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Google 廣告商業模式的競爭策略分析

Competitive Strategy Analysis on Google Advertising

Business Model

林勃宏

Po-Hung Lin

指導教授：江炯聰 教授

Advisor: Jong-Tsong Chiang, Ph.D.

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Competitive Strategy Analysis on

Google Advertising Business Model

本論文係林勃宏君 (R97749011) 在國立臺灣大學企業管理碩士專班、所完成之碩士學位論文，於民國 99 年 07 月 28 日承下列考試委員審查通過及口試及格，特此證明

This is to certify that the Master thesis above is completed by Po-Hung Lin (R97749011) during his/her studying in the Global MBA Program at National Taiwan University, and that the oral defense of this thesis is passed on (28/07/2010) in accordance with decisions of the following committee members:

口試委員 Committee members :

江炯聰 (簽名/Signature(s))

指導教授/Advisor(s)

羅我雄

柴惠珍

尤瑞學

Tim Chen

系主任、所長(Department Chair/Program Director)

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中文摘要

過去很長的一段時間，Google 成為網路界的霸主，主要原因有二：搜尋引擎技術的領先以及成功地結合網路廣告的商業模式，而且 Google 與其他競爭者(Microsoft, Yahoo)的差距可以說是越來越遠，似乎整個網路世界已為 Google 所統治。然而近幾年間，從 Web 2.0 概念的崛起一路到社群交友網站 (Myspace, Facebook) 與微網誌 (Twitter)的興起，網路世界的版圖正在悄悄地變化移動著。此外，手機與網路從兩個不相同的平台與產業，開始互相靠近而形成一個新的行動網路產業(Mobile Internet Industry)，更多的競爭者分別從各自原本的戰場跨足到對方的領域來。因此 Google 從前網路霸主的地位以及網路廣告的商業模式開始被來自不同產業，不同網路服務型態及不同商業模式的競爭者所挑戰。

本研究主要基於上述的網路時代背景，從分析過去 Google 成功的競爭策略與關鍵因素，到探討現階段來自不同產業的競爭者的競爭策略分析與比較，在第五章分成了搜尋引擎的戰爭、社群網站的戰爭、行動網路的戰爭、作業系統的戰爭以及未來位置基礎服務(Location-Based Service)的戰爭來進行不同競爭者間的分析與討論。本研究發現策略聯盟與締結策略夥伴為這些不同競爭者間共同的戰術運用，同時企業併購的活動也成為了各個競爭者主要的策略戰術。最後，本研究也嘗試預測未來可能的搜尋引擎發展以及未來競爭版圖的可能態勢。

關鍵字: 商業模式、搜尋引擎、網路廣告、Google

Abstract

On the internet search and advertising market, nowadays Microsoft Bing and Facebook already become the largest competitors to Google. According to comScore report, Microsoft's Bing got off to a good start by gaining about 3% market share in June, 2009. The latest search engine rankings for January 2010 showed continued growth by Microsoft's Bing at the expense of both Yahoo! and Google's search service.

According to Web measurement firm Compete Inc., Facebook has passed search-engine giant Google to become the top source for traffic to major portals like Yahoo! and MSN, and is among the leaders for other types of sites. This trend is shifting the way Web site operators approach online marketing, even as Google takes steps to move into the social-media world.

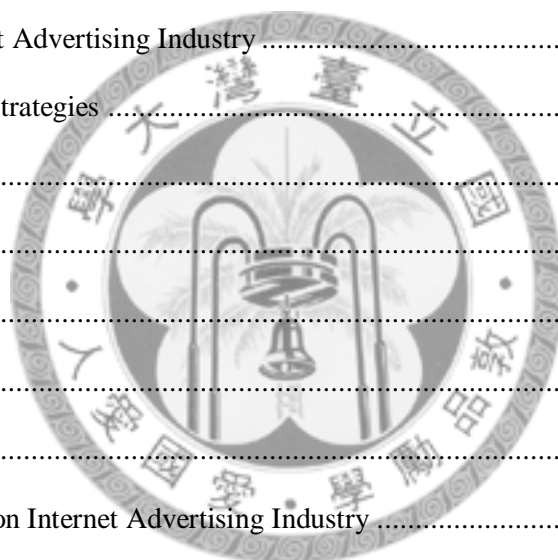
Google nowadays is trying hard to expand its landscape from internet to Mobile, and even try to enter the Operating system, Netbook market and the consumer electronics such as E-Book, TV, etc. This study analyzes different battles among different industries between Google and all its competitors from their business model, revenue model, competitive advantage, strategy and other factors. Undoubtedly, Google is facing a big challenge from different competitors on different battles. In the end, this study summarizes the trend of strategic groups and strategic alliance among these keen competitions plus how to apply M&A strategy to compete on the violent environment.

Keywords: Business Model, Search Engine, Internet advertising, Google.

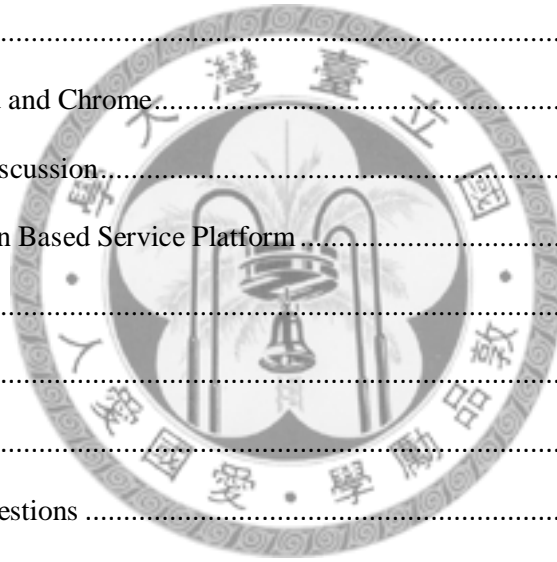
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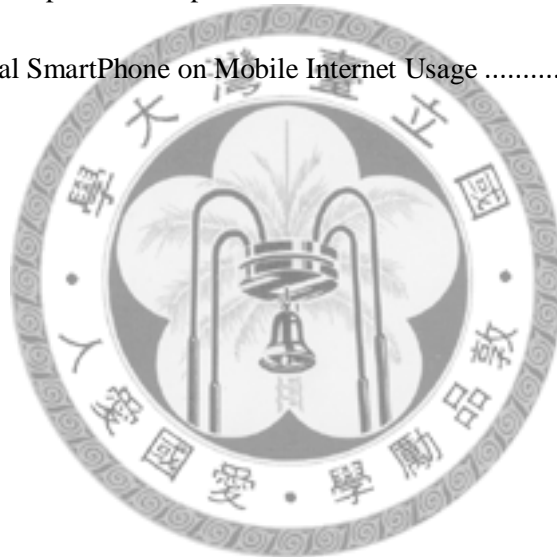
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Chapter 1 Introduction

1.1 Research Motives

In the recent years, more and more people liked to create a start-up company based on an incredible and innovative idea. People worked hard to generate an attractive and convincing business plan to raise the investing fund from venture capital. However these kinds of start-up companies soon dismissed or broke up after average three years. One of the break-up reasons was due to the lack of sustaining revenue stream model, especially in internet industry. Most of the new internet companies adopted “Free Economy” business model and provided free services in order to speed up their install base and increase market share. Finally they burned away all the cash and went to break-down. There were fewer lucky survival examples such as Flickr acquired by Yahoo! in 2005, Youtube acquired by Google in 2007, and even wretch acquired by Yahoo! Taiwan.

Nevertheless, Google is making a huge amount of money on the recently years by providing free search service to the internet consumers. Therefore it's no doubt Google is a successful and good research example with its business model, platform strategy and the mechanism design of its advertisement program , AdWords and AdSense. However, more competitions are starting from 2008 from different industries or services: Mobile Phone, Social Network Service, Operating System and Location-Based Service. What's the strategy and challenges of Google in these complicated battles? Through the study of Google and its competitors, some patterns and models could be constructed. Above all, this study may contribute to academic community as well to real business world and give a whole understanding of how to deal with real world practice in business model, revenue model and strategic tactics planning.

1.2 Research Objectives

This study will focus to address the following topics:

Business Model on Internet

This study summaries the evolution of business model on the internet from 1997 to 2010. Each business model has its pros and cons and this study will briefly discuss and clarify the differences among them.

Competitive Landscape on Search Engine

This study summarizes the evolution of search engine from 1990 to 2005 and tries to figure out what is the key success factor of Google on the competition of search engine.

Competitive Landscape on Internet advertising industry

Google has won a big success on internet advertising business. This study introduces the value chain of the industry and discusses how Google successfully combine search engine technology with internet advertising business. Google acquired DoubleClick on 2008 and entered the display advertising field. This study also analyzes the synergy and the strategy behind the merger and acquisition.

Google's battles among different industries

Despite Google has the position of “winner-takes-all” in internet advertisement market, it still faces lots of challenges to continuously grow in the future. Therefore Google starts to enter smart phone industry via Android platform and also announces to launch Chrome OS embedded notebook on the 4th quarter of 2010. These two major markets, smart phone and operating system field, are highly competed by other giant companies e.g. Apple, Microsoft. In addition, the social network service such as Facebook, MySpace and Twitter

are becoming the most potential competitors for Google on internet advertising business. What's the tactics of Google in these battles? This study will analyze the competitive landscape and current status of Google and the key competitors' strategies.

1.3 Research Methods

The major part information of this study is collected from Google's and all the competitors' official website, reports and other famous professional internet sources. Some statics data were summarized from credible internet search organizations such as Interactive Advisement Bureau, Nielsen and comScore Network. The qualitative analysis is performed based on author's own observation and logic capability, the essays and articles from the credible internet observers and many published books, cases, and reviews from Boston Consult Group, Harvard Business School Press, and Massachusetts Institute Technology Press.

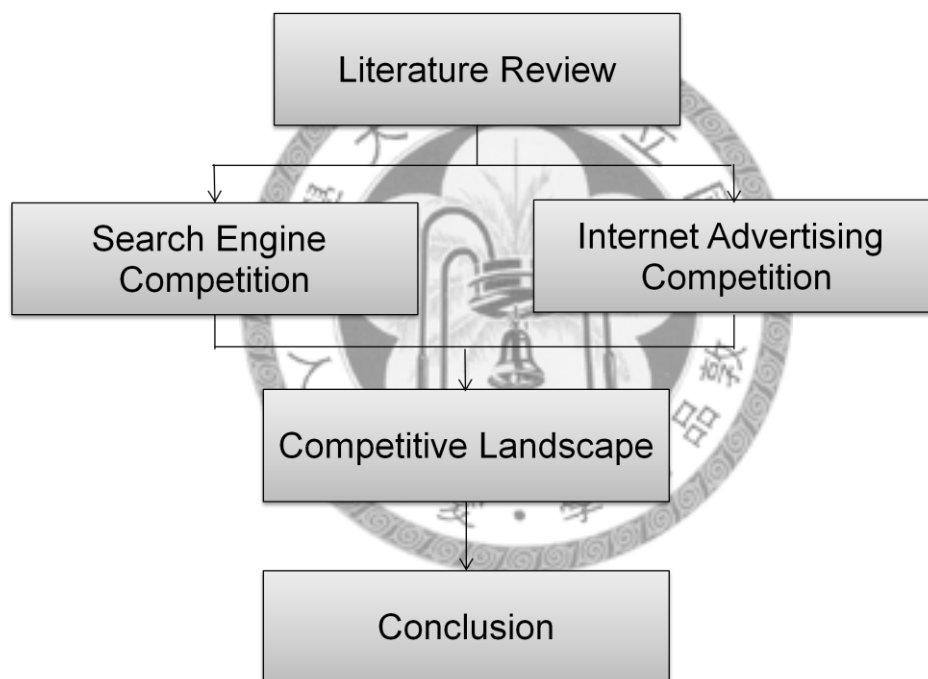
Lack of the first hand information from Google or direct interview or feedback from Google's management team and employees may be the limitation to this study. However, Google is a public company and there are lots of richness analysis reports, case reviews and published papers and books to support the research. Therefore the impact of limitation should be minimal.

1.4 Thesis structure

Chapter 2 is the literature review of all raising topics including business model, network platform strategy and revenue stream. Google is successful combined search engine technology with internet advertising business. Therefore chapter 3 is introducing the

evolution of search engine and analyzes the key success factors of Google. Chapter 4 is mainly introducing the competitive landscape on internet advertising industry with its value chain and all the competitors analysis. Chapter 5 is the competitive analysis for all the battles that Google is currently facing with its competitors in different industries. Chapter 6 is the conclusion of this study and this study will bring some current new issues of Google's next battles on cloud computing markets.

Figure 1- 1 Thesis Structure



Chapter 2 Literature Review

2.1 Business Model

What is a “business model”? Timmers (1998) on his article addressed to clarify internet electronic commerce business models by providing a framework. He defined a business model in respect to its architecture for the product, service and information flows, the benefits for the various business actors, and the sources of revenues. Petrovic et al. (2001) explained a business model is not a description of a complex social system itself with all its actors, relations and processes. Instead it describes the logic of a “business system for creating value, which lies behind the actual processes. A business model is conceptual and architectural implementation of a business strategy and also the foundation for the implementation of business processes (see Figure 2-1). Another well-known definition on business model is presented by Rappa (2002) in the form of a comprehensive list within nine categories. There are good surveys of the evolution of research in business model with four aspects: product innovation, customer relationship, infrastructure management and financial aspects by Pigneur et al. and in 2006 T. C. Chen (2006) had again applied four aspects business model framework based on Pigneur’s research. (See Figure 2-2)

Figure 2- 1 Business Logic Triangle from (Petrovic et al., 2001)

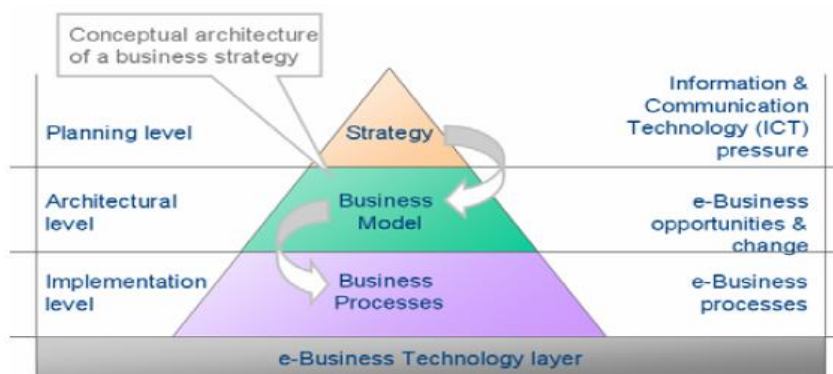
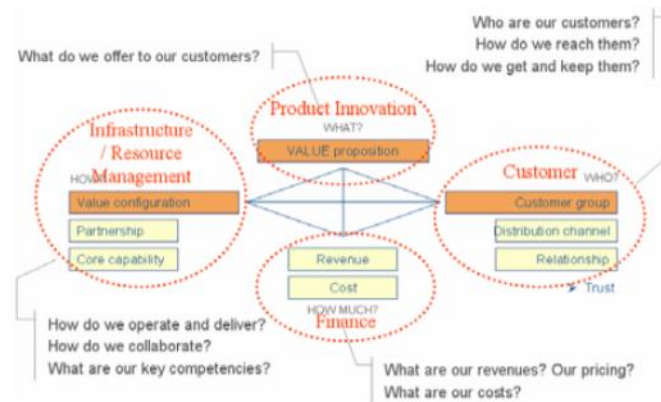


Figure 2- 2 Business Model Framework from Pigneur et al.; Summarize by T.C. Chen (2006)¹



2.1.1 Four-box Business Model

This year Mark W. Johnson (2009) defined business model in his book, “Seizing the White Space”², published by Harvard Business Press in 2010: “A business model, in essence, is a representation of how a business creates and delivers value, both for the customer and the company.” The first element of Mark's Four-Box Framework is the Customer Value Proposition (CVP), an offering that helps customers more effectively, reliably, conveniently, or affordably solve an important problem (or satisfy a job-to-be-done) at a given price. The second element is the Profit Formula that defines how the company will create value for itself and its shareholders. It specifies the revenue model, the cost structure, target unit margin and how quickly resources need to be used to support target volume. The third element is Key Resources, the unique people, technology, products, facilities, equipment, information, channels, partnerships, funding, and brand required to deliver the value proposition to the customer. The fourth and final element is Key Processes such as design, development,

¹ Tseng-Chun Chen , (2006), “Online Business Model and Network Platform Strategy”, Master thesis of National Taiwan University

² Mark W. Johnson,(2009), Seizing the White Space, Harvard Business Press

sourcing, manufacturing, marketing, hiring and training by which a company delivers on the customer value proposition.

2.1.2 Five patterns of Business Model

Alexander Osterwalder and Yves Pigneur (2010) defined business model in their book, “Business Model Generation”, in 2010: “A business model describes the rationale of how an organization creates, delivers, and captures value”. On their research, they also describe business models with similar characteristics, and similar behaviors. These similarities call business model patterns. And “the pattern in architecture is the idea of capturing architectural design ideas as archetypal and reusable descriptions”, said by architect Christopher Alexander.³ There are five patterns business models: Unbundling Business Models, The Long Tail, Multi-Sided Platforms, Free as a Business Model, Open Business Models.

Table 2- 1 Five patterns business models

Patterns	Definition	Examples
Unbundling Business Models	The business is unbundling into three separate but complementary models dealing with infrastructure management, product innovation and customer relationship	Private Banking Mobile Telco
The Long Tail	The new or additional value proposition targets a large number of historically less profitable, niche customer segments – which in aggregate are profitable	Publishing industry (Lulu.com) LEGO
Multi-Sided Platforms	A value proposition “giving access” to a company’s existing customer segment is added(e.g. a game console manufacturer provides software developers with access to its users)	Google Video game consoles from Nintendo, Sony, Microsoft Apple

³ Source : Alexander O. and Yves P.,(2010), Business Model Generation, Self published

		iPod, iTunes, iPhone
Free as a Business Model	Several value proposition are offered to different customer segments with different revenue streams, one of them being free-of-charge (or very low cost)	Newspaper Metro Flickr Red Hat
Open Business Models	Internal R&D resources and activities are leveraged by utilizing outside partners. Internal R&D results are transformed into a value proposition and offered to interested customer segments	Procter & Gamble GlaxoSimthKline Innocentive

Source: Alexander O. and Yves P.,(2010), Business Model Generation, Self published

2.2 Profit formula on internet

2.2.1 Hagel, J. and Armstrong, A. G. (1997)

Hagel thought business could build new and deeper relationships with customers. By creating strong virtual communities, business will be able to build membership audiences to bring the revenue in the form of advertising, transaction fee and member fee.

- (1) Subscription fees, e.g.: a fixed monthly charge for participation in the community
- (2) Usage fees, e.g.: a charge based on the number of hours of usage or the number of web sites accessed or a combination of the two
- (3) Member fees, e.g.: a charge for downloading specific information

2.2.2 Stephen E. Arnold (2000)

Stephen proposed the figure “Six Money Angles: Fitting Nicely into Internet Space” provides a snapshot of the revenue generating techniques.

- (1) **Subscription fees.** The idea is to get customers to pay up front for access to certain services or content. The principal innovation in the last few years has been the drive to use free trials to capture a customer's attention. Many subscription services find the monthly payment more important than a simplified cancellation fee. Cancellations mean churn. Adding new subscribers is an expensive, time-consuming business.
- (2) **Per-use fee.** Per-use fees have been reincarnated as payment "by the drink." The idea is that when a person consumes information, the customer pays only for what is viewed or downloaded. There are many schemes to protect the information that has been copied in digital form. The most successful implementers of the per-use fees are the aggregators who provide access to costly business reports or scientific and technical documents.
- (3) **License fee.** This is a term once-reserved for use by commercial database companies to refer to a fee paid to provide an organization's or institution's users with unlimited access to a specific database. "License fee" now includes software, right-to-redistribute text and non-text content, and the nuances of a "subscription." A license fee, in practice, is calculated. License fees are usually based on a number of variables. The customer wants to pay one price and be relieved of responsibilities for complying with restrictions that may be impossible to enforce. The content provider, on the other hand, usually wants to create the most complex algorithm possible in order to maximize return. In a corporate setting a license fee means five or six figures for branded content. For individuals, a license fee in practice is an annual fee of a hundred or more dollars paid up front.
- (4) **Invisible fees.** The term that is used frequently to describe this charging mechanism is "microcash." Technology exists to track a user's actions within a Web site. Microcash charges mean that certain clicks carry a fee. Microcash charges are intended to be small,

perhaps less than a penny. These are opt-in charges, which means that a person agrees to be charged for clicks before entering the site or the microcash zone.

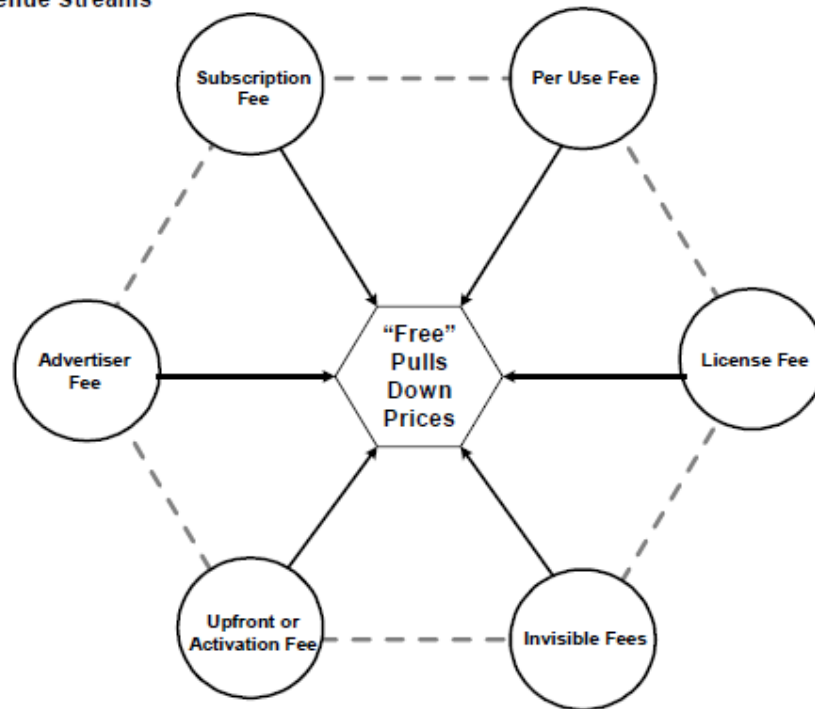
- (5) **Up front or activation fee.** Internet service providers specialize in this type of charge. The idea is that setting up an account or access requires extra effort. In reality, the up-front fee is a variation of the license fee. Depending on a customer's degree of sophistication and the need for the information, up-front fees can be routine or rip offs.
- (6) **Advertiser fee.** Moreover.com, a U.K.-based service with offices in San Francisco, provides content that is free. However, in order to display the content on a Web site or use it within an organization, the customer must agree to display advertising messages on the Web page with the content. On the surface the content comes at a bargain price. A moment's thought reveals that the cost is sustained by advertising.

2.2.3 Michael Rappa (2002)

Michael Rappa, the director of the Institute for Advanced Analytics at North Carolina State University, had proposed a more comprehensive list of revenue models. The following listings are nine different revenue models from Rappa. Here are Broker Model, Advertisement Model, Infomediary Model, Merchant Model, Manufacture Model, Affiliate Model, Community Model, Subscription Model, and Utility Model. Revenue model shows the ways of how the internet companies creating revenues. The following listings are the definition of nine different revenue models from Rappa.

Figure 2- 3 The Online Pricing Vortex: Free Information Draws Down “For Fee” Revenue Streams⁴

The Online Pricing Vortex: Free Information Draws Down “For Fee” Revenue Streams



(1) Broker Model

Brokers are market-makers: they bring buyers and sellers together and facilitate transactions. Brokers play a frequent role in business-to-business (B2B), business-to-consumer (B2C), or consumer-to-consumer (C2C) markets. Usually a broker charges a fee or commission for each transaction it enables.

(2) Advertisement Model

The web advertising model is an extension of the traditional media broadcast model. The broadcaster, in this case, a web site, provides content (usually, but not necessarily, for free) and services (like email, IM, blogs) mixed with advertising messages in the form of

⁴ Stephen E. Arnold, (2000). "The Joy of Six: Internet Content Revenue Models (April).

banner ads. The banner ads may be the major or sole source of revenue for the broadcaster. The broadcaster may be a content creator or a distributor of content created elsewhere. The advertising model works best when the volume of viewer traffic is large or highly specialized.

(3) Infomediary Model

Data about consumers and their consumption habits are valuable, especially when that information is carefully analyzed and used to target marketing campaigns. Independently collected data about producers and their products are useful to consumers when considering a purchase. Some firms function as infomediaries (information intermediaries) assisting buyers and/or sellers understand a given market.

(4) Merchant Model

This model is between wholesalers and retailers of goods and services. Sales may be made based on list prices or through auction.

(5) Manufacture Model

The manufacturer or "direct model", it is predicated on the power of the web to allow a manufacturer (i.e., a company that creates a product or service) to reach buyers directly and thereby compress the distribution channel. The manufacturer model can be based on efficiency, improved customer service, and a better understanding of customer preferences.

(6) Affiliate Model

In contrast to the generalized portal, which seeks to drive a high volume of traffic to one site, the affiliate model, provides purchase opportunities wherever people may be surfing. It does this by offering financial incentives (in the form of a percentage of revenue) to affiliated partner sites. The affiliates provide purchase-point click-through to the merchant. It is a pay-for-performance model -- if an affiliate does not generate sales, it represents no cost to the merchant. The affiliate model is inherently well-suited to the web, which explains its

popularity. Variations include, banner exchange, pay-per-click, and revenue sharing programs.

(7) Community Model

The viability of the community model is based on user loyalty. Users have a high investment in both time and emotion. Revenue can be based on the sale of ancillary products and services or voluntary contributions; or revenue may be tied to contextual advertising and subscriptions for premium services. The Internet is inherently suited to community business models and today this is one of the more fertile areas of development, as seen in rise of social networking.

(8) Subscription Model

Users are charged a periodic -- daily, monthly or annual -- fee to subscribe to a service. It is not uncommon for sites to combine free content with "premium" (i.e., subscriber- or member-only) content. Subscription fees are incurred irrespective of actual usage rates. Subscription and advertising models are frequently combined.

(9) Utility Model

The utility or "on-demand" model is based on metering usage, or a "pay as you go" approach. Unlike subscriber services, metered services are based on actual usage rates. Traditionally, metering has been used for essential services (e.g., electricity water, longdistance telephone services). Internet service providers (ISPs) in some parts of the world operate as utilities, charging customers for connection minutes, as opposed to the subscriber model common in the U.S.



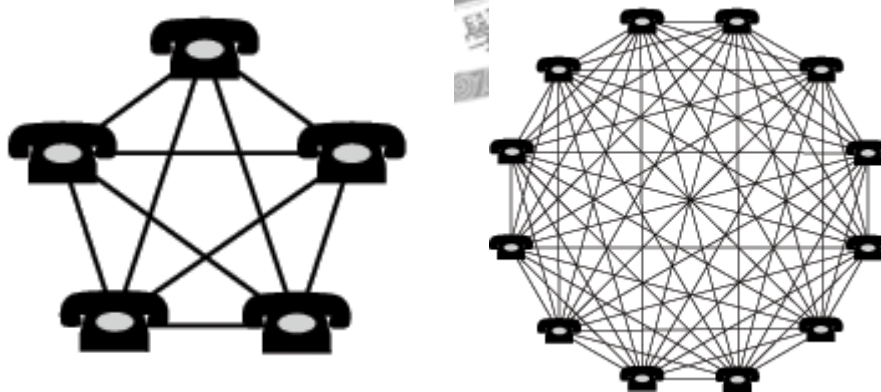
2.3 Network Platform Strategy

2.3.1 Network Effect

According to the definition on Wikipedia, a network effect⁵ (also called network externality) is the effect that one user of a good or service has on the value of that product to other people. When network effect is present, the value of a product or service increases as more people use it. The classic example is the telephone. The more people own telephones, the more valuable the telephone is to each owner. For the emerging examples on online social networks, like Myspace and Facebook also work in the same way.

Direct network effect is the immediate result when other users adopting the same system. Increases the usage will lead to direct increases in the value of networks. Typical examples are the telephone system, fax machines and email.

Figure 2- 4 Network Effect on telephone system



Indirect network effect is a secondary result of many people using the same system. For example, complementary goods are cheaper or more available when many people adopt a standard. Like toner may be cheaper if the number of used printers increases.

⁵ Source: From Wikipedia, http://en.wikipedia.org/wiki/Network_effect, accessed on June 10, 2010

Positive network effect is that more people mean more interaction. The famous cases are Wikipedia, and Facebook. Negative network effects result from resource limits. Consider the connection that overloads the freeway — or the competition for bandwidth. In fact, the automobile and Ethernet congestion examples illustrate that there can be threshold limits. In this case, the $n+1$ person begins to decrease the value of a network if additional resources are not provided.

2.3.2 Platform Strategy

In chemistry, a catalyst is a substance that causes or accelerates a reaction between two or more other agents. In business, a catalyst causes or accelerates reactions between two or more customer groups. These customer groups are attracted to each other.

Evans and Schmalensee presented the concept of economic catalyst in their book, *Catalyst Code*, to investigate the dynamics in two-sided and multi-sided markets. According to their definition from the research, an economic catalyst has the following properties:

- a) An economic catalyst is an entity that has two or more groups of customers.
- b) These customers need each other in some way.
- c) These customers cannot capture the value from their mutual attraction on their own.
- d) These customers rely on the catalyst to facilitate value-creating reactions between them.

Evans and Schmalensee also mentioned matchmaking, building audiences, and minimizing the cost of running a community are the core functions of catalyst. Table 2-2 is three types of catalysts from their book.

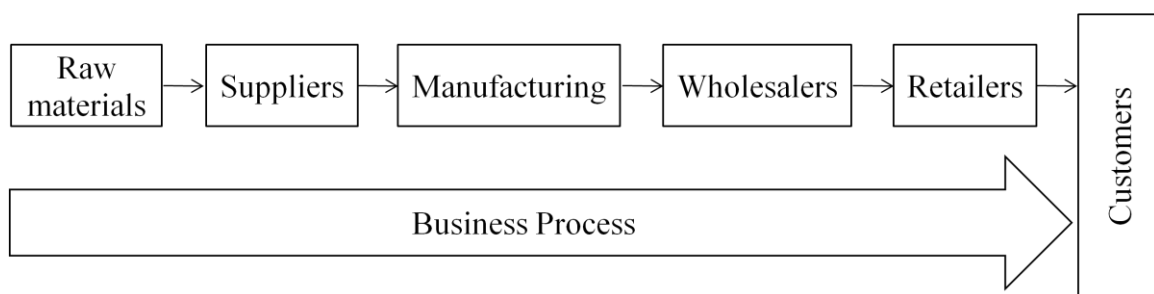
Table 2- 2 Types of catalyst

Matchmakers	Audience Builder	Cost minimizers
Objective: to facilitate transactions	Objective: to assemble eyeballs	Objective: to increase efficiency
eBay	Paris Match	Palm OS
Yahoo! Personals	Google	Windows
Marche Bastille	Conde Nast Publications	Symbian, Ltd.
MySpace.com	Tivo	Sony PlayStation
Manheim Auto Auction	Reed Elsevier	Xbox
Odaiba	Wall Street Journal	SAP enterprise software
NASDAQ	BBC	Linux

Source: Evans, D. S. & Schmalensee, R. (2007), Catalyst Code: the strategies behind the World's most dynamic companies, Harvard Business School Press.

