsidies to purchase Omnia 2 at consumer price. Price can be varied by branches

*unit=won, source= BG Koo, “More expensive KT Omnia: Samsung’s revenge?”, The Hankyoreh, Dec 24 2009

Exhibit65. Price of Omnia 2 and iPhone after price adjustment

*iPhone

| Payment plan | | i-Light | i-Medium | i-Premium |
|---|---|---|---|---|
| Flat rate(won) | | 45,000 | 65,000 | 95,000 |
| Free service | Voice call (min) | 200 | 400 | 800 |
| | Text messages | 300 | 300 | 300 |
| | Data(MB) | 500 | 1,000 | 3,000 |
| Consumer price | 3GS 32GB | 396,000 | 264,000 | 132,000 |
| | 3GS 16GB | 264,000 | 132,000 | - |
| | 3GS 8GB | 132,000 | - | - |

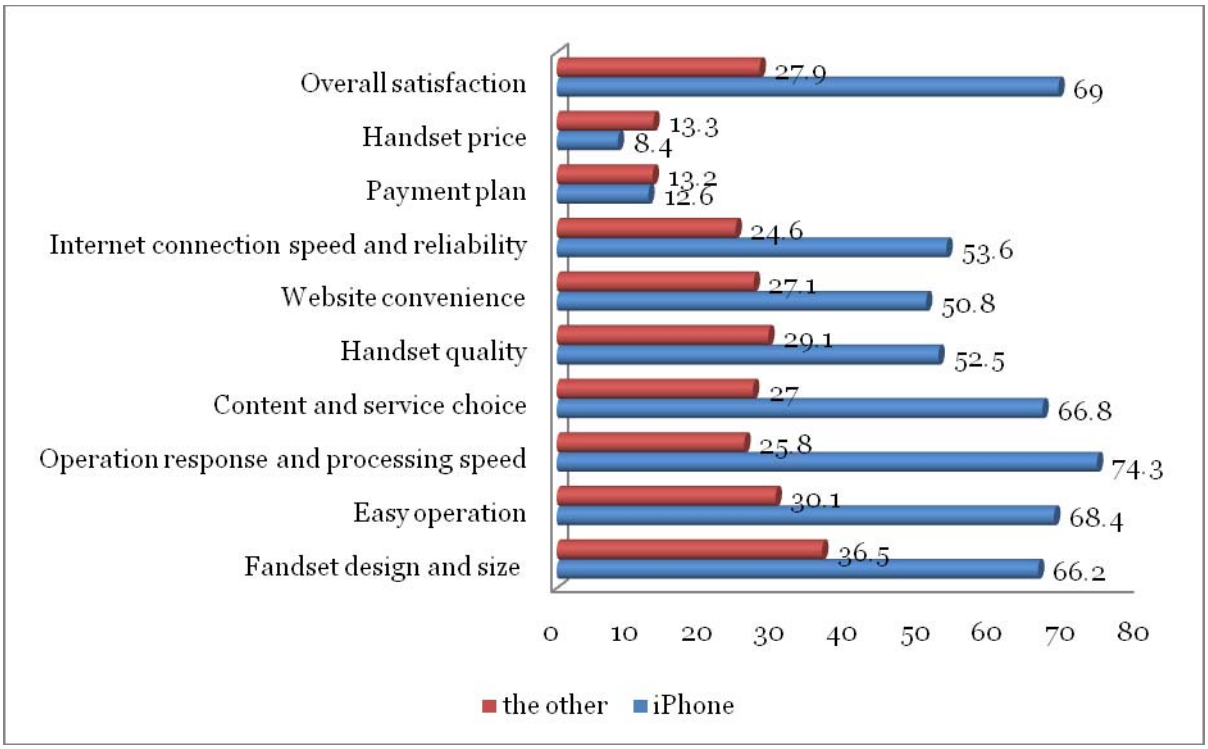
* Adjusted price of T Omnia 2

| Payment plan | | All-in-one 35 | All-in-one 45 | All-in-one 55 | All-in-one 65 | All-in-one 80 | All-in-one 95 |
|---|---|---|---|---|---|---|---|
| Flat rate (won) | | 35,000 | 45,000 | 55,000 | 65,000 | 80,000 | 95,000 |
| Free service | Voice call (min) | 150 | 200 | 300 | 400 | 600 | 1000 |
| | Text messages | 150 | 200 | 200 | 200 | 500 | 500 |
| | Data(MB) | 100 | 500 | 700 | 1,000 | 1,500 | 2,000 |
| Consumer price | | 288,000 | 240,000 | 168,000 | 120,000 | 48,000 | - |

Exhibit66. Capacity comparison between Omni2 and AMOLED Phone

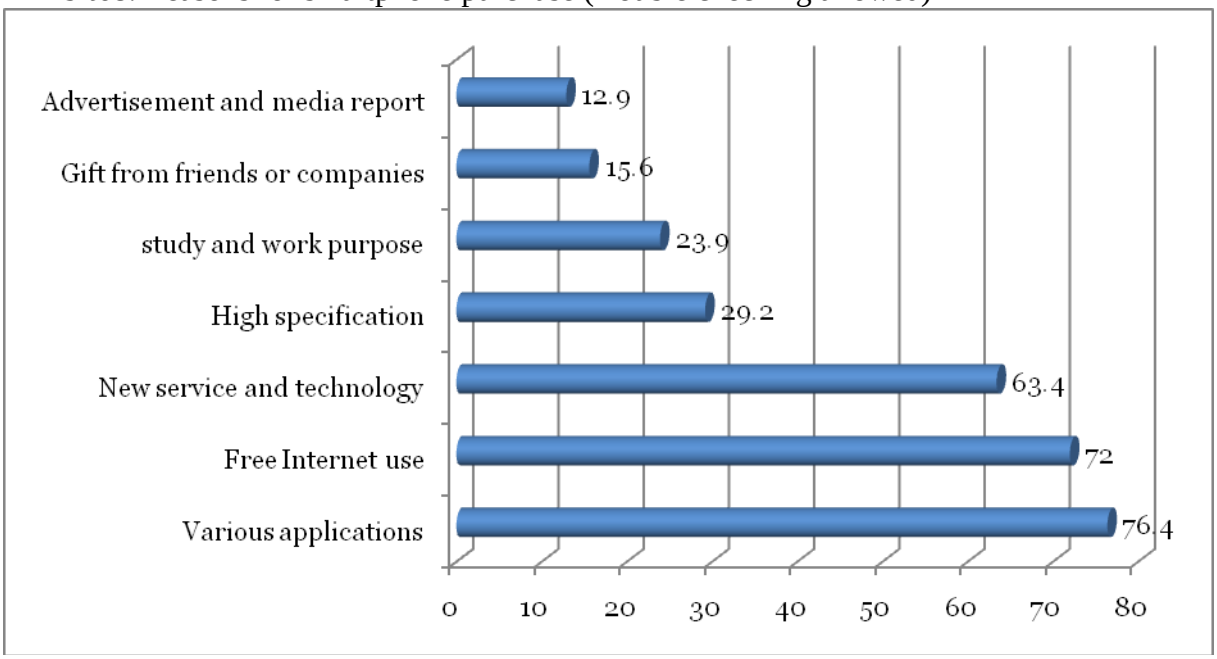
| Phone | Omnia2 | AMOLED |
|---|---|---|
| Screen | 3.7inch | 3.5inch |
| CPU | 800MHz | 600MHz |
| Wireless Lan | Exist | Non-exist |
| Battery capacity | 1500mAh | 1200mAh |