Evans and Schmalensee distinguished catalyst business from traditional one-sided business. Single-sided businesses cater to just one basic type of customer for each product they sell. These kind of businesses live in a linear world that is well described by the sequence of supply chain, from raw materials, suppliers, manufactures, wholesalers, retailers to the customers. However, it's difficult to describe Google's business since Google is a multi-sided platform.

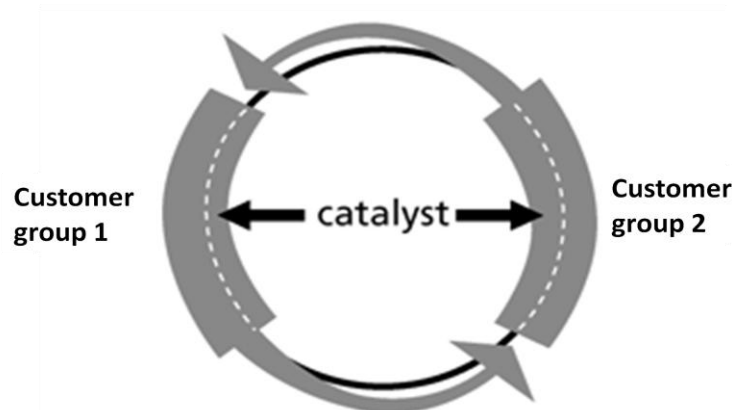
Figure 2- 5 The traditional one-sided business



Furthermore, Evans and Schmalensee claim catalysts are multisided. They cater to two or more types of customers who need each other and who rely on the catalyst to bring

them together. The catalyst and its customer groups form a dynamic system, as shown in Figure 2-6. Changes in one side of the customer group affect the other side of customer group.

Figure 2- 6 The catalyst business



Evans and Schmalensee presented how to build a successful catalyst strategy by identifying three activities which are listed as follow:

1. Developing a community by creating a value proposition through persuasion, pricing and product design.
2. Stimulating interactions by providing information and search methods that help customers connect with each other.
3. Governing the community by devising rules and standards that help customers know what is expected of them and limit bad interactions.

The most important contributions from Evans' and Schmalensee's research is that they build a catalyst framework with six fundamental elements that are essential for a catalyst to succeed. The six elements are summarized in the following table.

Table 2- 3 The catalyst framework

Identify the platform community	<ul style="list-style-type: none"> • Identify distinct groups that need each other • Determine why and how much they need each other • Evaluate who else is serving the community • Compare a multisided business model with a single-sided one 	Find out who needs whom - and why
Establish a pricing structure	<ul style="list-style-type: none"> • Set separate prices for access and usage • Set prices to balance demand from two sides • Price to grow slowly – at first • Pay customers to belong – sometimes • Price for long-term profits 	Shape participation and maximize profits
Design the catalyst for success	<ul style="list-style-type: none"> • Attract multiple customer groups that need each other • Promote interactions • Minimize transaction costs • Design for evolution 	Draw customers and facilitate interactions
Focus on profitability	<ul style="list-style-type: none"> • Study industry history • Use forecasts to enhance profitability • Anticipate competitor actions • Align interests internally and externally 	Visualize path toward long-term profit
Compete strategically with other catalysts	<ul style="list-style-type: none"> • Understand the dynamics of catalyst competition • Look for competition from different business models • Leverage to attack • Consider cooperation 	Challenge existing catalysts and react to new catalyst threats
Experiment and evolve	<ul style="list-style-type: none"> • Know when to be first – and when to follow • Control growth • Protect your back • Plan for what's next • Look out for the cops 	Pursue evolutionary strategy for growth

Source: Evans, D. S. & Schmalensee, R. (2007), Catalyst Code: the strategies behind the World's most dynamic companies, Harvard Business School Press.

Chapter 3 Competitive Landscape on Search Engine

3.1 Search Engine History and Introduction

3.1.1 History of Search Engine⁶

Many research papers and data indicate ‘Archie’ was the first search engine on the web which created in 1990 by Alan Emtage, a student at from McGill University. It used a script-bases data gathering with a regular expression to match the user’s query on File Transfer Protocol (FTP). ‘Veronica’ was created in 1993 by University of Nevada students and used the same concept as ‘Archie’ but for ‘Gopher’ archives on plain text files.

Sooner in 1993, Matthew Gray introduced the World Wide Web Wanderer. Wanderer was the robot that automatically established the index within the web. However this robot caused system lag and used lots of bandwidth by accessing lots of pages. In the same year, Martijn Koster created Archie-Like Indexing of the Web, or ALIWEB in response to the Wanderer. ALIWEB didn’t crawl the web and allowed users to submit their pages with indexed on their own page description. The downside of ALIWEB was that not many people knew how to submit their site.

In 1993, six alumni of Stanford created Excite. It provided a web directory and full-text search engine using statistical analysis of word relationships. Therefore it rapidly became a fully-fledged portal and started to acquired other search engine providers such as Magellan (for around \$18M) and WebCrawler from AOL (\$4.3M). Eventually Excite was bought by @Home (a broadband provider) in January, 1999 for \$6.5 billion, and was named

⁶ Source: this section summarizes from <http://www.searchenginehistory.com>, accessed on June 20, 2010; and Rufus Pollock, (2008), “ IS GOOGLE THE NEXT MICROSOFT? COMPETITION, WELFARE AND REGULATION IN INTERNET SEARCH”, University of Cambridge (September).

Excite@Home. In October, 2001 Excite@Home filed Chapter 11 for bankruptcy and was sold to Interactive Search Holdings (ISH) for \$10 million.

In 1994, the better search engine, WebCrawler, compared with Wanderer was born. This was the first system to index the full text of a web page and used numbers of a link a web page to determine the importance of the web (This concept was quite the same as Google's Page Rank). It was acquired by AOL with \$1M and be used on their network. Then in 1997, Excite bought WebCrawler, and AOL began using Excite to power its search engine service.

Lycos came after WebCrawler as the next major search engine and was developed by Carnegie Mellon University in July of 1994. The main advance was to add more sophisticated text analysis to the basic crawler in order to improve the search results. In November 1996, Lycos had indexed over 60 million documents, which was more than any other web search engine.

In December 1995, AltaVista, the first system offered 'full' search and reasonable quality. They provided nearly unlimited bandwidth, allow natural language queried, advanced searching techniques and also allow the users to add or delete their own URL within 24 hours. AltaVista was immediately successful racking up 300,000 visits on its first day and serving 4 billion queries in its first years. Despite of its strongly and rapidly growing in the late 1990s, AltaVista was eventually acquired by Overture for &80M stock and \$60M cash on February 18, 2003. One year after, Yahoo! bought Overture and occasionally used AltaVista as a testing platform.

Looksmart was founded in 1995. Looksmart was the major competitor to Yahoo! Directory by frequently increasing their inclusion rates back and forth. In 2002 Looksmart turned into a pay per click provider, which charged listed sites a flat fee per click.

Unfortunately this led to the demise of any good faith or loyalty Looksmart had built up, although it brought profit by syndicating those paid listings to some major portals like MSN. The problem was that Looksmart became too dependent on MSN. In late 2003, Microsoft announced that it would not renew its contract with LookSmart, which at the time accounted for over 70% of LookSmart's revenue.

In March of 2002, Looksmart bought a search engine by the name of WiseNut, but it never gained traction. In 1998 Looksmart tried to expand their directory by buying the non commercial Zeal directory for \$20 million, but on March 28, 2006 Looksmart shut down the Zeal directory, and hope to drive traffic using Furl, a social bookmarking program.

In May 20, 1996 the Inktomi Corp. came about with its search engine Hotbot from two Cal Berkeley cohorts. It's a pioneer to launch the paid inclusion model in which sites would pay for inclusion in search results but this was never as effective as the pay per click model developed by Overture. Inktomi tried to license their search results but it's not profitable enough to support their costs. Finally it was sold to AltaVista and in December 2003 to Yahoo! for approximately \$235 millions.

In April of 1997 Ask Jeeves (now named Ask.com) launched a natural language search engine. They originally used human editors to match queried. For a while they were powered by DirectHit but in 2001 Ask Jeeves acquired Teoma to replace DirectHit since Teoma's technology could help to find local web communities. On March 21 2005, Ask Jeeves was acquired by Barry Diller's IAC for \$1.85 billion with Ask Jeeves renamed to Ask.com in 2006.

In May of 1999 AllTheWeb was a search technology platform to show its fast search technologies. They developed advanced user interface with rich search features. On February 23, 2003, AllTheWeb was bought by Overture for \$70 million. After Yahoo! bought out

Overture they rolled some of the AllTheWeb technology into Yahoo! Search, and occasionally use AllTheWeb as a testing platform.

Overture (formly Goto in 1998) was launched by Bill Gross. It's the pioneer in paid search with the idea to arbitrage traffic streams and sold them with a level of accountability. While Overture was wildly successful on that period, Google started to become its competitor. Microsoft and Yahoo! were Overture's two largest distribution partners. Overture bought out AltaVista and AllTheWeb and tried to win the battle with Google but eventually it was acquired by Yahoo! on July 14, 2003 with \$1.63 billion.

Google developed its innovative search technology: PageRank to site ranking when ordering search results. This method used not only the links to a site but also the reputation of those linking sites in determining the reputation of that site in a recursive process based on estimating an eigenvector of the adjacency matrix of the web. By late 1998 when the company was formed, google.com was receiving around 10,000 queries a day. Google launched Google AdWords program in 2000. And in 2003 Google launched Google AdSense to extent its partnership with publishers.

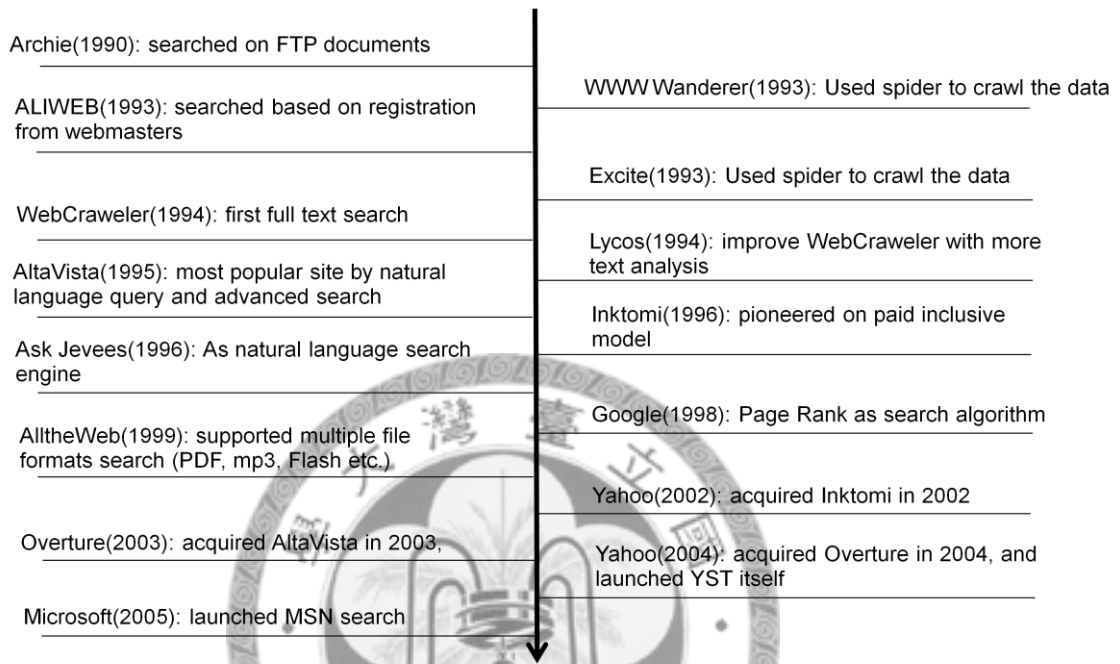
All the histories of search engine evolution from 1990 to 2005 are summarized on Figure 3-1.

3.1.2 Introduction of Search Engine Technology

Search engines designed for searching web pages and documents are designed to allow searching through these largely unstructured units of content. They are built to follow a multi-stage process: crawling the pages or documents to discover their contents, indexing their content in a structured form (database or other), and finally resolving user queries to return results and links to the documents or pages from the index. This section introduces the

concepts of how search engine operates. Normally search engine operates in the following order: Web crawling, Indexing and Searching (see Figure 3-2).⁷

Figure 3- 1 Summary with all the history of search engine evolution (1990 ~ 2005)



Source: <http://www.searchenginehistory.com>; Summarized by this study

(1) Web crawling

A Web crawler is a computer program that browses the World Wide Web in a methodical, automated manner or in an orderly fashion. This process is called Web crawling or spider. Many sites, in particular search engines, use spidering as a means of providing up-to-date data. Web crawlers are mainly used to create a copy of all the visited pages for later processing by a search engine that will index the downloaded pages to provide fast searches.

(2) Indexing

⁷ Source from http://en.wikipedia.org/wiki/Web_search_engine, accessed on July 15, 2010.

Indexing is the process of extracting text from web pages, tokenizing it and then creating an index structure (inverted index) that can be used to quickly find which pages contain a particular word. Search engines differ quite a lot in tokenization process. The issues involved in tokenization are: detecting the encoding used for the page, determining the language of the content (some pages use multiple languages), finding word, sentence and paragraph boundaries, combining multiple adjacent-words into one phrase and changing the case of text and stemming the words into their roots (lower-casing and stemming is applicable only to some languages). This phase also decides which sections of page to index and how much text from very large pages (such as technical manuals) to index. Search engines also differ in the document formats they interpret and extract the text from.

(3) Searching

A web search query is a query that a user enters into web search engine to satisfy his or her information needs. Web search queries are distinctive in that they are unstructured and often ambiguous; they vary greatly from standard query languages which are governed by strict syntax rules.

3.2 Key Players and their Strategies

Under the restriction and limitation of time constraint, this study will focus on the top three major players in the search engine competition. According to the data from comScore research report⁸, Google, Microsoft and Yahoo were the top three players nearly five years (Figure 3-3 demonstrates the U.S. search trend on 2009).

⁸ Source from http://www.comscore.com/Press_Events, accessed on July 10, 2010.

Figure 3- 2 The search engine process diagram⁹

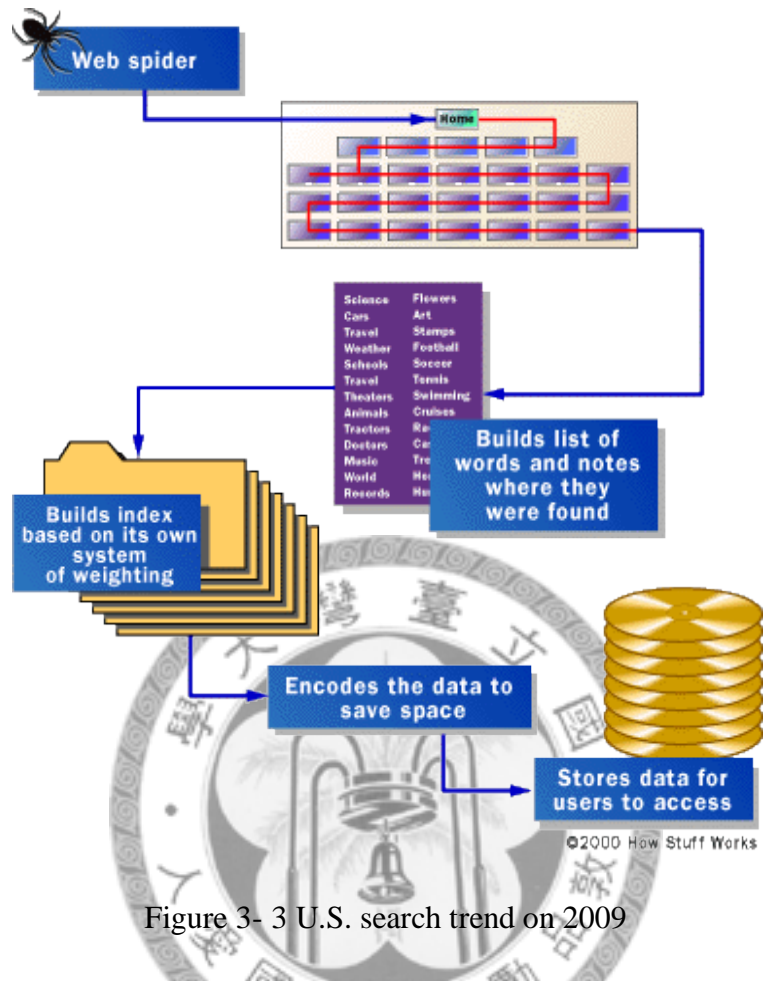
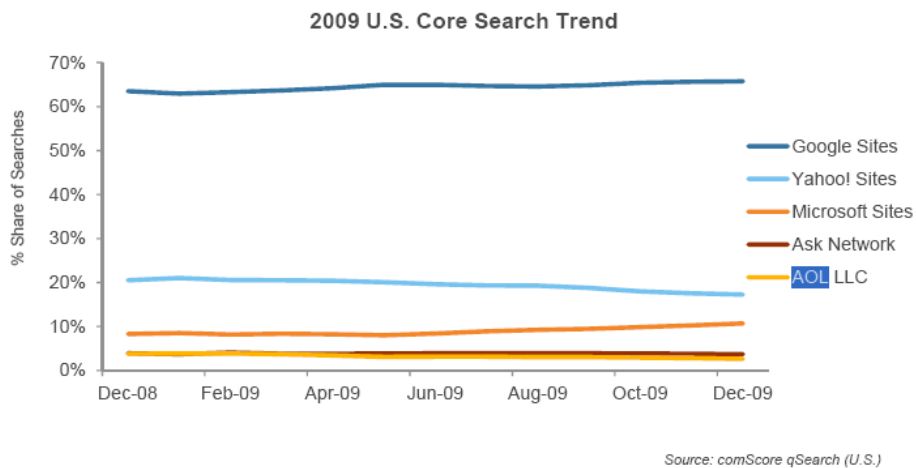


Figure 3- 3 U.S. search trend on 2009



Source: comScore Press Release on U.S. search trend (2009)

⁹ Source from <http://www.sauravpro.com/blog/wp-content/uploads/2009/09/search-engine-chart1.gif>, accessed on July 13, 2010.

3.2.1 Yahoo!

Yahoo! was founded in 1994 by David Filo and Jerry Yang as a directory of websites. For many years they outsourced their search service to other providers, considering it secondary to their directory and other content features, but by the end of 2002 they realized the importance and value of search and started aggressively acquiring search companies. Different with Google or Microsoft, Yahoo! itself developed the search technology through acquisition instead of developing its own in nearly 2000. By 2000, Yahoo! was providing search services based on Inktomi's search engine. Yahoo! acquired Inktomi in 2002, and Overture, which owned AlltheWeb and AltaVista search engine, in 2003. Yahoo! switched to Google's search engine until 2004, when it launched its own search engine based on the combined technologies of its acquisitions. Finally Yahoo! terminated the relationship with Google at that time, and then the former partners became each other's main competitors. Starting in 2003, Yahoo! started to reinvent its own crawler-based search engine, Yahoo! Slurp. Yahoo! Slurp combined the capabilities of all the search engine companies they had acquired, with its existing research, and put them into a single search engine. In July 2008, Yahoo! introduced a new open Web services platform, Yahoo! Search BOSS (Build Your Own Search Service), which gives third parties an unprecedented level of access to Yahoo! Search Technology, including the ability to re-rank and control the presentation of Web search results. Yahoo! Search BOSS enables developers and companies to build world-class custom search experiences and disrupt the search industry.¹⁰

In addition to building out their core algorithmic search product, Yahoo! has largely favored the concept of social search. On March 20, 2005 Yahoo! purchased Flickr, a popular photo sharing site. On December 9, 2005, Yahoo! purchased Del.icio.us, a social

¹⁰ Source from <http://yhoo.client.shareholder.com/press/releasedetail.cfm?ReleaseID=320623>, accessed on July 10, 2010.

bookmarking site. Yahoo! has also made a strong push to promote Yahoo! Answers, a popular free community driven question answering service.

The Yahoo! Publisher Network (YPN) was a beta advertising network launched on August 2, 2005 by Yahoo!. Figure 3-4 demonstrates the relation among advertisers, publishers and users in Yahoo! Publisher Network. Yahoo! Publisher Network provides cost per click contextual advertising as well as various tools and services to assist publishers in building and improving their websites. Yahoo! Publisher Network provides the partners to earn revenue from their sites (see Figure 3-5), helps to drive the traffic to their sites, and enhance their site. Yahoo! offers a variety of services that help to its partners to connect with users in innovative and multiple ways by providing additional search functionality, badges and buttons for the partners' site, plus new features and find material by authors who want you to share or reuse their work under certain conditions.

According to comScore report in August 2007 (see Table 3-1), Google Sites maintained its position atop the core search rankings with 56.5 percent of U.S. searches, gaining 1.3 share points versus the previous month. Yahoo! Sites ranked second with 23.3 percent, followed by Microsoft Sites (11.3 percent), Time Warner Networks (4.5 percent) and Ask Network (4.5 percent).

According to Net Applications report on December 2009, Yahoo! Search was the 2nd largest search engine on the web by query volume, at 6.29%, after its competitor Google at 85.35% and before Bing at 3.27%.

More discussion and analysis after 2008 will be on the Chapter 5, competitive landscape.

Figure 3- 4 The relation of advertising publisher network ¹¹

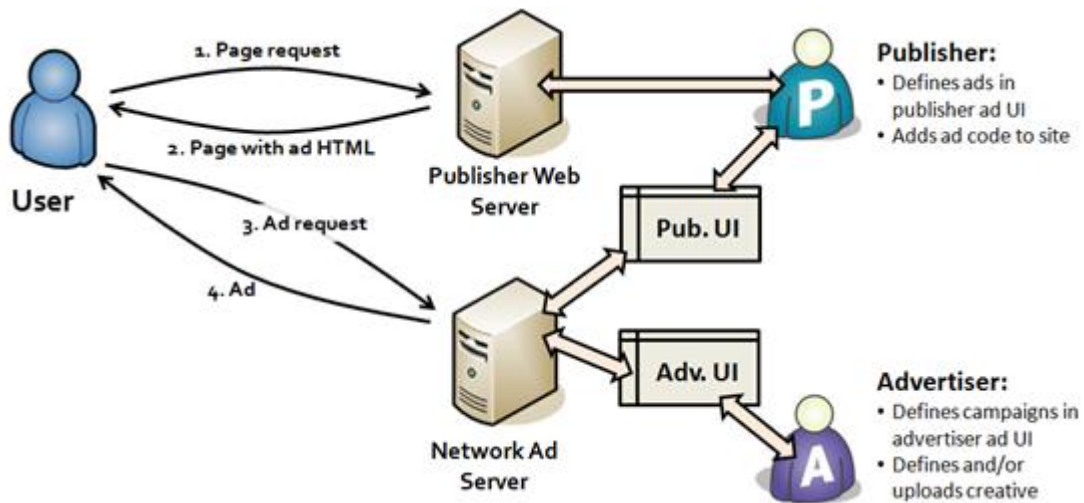


Table 3- 1 U.S Core Search Report in August 2007

comScore Core Search Report* August 2007 Total U.S. – Home/Work/University Locations Source: comScore qSearch 2.0			
Core Search Entity	Share of Searches (%)		Point Change Aug-07 vs. Jul-07
	Jul - 07	Aug -07	
<i>Total Core Search</i>	<i>100.0%</i>	<i>100.0%</i>	<i>N/A</i>
Google Sites	55.2%	56.5%	1.3
Yahoo! Sites	23.5%	23.3%	-0.2
Microsoft Sites	12.3%	11.3%	-1.0
Time Warner Network	4.4%	4.5%	0.1
Ask Network	4.7%	4.5%	-0.2

Source: comScore Press Release in August 2007

¹¹ Source from http://www.liesdamnedlies.com/WindowsLiveWriter/image_40.png, accessed on July 11, 2010.

Figure 3- 5 The report system of Yahoo! Publisher Network¹²

Report for Sep 21, 2006 - Sep 28, 2006 [Download Performance Report](#)

Results 1-8 of 8 | Items listed per page: 100

Page: 1 / 1 Go

Date ▾	Ad Unit Impressions ?	Clicks ?	CTR (%) ?	CPM* (\$) ?	Avg. RPC (\$) ?	Revenue* (\$) ?
Report Totals:	1,468,112	24,241	-	-	-	\$25,504.08
09/28/2006	279,556	4,560	1.6%	\$23.91	\$1.47	\$6,684.88
09/27/2006	141,027	2,097	1.5%	\$25.86	\$1.74	\$3,646.26
09/26/2006	158,614	2,568	1.6%	\$19.86	\$1.23	\$3,150.14
09/25/2006	198,020	2,915	1.5%	\$15.04	\$1.02	\$2,978.26
09/24/2006	200,957	3,429	1.7%	\$13.79	\$0.81	\$2,770.48
09/23/2006	241,070	4,374	1.8%	\$12.19	\$0.67	\$2,938.38
09/22/2006	187,819	3,171	1.7%	\$13.31	\$0.79	\$2,499.39
09/21/2006	61,049	1,127	1.8%	\$13.70	\$0.74	\$836.29
Sub-totals:	1468112	24241	-	-	-	\$25,504.08
Report Totals:	1,468,112	24,241	-	-	-	\$25,504.08
Report Averages:	183,514	3,030	1.7%	\$17.37	\$1.05	\$3,188.01

* The Total Balance, Revenue, and CPM displayed above are estimated values. Your final payment amount may differ.

3.2.2 Microsoft

■ MSN Search

In 1998 MSN Search was launched, but Microsoft did not get serious about search until after Google proved the business model. Until Microsoft saw the light they primarily relied on partners like Overture, Looksmart, and Inktomi to power their search service. After Yahoo! bought Inktomi and Overture it was obvious to Microsoft that they needed to develop their own search product. They launched their technology preview of their search engine around July 1st of 2004. They formally switched from Yahoo! organic search results to their own in house technology on January 31st, 2005. MSN announced they dumped Yahoo!'s search ad program on May 4th, 2006.

¹² Source from <http://www.matthuggins.com/wp-content/uploads/2007/05/ypn-reporting.gif>, accessed on July 11, 2010.

■ Windows Live Search

On September 11, 2006, Microsoft announced they were launching their Live Search product. The new search engine used search tabs that include Web, news, images, music, desktop, local, and Microsoft Encarta. And at this moment Microsoft decided to stop using Picsearch as their image search provider and started performing their own image search by their own internal image search algorithms.

■ Live Search

On March 21, 2007, Microsoft announced the reorganization of the Search Division and separated its search developments from the Windows Live services family, and rebranded the new service as Live Search. Finally Live Search was merged with Microsoft adCenter. Microsoft adCenter was the division of the Microsoft Network (MSN) responsible for MSN's advertising services with pay per click advertisements (similar to Google AdWords). Until the beginning of 2006, all of the display ads on Microsoft sites were supplied by Overture. Yahoo! and Microsoft had expired the contract on June 2006 therefore Microsoft displayed only ads from adCenter.

After Microsoft recognized the strongly growing on search engine and advertising market, it began developing and improving its own search engine and advertising system, Microsoft adCenter, for selling PPC advertisements directly to advertisers.

In November 2006, Microsoft acquired DeepMetrix that created web-analytics software to compete with Google Analytics. Microsoft had built AdCenter Analytics tool based on the acquired technology. In May 2007, Microsoft successfully purchased the digital marketing solutions parent company, aQuantive, for roughly \$6 billion after Google acquired DoubleClick.

■ Market share

Before the launch of Bing the market share of Microsoft web search pages (MSN and Live search) had been steadily declining. Since Bing's launch in the US, Microsoft has increased its US search market share. Microsoft, in third place, has increased its share from 8% in May 2009 to 12.1% in May 2010 according to figures from comScore. Bing's global market share in May was 3.24%. More detail descriptions related to Bing will be discussed on Chapter 5.

3.2.3 Google

In 1997, Sergey M. Brin and Lawrence E. Page, two founders of Google did a great academic feat in Stanford University. However, this new academic innovation was difficult to bring the financial support for the company. In 1999, two venture capital firms invested total \$25 millions. After that, Google tried to license its search engine to Yahoo and only generated \$220,000 in revenue. In 2001, Eric Schmidt, the first CEO of Google started advertising model.

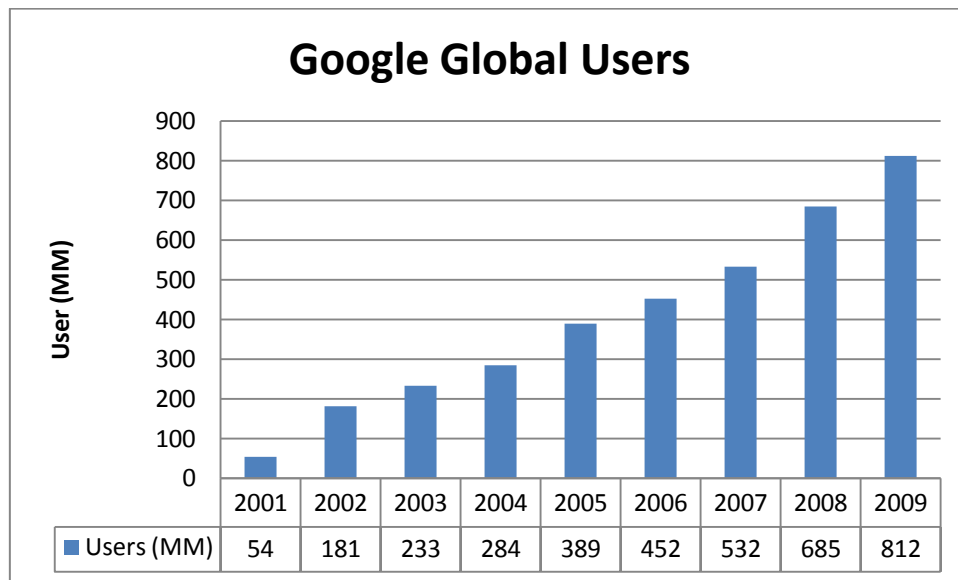
From the official data from Google, the following diagram (Figure 3-6) demonstrates the global users continuously increase since 2001, which means the “search activity” becomes the popular and important internet usage behavior for the users.

■ Page Rank

The order of search results on Google's search-results pages is based on a priority rank called a "PageRank". Google's success was in large part due to a patented algorithm called PageRank that helps rank web pages that match a given search string. This technology is a link analysis algorithm, named after Larry Page, used by the Google Internet search

engine that assigns a numerical weighting to each element of a hyperlinked set of documents. Page Rank has been a dominate factor for a long period of time. However, Google finally decided to remove it from its Webmaster tool section in October 2009 so as to provide more accurate and precious consequence for the quality score. Google announces they have implement more than 200 relative factors in order to reduce the manipulation from some special group or irrelevant manually operation or fraud behaviors.

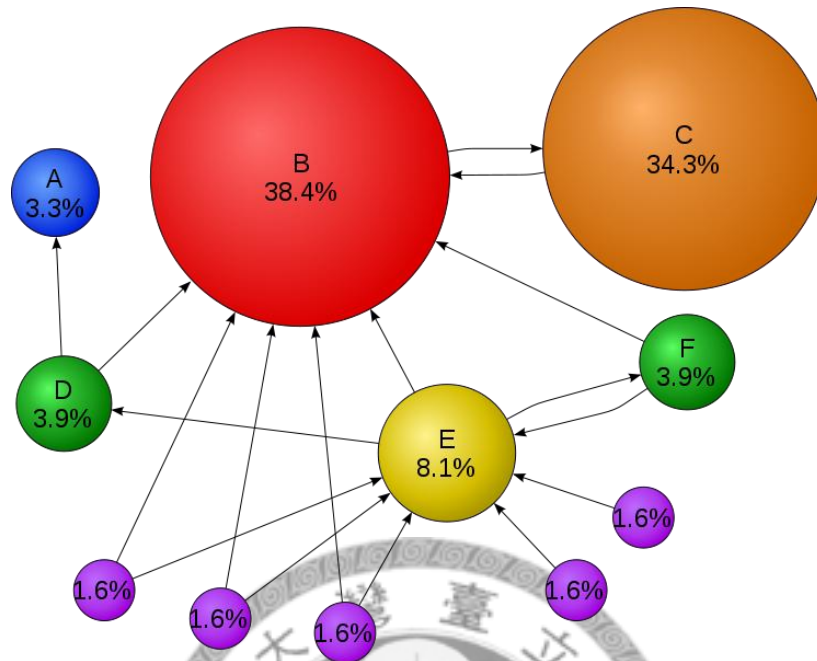
Figure 3- 6 The amount of Global user on Google



Source: Google official web site

In addition, Google also provides services for searching images, Usenet newsgroups, news websites, different file formats like PDF, mp3, words, excel files, videos, searching by locality, maps, and items for sale online. In 2006, Google has indexed over 25 billion web pages, 400 million queries per day, 1.3 billion images, and over one billion Usenet messages.

Figure 3- 7 The diagram of page rank¹³



■ **CTR (Clickthrough rate)**

Clickthrough rate or CTR is a way of measuring the success of an online advertising campaign. A CTR is obtained by dividing the "number of users who clicked on an ad" on a web page by the "number of times the ad was delivered" (impressions). For example, if a banner ad was delivered 100 times (impressions delivered) and one person clicked on it (clicks recorded), then the resulting CTR would be 1 percent.¹⁴

■ **Quality Score**

Quality Score is a measure of how relevant the ad, keyword, or webpage is. Quality Scores help ensure that only the most relevant ads appear to users on Google and the Google Network. A Quality Score is assigned to each of your ads and keywords. It's calculated using a variety of factors such as these:

¹³ Source from <http://en.wikipedia.org/wiki/File:PageRanks-Example.svg>, accessed on July 10, 2010.

¹⁴ Source from http://en.wikipedia.org/wiki/Clickthrough_rate, accessed on July 21, 2010.

- the historical clickthrough rate (CTR) of the particular keyword
- the historical CTR of all the ads and keywords in your account
- the quality of your landing page, the page of your website that your ad links to
- the relevance of the keyword to the ads in its ad group
- other relevance factors

3.3 Competitive Analysis on Search Engine Industry

On the history of search engine, there was an interested finding that Google previously provided search engine services for both Yahoo! and Microsoft. Actually Yahoo! and Microsoft both gave Google lots of resources not only help develop its core search technology but also bring lots of web traffic and advertising revenue for Google. However nowadays Yahoo!, Microsoft and Google compete violent on the battle of search engine and internet advertising. On Chapter 4 this study will discuss the competition among internet advertising.

Table 3-2 demonstrates the search engine ranking from December 2006 to September 2007.

■ Key Success Factor of Google

(1) First Mover Advantage

Although there were several search engines from 1990 (refer to Section 3.1), finally all the earlier search engines were acquired by Yahoo!, Microsoft or bankruptcy. Before 2005, Yahoo! search was powered by Google, which implied Yahoo! was strategic alliance with Google on the search engine. Microsoft didn't focus on search engine and decide to develop its own search engine until 2005. MSN.com's search service was

powered by Yahoo!'s search engine (actually it's Google search technology). Therefore Google enjoyed a stable environment and built up its competitive advantage from search technology.

Table 3- 2 Share of Online Searches by Engine (Dec 2006-Sep2007)

Share of Online Searches by Engine					
December 2006 – September 2007					
Total U.S. Home, Work and University Internet Users					
Source: comScore qSearch					
	Dec-06	Jan-07	Mar-07	Jun-07	Sep -07
<i>Total Internet Population</i>	100%	100%	100%	100.0%	100.0%
Google Sites	47.3	47.5	48.3	54.9%	57.0%
Yahoo! Sites	28.5	28.1	27.5	23.8%	23.7%
Microsoft Sites	10.5	10.6	10.9	12.2%	10.3%
Ask Network	5.4	5.2	5.2	4.5%	4.7%
Time Warner Network	4.9	5.0	5.0	4.6%	4.3%

Source: comScore Press Release; Summarized by this study

(2) Leading Technology on Search Engine

Follow by the first description, Google provides the good search experience for the users and attract more and more eyeballs. Soon Google launched Google AdWords and AdSense program on the internet advertising for the advertisers and started to get more and more revenue. Google continuously improved its search engine and the quality for the searchers and also expanded its market on internet advertising business.

(3) Focus on Search and Advertising Business

Unlike Yahoo! and Microsoft, Google merely developed its business on internet advertising. However, Google sensed this focusing revenue stream and started to expand its market to other fields like mobile phone and operating system. More details would be discussed on Chapter 5.

Table 3- 3 Comparison of Google, Yahoo! and Microsoft on search engine

	Google	Yahoo	Microsoft
Website Service type	<ul style="list-style-type: none"> • Search service 	<ul style="list-style-type: none"> • Portal (yahoo.com) • Search service 	<ul style="list-style-type: none"> • Portal (msn.com) • Search service
Competitive Advantage	<ul style="list-style-type: none"> • First-mover advantage • Leading Search Technology (Page Rank) • Better performance , highly relevant and reliable search results • Clean and pure web design (no business-driven) 	<ul style="list-style-type: none"> • Acquired core technology and stood on leading position on the early era • Portal web traffic • Multiple services on site 	<ul style="list-style-type: none"> • Brand Equity • Portal (MSN.com) • OS + Browser embedded install base
Main Strategy	<ul style="list-style-type: none"> • Has been Yahoo's search provider till 2004 • Continuous improve on search service • Google was default search before IE6.0 • Focus on search service 	<ul style="list-style-type: none"> • Develop advanced search among its sites(answers, shopping etc.) • Integrate search technologies from acquired companies 	<ul style="list-style-type: none"> • Decided to develop its own search engine from 2005 • Bundle its search technology inside its OS install base (including desktop, browser, MSN)
Rank	<ul style="list-style-type: none"> • No. 1 	<ul style="list-style-type: none"> • No. 2 	<ul style="list-style-type: none"> • No.3

Source: Summarized by This study

Chapter 4 Competitive Landscape on Internet Advertising Industry

4.1 Formats of Internet Advertising

Currently, the two major formats of internet advertising are paid search advertising and display (or banner) advertising.¹⁵ Paid search advertising¹⁶ is the form of advertisements appearing on the websites that are selected by automated system based on the content displayed to the consumer. It allows the advertisers directly to address the consumers through the search technology for products or services. In paid search, the most popular pricing method is CPC (Cost-Per-Click) which indicates the advertisers bid what they are willing to pay for a click on a paid search ad. The most well-known type is Google's AdWord program. Display advertising is a type of advertising that typically contains text, logos, photographs or other images, location maps, and similar items.¹⁷ And Yahoo! is the leader in this type of internet advertising. Display advertising appears on the web pages in many forms such as banners consisting of static or animated images, or interactive media that may include audio and video formats (Adobe Systems Flash).The pricing method is CPM (Cost-Per-Impression) instead of CPC. Moreover, there are several minor internet advertising types as the following lists.¹⁸

¹⁵ Rutz, O. J. & Bucklin, R. E., (2007). "A Model of Individual Keyword Performance in Paid Search Advertising", Unpublished Mimeo, UCLA.

¹⁶ Source from http://en.wikipedia.org/wiki/Paid_search, accessed on July 7,2010.

¹⁷ Source from http://en.wikipedia.org/wiki/Display_advertising, accessed on July 7,2010.

¹⁸ Juin-Der Lee, (2010) "An Innovative Business Model for Online Calendars: An Automatic Informatin Retrieval (AIR)-Based Approach", (unpublished manuscript).

Figure 4- 1 Display advertising format.



Source: <http://tw.yahoo.com>, accessed on May 10, 2010.

Figure 4- 2 Paid search advertising format.



Source: <http://www.google.com.tw>, accessed on May 10, 2010.

(1) Classified Ads

Internet classified ads are similar to traditional classified ads on newspaper. Advertisers' ads are sorted by categories. For example, TaiwanAd.com (<http://www.taiwanad.com/>)

Figure 4- 3 Classified advertising format.



Source: <http://rochesterny.ebayclassifieds.com/>, accessed on June 10, 2010.

(2) Pop-up Ad

Pop-up ads appear when certain web sites open a new web browser window to display advertisings.

Figure 4- 4 Pop-up advertising format.



(3) Email Ad

Advertisers maintain a list of emails and broadcast their ads to all the email addresses.

Figure 4- 5 Email advertising format.

Sender	Subject	Time
Paige Bravo	Распродажа японских цветущих бонсай - Бесплатная дс	2:35 pm
Courtney Chandler	[GSN Suspected Spam] Hubertp貸款負債指數太高嗎? 讓我	1:38 pm
2009年中国城市白领76%为亚健康	2009年中国城市白领76%为亚健康 · 与您有关吗? 赶快自测	1:04 pm
Расчет налоговой нагрузки	Обналичивание Для Чего? - 16 Апрель (495) 742-девьяносто	12:55 pm
Watches Ebel	2010 Swiss Rolex - Replica Rolex models of the latest Baselw	12:11 pm
PChome商店街	《免費參加》PChome商店街網路開店說明會★4/14台北、4	12:04 pm
дивиденды	Законные схемы оптимизации налогов - Шестнадцатое а	11:17 am
千禧大酒店	杜拜千禧大酒店每一刻都雋永難忘 · 詳情及訂房請洽千禧酒店	10:27 am
PChome商店街	<4/13晨間速報>2010年世界冠軍 米羅蕊香麵包\ \$400★家庭:	10:18 am
Рекомендации специалист	Зачем нужны "однодневки"? - 16.04 (495) 445-40-95; 742	9:35 am
名模林萃茹	我正在找夠強, 能保護我的男人 - 霸王朝限量封測帳號申請:	8:03 am
ghjtgykiuy	(no subject) - 精益生产 (丰田生产系统,TPS) 培训 ...	7:42 am
Кодекс Таможенный	Споры с таможей в рамках нового кодекса. - Дата уче	7:34 am
rdmnsiciabe	郵件群發 - 广州红粉帝国休闲中心是一家专门提供上门服务为主	7:14 am
张先生	jdlee@stat.sinica.edu.tw收 - 高級秘書、助理和行政人員技能:	7:13 am
Светлана	Учебный курс:Разработка бизнес планов для инвести	6:32 am
Путь к созданию СРО	Сделать свое СРО более привлекательным - 27 Апрель	5:14 am

Source: The author's Gmail account, accessed on June 10, 2010.

(4) Interactive Advertising¹⁹

Interactive advertising uses online or offline interactive media to communicate with consumers and promotes products, brands, services, and public service announcements, corporate or political groups.

Figure 4-7 demonstrates the full year revenues on 2008 with different advertising formats. Search format is the largest portion on the total revenue with 45%, and the second one is the banner ads with 21% of the total revenues.

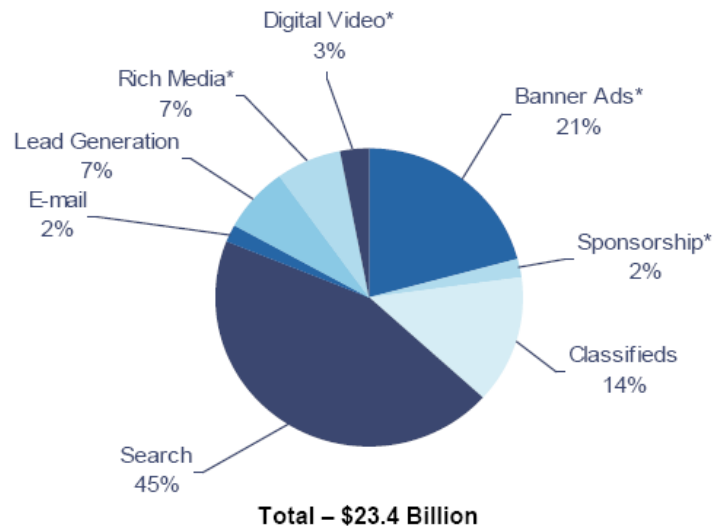
¹⁹ Source from http://en.wikipedia.org/wiki/Interactive_advertising, accessed on July 14,2010.

Figure 4- 6 Interactive Advertising format.



Source: <http://www.hypeinternetmarketing.com/IMAGES/Interactive.jpg>, accessed on June 10, 2010.

Figure 4- 7 Internet Ad Revenues by Advertising Format on 2008 Full year

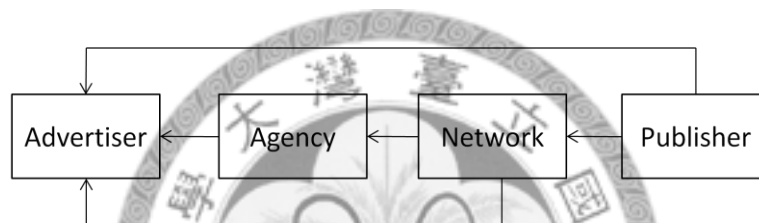


Source: Interactive Advertising Bureau Internet Advertising Revenue Report 2008

4.2 Value Chain in Internet Advertising Industry

There is no direct research related to define the value chain in internet advertising industry. However, this study tries to find the better way to describe the relationships among four main participants: advertiser, agency, network, and publisher (see Figure 4-8).²⁰ Publishers (i.e. bloggers, portals) own webpage spaces that can be used to display advertisements. They rent the spaces to ad network (i.e. Google) or to advertisers directly. Ad Network then put in the spaces the advertisements received from ad agencies or advertisers.

Figure 4- 8 Value Chain of Internet Advertising



Source: <http://www.liesdamnedlies.com/2008/06/online-advertis.html>, accessed on June 10, 2010.

(1) Advertiser

The large advertisers like AT&T, Coca-Cola etc. will have significant internal marketing departments, and will also likely retain the services of an agency to help them manage their marketing. Their marketing objectives will likely be a mix of brand marketing (raising general awareness) and direct response marketing (getting someone to actually buy something online now).

(2) Agency

²⁰ Jiun-Jie Huang (2008), "Online Advertising Industry Analysis and Co-optition Strategy of the Leading Firm", Master Thesis of National Taiwan University.

Advertisement agencies usually do one of two things or both: they create ads (anything from designing an animated banner to filming a 30-second TV ad) and the other one is that they buy the media (i.e. the ad inventory) for the advertisers to display the ads.

(3) Ad Network

An ad network make deals with lots of publishers for their inventories and then collect all these inventories and sells it on to advertisers and agencies. An ad network's value proposition to publishers is that it can sell inventory that the publisher can't sell itself - either because the publisher is small (and so doesn't have its own sales force), or, in the case of larger publishers, the inventory is of too low-value to merit direct selling. The network's value to an advertiser is that the advertiser can decide to target on lots of sites across the internet without having to establish direct relationships with those publishers individually. The most famous network is Google AdSense.

(4) Publisher

Larger publishers have their own sales teams who maintain direct relationships with advertisers and their agencies. But this model only works for big publishers selling to big advertisers. Small publishers can't afford to maintain their own sales force, and even if they did, they'd never get through the doors of AT&T or Mcdonalds, because they don't have enough inventories to be of interest on their own account. So these guys sell their ad inventory through Ad Networks.

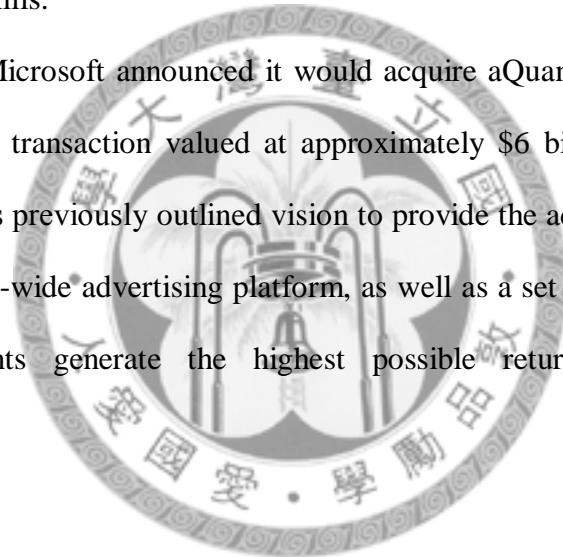
■ Merger and Acquisition on 2007

(1) April 13, 2007 Google Inc. announced the agreement to acquire DoubleClick Inc., a global leader in digital marketing technology and services, for \$3.1 billion in cash from

San Francisco-based private equity firm Hellman & Friedman along with JMI Equity and management.²¹ The acquisition will combine DoubleClick's expertise in ad management technology for media buyers and sellers with Google's leading advertising platform and publisher monetization services.

(2) On May 17, 2007 WPP had agreed to acquire 24/7 Real Media, a leading global digital marketing company, for \$11.75 per share valuing 24/7 Real Media at \$649 million. Acquisition will strengthen WPP's position in the rapidly-growing digital marketing industry enhancing the Group's position in search marketing, digital media and adding strong technology skills.²²

(3) On May 18, 2007 Microsoft announced it would acquire aQuantive, Inc., for \$66.50 per share in an all-cash transaction valued at approximately \$6 billion. This deal expands upon the Company's previously outlined vision to provide the advertising industry with a world class, Internet-wide advertising platform, as well as a set of tools and services that help its constituents generate the highest possible return on their advertising investments.²³



²¹ Source from <http://www.google.com/intl/en/press/pressrel/doubleclick.html>, accessed on July 22, 2010.

²² Source from <http://www.wpp.com/wpp/press/press/default.htm?guid={10ae46f9-df3f-4426-b00e-25a62883f678}>, accessed on July 22, 2010.

²³ Source from <http://www.microsoft.com/Presspass/press/2007/may07/05-18Advertising.msp>, accessed on July 22, 2010.

Table 4- 1 Segments of Internet Advertising and the major providers (2007)

Paid search ads	Display ads	
	Contexture-based ads	Graphic-based ads
Google	Google AdSense	DoubleClick (Google, 2007)
Yahoo		aQuantive (Microsoft, 2007)
MSN		24/7 Real Media (WPP, 2007)
AOL	Yahoo Publisher Network	ValueClick
Ask		Right Media

Source: Summarized by this study

4.3 Key Players and their strategies

4.3.1 Google

Google is no doubt a platform providing the matching mechanism design for users, advertisers, publishers and community innovators. Section 4.3.2.1 will introduce Google's Ecosystem. Google AdWords successfully applies the search technology to match users and advertisers, and Google AdSense provides the incentive for the publishers to join Google's platform and finally induces the positive feedback loop among the players on the platform. Section 4.3.2.2 will unbundle the structure for Google AdWords and AdSense. The bidding mechanism and the quality score for measuring the relevant relations between search keywords and the advertisements is not only a key technical design but also a strategic implement of the Google's platform. Section 4.3.2.3 will introduce the design idea of bidding mechanism.

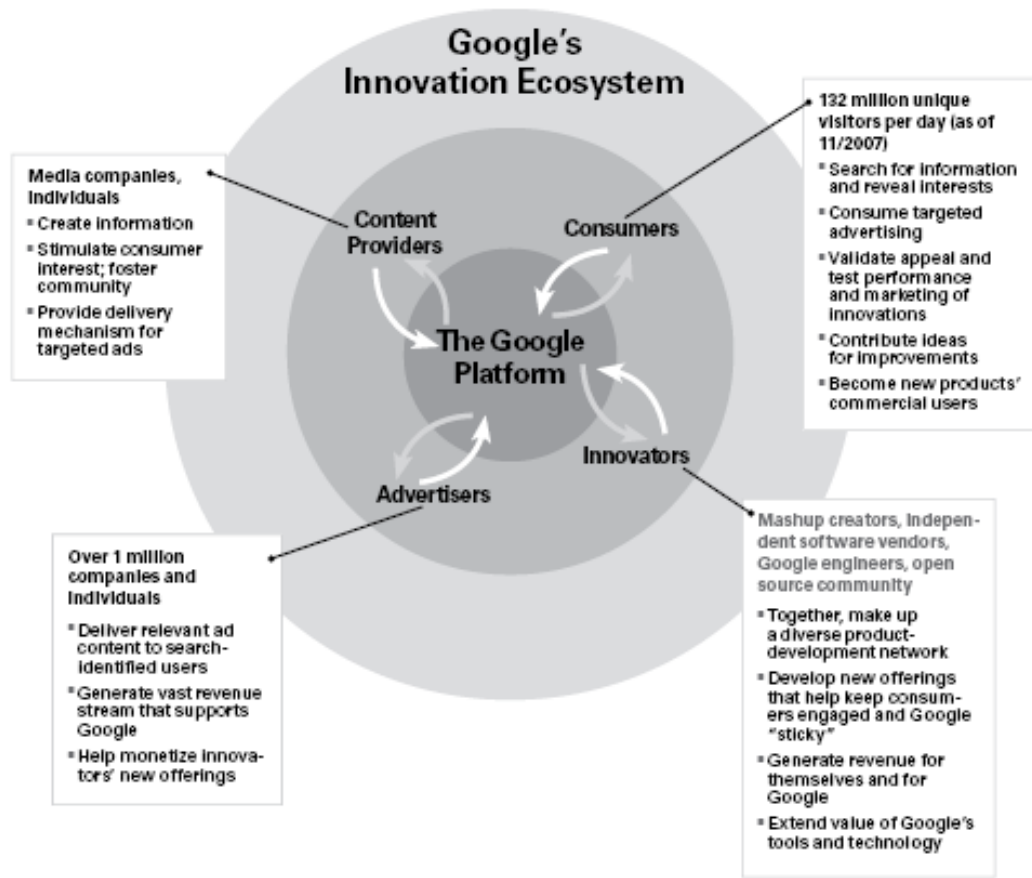
4.3.1.1 Google's Ecosystem

The Figure 4-9 demonstrates Google's Ecosystem and the four different roles on its platform. There are consumers, innovators, advertisers and content providers. Each role on the platform generates interactive relation with Google platform. Simultaneously different sides also conduct positive feedback loop with each other.

(1) Create interface for third parties developers and communities on mashup innovation

Google creates its proprietary flexible infrastructure and acts as an innovation hub where third parties can share access and create new applications that incorporate elements of Google functionality. And this infrastructure also provides a more efficient and reliable alternative to the internet, ensuring a better user experience and higher quality of service. These outsiders can easily test and launch their new applications and ideas on Google's platform, which indeed an enormous target audience market. This benefits both parties: Google gets its product widely adopted, and the partners can develop and enrich value-added services or products based on Google's module.

Figure 4- 9 Google's Ecosystem²⁴



(2) An accelerated product-development life-cycle

Unlike any other company, Google often rapidly launched its product in beta version to its user community and got the response from the enthusiasts. Google simultaneously tests and markets the new products to the user community and creates a unique relationship with consumers. And finally the consumer transit seamlessly from testing to using products and become an essential part of develop team.

(3) Information creation from media companies and individual

²⁴ Source from: Bala Iyer and Thomas. H. Davenport, (2008). "Reverse Engineering Google's Innovative Machine", Harvard Business Review, (March).

Since Google's mission is "to organize the world's information and make it universally accessible and useful", media companies and individuals are stimulated to create information and provided proper delivery mechanism for targeted ads from more and more useful Google's functionality and profit-sharing program such as AdSense.

(4) The largest targeted audience market for advertisers

Google has successfully built the largest targeted audience market by its platform strategy. Therefore advertisers are willing to deliver relevant ads or search contents for the consumer and finally generate vast revenue stream to support Google.

4.3.1.2 Unbundle Google AdWords and AdSense structure²⁵

Figure 4-10 demonstrates the possible simulation on Google AdWords. The four main processes or action flows inside AdWords program are listed below.

- (1) Advertiser customer use CPC keyword bids for the position
- (2) AdWords provides bidding mechanism on Ad Pool
- (3) Users enter search terms to find the search result through search algorithm
- (4) Users click the ads and finally advertiser pay for Google

Figure 4-11 demonstrates the possible simulation on Google AdSense. The four main processes or action flows inside AdWords program are listed below.

²⁵ Original sources from WebMaster World and <http://www.vaughns-1-pagers.com>, the diagram summarized by this study

- (1) Publishers and partners insert java code on the web page and create content to supply keywords
- (2) AdSense algorithm help to filter the relevant web page and display keyword
- (3) Users click the ads from either content network or search network
- (4) Publishers and partners share the profit from Google

Figure 4- 10 The diagram of main processes of Google AdWords

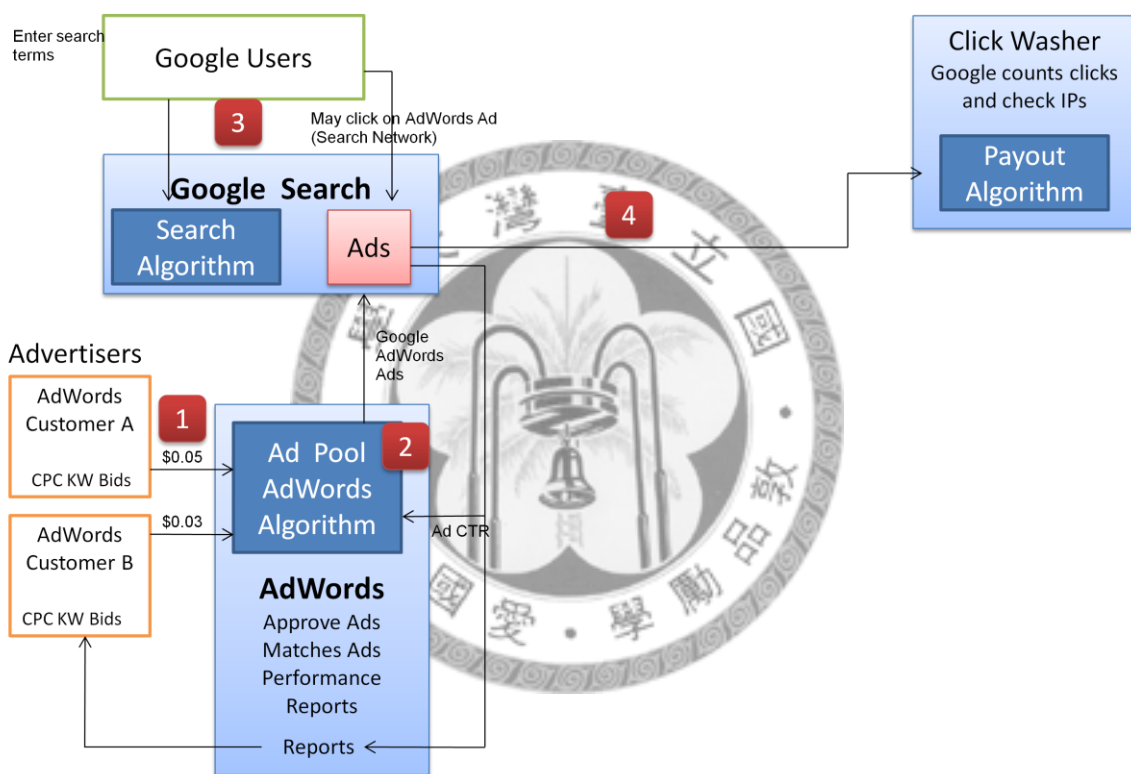
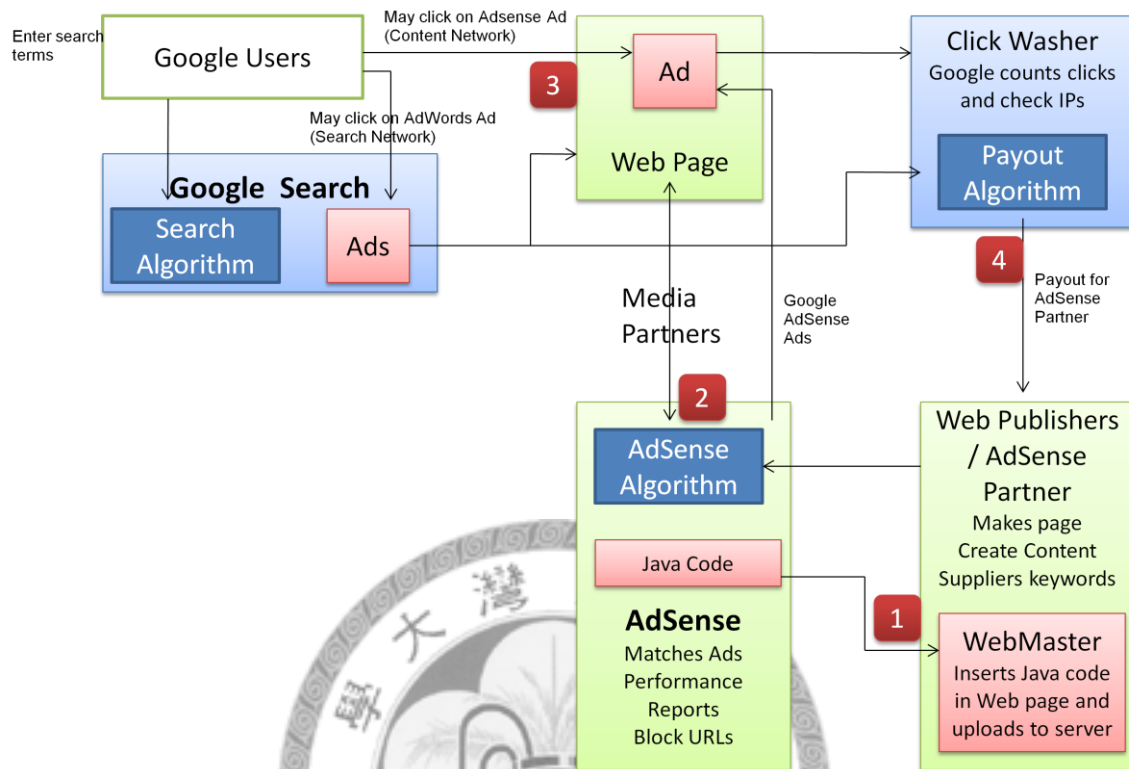


Figure 4-12 demonstrates the whole simulation processes for Google platform with Google AdWords, AdSense program, Google users, advertisers and publishers and network partners.