Exhibit67. Customer satisfaction



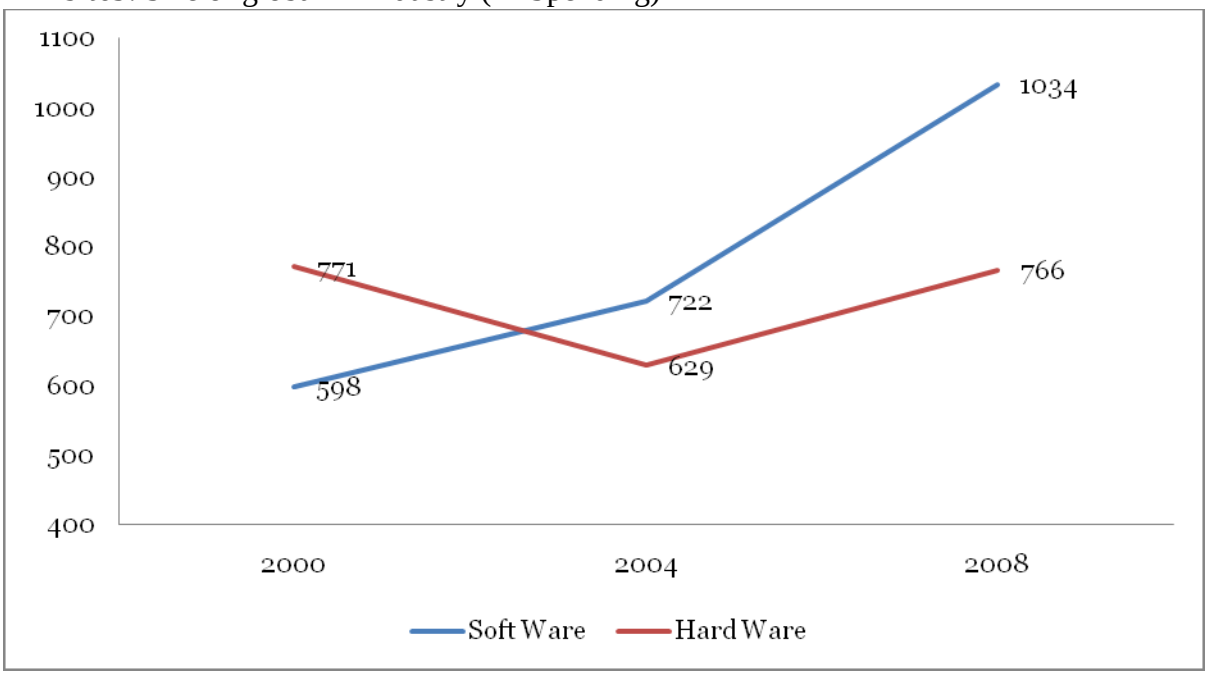

*unit=%,
*source=Korea communications commission, Korea internet & security agency

Exhibit68. Reasons for smartphone purchase (Double checking allowed)



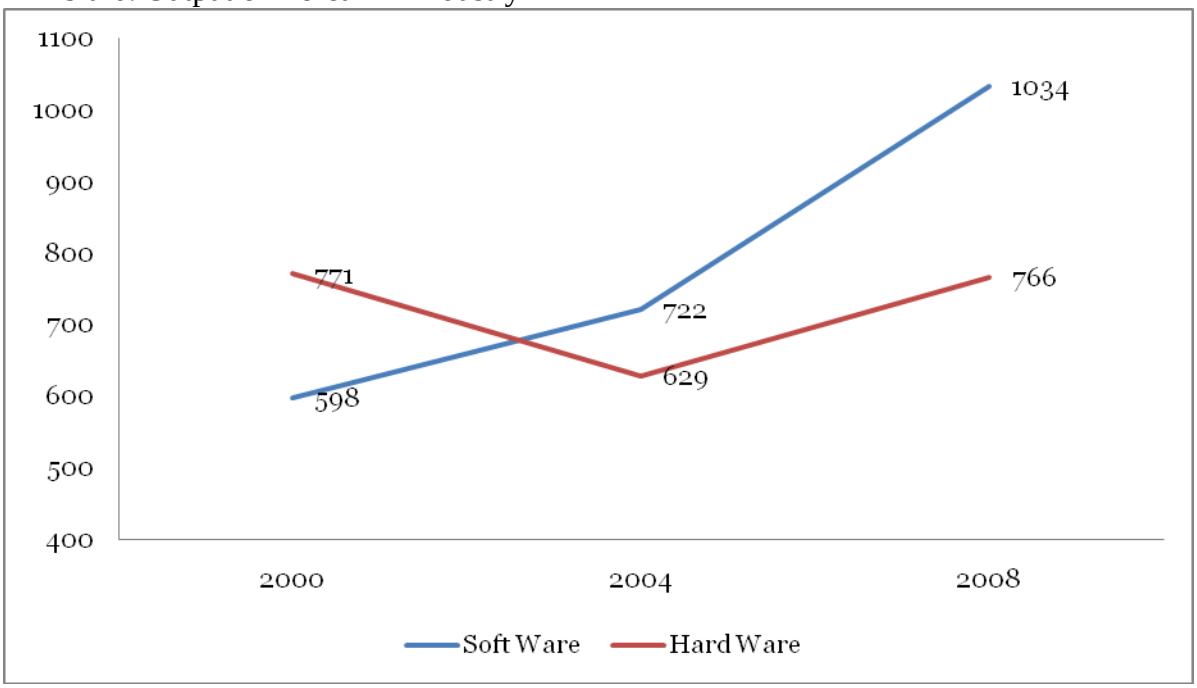

*unit=%
*source=Korea communications commission, Korea internet & security agency