Figure 4- 11 The diagram of main processes of Google AdSense



The contributions of this diagram

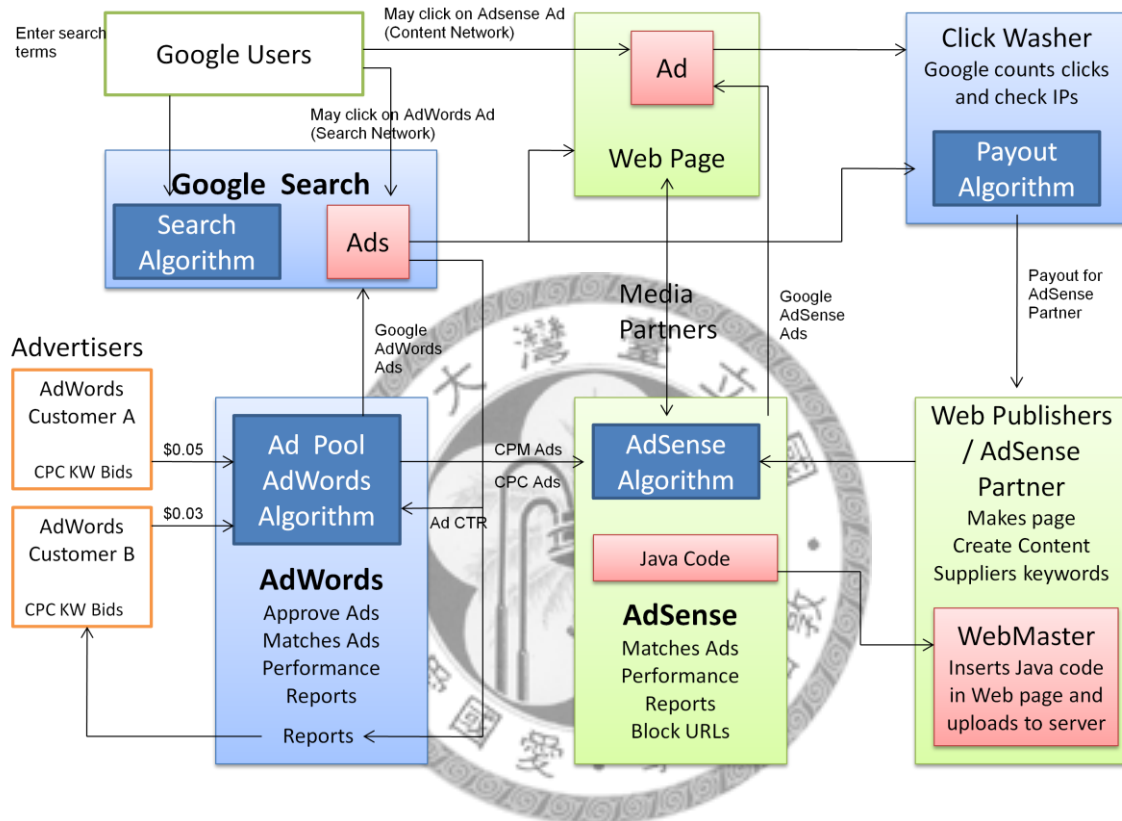
- (1) This diagram unbundles the whole structure of Google platform into four major parts as users, advertisers, Google AdWords and AdSense.
- (2) This diagram helps to deeply understand the relationship and interaction between the two Google advertising programs, Google users and advertisers, and advertisers and AdWords.
- (3) This diagram also demonstrates the timing sequence, information data flow and cash flow of each side player.
- (4) This diagram provides the useful material for the future research.

The limitation of this diagram

- (1) Each Google algorithm is highly proprietary, hence this diagram cannot destruct the algorithm box or pool more deeper.

- (2) This diagram is summarized from different original sources and websites, however it's not proven by Google's official organization. Hence this is limited only for the reference.
- (3) There are still many secrets and invisible information behind each block.

Figure 4- 12 Unbundle the interaction between Google AdWords and AdSense



4.3.1.3 Google's Bidding Mechanism

A Vickrey auction²⁶ is a type of sealed-bid auction where bidders submit written bids without knowing the bid of the other people in the auction. The highest bidder wins, but the price paid is the second-highest bid. The auction was created by William Vickrey. This type of auction gives bidders an incentive to bid their true value. Google proposes a slight

²⁶ Source from Wikipedia, http://en.wikipedia.org/wiki/Vickrey_auction, accessed on June 18, 2010.

different pricing method which is similar to Vickrey auction for the advertiser. An advertiser wins the bidding with highest bid price, but only needs to pay the amount that necessarily to maintain its ranking above the next-highest ad. The cost is equal to the rank of the next ad rank divided by its own Quality Score, plus one cent.

Let's take one example. If the company called "Tony's bicycle", when the consumer enter the keyword "bicycle", then the ad will appear in the search result region. If the company "Tony's bicycle" bid the 1.08 dollar for maximum CPC, and assume the Quality score is 2.0, then "Tony's bicycle" gets the final Ad rank 2.16, by 1.08×2.0 . Now the competitor "Joshua's bicycle" has higher bid price 1.53 dollar than "Tony's bicycle", however her Quality score is lower than "Tony's" as 1.4, And also this ad is not relative with its product. Then "Joshua's bicycle" finally gets Ad rank with 2.14. The second competitor "Jill's bicycle" has only 0.48 for maximum CPC but he has very high Quality score as 4.7 since his ads is highly relevant on Google's algorithm. Then finally "Jill's bicycle" gets Ad rank as 2.26 and wins the first position in the search result region. The third competitor, "Crazy's bicycle", who is the new player on AdWords bidding activity bids the abnormal price with 7.16 dollars. However, his Ads is not relevant to its product and finally gets the poor Quality Score as only 0.3. According to the calculation, the final Ad rank of "Crazy's bicycle" is 2.15. Compare with "Tony's bicycle" and "Crazy's bicycle", the position is No.2 and No.3 and the difference between two Ad rank is very small. However, "Crazy's bicycle" needs to pay higher price as 7.16 dollar than "Tony's bicycle" as 1.08.

From this example Google tried to design this ranking system rewards well-targeted, relevant ads and let every advertiser could directly focus on its ad to improve higher quality score and also manage its ad budget more precisely.

Table 4- 2 How it works on Ad rank

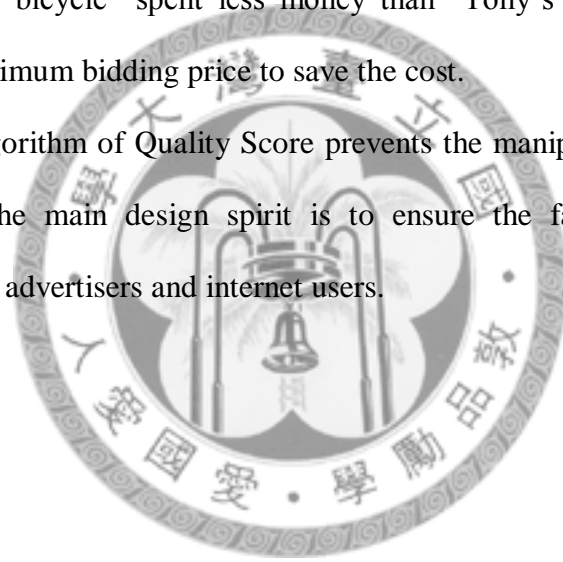
Advertiser	Highest CPC	Quality score	Ad rank	Relevant	Position	Min Bid	Actual CPC
Jill's bicycle	0.48	4.7	2.26	Yes	1	0.10	0.47
Tony's bicycle	1.08	2.0	2.16	Yes	2	0.10	1.08
Crazy's bicycle	7.16	0.3	2.15	No	3	0.10	7.14
Joshua's bicycle	1.53	1.4	2.14	Yes	4	0.10	0.10

Source: Summarized by this study

Furthermore, Google also proposes the slight different pricing method for the advertiser. An advertiser only needs to pay the amount that necessarily to maintain its ranking above the next-highest ad. The cost is equal to the rank of the next ad rank divided by its own Quality Score, plus one cent. For example, the actual CPC for "Jill's bicycle" is $2.16/4.7 + 0.01 = 0.47$. And based on the same calculation for "Tony's bicycle" to get $2.15/2.0 + 0.01 = 1.09$. However "Tony's bicycle" bids the maximum price for 1.08, which is less than 1.09. Therefore "Tony's bicycle" only needs to pay 1.08 and doesn't enjoy the benefit under this additional pricing method. For "Joshua's bicycle", because this case assume there is no five advertiser in the bidding process, then "Joshua's bicycle" only needs to pay the minimum bid for 0.10 cents. In real cases, the last one ranking ad has very few opportunities to click from the users because it could never been seen from the limited pages.

To summarize for Google's bidding mechanism, Google has successfully provides three major index for the advertisers to follow.

- (1) Always focus on the quality of the contents they provide, and the highly relevant information on the landing page. Otherwise the advertisers might even spend higher cost in order to maintain the same level of ad ranking. For example, “Jill’s bicycle” spent less money than “Tony’s bicycle”
- (2) Follow by above description, the pricing method of “An advertiser only needs to pay the amount that necessarily to maintain its ranking above the next-highest ad” encourage the advertisers to continuously improve their Quality Score. By doing this, they could even save the cost and enjoy better return of investment under Google’s bidding mechanism. For example, “Jill’s bicycle” spent less money than “Tony’s bicycle”, and even little cheaper than its maximum bidding price to save the cost.
- (3) The complicated algorithm of Quality Score prevents the manipulation from some fraud advertisers”. And the main design spirit is to ensure the fairness and the relevant information for both advertisers and internet users.



4.3.2 Competitors

4.3.2.1 Yahoo!

Yahoo! Search Marketing provides services such as Sponsored Search, Local Advertising, and Product/Travel/Directory Submit that let different businesses advertise their products and services on the Yahoo! network. Yahoo! Publisher Network is an advertising tool for online publishers to place advertisements relevant to their content to monetize their websites.

Revenue streams for Yahoo! come from search advertising, display and contextual advertising. On the fiscal year 2006, there were about 88% of total revenues came from marketing services. And the largest portion of it comes from search advertising, where

advertisers bid for search terms to display their ads on the search results, on average Yahoo! makes 2.5 cents to 3 cents from each search. With the new search advertising system "Panama" Yahoo! aims to increase revenue generated from search.

Panama is an online advertising platform created by Yahoo! on February 5, 2007 to close the wide gap with Google in the race for search advertising business. The platform provides advertisers with a digital dashboard where they can manage their marketing campaigns, aim ads geographically and test their effectiveness. It includes interactive tools that suggest to advertisers what to bid based on their budget and the number of users they want to attract.²⁷

The Yahoo! Publisher Network (abbreviated YPN), similar to Google AdSense, is a beta advertising network launched on August 2, 2005. As the service was currently in [Beta](#), it was currently only accepting US-Based publishers. YPN provides the same pricing method like cost-per-click (CPC) on contextual advertising and various tools and services to support the publishers in managing their websites. However this service didn't bring much revenue for Yahoo!. Therefore on April 30, 2010 the service would stop serving ads. Users who wished to continue displaying advertisements were referred to the Chitika²⁸ ad network.

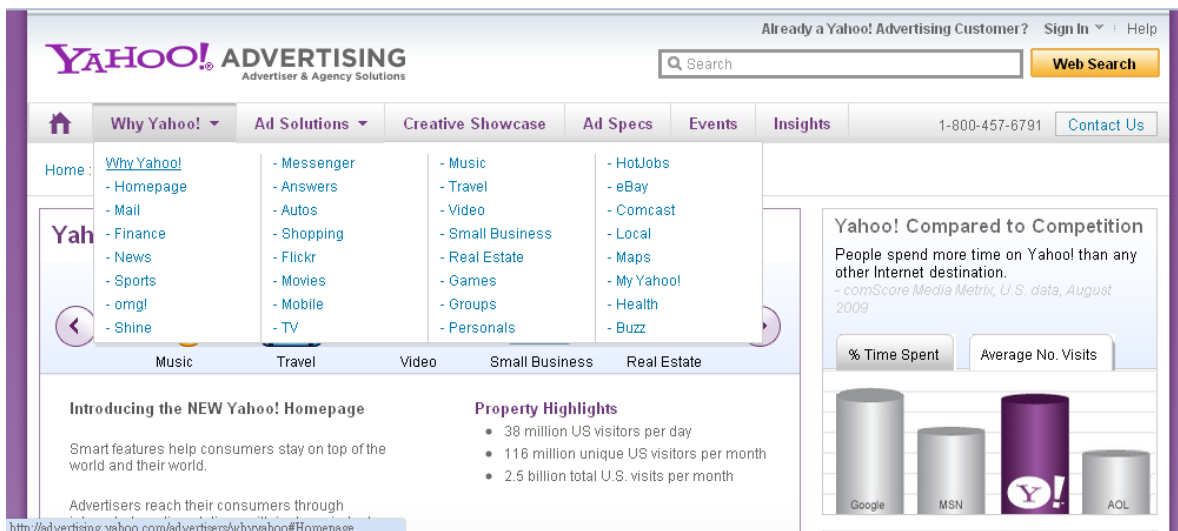
Currently from the alexa web traffic data, Yahoo! is still No.1 worldwide portal except come after Google.com and Facebook. Yahoo! as the portal provides diversified services from news, mails, finance, entertainment, travel to other fields (see Figure 4-13). Based on the comScore research report in May 2010, Yahoo! has 38 million US visitors per day, 116 million unique US visitors per month, 2.5 billion total U.S. visits per month among

²⁷ Source from [http://en.wikipedia.org/wiki/Panama_\(ad_system\)](http://en.wikipedia.org/wiki/Panama_(ad_system)), accessed on July 22, 2010.

²⁸ Source from <http://en.wikipedia.org/wiki/Chitika>, accessed on July 22, 2010.

its websites. Therefore Yahoo! is still hold on No.2 market share position on internet advertising business follow with Google.

Figure 4- 13 The snapshot on Yahoo! advertising with all its property websites



■ The next step to Mobile Advertising

In order to build the competitive advantage on the mobile phone market, Yahoo! early introduced its Internet search system, called oneSearch, developed for mobile phones on March 20, 2007. And one week later Yahoo! also announced the launch of Yahoo! Mobile Publisher Services, a suite of services designed to enable publishers to increase the discovery, distribution and monetization of their content on mobile phones. The new services publishers would have access to the Yahoo! Mobile Ad Network, Mobile Content Engine, Mobile Media Directory and Mobile Site Submit. Yahoo! Mobile Publisher Services are part the company's initiative to deliver tools to advertisers, publishers and network operators. The goal of this initiative is to enable the growth of the mobile Internet to benefit consumers, publishers and advertisers.

4.3.2.2 Microsoft

■ Microsoft adCenter

Until the beginning of 2006, all of the ads displayed on the MSN search engine were powered by Overture, which later acquired by Yahoo!. MSN collected a portion of the ad revenue in return for displaying Yahoo!'s ads on its search engine. Microsoft began developing its own system, Microsoft adCenter, for selling PPC advertisements directly to the advertisers since the search marketing grew. In the beginning, MSN search both showed Yahoo! and Microsoft adCenter advertising in its search results. In June 2006, the contract between Yahoo! and Microsoft had expired and then Microsoft was displaying only ads from adCenter.²⁹

After Google launched Google Analytics in 2005, one year later in November 2006 Microsoft Acquired DeepMetrix, a company situated in Canada, that created web-analytics software. Microsoft has built new product AdCenter Analytics based on the acquired technology. In May 2007, Microsoft agreed to purchase the digital marketing solutions parent company, aQuantive, for roughly \$6 billion.

Microsoft adCenter uses similar pricing method as Google AdWords, the maximum amount an advertiser is willing to pay-per-click (PPC) on their ad and the advertisement's click-through rate (CTR) to determine how frequently an advertisement is shown.

■ Multi-Screen Advertising

Since Microsoft has widely arrangement on PC operating system, mobile phone, digital home environment and game console XBOX, they start to promote multi-screen advertising for the advertisers. In fact, the more screens that carry your message, the more

²⁹ Source from http://en.wikipedia.org/wiki/Microsoft_adCenter, accessed on July 22, 2010.

likely consumers are to take action. Microsoft with their partners could provide the innovative solutions by creating meaningful engagement and unique brand experiences across the digital environments consumers turn to first. It's a new way to extend reach and increase the impact of campaigns.³⁰

Figure 4- 14 The concept of Multi-screen advertising from Microsoft



Source: <http://advertising.microsoft.com/multi-screen>, accessed on July 22, 2010.

■ Facebook and Microsoft Expand Strategic Alliance³¹

On Aug. 22, 2006, the companies announced a U.S.-only strategic alliance that named Microsoft the exclusive provider of standard banner advertising on Facebook using Microsoft's digital advertising solutions on Microsoft adCenter platform. One year after on Oct. 24, 2007 Facebook and Microsoft Corp. announced that the two companies would expand their advertising partnership and that Microsoft would take a \$240 million equity stake in Facebook's next round of financing at a \$15 billion valuation. Under the expanded strategic alliance, Microsoft would be the exclusive third-party advertising platform partner

³⁰ Source from <http://advertising.microsoft.com/multi-screen>, accessed on July 22, 2010.

³¹ Source from <http://www.facebook.com/press/releases.php?p=8084>, accessed on July 22, 2010.

for Facebook, and would begin to sell advertising for Facebook internationally in addition to the United States.

This strategic alliance for Microsoft was a great win for its advertising business with leverage the huge web traffic and users on Facebook to create the revenue. “We have partnered well over the past year and look forward to doing some exciting things together in the future. The opportunity to further collaborate as advertising partners is a big reason we have decided to take an equity stake, and is a strong statement of our confidence in the long-term economics of this partnership”, said Kevin Johnson, president of the Platforms & Services Division at Microsoft.

4.3.3 DoubleClick

DoubleClick is a provider of digital marketing technology and services with advertising, rich media, video, search and affiliate marketing to help marketers, publishers and agencies.³² DoubleClick was founded in 1996, and was purchased by private equity firms Hellman & Friedman and JMI Equity in July 2005. Unlike many other dot-com companies, it survived the bursting of the dot-com bubble. DoubleClick is acquired by Google for US\$3.1 billion in cash in March 2008 which the price of acquisition was almost twice as the price for acquiring Youtube. Google finally achieved four goals after this acquisition. (1) Expand their advertising market from paid search advertising to display advertising. Paid search advertising is the core of Google’s advertising business model. Through acquiring the global leader of display advertising, DoubleClick, Google could enlarge the revenue stream from different advertising markets. (2) Enlarge the distance between two competitors, Yahoo! and Microsoft. Yahoo! is the leader on display advertising market, and also the competitor on

³² Source from <http://www.doubleclick.com>, accessed on July 8,2010.

paid search advertising. Google now could keep its leading position on internet advertising market both with paid search advertising and display advertising. (3) Build monopoly power on internet advertising market. Through acquisition with DoubleClick, the total market share would become even greater than any other competitors, and this tactics builds more difficult entry barrier for further competitors to across.

■ The synergy

David Rosenblatt, Chief Executive Officer of DoubleClick indicated the potential of display advertising is larger than paid search advertising. "Combining DoubleClick's cutting edge digital solutions for both media buyers and sellers with Google's scale and innovative resources will bring tremendous value to both our employees and clients.", said David Rosenblatt.³³

"DoubleClick's technology is widely adopted by leading advertisers, publishers and agencies, and the combination of the two companies will accelerate the adoption of Google's innovative advances in display advertising," said Eric Schmidt, Chief Executive Officer of Google.

- For users, the result of acquisition could bring an improved experience on the web, and also improve the relevancy and the quality of the ads they see.
- For online publishers, the enhanced technology creates more opportunities to monetize their inventory more efficiently and attracts new advertisers.
- For agencies and advertisers, Google and DoubleClick will provide a simple and efficient way to manage both search and display ads in one place. They will be able to optimize their ad spending across different online media using a common set of metrics.

³³ Source from <http://www.google.com/intl/en/press/pressrel/doubleclick.html>, accessed on July 8, 2010.

■ The negative parts³⁴

According to sss, internet advertisers view paid search ads and display ads as substitutes. The acquisition would likely induce Google to increase the price of DoubleClick's advertiser tools or make a significant portion of DoubleClick's marginal customers to transfer their budget to Google offering, either in paid search ads or contextual ads segment. More explanations are listed as below:

(1) Higher prices for advertiser tools

If Google were to raise the price of DoubleClick's advertiser tools, Google would retain both those clients that maintain their expenditures at DoubleClick and the departing customers that would transfer their expenditures to Google-provided contextual or search ads. This survey on the report indicates the combination of Google and DoubleClick would have higher incentive to increase the price of DoubleClick's advertising tools. And this action might harm the advertisers.

(2) Other potential harms for advertisers

The acquisition would provide Google the right to access the consumer behavior data. Data is a key input in the internet advertising industry, which provides the information on consumers that can be used to improve target consumers that might be interested in a given product. The end result is that Google would extend their lead in search ads and also their new position in display ads. Finally Google becomes the monopoly company in internet advertising market, and increase higher entry barrier for new entrants. To the end, the advertisers would lose the bargaining power with Google and the price of internet advertising could increase further.

³⁴ Robert W. H. & Hal J. S.,(2007). "An antitrust analysis of Google's proposed acquisition of DoubleClick",

4.4 Competitive Analysis on Internet Advertising Industry

comScore reported the top 15 ad networks based on their reach among U.S. Internet users in December 2009. The ranking showed that AOL Advertising remains the top ad network, reaching 187 million U.S. Internet users, or 91 percent of the total audience, followed by Yahoo! Network (180.9 million) and Google Ad Network (178.1 million). The fastest growing ad network by audience reach among the top 15 was Microsoft Media Network U.S., which grew 31 percent versus year ago, this might because of Microsoft launched BING new search engine for its network.

Table 4- 3 Top 15 Ad network on December 2009

Top 15 Ad Networks December 2009 vs. December 2008 Total U.S. – Home/Work/University Locations Source: comScore Media Metrix			
	Total Unique Visitors (000)		
	Dec-2008	Dec-2009	% Change
<i>Total Internet : Total Audience</i>	190,650	205,709	8
AOL Advertising	173,804	187,023	8
Yahoo! Network	165,879	180,909	9
Google Ad Network	157,131	178,134	13
ValueClick Networks	159,420	170,774	7
Microsoft Media Network US	126,158	165,470	31
Specific Media	153,079	165,230	8
FOX Audience Network	N/A	156,981	N/A
24/7 Real Media	142,448	155,856	9
Collective Network	126,294	153,905	22
interCLICK	137,076	148,989	9
Tribal Fusion	139,778	147,169	5
AudienceScience (formerly Revenue Science)	126,261	146,428	16
Traffic Marketplace	147,024	144,115	-2
Adconion Media Group	142,133	141,235	-1
Turn, Inc	123,150	138,297	12

Source: comScore Press Release on 2009

Starting from 2006, Yahoo! and Microsoft both launched a serial of services related to search advertising business. They follow similar pricing model as CPC and CPM, with the same business strategy as to launch similar network as AdSense (Yahoo! launched Yahoo!

Publisher Network and Yahoo! advertising, Microsoft launched Microsoft adCenter and Microsoft advertising).

Google originally was a search engine and only provided search service on the early era. It's quite different than Yahoo! and Microsoft. Yahoo! had the multiple portal services and had collected huge users information for targeting audiences, and Microsoft had the largest install base on computer operating system and embedded browser: Internet Explorer with the bundle search engine: MSN search. Each of two competitors has their own competitive advantages and different strategies to achieve more market share on internet advertising.

However Google primary focused on developing innovative program and tools to support its advertisers, publishers and users. Furthermore, Google continuously launched more services like Gmail, Maps, GTalk, Picasa so as to keep its customers to lock-in the platform.

■ Key Success Factors on Google's Advertising Business

- (1) Continuous innovation and improve on Google AdWords, AdSense and Analytics bring the Google success.
- (2) Proper mechanism design provides the effective and efficient incentives for Google's multi-sided players (internet users, innovators, publishers and advertisers) and also provides the balance between the quality of search results and the keyword matching for advertisers.
- (3) Google successfully implements the platform strategy to attract the eyeballs and web traffic through its search service, and acts as a platform to perfectly match consumers, advertisers and publishers. Google AdSense program demonstrates the long tail effect, network effect and positive feedback loop on Google's platform.

Table 4- 4 Comparison among Google, Yahoo! and Microsoft on internet advertising business

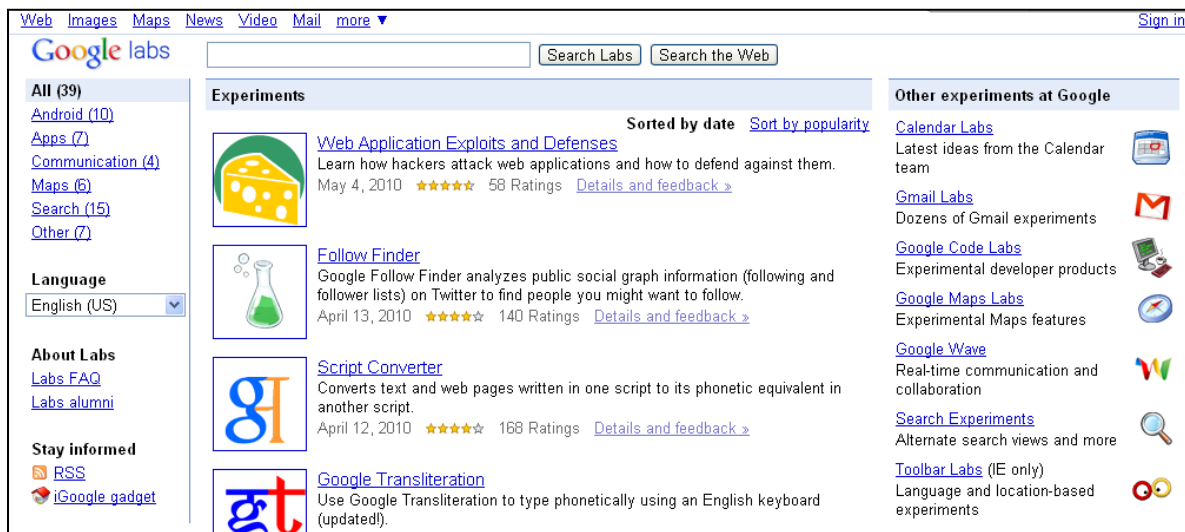
	Google	Yahoo	Microsoft
Business Model & Revenue Stream	<ul style="list-style-type: none"> • Paid Search ads by CPC (AdWords) • Text display ads by CPC (AdSense) 	<ul style="list-style-type: none"> • Display ads by CPM • Paid Search ads by CPC • Market Campaign 	<ul style="list-style-type: none"> • Display ads by CPM • Paid Search ads by CPC • Market Campaign
Advertising Network	<ul style="list-style-type: none"> • Google AdWords • Google AdSense 	<ul style="list-style-type: none"> • Panama • Yahoo Publisher Network 	<ul style="list-style-type: none"> • Microsoft Advertising
Competitive Advantage	<ul style="list-style-type: none"> • Leading position both on market share and technology • Proper mechanism design and highly relevant match • Network effect on Google's platform 	<ul style="list-style-type: none"> • No.1 web traffic site • No. 2 Ad Network • No. 2 search engine 	<ul style="list-style-type: none"> • Largest install base on desktop • Multiple platform provider (Mobile Phone, PC, Game Console)
Main Strategy	<ul style="list-style-type: none"> • Continuous improve on advertising service (AdSense, Analytics) • Acquire DoubleClick 	<ul style="list-style-type: none"> • Enhance and create portal services • Early launch Mobile service 	<ul style="list-style-type: none"> • Expand and integrate its network (MSN + Portal + XBOX) • Acquire aQuantive

Source: Summarized by this study

The following two reasons are the minor success factors. “Google labs” provides the platform for all Google’s fans to join or play with their new ideas. Here are the advertising sentences on its website. “Play around with prototypes of some of Google's wild and crazy ideas and offer feedback directly to the engineers who developed them.”³⁵ Google is always developing its product through the experimenting with new features with all talented people and developers around the world. And they ask the fans to take one for a spin and them feedback what you think. This unique develop philosophy is quite different than Apple or Microsoft.

³⁵ Source from <http://www.googlelabs.com/>, accessed by June 20, 2010.

Figure 4- 15 The snapshot of Google Labs³⁶



Business rules, behavior norms and success metrics connect the elements of a business model and keep the system in proper balance. All these ensure that the business can repeatedly and predictably deliver the customer value proposition and fulfill the profit formula. The unique culture of Google attracts the brightest technical talent. Google’s organizational culture plays a key role and it also builds innovation into organization design. There was a Harvard Business Review to describe the innovation ingredient of Google: “Let the market choose. There is no grand design for how new offering fit together. Instead, Google executives assume that users will determine the success of innovations and that the company’s strategy will emerge as particular offering prosper and build on each other.”³⁷

³⁶ Source from <http://www.googlelabs.com/>, accessed on June 15, 2010

³⁷ Source from: Bala Iyer and Thomas. H. Davenport, (2008). “Reverse Engineering Google’s Innovative Machine”, Harvard Business Review, (March) .

Chapter 5 Competitive Landscape: Key Players Strategies on new era (after 2008)

On the internet search and advertising market, nowadays Microsoft Bing and Facebook already become the largest competitors to Google. According to comScore report, Microsoft's Bing got off to a good start by gaining about 3% market share in June, 2009. The latest search engine rankings for January 2010 showed continued growth by Microsoft's Bing at the expense of both Yahoo! and Google's search service.

According to Web measurement firm Compete Inc³⁸, Facebook has passed search-engine giant Google to become the top source for traffic to major portals like Yahoo! and MSN, and is among the leaders for other types of sites. This trend is shifting the way Web site operators approach online marketing, even as Google takes steps to move into the social-media world.³⁹ All these evidences indicate that it's possible for Facebook Internet advertising to become a marketing rival for a cyber-giant like Google.

Google nowadays is trying hard to expand its landscape from internet to Mobile, and even try to enter the Operating system and Netbook market and the consumer electronics such as E-Book, TV, etc. This chapter summarizes different battle among different industries between Google and all its competitors. This study tries to analyze and summarize the competitions from their business model, revenue model, competitive advantage, strategy and other factors.

³⁸ <http://compete.com/>,

³⁹ Source from http://articles.sfgate.com/2010-02-15/business/17876925_1_palo-alto-s-facebook-search-engine-gigya, accessed by June 23,2010

Figure 5- 1 Google is trying to expand its new territory



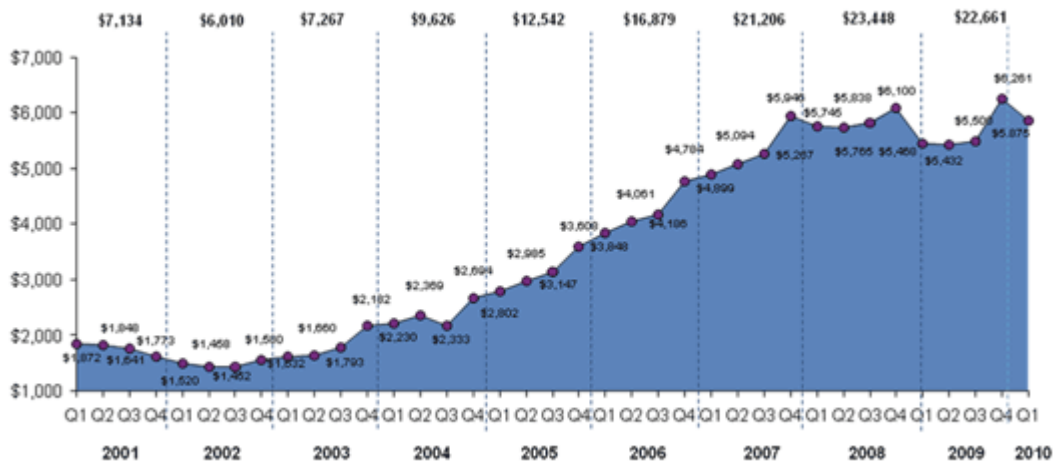
Source: Mobile Advertising Research Report on 2009 from Market Intelligence & Consulting Institute

5.1 Battle on Internet Advertising

Internet advertising revenues in the U.S. hit \$5.9 billion for the first quarter of 2010, representing a 7.5 percent increase over the same period in 2009, according to the report by the Interactive Advertising Bureau (IAB) and PricewaterhouseCoopers (PwC). This marks the highest first-quarter revenue level ever for the industry.⁴⁰ According to the report from Interactive Advertising Bureau (IAB), Google, Yahoo and Microsoft were top three players on internet advertising business.

⁴⁰ Source from http://www.iab.net/about_the_iab/recent_press_releases/press_release_archive/press_release/pr-051310, accessed on July 11, 2010.

Figure 5- 2 Internet advertising revenues in the U.S. (2001~2010Q1)



Source: Interactive Advertising Bureau

5.1.1 Microsoft

■ Launch BING

Bing was unveiled by Microsoft CEO Steve Ballmer on May 28, 2009 at the All Things Digital conference in San Diego. Microsoft was calling Bing a “decision engine” instead of a “search engine.” Microsoft’s reasoning: Customers are ready to move “beyond search” and Bing will help them make better decisions. Bing’s new search technology includes the listing of search suggestions as queries are entered and a list of related searches based on semantic technology from Powerset that acquired by Microsoft in 2008. The semantic technology is a new technology raised by World Wide Web Consortium (W3C) director Tim Berners-Lee. It describes methods and technologies to allow machines to understand the meaning or "semantics" of information on the World Wide Web.⁴¹ Currently

⁴¹ Source from http://en.wikipedia.org/wiki/Semantic_Web, accessed on July 10, 2010.

Bing, Facebook and even Google put lots of effort on the new search technology to improve the disadvantage of original one.

Furthermore, with the Bing launch, Microsoft was adding a new category to its vertical list: Virtual Earth maps. All of these properties were getting a Bing facelift, so the current “Farecast” travel search is now known as “Bing Travel,” and Virtual Earth becomes “Bing Maps for Enterprise.”⁴²

■ New features of BING

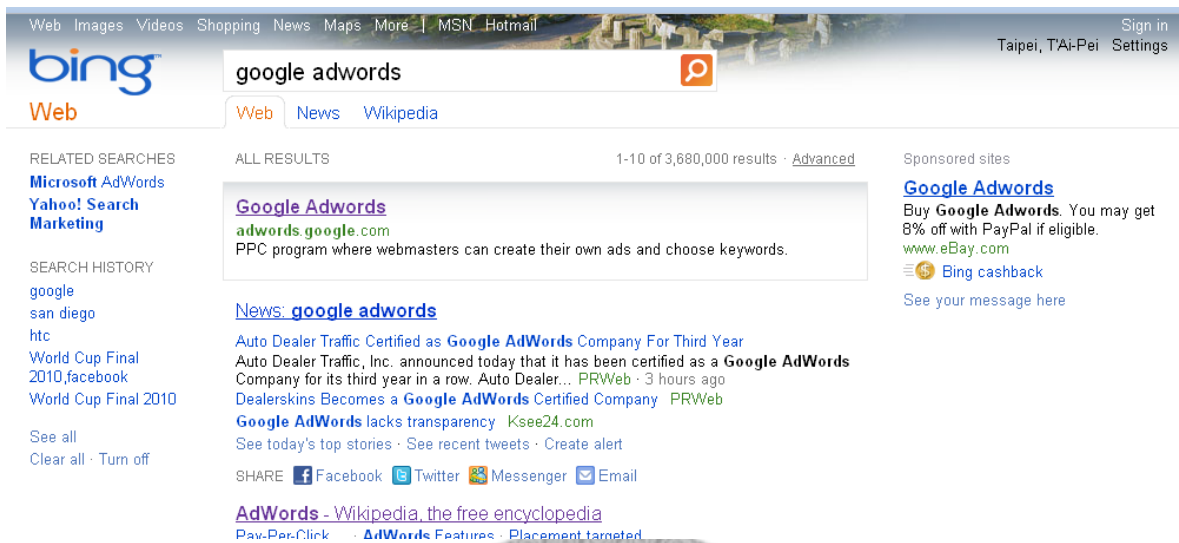
The new design concept of BING is trying to keep the consumers to stay as long as possible on Bing, which implies the higher opportunities for the exposure of the advertising. The new and unique features summarize as four different categories with the following descriptions.

Interface features:

- Daily changing of background image
- Left side navigation pane. Includes navigation and, on results pages, related searches and prior searches
- Right side extended preview which shows a bigger view of the page and gives URLs to links inside of the page.
- Enhanced view where third party site information can be viewed inside Bing.
- On certain sites, Bing will display the Customer Service number on the results page.

⁴² Source from <http://www.zdnet.com/blog/microsoft/bing-microsofts-new-search-er-decision-engine/2900>, accessed on July 10, 2010.

Figure 5- 3 The snapshot of BING (Interface features)



Media features:

- Video thumbnail Preview where, by hovering over a video thumbnail, the video automatically starts playing
- Image search with continuous scrolling images results page that has adjustable settings for size, layout, color, style and people.
- Video search with adjustable setting for length, screen size, resolution and source

Instant answers:

- People could get instant answers from Bing on the specific topics like sports, finance, dictionary, product shopping, health information and flight tracking.

Local information:

- Bing also provides much local information when user enters the local keyword in the search box. Rich and more information will be shown up like current traffic information, business listing, people listing, collections, localized searching for restaurants and services, restaurant reviews, movies played in an area and city hotel listings. When the

user enters 'hotels' and a city name in the search box, Bing can provide hotel listings with a map. The listing leads to a detail search page with the hotels listed that holds extended information on the hotels and contains links to reviews, directions reservations of the hotel.

Figure 5- 4 The snapshot of BING (videos)

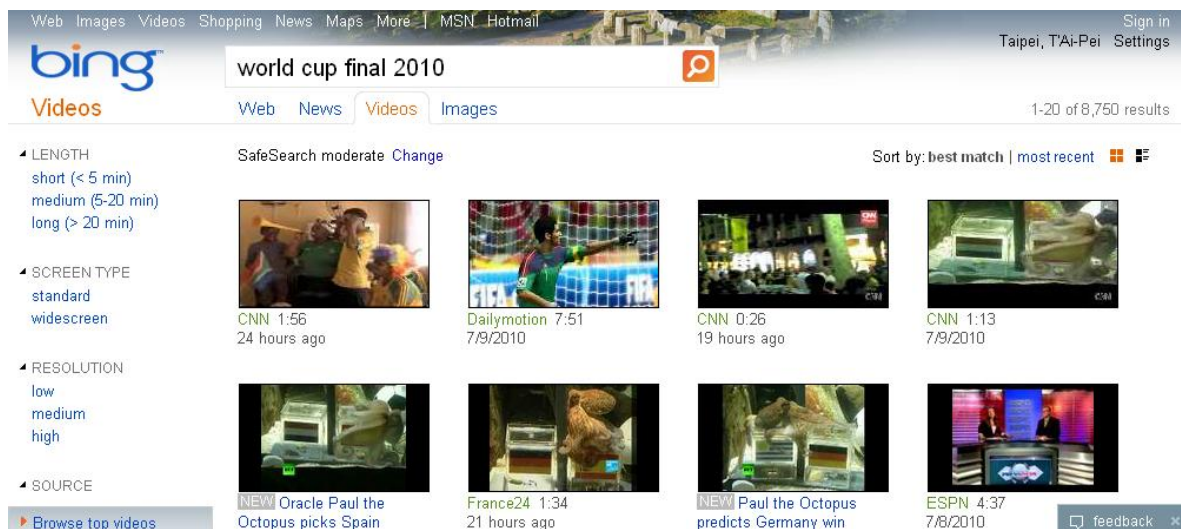
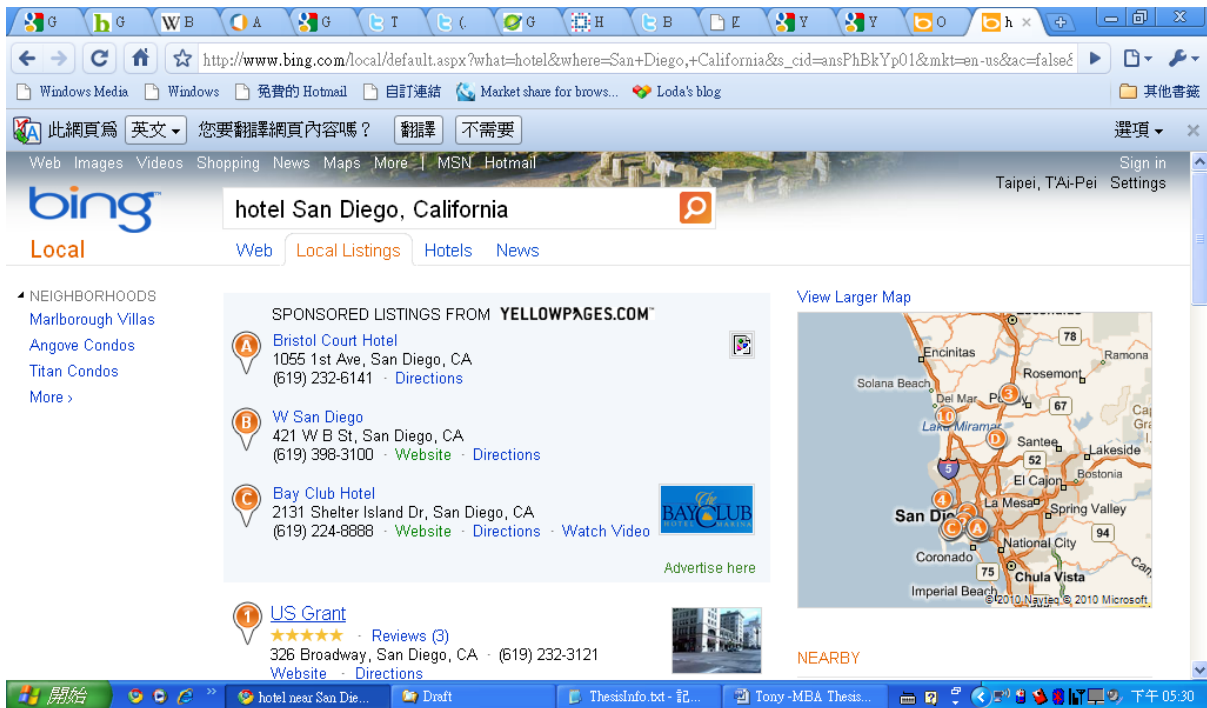


Figure 5- 5 The snapshot of BING (Instant Answer)



Figure 5- 6 The snapshot of BING (Local information)



■ Microsoft, Yahoo! Change Search Landscape and their agreements

On July 29, 2009, Yahoo! and Microsoft announced a 10-year agreement that the Yahoo! search engine would be replaced by Bing. Microsoft will now power Yahoo! Search and Yahoo! will get to keep 88% of the revenue from all search ad sales on its site for the first five years of the deal, and have the right to sell adverts on some Microsoft sites. Microsoft will guarantee Yahoo!'s Own and Operated sites revenue per search (RPS) in each country for the first 18 months following initial implementation in that country. Yahoo! Search will still maintain its own user interface and also become the exclusive worldwide relationship sales force for both companies' premium search advertisers.⁴³ "This agreement gives us the scale and resources to create the future of search," Microsoft CEO Steve Ballmer said in a statement. "Success in search requires both innovation and scale. With our new Bing search platform, we've created breakthrough innovation and features. This agreement with Yahoo!

⁴³ Source from <http://www.microsoft.com/presspass/press/2009/jul09/07-29release.mspx>, accessed on July 10, 2010.

will provide the scale we need to deliver even more rapid advances in relevancy and usefulness."⁴⁴

■ Microsoft Extends Bing Search Deal with Facebook

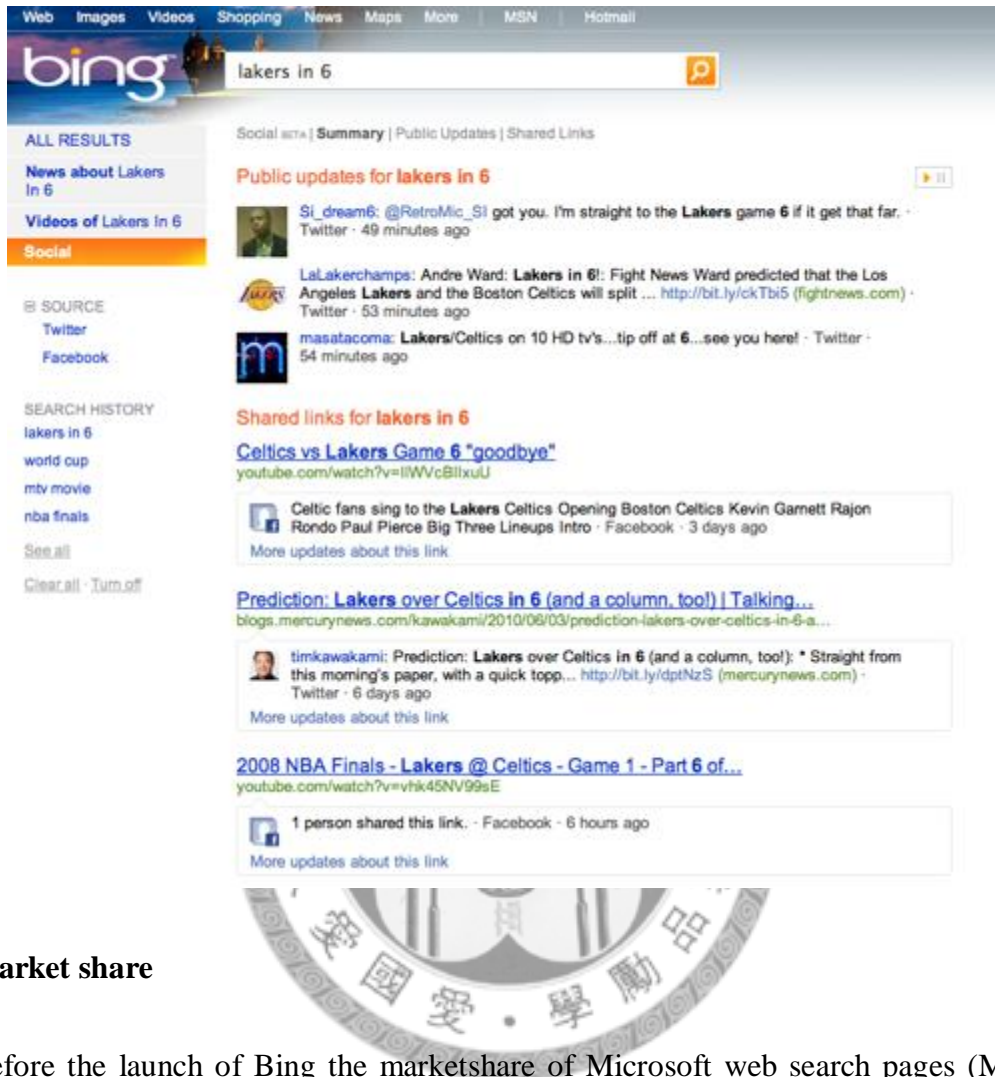
From 2006 to 2009, Microsoft owned the exclusive right to sell all the ads on Facebook. In 2010, the Bing Search Blog announced Microsoft has extended their search deal with Facebook. In addition to extending the search deal, as expected, Facebook will drop Microsoft on the display ad side of the deal.⁴⁵ The extended search deal includes a more robust Bing search experience on Facebook. This includes “richer answers combined with tools that help customers make faster, smarter decisions,” said Microsoft. Also, Bing will power Facebook search outside of the U.S., to all Facebook users, worldwide. This will bring Bing search in front of 400 million or more Facebook users – a big win for Microsoft.

Microsoft search engine Bing has just launched a new social sub-site (<http://www.bing.com/social>), allowing users to search through Facebook Page updates and links publicly posted to personal profiles. These results are posted alongside tweets on the Social home page, which Microsoft hopes will become the new destination for social search. The new integration is part of a deal announced in October 2009 between the two companies.

⁴⁴ Source from http://news.cnet.com/8301-13860_3-10298303-56.html, accessed on July, 2010.

⁴⁵ Source from <http://www.bing.com/toolbox/blogs/search/archive/2010/02/05/enhanced-cooperation-with-facebook-on-search.aspx>, accessed on July 18, 2010.

Figure 5- 7 The snapshot of BING (Social search)⁴⁶



■ Market share

Before the launch of Bing the marketshare of Microsoft web search pages (MSN and Live search) had been steadily declining. Since Bing's launch in the US, Microsoft has increased its US search market share. Microsoft, in third place, has increased its share from 8% in May 2009 to 12.1%⁴⁷ in May 2010⁴⁸, according to figures from ComScore. Bing's

⁴⁶ Source from <http://www.insidefacebook.com/2010/06/10/facebook-bing-social-search/>, accessed on July 9, 2010.

⁴⁷ Souce from <http://ir.comscore.com/releasedetail.cfm?releaseid=390444>, accessed on July 10, 2010.

⁴⁸ Source from [http://www.comscore.com/Press Events/Press Releases/2010/6/comScore Releases May 2010 U.S. Search Engine Rankings/\(language\)/eng-US](http://www.comscore.com/Press%20Events/Press%20Releases/2010/6/comScore%20Releases%20May%202010%20U.S.%20Search%20Engine%20Rankings/(language)/eng-US), accessed on July 10, 2010.

global market share in May was 3.24% search market, followed by AOL LLC with 2.3 percent.

Table 5- 1 Core search report in U.S. market

comScore Core Search Report*May 2009 vs. May 2010		
Total U.S. – Home/Work/University Locations		
Source: comScore qSearch		
Core Search Entity	Share of Searches (%)	
	May-09	May-10
<i>Total Core Search</i>	100.0%	100.0%
Google Sites	65%	63.7%
Yahoo! Sites	20.1%	18.3%
Microsoft Sites	8.0%	12.1%
Ask Network	3.9%	3.6%
AOL LLC Network	3.1%	2.3%

Source: comScore Press Release in May 2010

5.1.2 Yahoo!

■ Revenue streams on Yahoo!

The revenue sources on Yahoo! are major from marketing services including the display of graphical advertisements (“display advertising”), the display of text-based links to an advertiser’s website (“search advertising”), listing-based services, and commerce-based transactions. The revenues from display advertising on Yahoo! Properties and on Affiliate sites occur as “impressions” are delivered. An “impression” is delivered when an advertisement appears on a page viewed by a user. The secondly revenues are from search advertising, and these arrangements as “click-through” occur when a user clicks on an advertiser’s listing. Other revenues are from listings on a variety of services including Yahoo!

HotJobs database, classified advertising on Yahoo! Autos, Yahoo! Real Estate and transaction on commerce-based like Yahoo! Shopping and Yahoo! Travel.

According to this study describes on section 3.2.1, Yahoo! itself didn't developed the search technology as its core competitive weapon. However due to the largest web traffic position on the internet, Yahoo! still maintains the second largest search engine market share. Microsoft had launched the new search engine "BING" in 2008, and directly caused a big pressure to Yahoo! search engine market.

■ Form a strategic group with Microsoft

In 2008, a big M&A event was processing related to Microsoft was trying to acquire Yahoo!. Nevertheless on June 30 2008, Yahoo unveiled the details of the failed merger talks with Microsoft.⁴⁹ In late 2009, Microsoft and Yahoo again were discussing over the possibility of a merger, an outright acquisition, or some sort of joint venture that would enable them to compete more effectively with Google. From a strategic standpoint, this alliance might be reasonable for Microsoft and Yahoo to compete more effectively with Google. Finally they reached a common view and announced a deal in which Bing would power Yahoo! Search. Yahoo! decided to give up on search development and signed a 10 year deal to syndicate Bing ads and algorithmic results on their website. Yahoo CEO Carol Bartz, meanwhile, said that the move will help Yahoo focus on other areas, also adding that the deal has the full support of the company's board. "This is a significant opportunity for us," Bartz said. "Microsoft is an industry innovator in search and it is a great opportunity for us to focus our investments in other areas critical to our future."⁵⁰ All Yahoo! Search global customers and partners are expected to be transitioned by early 2012.

⁴⁹ Source from http://news.cnet.com/8301-10784_3-9980498-7.html, accessed on July 11, 2010.

⁵⁰ Source from http://news.cnet.com/8301-13860_3-10298303-56.html, accessed on July, 2010.

The Yahoo! and Microsoft Search Alliance is a major initiative between our companies to create a competitive choice in search for advertisers and consumers. The combined scale will assist both companies in speeding the pace of innovation to improve the search user experience, as well as help advertisers get better results and help improve monetization for partners.

■ **How to cooperate between Yahoo! and Microsoft**

- When the Yahoo! and Microsoft Search Alliance is implemented, both companies will continue to have differentiated consumer search experiences. However, Microsoft will manage the technology platforms that deliver the algorithmic (powered by Bing) and paid (powered by adCenter) search results.
- Yahoo! and Microsoft will each provide customer support to different advertiser segments: Yahoo!'s sales team will exclusively support high volume advertisers, SEO and SEM agencies, and resellers and their clients. Microsoft will support self-service advertisers. In addition, Microsoft adCenter will be the platform for all search campaigns.
- Search ad inventory from Yahoo!, Microsoft, and their respective partners will be combined into a new unified search marketplace, giving advertisers of all sizes access to a combined audience of 561 million searchers worldwide No.1.
- Yahoo! and Microsoft announce their aim is a high quality transition of advertisers and partners in at least the US prior to the 2010 holiday season. However, they may wait until 2011 if they determine this will be more effective.

■ **How Yahoo! and Microsoft will compete**

- The Yahoo! and Microsoft Search Alliance does not include each company's display advertising, web properties and products, email, instant messaging, or any other aspect

of the companies' businesses. They will compete on display advertising and maintain its own separate display advertising business and sales force.

- Yahoo! and Microsoft will innovate their own consumer search experiences to compete for search users and search queries.
- Yahoo! and Microsoft will service their respective publishers, also known as affiliate search partners.

From the latest press release of first quarter 2010 revenue reports on Yahoo! investor relation, the display advertising revenue increase in 20 percent, however the search advertising revenue decline 14 percent.⁵¹

5.1.3 Google's response

■ Google Caffeine

In August 2009, Google announced the rollout of new search architecture, codenamed "Caffeine". The new architecture was designed to return results faster and to better deal with rapidly updated information from services including Facebook and Twitter. Google developers noted that most users would notice little immediate change, but invited developers to test the new search in its sandbox. Differences noted for their impact upon search engine optimization included heavier keyword weighting and the importance of the domain's age. The move was interpreted in some quarters as a response to Microsoft's recent release of an upgraded version of its own search service, renamed Bing. Google announced completion of Caffeine on 8 June 2010, claiming 50% fresher results due to continuous updating of its index.

⁵¹ Source from <http://yhoo.client.shareholder.com/press/releases.cfm?ReleasesType=Financial&Year=>, accessed on July 11, 2010.

Below Table summarizes the differences between Google’s search engine and BING. Currently there is no reference research of the comparisons, the author tries to figure out through the common point of view from the performance and the relevant search results and their features.

Table 5- 2 Comparison between Google and BING search engine

	BING	Google	Detail Description
Search results	Not highly relevant and best match	Google still provides better quality on search results	
Colorful background	Supported with emotional value-added	N/A	
Related search	Supported	N/A	Time-saving for research , also good on specific topics (shopping, music, travel)
Video search attribute	Supported	N/A	Better user experience on BING
Shopping	Better user experience	Not directly for shopping	Better user experience on BING
Traveling Local search	Better user experience	Not directly for travel	Better user experience on BING

Source: Summarized by this study

5.1.4 Analysis and discussion

Although BING is a new search engine for the consumer, currently it’s only ready for U.S. region. As on Taiwan market, BING is still under construction. The main reason might be the difficulty on semantic technology for Chinese and other languages, since semantic algorithm is one kind of natural language and would vary on culture, language and custom.

BING has improved user experiences on entertainment, travel, and shopping fields. Therefore it will attract some eyeballs from Google search engine and also might bring more advertising business on these specific markets. However, Google search engine still provides the highly relevant search result and keyword mapping among all fields. It's still a big challenge for BING to gain more market share from Google.

From the author's point of view, it's good for the users to have second choice of search engine and enjoy different user experiences from different search engine services. Microsoft tries to define a new experience for 'search', and maybe it's an opportunity for Microsoft to make a difference from Google to win the battle.

Table 5- 3 Comparison among Google, Microsoft and Yahoo!

	Google	Yahoo	Microsoft
Website Service type	<ul style="list-style-type: none"> • Search service 	<ul style="list-style-type: none"> • Portal (yahoo.com) • Search service 	<ul style="list-style-type: none"> • Portal (msn.com) • Search service
Business Model	<ul style="list-style-type: none"> • Internet Advertising 	<ul style="list-style-type: none"> • Portal multi-services + Search service 	<ul style="list-style-type: none"> • Portal multi-services + Search service
Revenue stream	<ul style="list-style-type: none"> • Search advertising • Display advertising 	<ul style="list-style-type: none"> • Display advertising • Search advertising • Ecommerce-related fee • Other service fees 	<ul style="list-style-type: none"> • Display advertising • Search advertising • ECommerce-related fee
Competitive Advantage	<ul style="list-style-type: none"> • Search Engine Technology • Market leader position • DoubleClick synergy 	<ul style="list-style-type: none"> • Leading position Portal with enormous web traffic • Multi-services • Bing, new search engine for 'Decision' • Advertising Publisher Network 	
Strategy	<ul style="list-style-type: none"> • Acquire DoubleClick • Launch Caffeine 	<ul style="list-style-type: none"> • Strategic Alliance between Microsoft and Yahoo! • BING is more than a search engine and attract more eyeballs and keep the customers stay on their website as long as possible 	

Source: Summarized by this study

5.2 Battle on Social Network Platform

There are three major forms of Social Network Advertising as below listing, and these are quite different than Keyword matching advertising on Google AdWords.

■ **Direct Advertising that is based on your network of friends**

This can be the most effective format but also causes the most controversy. The well-known example is the Beacon project on Facebook. Based on an action your friend has taken, you might see a message in your news feed saying 'Joshua has just bought an Apple iPod from Amazon'. This can be an effective mode as more and more people like to make decisions to purchase something or do something based on the comments from their friends. However, there is also a lot of controversy surrounding this as it can be considered exploiting the personal relationships you have with your friends and also raises privacy concerns.

■ **Direct Advertising placed on your social networking site**

This is a similar form and concept like banner ads on many websites, except on a social networking site. There are two differences compared with original websites – (1) These social networks can take advantage of demographic data on your profile and hence target the ad directly to you. (2) These types of ads can also be placed by individual developers or third parties developers on their application pages through ad networks. They have access to the same data base and generate income for application developers giving them further motivation to create apps. These types of ads also provide advertisers a more engaging way to reach out to these social networking users.

■ **Indirect Advertising by creating 'groups' or 'pages'**

This is an innovative marketing technique in which a company will create a 'page' or 'group' that users can choose to join. And it's totally different compared with traditional internet marketing or internet advertising types. It is like to create a marketing campaign on the social network site. Advertisers will use this to build up 'subscribers' or 'fans' and use this to market a contest, a new product, or simply just to increase brand awareness. These groups can quickly grow in numbers of subscribers which can become a very effective marketing tool.

This section the study tries to discuss the new trend of internet advertising and the innovative search technology or keyword matching technology to match two- sided players, the users and the advertisers, on their platform. The two largest potential competitors for Google, Facebook and Twitter are discussed on the following sections.

5.2.1 Facebook

Facebook is a social networking website launched in February 2004. Users can add people as friends and send them messages, and update their personal profiles to notify friends about themselves. In addition, users can join networks organized by workplace, school, or college. Facebook Inc. was founded by Mark Zuckerberg with his college roommates and fellow computer science students Eduardo Saverin, Dustin Moskovitz and Chris Hughes. The website's membership was initially limited by the founders to Harvard students, then to any of university and high school students, and finally to anyone aged 13 and over. A January 2009 Compete.com⁵² study ranked Facebook as the most used social network by worldwide monthly active users, followed by MySpace.

⁵² Source from <http://www.compete.com/>, accessed on July 10, 2010.