Exhibit69. Size of global IT industry (IT Spending)




*source=Gartner, unit=billion dollar

Exhibit70. Output of Korean IT industry




* unit=billion dollar

*source= Ministry of Strategy and Finance, “IT Korea turning to Software powerhouse!”, Feb 4 2010

Exhibit71. Samsung Electronics 2010 2Q
*Total(consolidated financial statements, K-IFRS)

| Category | 2Q2009 | 2Q2010 |
|---|---|---|
| Revenue | 32510 | 37892 |
| Profit | 2674 | 5014 |
| Net income | 2334 | 4277 |

*Revenue by sector

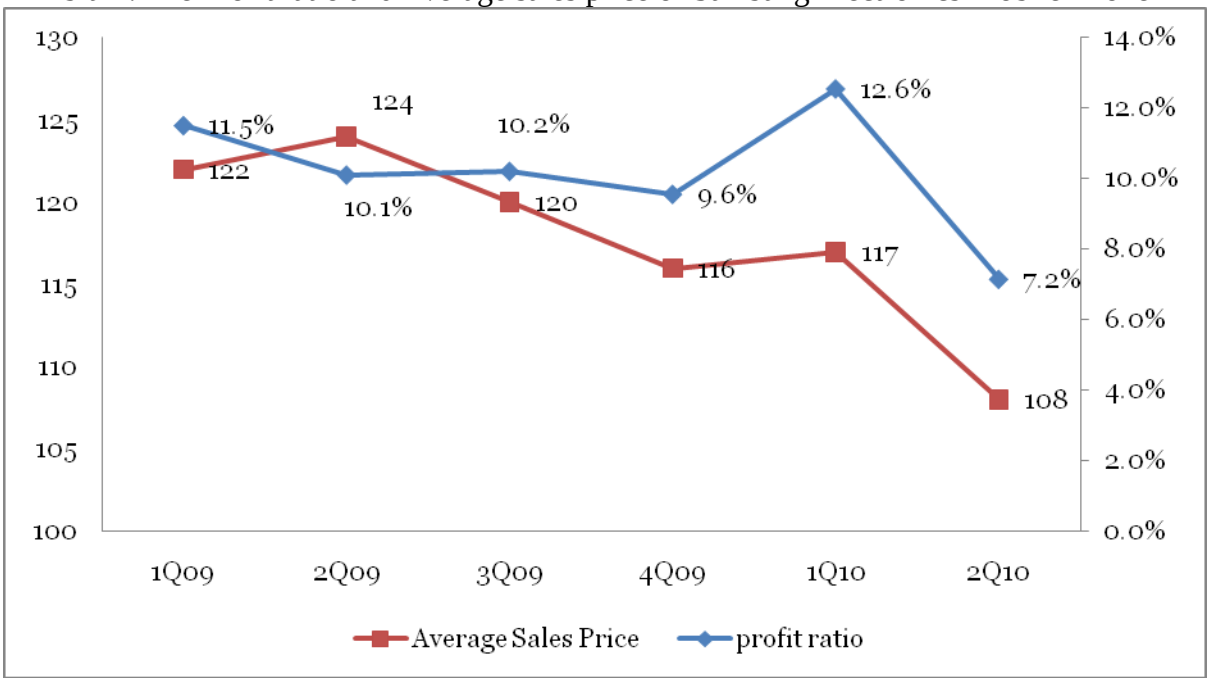
| Category | 2Q2009 | 2Q2010 |
|---|---|---|
| semi conductor | 6130 | 9530 |
| LCD | 5910 | 7760 |
| Tele communication | 9100 | 8780 |
| Digital Media | 12150 | 14540 |

*Profit by sector

| Category | 2Q2009 | 2Q2010 |
|---|---|---|
| semi conductor | 340 | 2940 |
| LCD | 250 | 880 |
| Tele communication | 980 | 630 |
| Digital Media | 1160 | 360 |

*unit=billion won, source=Samsung Electronics

Exhibit72. The Profit ratio and Average sales price of Samsung Electronics Mobile Phone




*unit=$(Average sales price)

*source=Samsung Electronics, Woori Investment & Securities Co. Ltd.