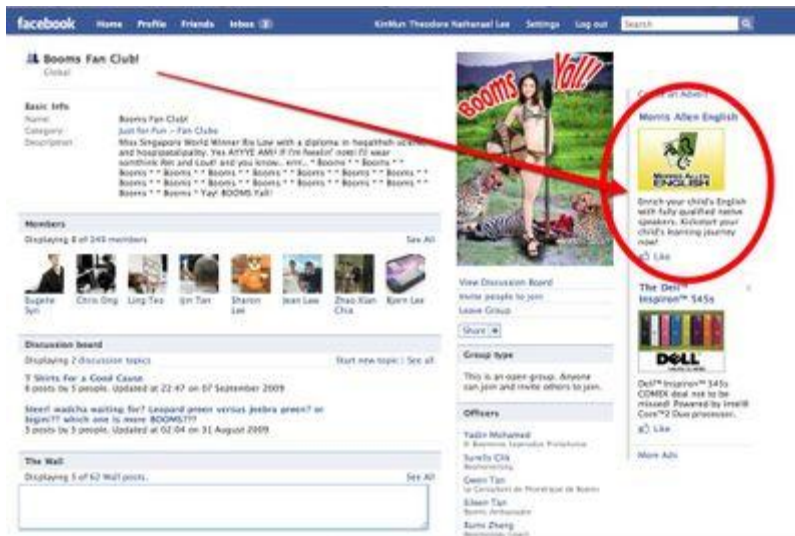
Most of Facebook's revenues come from advertisements. On November 6, 2007, Facebook launched Beacon program, which was an ultimately failed attempt to advertise to friends of users using the knowledge of what purchases friends made. Furthermore, Microsoft is Facebook's exclusive partner for serving banner advertising, and as such Facebook only serves advertisements that exist in Microsoft's advertisement inventory. According to comScore, Facebook is the leading social networking site based on monthly unique visitors, having overtaken main competitor MySpace in April 2008. ComScore reports that Facebook attracted 132.1 million unique visitors in June 2008, compared to MySpace, which attracted 117.6 million. In May 2010, Facebook has reach 540 million unique visitors, racked up 570 billion page views from Google's new DoubleClick Ad Planner 1000 list. This also means reaching 35.2 percent of the total Internet population.⁵³ According to latest information from Alexa in July 2010, Facebook becomes the number 2 site of the world with web traffic rank, followed with Google.

■ Revenue Stream on Facebook

The main revenue stream of Facebook comes from Banner ads, referral marketing, Casual games. The most famous casual games nowadays is FarmVille which produced by Zunga.

⁵³ Source from <http://www.eweek.com/c/a/Web-Services-Web-20-and-SOA/Facebook-Crushing-All-Comers-With-540M-Unique-Visitors-Google-Says-637535/>, accessed on July 10, 2010.

Figure 5- 8 The banner ads on Facebook⁵⁴



Facebook Inc. is catching up to rivals Yahoo! Inc. and Microsoft Corp. in selling display ads.⁵⁵ In the first quarter of 2010, Facebook pulled ahead of Yahoo! for the first time and delivered more banner ads to its U.S. users than any other Web publisher, according to market-research firm comScore Inc. Facebook served more ads as people spent more time on the site and loaded more pages.

According to Table 5-4, Facebook.com led all online publishers during Q1 with 176 billion display ad impressions, representing 16.2 percent market share. The second one Yahoo! Sites was with 132 billion impressions (12.1 percent), followed by Microsoft Sites with 60 billion impressions (5.5 percent).

⁵⁴ Source from <http://www.mrbrown.com/.a/6a00d83451b52369e20120a5c1c943970c-400wi>, accessed on July 9,2010.

⁵⁵ Source from Wall Street Journal, <http://online.wsj.com/article/SB10001424052748704250104575238661210740510.html>, accessed on July 9,2010.

Table 5- 4Top 10 U.S. Online Display Ad* Publishers Q1 2010

Top 10 U.S. Online Display Ad* Publishers Q1 2010		
Total U.S. – Home/Work/University Locations		
Source: comScore Ad Metrix		
	Total Display Ad Impressions (MM)	Share of Display Ad Impressions
<i>Total Internet</i>	<i>1,089,732</i>	<i>100.0%</i>
Facebook.com	176,307	16.2%
Yahoo! Sites	131,555	12.1%
Microsoft Sites	60,187	5.5%
Fox Interactive Media	53,823	4.9%
AOL LLC	32,100	2.9%
Google Sites	25,852	2.4%
Turner Network	15,685	1.4%
Glam Media	7,819	0.7%
eBay	7,483	0.7%
Tagged.com	6,804	0.6%

Source: comScore Press Release in Q1 2010

*Display ads include static and rich media ads; excludes video ads, house ads and very small ads (< 2,500 pixels in dimension)⁵⁶

Nevertheless, before the success of banner ads, Facebook had tried to launch its first advertising program named Beacon on November 6, 2007 with 44 partner websites. The program automatically sent data from external websites to Facebook and allows targeted advertisements and users to share their activities with their friends. However, it also made the controversial service due to privacy concerns, which became the target of a class action lawsuit, and finally shut down in September 2009. Facebook has terminated the Beacon

⁵⁶ Source from comScore press release, http://www.comscore.com/Press_Events/Press_Releases/2010/5/Americans_Received_1_Trillion_Display_Ads_in_Q1_2010_as_Online_Advertising_Market_Rebounds_from_2009_Recession, accessed on July 9,2010.

program and agreed to pay \$9.5 million into an interest-bearing account to create a nonprofit foundation that will "fund projects and initiatives that promote the cause of online privacy, safety, and security."⁵⁷

■ Referral marketing

Referral marketing is a method of Internet marketing that relies on gaining new customers by referrals, usually through word of mouth. Word of mouth is generally spontaneous and is achieved by businesses without any form of structured strategy.

Facebook establishes a new method for advertisers to create their own pages or group site with the purpose that looks and behaves like user profiles to connect and engage with your customers and amplify your voice to their friends. Advertisers could use this page as a public profile that enables you to share your business and products with Facebook users.

When your fans (Facebook users) interact with your Facebook Page, stories linking to your Page can go to their friends via News Feed. As these friends interact with your Page, News Feed keeps driving word-of-mouth to a wider circle of friends. Advertisers can drive customers awareness through Facebook ads.

⁵⁷ Source from http://www.pcworld.com/article/184029/facebook_halts_beacon_gives_95m_to_settle_lawsuit.html, accessed on July 9,2010.

Figure 5- 9 The snapshot of Facebook



■ Payment

Payment method⁵⁸ is quite the same as Google AdWords. Advertisers will never pay more than their max bid per click (CPC). Cost-per-click includes clicks on their title, image, body and clicks on the "Become a Fan" link. It does not include clicks on the friend actions.

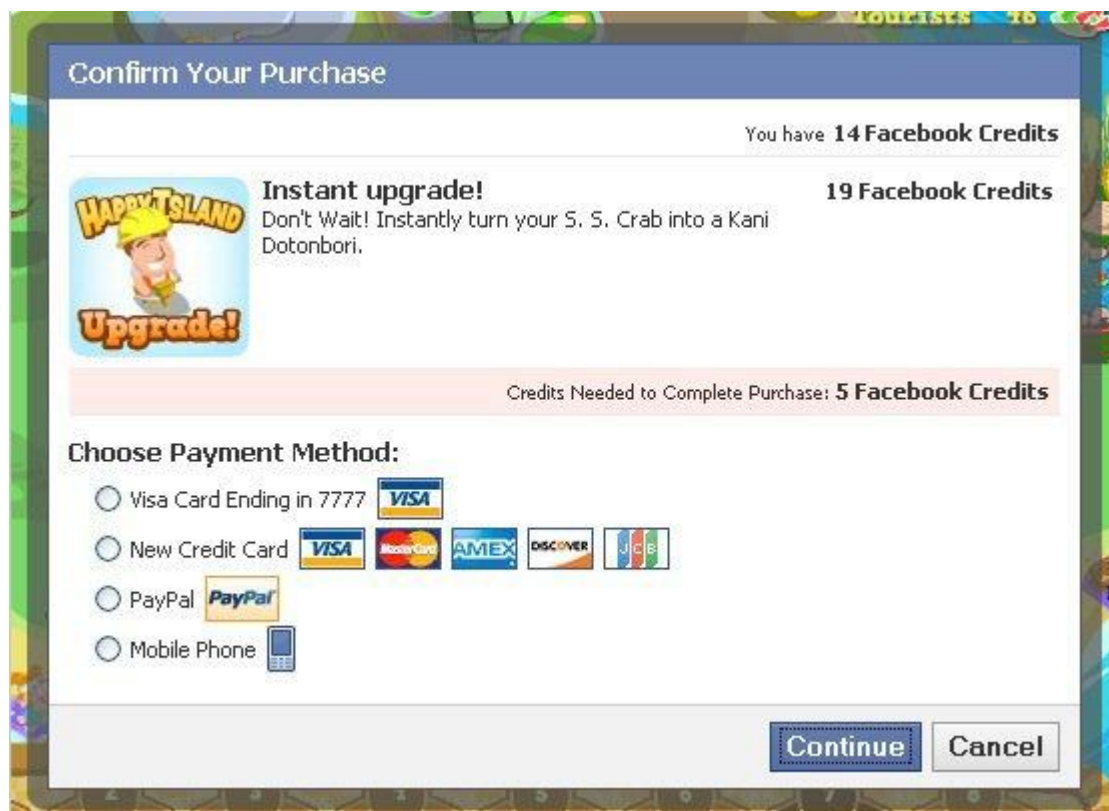
■ Revenue sharing between game developers and Facebook

Currently there are more than 500,000 applications on Facebook, therefore Facebook announced in 2010 to provide a single, cross-application currency to make transactions simpler for users, leading to a higher conversion rate for developers. Facebook will collect 30 percent of currency spent by users. Zynga is the largest game developed company on Facebook with the most popular games such as FarmVille, Mafia Wars and Café World. In May 18, 2010, Zynga announced that they have entered into a five-year strategic relationship

⁵⁸ Source from <http://www.facebook.com/pages/learn.php>, accessed on July 9, 2010.

that increases their shared commitment to social gaming on Facebook and expands use of Facebook Credits in Zynga's games. The agreement provides a solid foundation for both companies to continue to work together to provide millions of people with a compelling user experience for social games.⁵⁹

Figure 5- 10 The snapshot of Facebook credits



■ Search technology in Facebook

Facebook promoted its new search improvement on Aug 2009. Currently the users are able to search the last 30 days of their News Feed for status updates, photos, links, videos and notes being shared by their friends and the Facebook Pages of which theirs' fan. If people have chosen to make their content available to everyone, the users also are able to search for their status updates, links and notes, regardless of whether or not they are friends. Search

⁵⁹ Source from <http://www.facebook.com/press/releases.php?p=162172>, accessed on July 9,2010.

results will continue to include people's profiles as well as relevant Facebook Pages, groups and applications.⁶⁰

Figure 5- 11 The search result on Facebook

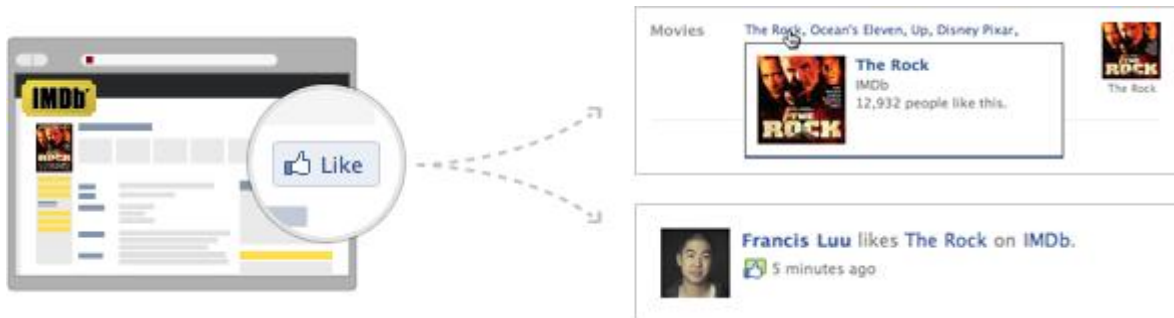


■ Facebook Open Graph Protocol

Facebook announced the new technology called Open Graph Protocol in April 19, 2010 on F8 developer conference. The Open Graph protocol enables you to integrate your Web pages into the social graph. It is currently designed for Web pages representing profiles of real-world things — things like movies, sports teams, celebrities, and restaurants. Once your pages become objects in the graph, users can establish connections to your pages as they do with Facebook Pages. Based on the structured data you provide via the Open Graph protocol, your pages show up richly across Facebook: in user profiles, within search results and in News Feed (see Figure 5-11)

⁶⁰ Source from <http://blog.facebook.com/blog.php?post=115469877130>, accessed on July 9, 2010.

Figure 5- 12 The snapshot of Facebook Open Graph API: Like⁶¹



The Open Graph is a set combination of publisher plugins, semantic markup and a developer API. One of the most popular application is described as below:

Like Button and Like Box: These plugins add the liking feature to any content, typically the whole page. The Like button enables users to make connections to your pages and share content back to their friends on Facebook with one click.

Facebook also announced simple, RDF-based markup to make the plugins smarter. In a nutshell, the markup enables publishers to say what object is on the page - a movie, a book, a recording artist, an event, a sports team, etc. This automatically enables semantics, that is, an understanding that the user is not just interacting with a webpage, but that he or she is liking a specific kind of thing. Semantics then leads to bucketing of the objects into categories like books, movies, music, etc., and gives rise to all sorts of applications, including personalized recommendations.

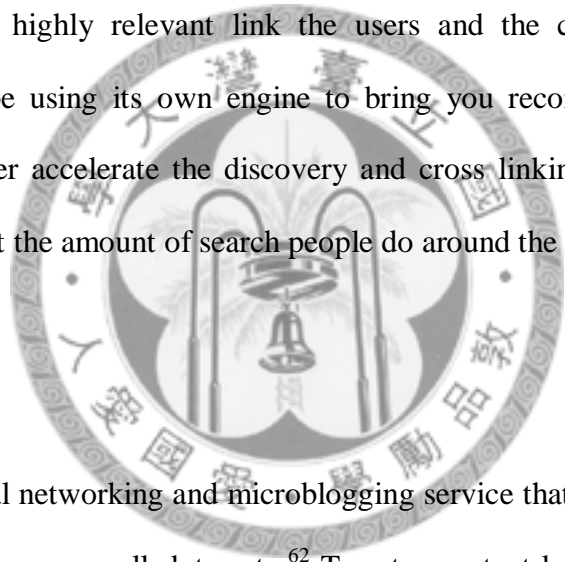
According to the definition on Open Graph Protocol, Facebook currently supports the following object types.

- Activities: activity, sport.

⁶¹ Source from <http://developers.facebook.com/docs/opengraph>, accessed on July 9, 2010.

- Businesses: bar, company, café, hotel, restaurant, Groups, cause, sports_league, sports_team.
- Organizations: band, government, non_profit, school, university.
- People: actor, athlete, author, director, musician, politician, public_figure.
- Places: city, country, landmark, state_province.
- Products and Entertainment: album, book, drink, food, game, product, song, movie, tv_show.

Once the publishers and website owners add all these object types into their web pages, Facebook could highly relevant link the users and the characteristic of objects. Facebook is going to be using its own engine to bring you recommendations for related content. This will further accelerate the discovery and cross linking between friends. This will likely further impact the amount of search people do around the Web.



5.2.2 Twitter

Twitter is a social networking and microblogging service that enables its users to send and read other user messages called tweets.⁶² Tweets are text-based posts of up to 140 characters displayed on the author's profile page. Users may subscribe to other author tweets — this is known as following and subscribers are known as followers. The first Twitter prototype was used as an internal service for Odeo employees and the full version was launched in July 2006. In October 2006, Biz Stone, Evan Williams, Dorsey, and other members of Odeo formed Obvious Corporation and acquired Odeo and all of its assets—including Odeo.com and Twitter.com—from the investors and shareholders. Twitter spun off into its own company in April 2007.

⁶² Sour from <http://en.wikipedia.org/wiki/Twitter>, accessed on July 9, 2010.

Web 2.0 Portal with user generated content and the most popular topics which most people are discussing or paying attention. On the homepage of Twitter, people would understand the latest and real-time trending topic what people are discussing now. This scenario is quite different compared with the hot news onYahoo!, MSN.com, the traditional web portal.

Figure 5- 13 The snapshot of Twitter’s homepage



■ Characteristics of Twitters

Figure 5-13 demonstrates currently Pulpo Paul is the trending topic during World cup 2010. After click into the link, you will find all the related topic discussion among the people, and all the discussion are linked on the keyword – Pulpo Paul.

Twitter enables its users to send and read other user messages called tweets. Tweets are text-based posts of up to 140 characters displayed on the author's profile page. Tweets are publicly visible by default, however senders can restrict message delivery to their friends list. Users may subscribe to other author tweets—this is known as following and subscribers are

known as followers (see Figure 5-15 on right column). As of late 2009, users can follow lists of authors instead of following individual authors. All users can send and receive tweets via the Twitter website, compatible external applications (such as, for smartphones), or by Short Message Service (SMS) available in certain countries. While the service is free, accessing it through SMS may incur phone service provider fees.⁶³



⁶³ Source from <http://en.wikipedia.org/wiki/Twitter>, accessed on July 23, 2010.

Figure 5- 14 The snapshot of Twitter of trending topic: Pulpo Paul

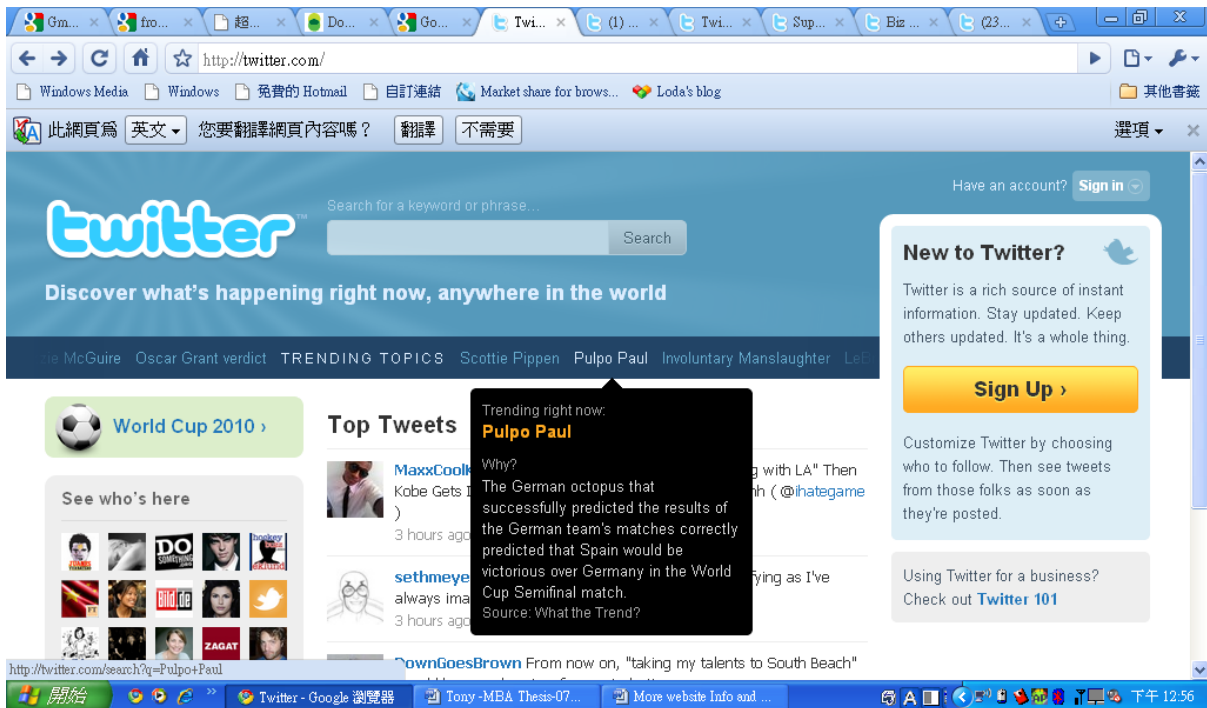
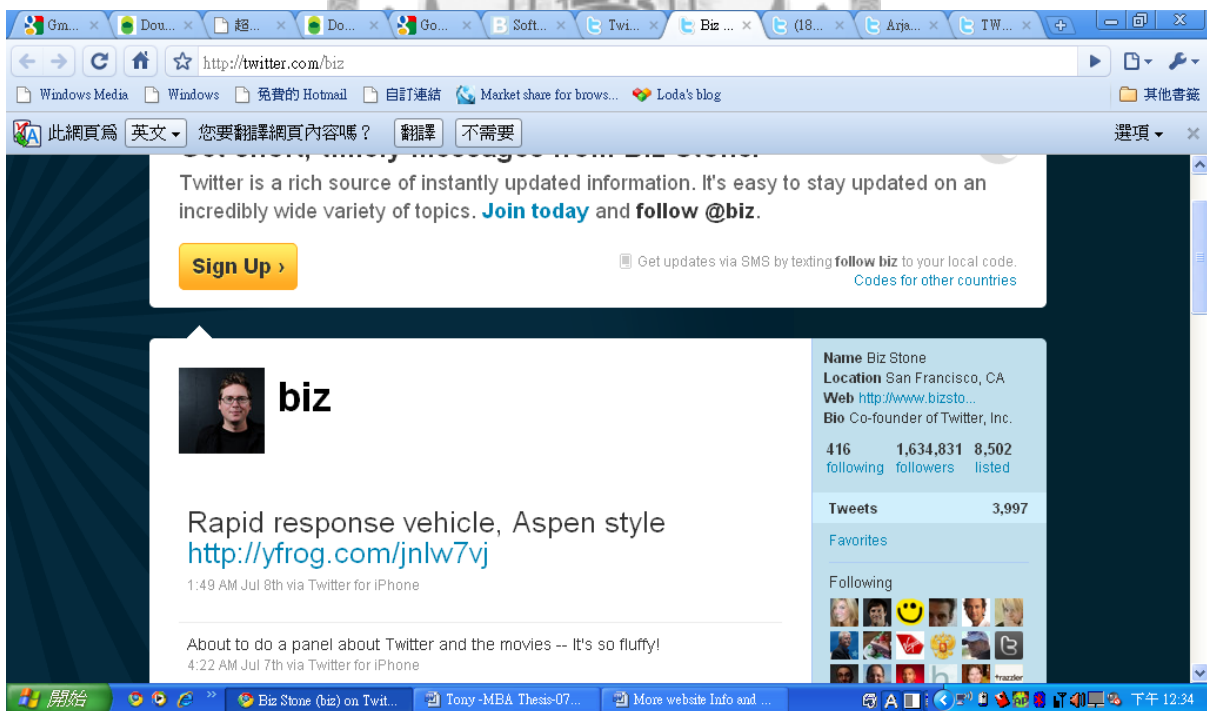
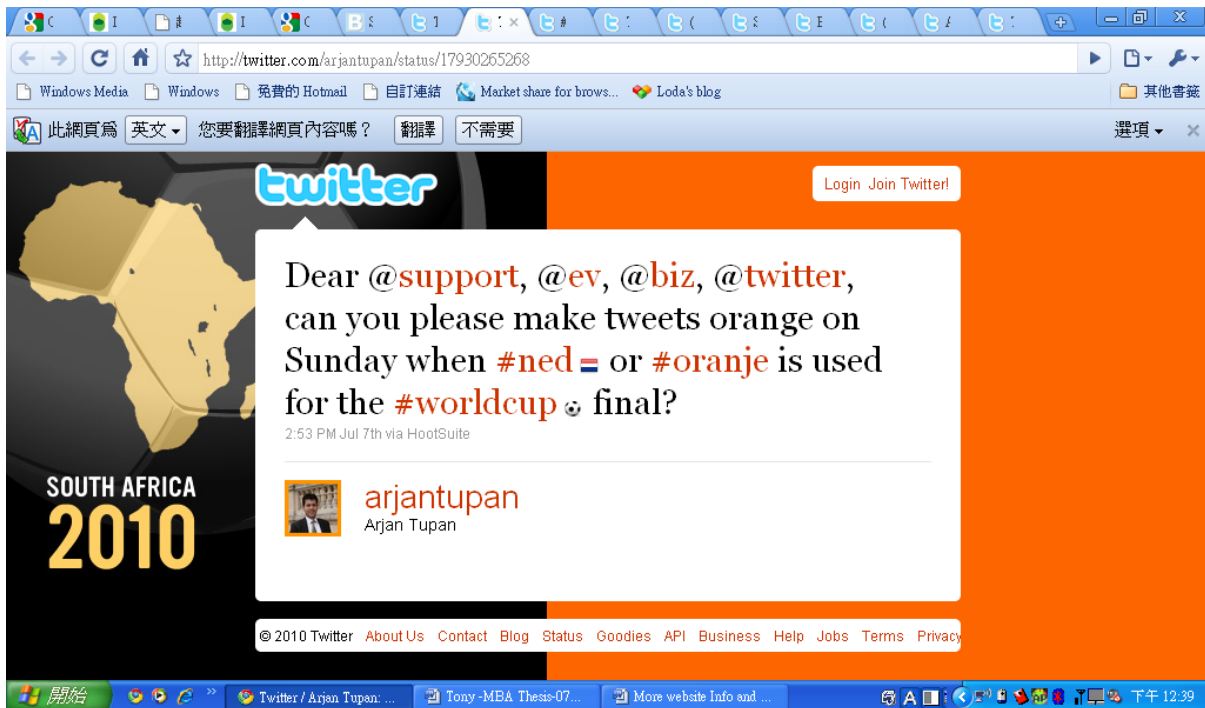


Figure 5- 15 Personal page with following and followers on the right column



Twitter allows users to use ‘#’ as keyword that is good for its search engine to identify faster, and ‘@’ which is equal to another tweeter link (see Figure 5-16).

Figure 5- 16 The snapshot of Twitter of its keyword inside the content



■ Real-time search

Twitter provides the real-time search result for its users, see the example on world cup 2010 from Figure 5-17. This technology is quite different with Google, and BING. Twitter doesn't disclose the detail of its search technology. However, this real-time search technology are more and more popular on these social network sites to provide the latest discussion topics , issues and news for all the people. As Twitter announces on its official website related to search for the users, it would like to “keep up with interesting news and people who care about is one dimension of Twitter, but what if you need to find out what’s happening in the world beyond your personal timeline?”

Below is the statement from Twitter search. “There is an undeniable need to search, filter, and otherwise interact with the volumes of news and information being transmitted to Twitter every second. Twitter Search helps you filter all the real-time information coursing through our service.”

Figure 5- 17 Real time search on Twitter internal website



■ Twitter Search Web

Figure 5-18 demonstrates the search webpage on Twitter, and it looks like a litter similar with Google's search page. Currently Twitter only provides the search results from its own website, excluding the outlink of other web sites and pages.

Search inside Twitter and promote the highly relevant information with specific topic which all users might be interested. The search technology of Twitter could even filter the keyword from the users' contents and the matching relation between keyword and specific topic. Twitter combined the spirit of Web 2.0: User Generated Content and word of mouth marketing for the advertisers to promote and advertise their new products, services or even new brands. Figure 5-19 demonstrates the search result after user enter 'Felipe Neto' query in the search box. All the search results are from its tweeters, with how many retweet statistics. Users could directly reply to join the conversation with these groups on the trending topics or just read it silently.

Figure 5- 18 The snapshot of Twitter search webpage



Figure 5- 19 The snapshot of Twitter search result webpage



■ New ways for business

Every day, millions of people use Twitter to create, discover and share ideas with others. Now, people are turning to Twitter as an effective way to reach out to businesses, too. From local stores to big brands, and from brick-and-mortar to internet-based or service sector, people are finding great value in the connections they make with businesses on Twitter.

Figure 5-20 demonstrates the event page from World Cup 2010 official site on Twitter. People would join the discussion with all tweeters in the real-time interaction and see all the feedback, news and feelings around the website through the text-messages. Twitter provides the new idea and concept of news, information, user generated contents and appear all together systematically based on the search algorithm and technology. The real-time results related to the topic demonstrate highly relevant matching information from the users. It's different with the search concept on Google. Twitter could understand who the person is, where the tweets from.

On WorldCup 2010 with the battle between U.S.-Algeria and England-Slovenia World Cup games, Coca-Cola promoted its ad as a trending topic on Twitter (see Figure 5-21). And as Twitter is, this promotion brought huge response from Tweeples. In just 24 hours it's first promotional Trend on Twitter fetched it 86 million impressions.⁶⁴

⁶⁴ Source from <http://mediamemo.allthingsd.com/20100625/coke-takes-out-a-free-ad-for-twitter-ads/>, accessed on July 23, 2010.

Figure 5- 20 The event page on Twitter

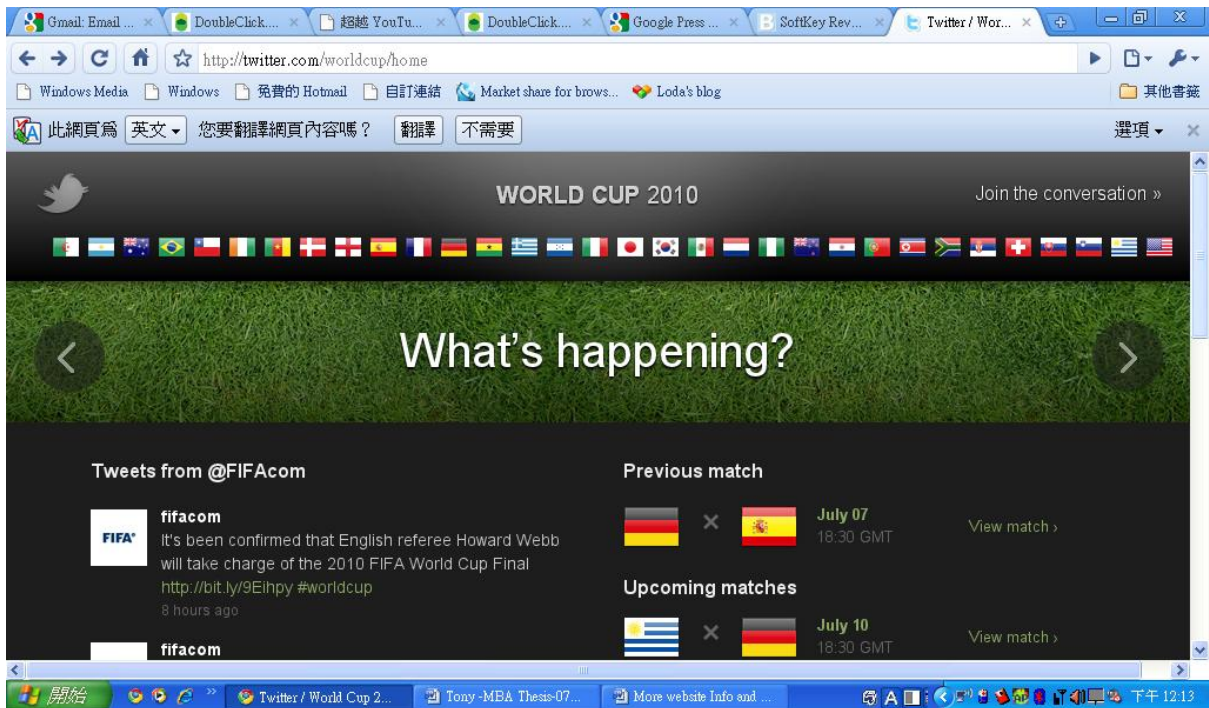


Figure 5- 21 The market campaign from Coca-Cola on Twitter



■ **Analysis and summary on Twitter**

- The following and followers are usually the group of people with the same interests, hobbies, topic or work issues

- There are strong linkage both on the following and followers, it's similar to the idea of 'fans' or 'groups' on Facebook
- Trending Topic is the practical recommendation of user generated content based on Web 2.0 spirit
- Semantic search result: the fast practical way with 'Word of mouth' marketing, and it's the whole new experiences both for the advertisers and users.

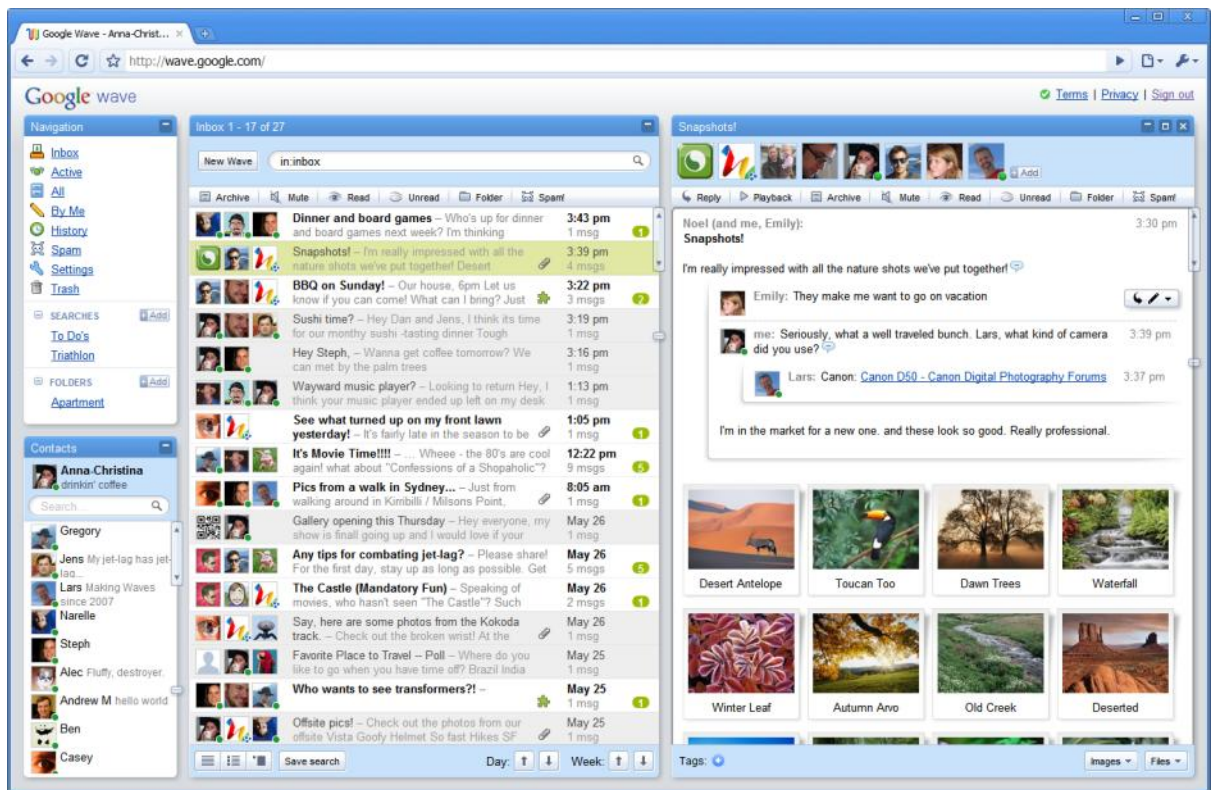
5.2.3 Google's response

■ Google wave

Google announced Google wave as an all-new-experience online software application product, which Google described as "a new web application for real-time communication and collaboration".⁶⁵ It is a web-based service, computing platform, and communications protocol designed to merge e-mail, instant messaging, wikis, and social networking. Google Wave works like previous messaging systems such as email and Usenet (actually the user interface looked like Microsoft MSN), but instead of sending a message along with its entire thread of previous messages, or requiring all responses to be stored in each user's inbox for context, message documents (referred to as waves) that contain complete threads of multimedia messages are perpetually stored on a central server. Waves are shared with collaborators who can be added or removed from the wave at any point during a wave's existence. However the new product was not accepted by most of customers since it looked a little complicated. Users couldn't easily understand what's the position of the product and how to use it with complicated user interface. Some criticisms mentioned maybe it's too fancy for current users to catch up what's going on with Google wave.

⁶⁵ Source from http://en.wikipedia.org/wiki/Google_Wave, accessed on July 10, 2010.

Figure 5- 22 The snapshot on Google Wave



■ Google Buzz

Google has announced Google Buzz on Feb 2010, its newest push into the social media foray. It is a social networking and messaging tool with integration into Google's email program, Gmail. Google Buzz allow users to share links, photos, videos, status messages and comments organized in "conversations" and visible in the user's inbox. Google Buzz enables users to choose to share publicly with the world or privately to a group of friends each time they post. The power of Google Buzz is that it's integrated with Picasa, Flickr, Google Reader, YouTube, Blogger, FriendFeed, identi.ca and Twitter into its service. It's obviously that the creation of Buzz as an attempt by Google to compete with social networking websites like Facebook and Twitter.⁶⁶

⁶⁶ Source from http://en.wikipedia.org/wiki/Google_Buzz, accessed on July 10, 2010.

Figure 5- 23 The snapshot on Google Buzz



Furthermore, Google still insists to expand its power to enter social network service. On Feb 11, 2010 Google has acquired social search service Aardvark for around \$50 million.⁶⁷ Currently these months from Alexa⁶⁸ web traffic ranking, Google is still No. 1 worldwide and follows by Facebook.

5.2.4 Analysis and Discussion

Currently there are more than 500,000 applications on Facebook, therefore Facebook announced to provide a single, cross-application currency to make transactions simpler for users, leading to a higher conversion rate for developers. Facebook will collect 30 percent of

⁶⁷ Source from <http://techcrunch.com/2010/02/11/google-acquires-aardvark-for-50-million/>, accessed on July 18, 2010.

⁶⁸ Source from <http://www.alexa.com/>, accessed on July 20, 2010.

currency spent by users. This strategy provides Facebook another revenue stream excluding advertising business. Moreover, since the web traffic of Facebook is No.2 worldwide come after Google, Facebook also provides advertisers innovative marketing campaigns within the fans or groups, and this different business model could diversify the revenue streams and reduce the management risk.

For advertisers, Google provides the keyword matching algorithm to help the searchers and the advertisers to link together. However, Google doesn't collect all detail information of the searchers. Google could record the searchers behavior of searching like the types of keywords and the category of keywords, the most interested websites, and how many times to stay on the website, web pages or web contents. However, Facebook provides more detail, personal and privacy information for the advertisers such as the ages, educational background, working experiences, and also with their friends information, what's the topic they're talking, what's the issue they're discussing or following, what's the fans or groups they attend etc. These personal information and behavior have more valuable for the advertisers and produce more effective marketing campaign. Therefore the internet marketing method would quite different from traditional interactive game, flash or videos to the social media inside the links among users' internal relationship.

Coca Cola case demonstrates the power of link among the followings and the followers. This is similar to the social link inside the network, however Twitter automatically and actively collect the same topic as the trending topic and display on the home page of Twitter. This is the concept idea of user generated content on Web 2.0 and users could decide what is the trending topic on their social network. Furthermore, the message on Twitter is short and instant, so the word of mouth market power is even faster than Google and Facebook.

From different analysis aspects on Google, Facebook and Twitter, this study could forecast social network services would change the way of internet marketing and give both users and advertisers different experiences from social media.

Table 5- 5 Comparison on Google, Facebook and Twitter

	Google	Facebook	Twitter
Main Service	<ul style="list-style-type: none"> • Search 	<ul style="list-style-type: none"> • Social Network Service 	<ul style="list-style-type: none"> • Social Network Service
Business Model	<ul style="list-style-type: none"> • Internet Advertising 	<ul style="list-style-type: none"> • Internet Advertising • Profit Sharing (FB credit) 	<ul style="list-style-type: none"> • Internet Advertising
Revenue stream	<ul style="list-style-type: none"> • Paid-Search advertising • Display advertising 	<ul style="list-style-type: none"> • Display advertising • Marketing Campaign • Third party developer fee 	<ul style="list-style-type: none"> • Marketing Campaign
Advertising method	<ul style="list-style-type: none"> • Contexture-text matching 	<ul style="list-style-type: none"> • Direct ads inside user network * • Direct ads placing • Groups or fans page campaign 	<ul style="list-style-type: none"> • Trending Topic Promotion
Attractiveness for advertisers	<ul style="list-style-type: none"> • Keyword algorithm matching mechanism 	<ul style="list-style-type: none"> • More completed info. of consumers • Direct recommendation from friends • ‘Fans’ equals targeted audiences 	<ul style="list-style-type: none"> • Direct link with the same topic • Follow mechanism equal focusing targeted audience
Competitive Advantage	<ul style="list-style-type: none"> • Worldwide No.1 web traffic • Search Engine Technology • Market leader position 	<ul style="list-style-type: none"> • Huge web traffic (No.1 social network, 5 billion unique users) • Long time usage/per user • Semantic search engine technology • Social Media Power (Word of mouth market, user recommend content) • Mobility 	<ul style="list-style-type: none"> • Semantic search engine technology • Social Media Power (Word of mouth market, user recommend content) • Instant and short message • Mobility user behavior

Strategy	<ul style="list-style-type: none"> • Google wave • Google Buzz 	<ul style="list-style-type: none"> • Alliance with Microsoft Bing search technology and advertising network • Open Graph API • Alliance with Zunga 	<ul style="list-style-type: none"> • Outside link search
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Source: Summarized by this study

(* Beacon project was shut down in 2008 Due to privacy issue concern)

5.3 Battle on Mobile Phone Platform

In mobile phone industry, the lack of a ‘standard’ in any part of the ecosystem (as the below Table 5-6) means that handsets look completely different from each other and the operating systems are incompatible. This has hampered the overall usability of mobile phones for advanced content and services in many ways, not least the development of applications. This phenomenon also increases the entry barrier for the industry, which implies the competitions are violent. In this section, this study tries to figure out the four major players (Apple, Nokia, Microsoft and Google) based on mobile phone operating system and their strategies.

Table 5- 6 Mobile Phone Ecosystem.

Mobile Phone Ecosystem	
Handset	Nokia, Motorola, RIM, Apple, GPhone (HTC)
Operating System	Symbian, iPhoneOS, RIM, Windows Mobile, Android
Application	App Store, Android Market, Windows Marketplace, Nokia Ovi Store
Network Provider	AT&T, Verizon, Orange, T-Mobile
Content Provider	Amazon, eBay, Yahoo.com, MSN.com

Source: Summarized by this study

The global mobile marketing and advertising market is expected to see impressive growth during the following years, a recent report from Berg Insight shows. According to the firm, the market is expected to grow from EUR1 billion in 2008 up to EUR8.7 billion in 2014, registering a compound annual growth rate (CAGR) of 43 percent. Berg Insight⁶⁹ also shows that the value of the global mobile marketing and advertising market is expected to account for 11.7 percent of the total digital advertising market by that year. It seems that the mobile media is expected to become a natural part of the marketing media mix, at least this is what the report suggests.⁷⁰

■ **The new advertising type on mobile phone: Click to call**

Click-to-call, currently is implemented on mobile advertising service, is a form of Web-based communication in which a person clicks an object (e.g., button, image or text) to request an immediate connection with another person or advertiser in real-time either by phone call, Voice-over-Internet-Protocol (VoIP), or text. Click to talk requests are most commonly made on websites but can also be initiated by hyperlinks placed in email, blogs, wikis, flash animations or video, and other Internet-based object or user interfaces.⁷¹

⁶⁹ Berg Insight is the research center in Sweden that offers premier business intelligence to the telecom industry.

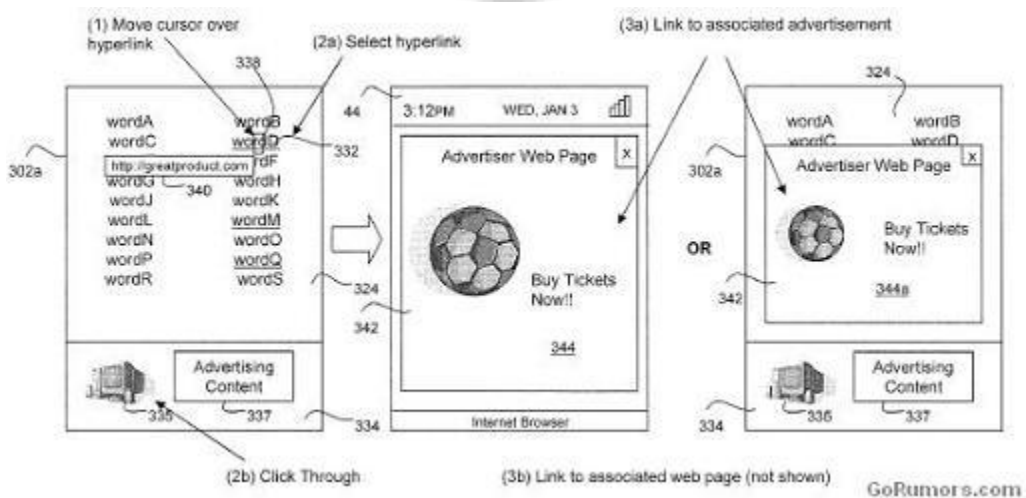
⁷⁰ Source from <http://news.softpedia.com/news/Global-Mobile-Advertising-Market-to-Grow-Significantly-by-2014-127882.shtml>, accessed on July 20, 2010.

⁷¹ Source from http://en.wikipedia.org/wiki/Click_to_call, accessed on July 20, 2010.

With this new technology, ads can be modified directly from the Blackberry App World (for dates, prices, and contact numbers). The service is real-time and detailed. The Blackberry Advertising Service application and Software Development Kit (SDK) are scheduled to be released in the first half of 2010.

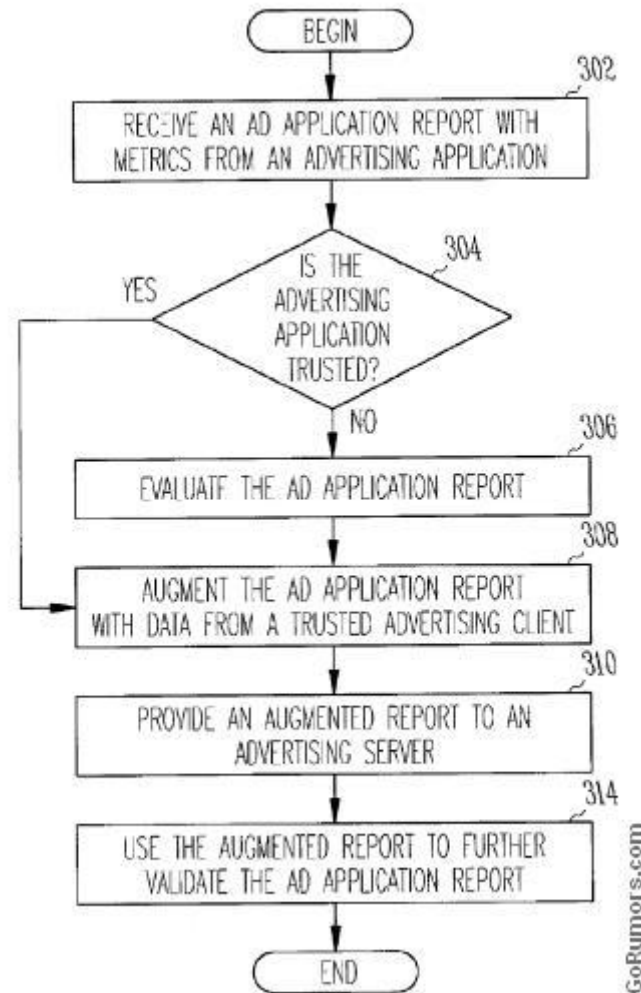
On Feb 18, 2010 RIM took a tactics to apply for two patents related to the advertising segment. One patent titled “SYSTEM AND METHOD FOR INCORPORATING MULTIMEDIA CONTENT INTO A MESSAGE HANDLED BY A MOBILE DEVICE” delves completely into what the Blackberry Advertising Service is supposed to do. The other one has described a technology that will minimize occurrences of ad impression-inflation on part of app developers. The patent says this will be done by “A method of evaluating advertising metrics may include, but does not require, receiving advertising metrics from an application handling advertisements, augmenting the advertising metrics with data from an advertising client, and validating the advertising metrics”

Figure 5- 25 RIM patent “SYSTEM AND METHOD FOR INCORPORATING MULTIMEDIA CONTENT INTO A MESSAGE HANDLED BY A MOBILE DEVICE”



Source: <http://gorumors.com/wp-content/uploads/2010/02/RIM-BAS.jpg>, accessed on July 20,

Figure 5- 26 RIM patent “SYSTEMS AND METHODS FOR EVALUATING ADVERTISING METRICS”



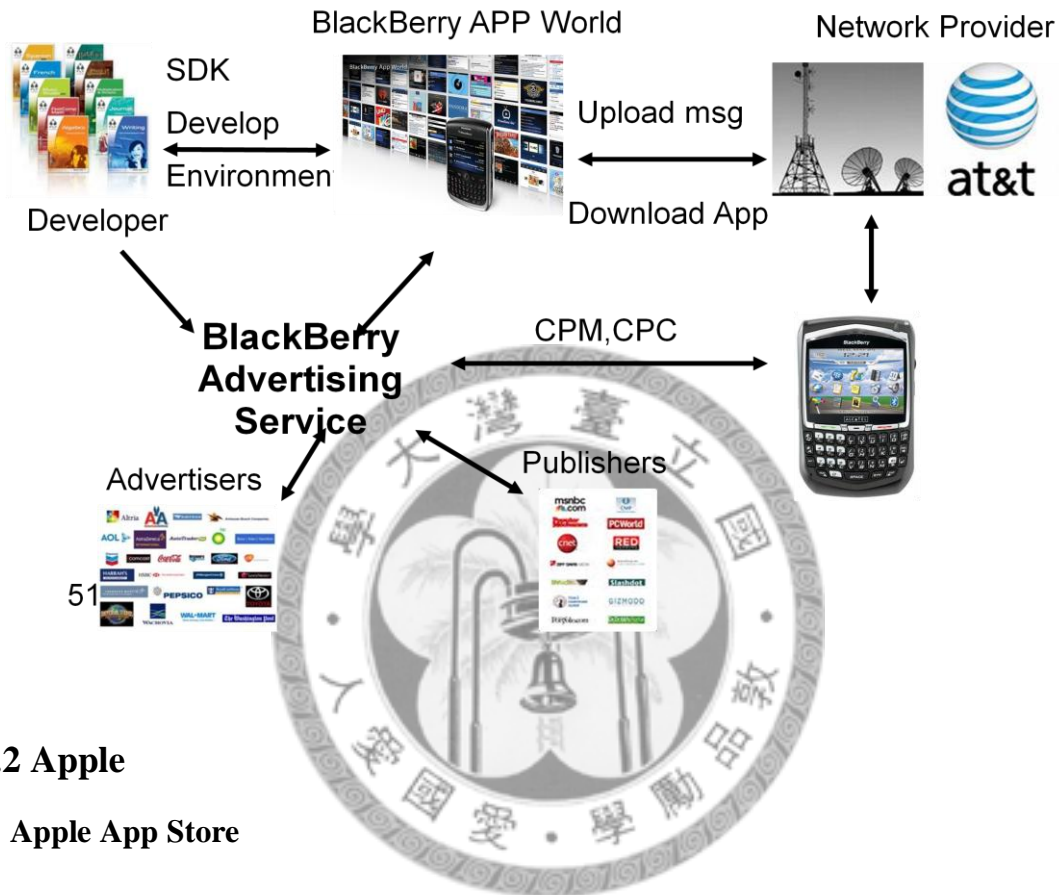
Source: <http://gorumors.com/wp-content/uploads/2010/02/RIM-ad-metrics.jpg>, accessed on July 20, 2010

■ BlackBerry App World

BlackBerry App World is an application distribution service and application by Research In Motion (RIM) for a majority of BlackBerry devices. The service provides BlackBerry users with an environment to browse, download, and update third-party applications. The service went live on April 1, 2009. RIM announced that the store would initially be available in the United States, United Kingdom, and Canada. Applications are both

free and paid from \$2.99-\$999.99 USD in the U.S. Developers pay a \$200 USD fee (Per every 10 Apps) to participate in the program.

Figure 5- 27 BlackBerry’s advertising ecosystem



5.3.2 Apple

■ Apple App Store

App Store is a service for the iPhone, iPod Touch and iPad created by Apple Inc. which allows users to browse and download applications that were developed with the iPhone SDK and published through Apple. Developers who publish their applications on the App Store will receive 70% of sales revenue, and will not have to pay any distribution costs for the application.

Apple announced to reach 1 billion app downloads from the App Store on June 8, 2009. And half year later, Apple's CEO Steve Jobs released a prepared statement, boasting: "Three billion applications downloaded in less than 18 months--this is like nothing we've ever seen before. 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."⁷³ From the research company Gartner report, Apple was responsible for 99.4% of mobile app sales in 2009⁷⁴ (see Table). Therefore it's a big market and business on App download on the next few years including mobile advertisement for Apple.

Table 5- 7 Mobile Application Stores' Number of Downloads and Revenue, Worldwide

(* estimated)

	2009	*2010	*2013
Downloads (in M)	2,516	4,507	21,646
Total revenue (in \$M)	4,237.80	6,770.40	29,479.30

Source: Gartner (December 2009)

■ **iAD: Apple's new mobile advertising platform**

Steve Jobs announced Apple's new mobile advertising platform, iAd. on April 8, 2010. This has been expected since Apple acquired mobile ad platform Quattro Wireless (the mobile advertising platform), after having AdMob snatched away by Google. This new mobile advertising platform combines the emotion of TV ads with the interactivity of web ads. Today, when users click on mobile ads they are almost always taken out of their app to a web browser, which loads the advertiser's webpage. Users must then navigate back to their app, and it is often difficult or impossible to return to exactly where they left. Unlike most mobile ads, iAd solves this problem by displaying full-screen video and interactive ad content without ever leaving the app and keeps users in the same app. This feature allows users returning to their app anytime they choose.

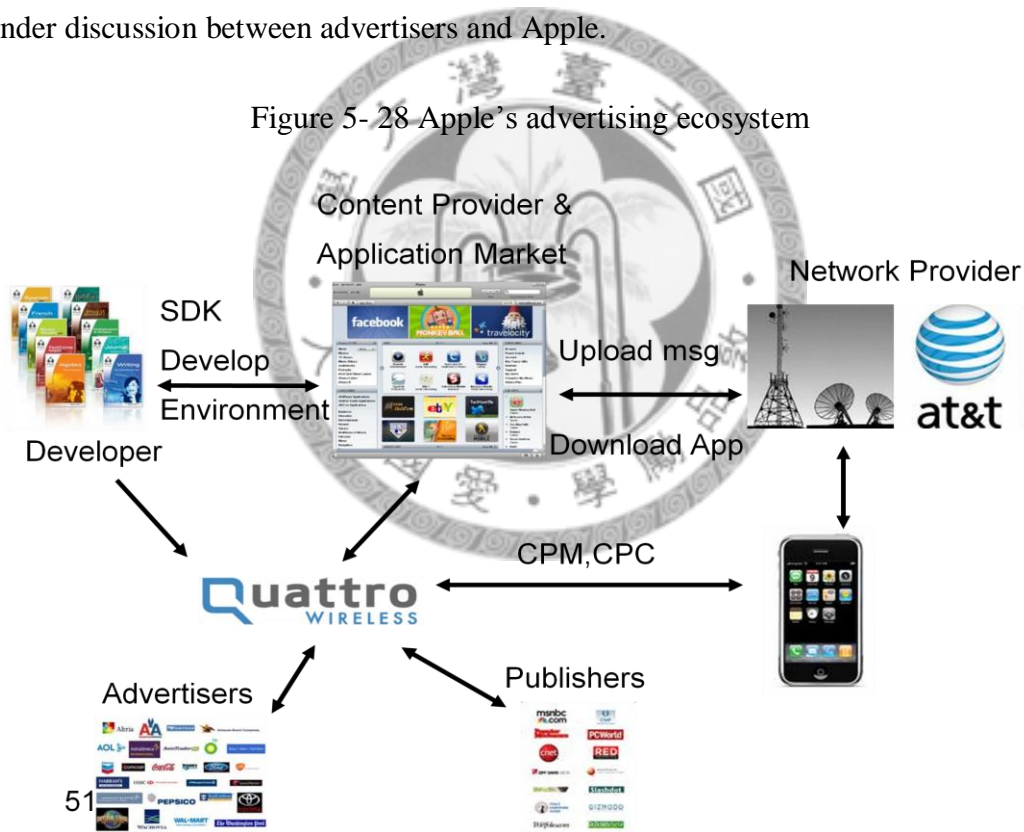
⁷³ Source from http://www.pcworld.com/article/185877/apple_hits_3_billion_apps_served_milestone.html, accessed on July 20, 2010.

⁷⁴ Source from <http://www.gartner.com/it/page.jsp?id=1282413>, accessed on July 20, 2010.

iPhone OS 4 lets developers easily embed iAd opportunities within their apps, and the ads are dynamically and wirelessly delivered to the device. Apple will sell and serve the ads, and developers will receive 60 percent of iAd revenue.

Steve Jobs mentioned on the iPhone OS 4 develop preview: “The average user spends 30 minutes a day in apps. If we put an advertisement up every 3 minutes, that’s 10 ads per day. Throughout the iPhone community, that’s 1 billion ad impressions per day.⁷⁵” And Apple would encourage the advertisers to design for emotional interactive advertising for the users instead of Google’s text-based ads or banner ads. The pricing model on iAd currently is still under discussion between advertisers and Apple.

Figure 5- 28 Apple’s advertising ecosystem



5.3.3 Nokia

■ Ovi.com – internet portal

⁷⁵ Source from <http://techcrunch.com/2010/04/08/apple-announces-iad-mobile-advertising-platform/>, accessed on July 20, 2010.

Ovi was announced on August 29, 2007 at the Go Play event in London. The Ovi is Nokia's internet portal and its services can be used from a mobile device, computer or via the web (Ovi.com). Ovi provides the five key services areas: Games, Maps, Media, Messaging and Music. It is obviously that Nokia is moving deeper into the world of internet services to directly compete with Google, Microsoft, Yahoo!.

From the Figure 5- , Nokia has the deeper vertical integration compared with other competitors on mobile phone industry. (i) Ovi offers Internet services such as applications, games, music, maps, media and messaging. (ii) Nokia's subsidiary Nokia Siemens Networks produces telecommunications network equipment, solutions and services. This competitive advantage ensures the highly compatibility between handset and telecommunications network. (iii) Nokia is also engaged in providing free digital map information and navigation services through its wholly-owned subsidiary Navteq.

■ Nokia Media Network

On the second half year of 2007, Nokia would like to expand its footprint beyond hardware and agreed to acquire Enpocket to build its advertising platform.⁷⁶ On 11 Feb 2008, Nokia announced the expansion of the Nokia Media Network, a mobile advertising network that reaches more than 100 million consumers around the globe.⁷⁷ AccuWeather, Discovery, Hearst, Reuters, and Sprint were the first companies on board. The Nokia Media Network allows advertisers to target consumers on the pages of premium mobile internet publishers, operator partners and Nokia services, with click-through rates on the network averaging 10

⁷⁶ Source from <http://www.clickz.com/3627055>, accessed on July 20, 2010.

⁷⁷ Source from http://conversations.nokia.com/tag/nokia-media-network/?wpmp_switcher=desktop, accessed on July 20, 2010.

percent. However until today, the author would not find the global mobile advertising market share from any research center.

■ **Nokia and Yahoo! alliance**

Unfortunately Nokia didn't win the successfully battle on the internet service. On 24 May 2010, Nokia and Yahoo! together announced the strategic alliance agreement.⁷⁸ The agreement involves Yahoo providing its email and instant messaging services on all of Nokia's handsets. Nokia, for its part, will make its mapping services available to Yahoo customers. At the same time, the two companies are to start work on what they call 'ID federation between their services'. The intention is to make it possible for customers of Nokia's Ovi online store to access services from Yahoo using their Ovi online identification. In a joint press release, Nokia and Yahoo say some services will become available in the second half of 2010, with full global availability expected in 2011.

Recent years Yahoo! spent lots of resources investing the map services for its users. Under this strategic alliance with Nokia, Yahoo! could more focus developing on its competitive advantage. "By using Nokia's map and Navteq services, it will be a much richer experience for our users," Bartz said. She said the alliance would help Yahoo build its audience in developing countries such as Indonesia, India and Thailand where the primary way many people access the Internet is through their phones. Nokia will be able to engage with Yahoo!'s millions of users, particularly in the U.S. market.

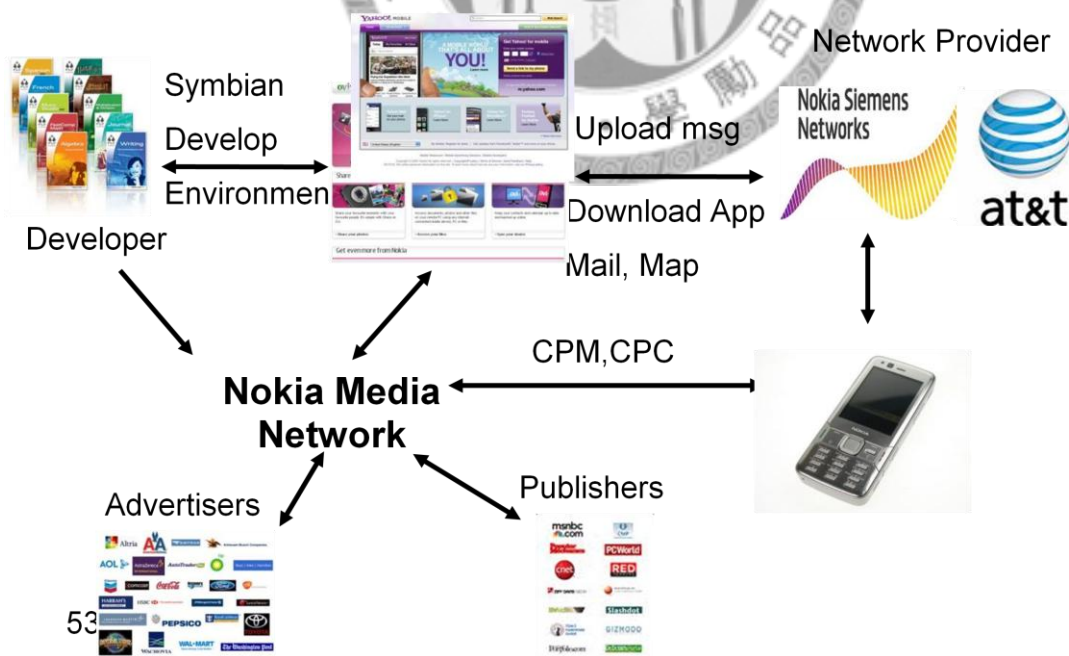
■ **oneSearch**

⁷⁸ Source from <http://conversations.nokia.com/2010/05/24/nokia-and-yahoo-team-up-in-online-services/>, accessed on July 20, 2010.