*2Q2010 is the expectation of Woori Investment & Securities Co. Research center

Exhibit73. Samsung Electronics Mobile Earning and Performance

| category | 1Q09 | 2Q09 | 3Q09 | 4Q09 | 1Q10 | 2Q10 |
|---|---|---|---|---|---|---|
| Revenue | 7900 | 8400 | 9000 | 9300 | 8600 | 8100 |
| Profit | 910 | 850 | 920 | 890 | 1080 | 580 |
| Total Shipment | 45900 | 52300 | 60200 | 68800 | 64300 | 63800 |
| Smartphone Shipment | 1250 | 1120 | 1320 | 2190 | 2620 | 3000 |
| The ratio of Smartphone | 2.7 | 2.1 | 2.2 | 3.2 | 4.1 | 4.7 |

*unit=billion won, thousand unit, %

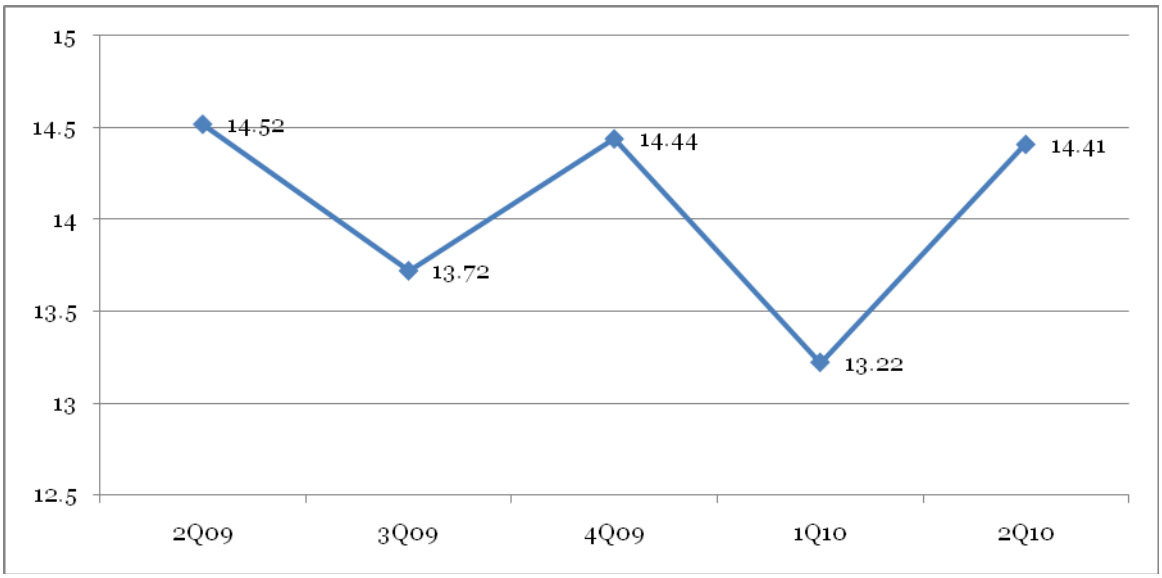
*source=Samsung Electronics, Woori Investment & Securities Co. Ltd.

*2Q2010 is the expectation of Woori Investment & Securities Co. Research center

*consolidated financial statements, K-IFRS

Exhibit74. LG Electronics 2Q10 Earning

(1) Revenue(trillion won)




(2) Profit(trillion won)

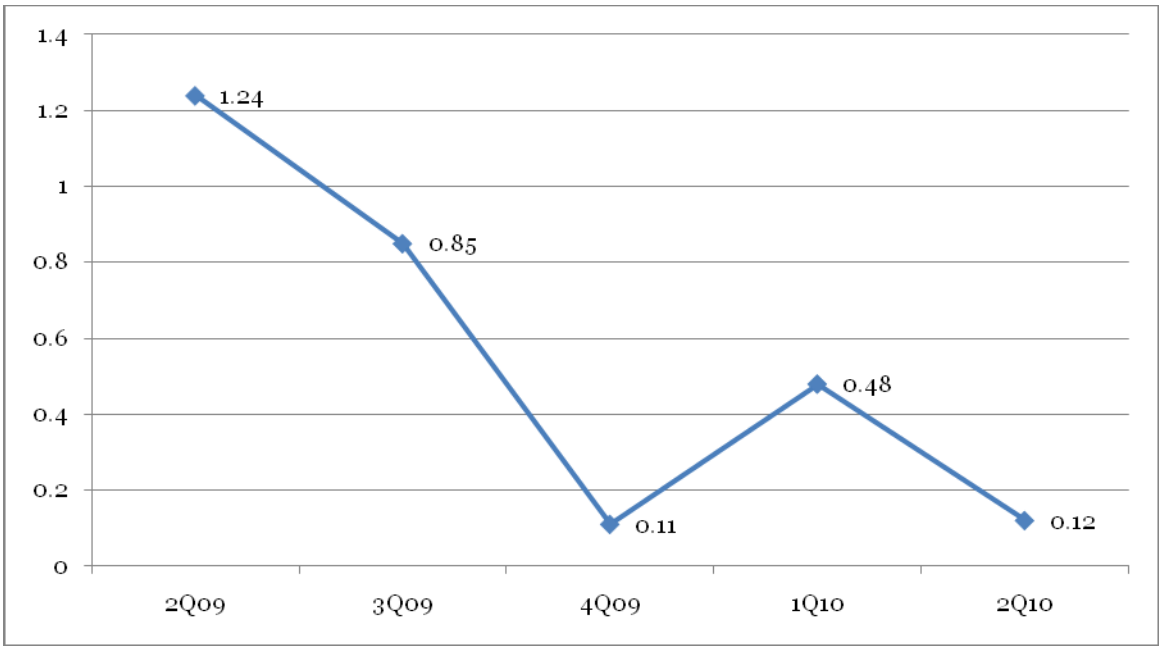
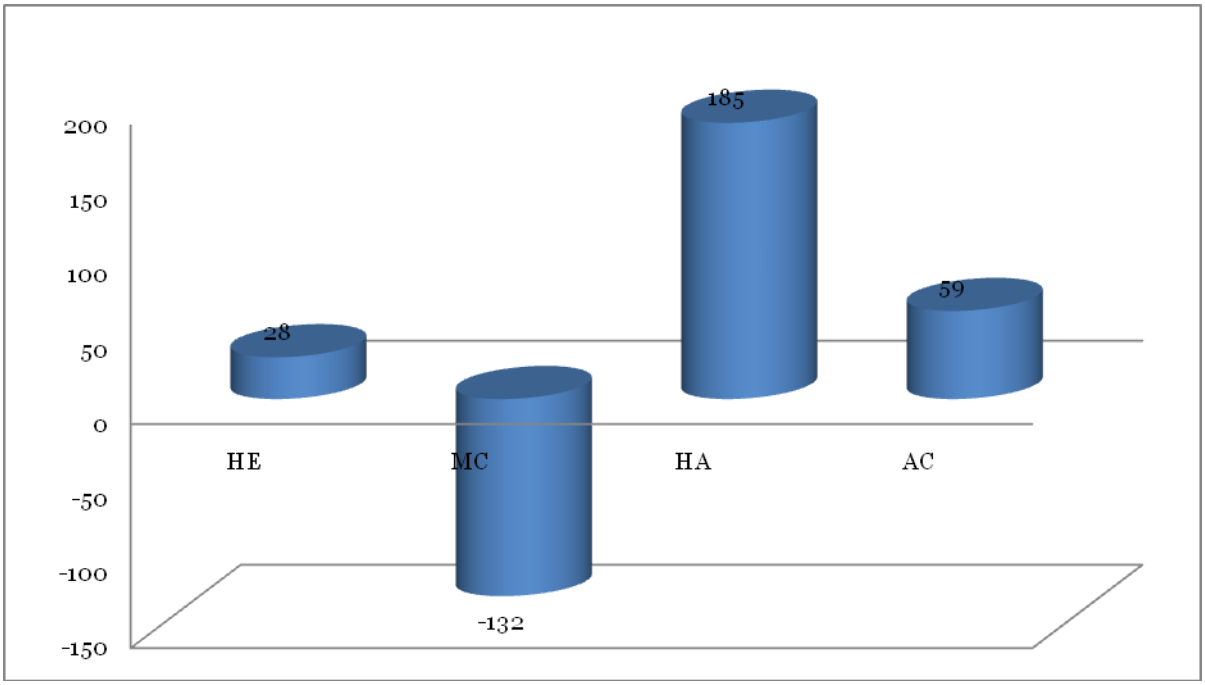


Exhibit75. The 2Q10 profit of LG Electronics




| Sector | Main Products |
|---|---|
| Home Entertainment(HE) | TV, PDP Module, Video, Audio |
| Mobile Communications(MC) | Mobile phone, PC |
| Home Appliance(HA) | Refrigerat0r, Washing machine |
| Air Conditioning(AC) | Air conditioner, Solar Cell |

*unit=billion won, source=LG Electronics

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