Yahoo! introduced its Internet search system, called oneSearch, developed for mobile phones on March 20, 2007. The company's officials stated that in distinction from ordinary Web searches, Yahoo!'s new service presents a list of actual information, which may include: news headlines, images from Yahoo!'s Flickr photos site, business listings, local weather and links to other sites. Instead of showing only, for example, popular movies or some critical reviews, oneSearch lists local theaters that at the moment are playing a certain movie, user ratings and news headlines regarding the movie. A zip code or city name is required for Yahoo! oneSearch to start delivering local search results.⁷⁹

The results of a Web search are listed on a single page and are prioritized into categories. The list of results is based on calculations that Yahoo! computers make on certain information the user is seeking.

Figure 5- 29 Nokia's advertising ecosystem
Nokia Ovi + Yahoo



⁷⁹ Source from http://en.wikipedia.org/wiki/Yahoo!_Advertising#Revenue_model, accessed on July 22, 2010.

5.3.4 Microsoft

■ Microsoft AdCenter

Microsoft announced on 18 Feb 2008 of its mobile advertising platform and solutions that were developed by its Advertiser and Publisher Solutions Group.⁸⁰ In addition, in its effort to expand into the mobile advertising market, Microsoft adCenter offers U.S. advertisers the ability to launch Mobile Search Ads campaigns. These consist of short, text-based ads delivered by Microsoft adCenter that let searchers click on the ad's landing page and/or click to call the business directly from their mobile devices.

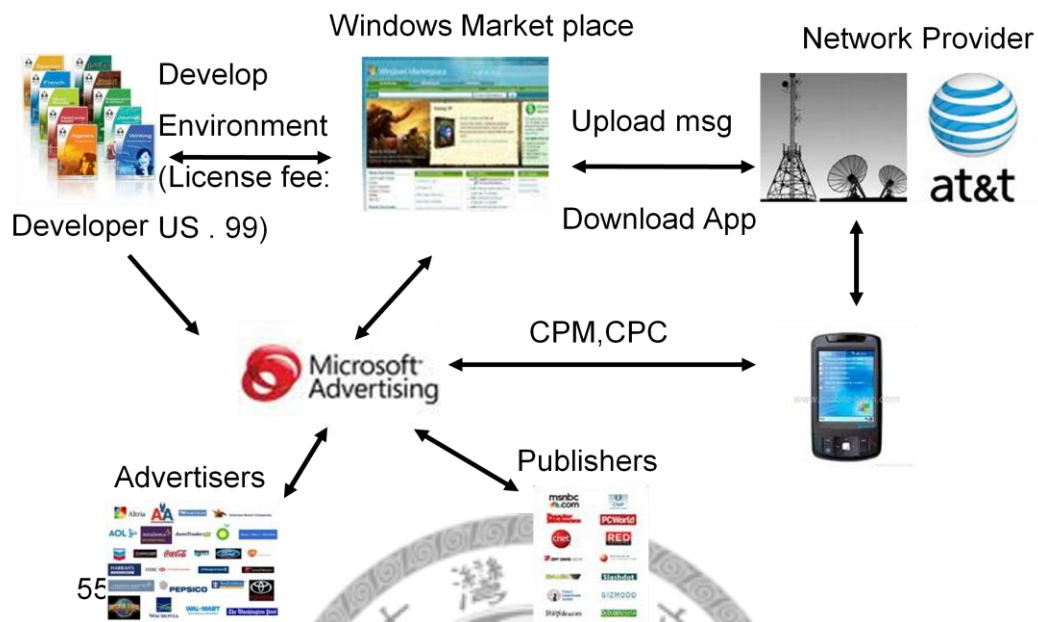
■ Windows Marketplace for Mobile

Windows Marketplace for Mobile is a service by Microsoft for its Windows Mobile platform that allows users to browse and download applications that have been developed by third-parties. The applications are available for use directly on Windows Mobile 6.5 devices, and on personal computers. It was announced at the 2009 Mobile World Congress, and began operation on 6 October, 2009, featuring an initial 246 applications.⁸¹ Microsoft provides the same profit sharing model as Apple and gives 70% of each application sale will be paid to developers. A one-time \$99 USD fee for developers to list up to five applications yearly in the store is charged by Microsoft. Microsoft insists this \$99 USD fee in order to assure the quality of the applications and mentions this fee would support the sales force and quality assurance.

⁸⁰ Source from <http://www.microsoft.com/Presspass/press/2008/feb08/02-11MobileAdsMWCPR.aspx>, accessed on July 20, 2010.

⁸¹ Source from http://www.pcworld.com/article/173225/whats_inside_the_windows_mobile_marketplace.html, accessed on July 20, 2010.

Figure 5- 30 Microsoft’s advertising ecosystem



5.3.5 Google

■ AdMob

AdMob is one of the largest mobile advertising companies founded by Omar Hamoui. in 2006.⁸² In November 2009 it was acquired by Google for \$750 million. Apple Inc. had also expressed interest in purchasing the company at the same year, but they were out-bid by Google, and have turned to acquire Quattro Wireless in 2010 and launched their own iAd advertising platform in April 2010. Admob both supports the mobile advertising on Android and iPhone operating system.

Admob serves and connects four major roles of mobile advertising: advertisers, agencies, App developers and publishers.

- For advertiser: AdMob provides innovative solutions for brand and performance advertisers to engage your mobile target audience.

⁸² Source from <http://en.wikipedia.org/wiki/AdMob>, accessed on July 20, 2010.

- For agencies: AdMob offers a turnkey solution to help you get your brand in the hands of your target audience no matter where they are: at home, at work, at play, or in transit.
- For App developers: AdMob provides app developers with a solution to distribute and monetize your apps. All SDKs are designed to take advantage of the unique capabilities of each platform.
- For publishers: AdMob offers a large selection and volume ads across the mobile internet, and help match the right ad for publishers' mobile traffic.

Figure 5- 31 Admob's mobile ecosystem



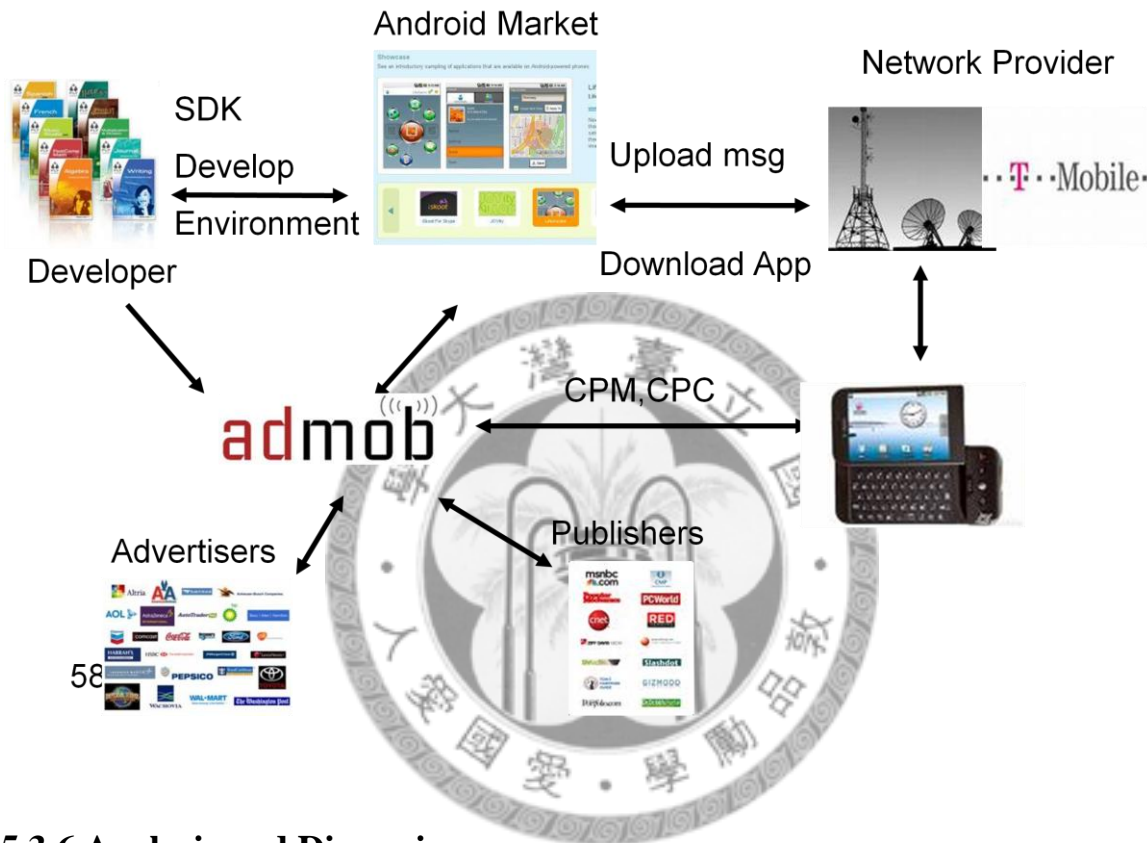
■ Android Market

Android Market was announced on 28 August 2009 as an online software store developed by Google for Android devices.⁸³ This idea is just followed by Apple Store. Unlike with the iPhone, there is no requirement and restriction that Android apps be acquired from Android Market. Android apps may be obtained from any source including a developer's own website. Developers could receive 70% of the application price, with the remaining 30%

⁸³ Source from http://en.wikipedia.org/wiki/Android_Market, accessed on July 20, 2010.

distributed between carriers (if authorized to receive a fee for applications purchased through their network) and payment processors as Google Checkout.⁸⁴ Revenue earned from the Android Market is paid to developers via Google Checkout merchant accounts.

Figure 5- 32 Google’s advertising ecosystem



5.3.6 Analysis and Discussion

Apple was the first firm to have revenue sharing alliance with the telecommunication company as AT&T since Apple iPhone had successfully enabled and brought the huge mobile traffic than any other mobile phones on early era. However, AT&T announced on June 9 2008 with the new agreement between Apple and AT&T eliminates the revenue-sharing model under which AT&T shared a portion of monthly service revenue with Apple. Under the revised agreement, which is consistent with traditional equipment manufacturer-

⁸⁴ Source from <http://www.android.com/us/developer-distribution-agreement.html>, accessed on July 21, 2010.

carrier arrangements, there is no revenue sharing and both iPhone 3G models will be offered at attractive prices to broaden the market potential and accelerate subscriber volumes.⁸⁵

Nokia is worldwide No.1 cell phone manufacturer on recently years. However, its market share dropped from over 50% to 34% on 2009.⁸⁶ On the smart phone or mobile phone market on U.S., Nokia didn't sit inside the top five ranking list. Therefore Nokia made a strategic alliance with Yahoo! and hope Yahoo! would help to increase more market position on U.S. market.

According to market share data from comScore on U.S., Microsoft started to lose its market share, and Google grew very fast from 2.5% on Sep 2009 to 13.0% on May-2010 on market share. Another decade happened to Palm, from 8.3% on Sep. 2009 to 4.8% on May 2010. Apple maintains its market share around 24%, and RIM still is the winner on U.S market.

From the data survey of users behavior, most users spend their time on sending message to another phone, and there are 31% browsing the website from mobile phone and 30% downloading App from each mobile phone's App shop or store. This is the reason why every mobile phone company focusing on their App store and trying to attract more developers to join their platform to develop the App for their customers. This phenomenon might imply the quality of App store, the contents of App and the numbers of developers and App on the platform would significantly influence the market share of the mobile phone.

⁸⁵ Source from <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=25791>, accessed on July 16, 2010.

⁸⁶ Source from <http://blog.taragana.com/index.php/archive/nokia-revises-its-2009-global-market-share-estimate-down-to-34-pct-expects-no-change-in-2010/>, accessed on July 21, 2010.

Table 5- 8 Top Smartphone Platform Market Share on U.S. Market (Sep 2009 – May 2010)

Top Smartphone Platforms 3 Month Avg. Ending May 2010 vs. 3 Month Avg. Ending Feb. 2010 vs. 3 Month Avg. Ending Dec. 2009 vs. 3 Month Avg. Ending Sep. 2009 Total U.S. Age 13+ Source: comScore MobiLens				
	Share (%) of Smartphone Subscribers			
	Sep-09	Dec-09	Feb-10	May-10
Total Smartphone Subscribers	100.0%	100.0%	100.0%	100.0%
RIM	42.6%	41.6%	42.1%	41.7%
Apple*	24.1%	25.3%	25.4%	24.4%
Microsoft	19.0%	18.0%	15.1%	13.2%
Google	2.5%	5.2%	9.0%	13.0%
Palm	8.3%	6.1%	5.4%	4.8%

Source: comScore Release⁸⁷; Summarized by this study

Table 5- 9 Mobile Content Usage on U.S. Market (Sep 2009 – May 2010)

Mobile Content Usage 3 Month Avg. Ending May 2010 vs. 3 Month Avg. Ending Feb. 2010 vs. 3 Month Avg. Ending Dec. 2009 vs. 3 Month Avg. Ending Sep. 2009 Total U.S. Age 13+ Source: comScore MobiLens				
	Share (%) of Mobile Subscribers			
	Sep-09	Dec-09	Feb-10	May-10
Total Mobile Subscribers	100.0%	100.0%	100.0%	100.0%
Sent text message to another phone	61.0%	63.1%	63.8%	65.2%
Used browser	26.0%	27.5%	29.6%	31.9%
Used downloaded apps	21.4%	21.6%	27.9%	30.0%
Played games	16.7%	17.8%	21.8%	22.5%
Accessed social networking site or blog	13.8%	15.9%	18.2%	20.8%
Listened to music on mobile phone	11.7%	12.1%	13.1%	14.3%

Source: comScore Press Release⁸⁸; Summarized by this study

⁸⁷ Source from

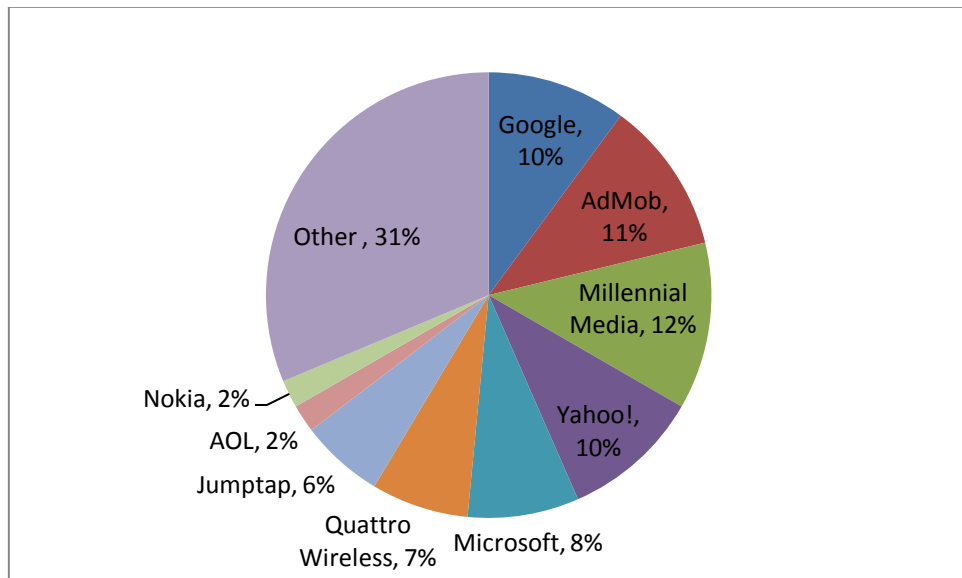
http://www.comscore.com/Press_Events/Press_Releases/2010/2/comScore_Reports_December_2009_U.S._Mobile_Subscriber_Market_Share, accessed on July 21, 2010.

⁸⁸ Source from

http://www.comscore.com/Press_Events/Press_Releases/2010/2/comScore_Reports_December_2009_U.S._Mobile_Subscriber_Market_Share, accessed on July 21, 2010.

From Figure 5-33, the report of IDC 2009 indicates that after Google acquired AdMob, the market share of two companies is equal to 21% and becomes the largest one on mobile advertising business.

Figure 5- 33 2009 U.S. mobile advertising market share



Source: IDC 2009



Table 5- 10 Comparison among different mobile phone platform

	Revenue stream	Operating System	Role in the industry	Business Model
Google	*Mobile advertising	Android	*OS Platform Provider *Application provider (Google Map, Gmail, GTalk)	*Search service on Mobile including Google Map and Local Search
Apple	*Revenue sharing with AT&T (terminated on 2009) *Profit Sharing with third party developer *Revenue sharing from App download *Revenue sharing from App	iPhoneOS	*OS Platform Provider *Application provider *Hardware design	*Handset Designer Revenue sharing with AT&T (terminated on 2008) *Profit Sharing with third party developer
RIM	*Selling Handset *Service fee to carrier partner *Licensing fee from application 20% from App, 80% for developers	BlackBerry OS	*OS Platform Provider *Application provider *Hardware design	Handset Designer and Manufacturer Service provider (enterprise mail application)
Nokia	*Selling Handset *Licensing fee from OS	Symbian	*OS Platform Provider *Application provider *Hardware design and manufacturer *Network Solution Provider	*Handset Designer and Manufacturer *Provide Ovi Portal and free services (Mail, Map, Music)
Microsoft	*Licensing with OS *Profit Sharing with third party developer	Windows Mobile	*OS Platform Provider *Application provider(MSN) *Portal Provider(MSN.com)	*License OS to Handset Manufacturer

Google	* Android * AdMob	* Open Handset Alliance (Android) * Internet Application Install Base (Gmail, map)	Competitive Advantage
Apple	* iAD (ads inside App)	* Brand Equity * Solid integration service (App Store)	
RIM	* Ads inside App * Patent protection	* No. 1 market share on U.S. * All integrate in-house	
Nokia	* Alliance with Yahoo	* Leading install base on Mobile market * Deeply Vertical integration	
Microsoft	* Enhance and integration services	* Desktop Install Base (Windows) * Portal (msn.com)	

Source: Summarized by this study

5.4 Battle on Operation System Platform

This section is discussing the battle between Microsoft and Google. Before jump into further discussion, this study first needs to clarify the original base from the two operating systems. Some people also consider this battle between Microsoft and Google is equal to the battle between Close-system and open source system. In the following paragraph, this study introduces the main definition of open-source software and several popular licenses method.

Open-source software (OSS)⁸⁹ is computer software that is available in source code form for which the source code and certain other rights normally reserved for copyright holders are provided under a software license that permits users to study, change, and improve the software. Below are the popular examples of open source licenses from the summary on Wikipedia.

⁸⁹ Source from http://en.wikipedia.org/wiki/Open_source_software, accessed on July 18, 2010.

- Apache License, requires preservation of the copyright notice and disclaimer, it allows use of the source code for the development of proprietary software as well as free and open source software.
- BSD license, The BSD License allows proprietary use, and for the software released under the license to be incorporated into proprietary products.
- GNU General Public License, The GPL is the first and foremost copyleft license, which means that derived works can only be distributed under the same license terms.
- GNU Lesser General Public License, It was designed as a compromise between the strong-copyleft GNU General Public License or GPL and permissive licenses such as the BSD licenses and the MIT License
- MIT License, It is a permissive license, meaning that it permits reuse within proprietary software on the condition that the license is distributed with that software.
- Eclipse Public License The Eclipse Public License is designed to be a business-friendly free software license, The receiver of EPL-licensed programs can use, modify, copy and distribute the work and modified versions, in some cases being obligated to release their own changes.
- Mozilla Public License. The MPL is the license for the Mozilla Application Suite, Mozilla Firefox, Mozilla Thunderbird and other Mozilla software. The license is regarded as a weak copyleft.

5.4.1 Microsoft

■ Windows Market Share

Microsoft Windows is a series of software operating systems and graphical user interfaces produced by Microsoft including operating system, collaboration, security,

entertainment & devices, IT operations, business platform, online applications and application platform (see Figure 5-22). Microsoft first introduced an operating environment named Windows in November 1985 as an add-on to MS-DOS in response to the growing interest in graphical user interfaces (GUIs). Then Microsoft Windows came to dominate the world's personal computer market and overtaking Mac OS. As of October 2009, Windows had approximately 91% of the market share of the client operating systems for usage on the Internet. Table 5-10 demonstrates Windows OS market share in May 2010 from Net Market Share.

Figure 5- 34 Windows Serial Software with their family



Table 5- 11 Windows Market Share in May 2010

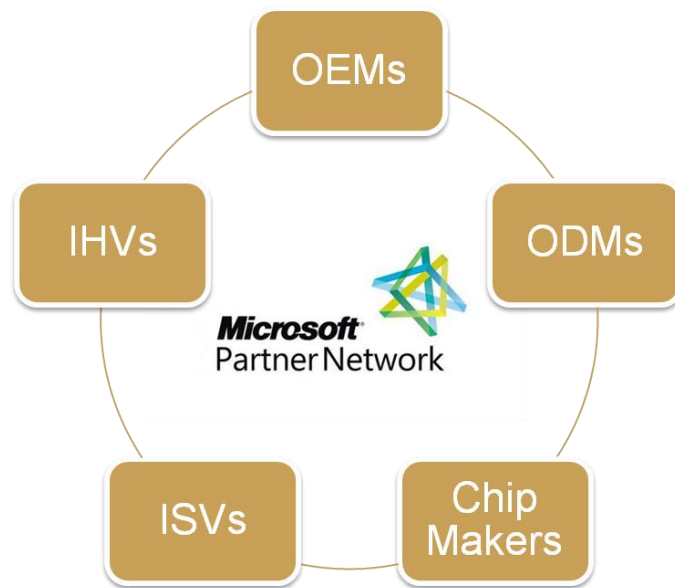
Windows OS market share	
Source	Net Market Share
Date	<i>May 2010</i>
All versions	91.16%
Windows XP	62.55%
Windows Vista	15.25%
Windows 7	12.68%
Windows 2000	0.5%
Windows 98	0.1%
Windows Me	0.08%

Source: Wikipedia (http://en.wikipedia.org/wiki/Microsoft_Windows), accessed on July 22, 2010.

■ Business Model

Microsoft develops their software and sells the license to individual user, schools, enterprises and governments. Microsoft also establishes their partner network from OEMs, ODMs, Independent Hardware Vendors (IHVs), Independent Software Vendors (ISVs) and chip makers (like Intel, AMD). IHVs and ISVs need to pay the license fee to Microsoft to get the certificate from Microsoft. On Mobile Phone industry, handset manufactures designed based on Windows Mobile operating system need to pay OS license fee for each shipping handset. On Windows Marketplace, the developers also need to pay one-time fee \$99 USD dollar for the registration and additional submission fee (\$99 USD dollar for each cab. File) if developers would like to publish their applications. Microsoft claims this fee is to maintain the high quality based on their internal quality assurance.

Figure 5- 35 Microsoft Partner Network



This study summarizes the general difference between open source software and Windows software as shown on Table 5-11. Since Microsoft develops all their in-house technology, they would have more ability and capacity to provide the customized support, customer and training support, quality control, and allow interoperability among different platforms. However the costs of research and develop are normally higher than open source software. Open source like Linux-based has many different versions for personal and enterprise version. Therefore the quality of software is variant among different versions. Some versions might be less mature with low level security and incomplete functionalities. But there are still many reliable open source software like OpenSolaris, the Unix operating system from Sun Micro, Mozilla Firefox, OpenOffice, and Symbian etc.

Table 5- 12 Comparison between Microsoft-Based Source and Open Software Source

	Microsoft-Based Software	Open Source Software
Technical and develop environment	Relative mature and complete	Relative in-mature and cost more resource
Time-to-market	Fast	Dependant
Source code	Close	Open
Security	High	Low

Developer Community	Large	Not large, but increase
Quality	Minimal Assurance	Dependant
R&D Cost	High	Low
Training and Support	Yes	Dependant
Interoperability	Yes	Dependant

Source: Summarized by this study

5.4.2 Google Android and Chrome

5.4.2.1 Google Android

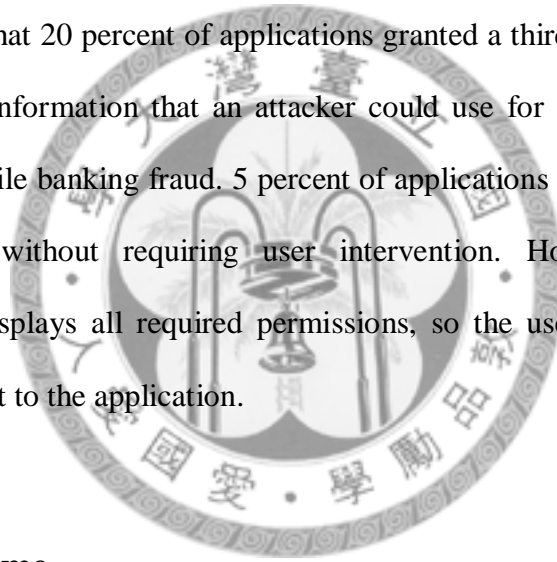
On 5 November 2007 Android operating system was announced with the founding of the Open Handset Alliance, a consortium of 71 hardware, software, and telecom companies devoted with the goal to develop open standards for mobile devices such as cellular phones, tablet computers and netbooks. Android was developed by Google and based upon the Linux kernel and GNU software. It was initially developed by Android Inc. (a firm later purchased by Google) and lately by the Open Handset Alliance. Google released most of the Android code under the Apache License and allows vendors to add proprietary extensions without submitting those back to the open source community. Google also opened the entire source code (including network and telephony stacks) under an Apache License. This operating system provides higher incentive for the hardware vendors and attracts more developers to join the alliance and modify the strategy from developing on Windows environment.

According to NPD Group, unit sales for Android OS smartphones ranked second among all smartphone OS handsets sold in the U.S. in the first quarter of 2010. BlackBerry OS and iOS ranked first and third respectively. A Nielsen report for the same quarter placed Android in fourth place with 9% of the market.

Android has a large community of developers writing apps that extend the functionality of the devices. There are currently over 90,000 apps available for Android, which makes it the second most popular mobile development target. (Apple App is ranked as No.1). Developers write managed code in the Java language, controlling the device via Google-developed Java libraries, which is quite different with the .NET environment developed on Windows system.

■ Security concern on Android⁹⁰

In June 2010, a study performed on 48000 Android market applications by SMobile Systems Inc., revealed that 20 percent of applications granted a third party application access to private or sensitive information that an attacker could use for malicious purposes, such as Identify theft, or mobile banking fraud. 5 percent of applications have the ability to place a call to any number, without requiring user intervention. However, while installing applications Android displays all required permissions, so the user can decide how much access they want to grant to the application.



5.4.2.2 Google Chrome

Google developers began coding the operating system in 2009, inspired by the growing popularity and lower power consumption of netbooks and the focus of these small laptops on Internet access. Google Chrome OS is an upcoming Linux-based, open source operating system designed exclusively with web applications. Announced on July 7, 2009, Chrome OS is set to have a publicly available stable release during the second half of 2010. Different with the policy of Android OS, Chrome OS will not be available as a download to run and install. Instead, the operating system will only ship on specific hardware from

⁹⁰ Source from http://en.wikipedia.org/wiki/Android_Market, accessed on July 20, 2010.

Google's manufacturing partners. The user interface takes a minimalist approach, resembling that of the Chrome web browser. Because the only application on the device will be a browser incorporating a media player, Google Chrome OS is aimed at users who spend most of their time on the Internet.

On November 19, 2009, Google released Chrome OS's source code as the Chromium OS project. As with other open source projects, developers are modifying code from Chromium OS and building their own versions, whereas Google Chrome OS code will only be supported by Google and its partners, and will only run on hardware designed for the purpose. Unlike Chromium OS, Chrome OS will be automatically updated to the latest version. In March 2010 Google indicated that consideration is being given to developing two versions of the operating system, a consumer version and an enterprise version.

■ **Hardware pricing**

Schmidt has acknowledged that Chrome OS will be compatible with a smaller library of applications than conventional operating systems, like Windows, which support both Web- and client-based applications. That limitation, coupled with Chrome OS having no licensing fee, has caused speculation as to the retail price of Chrome OS devices.

In April 2010, Eric Schmidt indicated that he expected prices for Chrome OS netbooks to range from US\$300 to \$400, and thus be similar in cost to comparable devices that ship with closed source operating systems. Moreover, he confirmed that Google will supply the operating system for free, but it will be up to hardware manufacturers and retailers to set their own prices for the devices.

One observer had earlier forecast different pricing models for Chrome OS and its products. In November 2009, Glyn Moody, writing for Linux Journal, predicted that Google's

market model for the Chrome OS will be to give the software and the netbook hardware that it will run on away for free, as a means of expanding its advertising-based model. He said: "The unexpected success of netbooks over the last two years shows there is a market for this new kind of computing; giving away systems for free would take it to the next level. Then, gradually, that instant-on, secure, secondary netbook might become the one you spend most time on, and Google's ad revenues would climb even higher...."

5.4.3 Analysis and Discussion

This study analyzes the differences between Google Android, Chrome operating system and Microsoft Windows operating system and summarizes the conclusion on Table 5-12. Some differences already mention on previous section. This section would only discuss the further issues from different factors.

Google explains Android is designed for Phone including solving network protocol and telephony technology, and Chrome is designed for computer, netbooks for web accessing with simple, security and fast features. However, the consumers and even their partners still confuse by the position of these two operating systems and the future developing road map.

■ **Confusing descriptions on Android and Chrome:**

- Chrome is designed for computer, however Android is designed for Phone
- "There are different problems to be solved in different categories of consumer products," Rubin said.
- Microsoft CEO Steve Ballmer accused Google of not being able to make up its mind.
- Co-founder Sergey Brin suggested that the two systems "will likely converge over time".
- Netbook hardware manufacturer also confused on Google's OS strategy

■ **Microsoft's strategy to face 'free' OS from Google**

Currently Microsoft starts to promote their low price products with basic function. They decide to take discrimination pricing to separate their customers. For example, Office 2010 now is free for the students based on basic functionality. On the latest mobile phone OS: Windows 7, Microsoft announced that they will start to consider to charge the license fee from the carrier.

From the technical point of view, normally open and free source OS has lower security than close OS. Although open source OS are free to the develop communities and the partners, they still need to make lots of effort to produce higher quality products or software. However, license fees for close OS like Windows are high fixed cost for the firms on the long term plan.

It's obviously that Google plans to expand their install base everywhere on computer, netbook, mobile phone and even television. The unchanged business model is advertising. However, before reaching to the economy of scale, Google still need to subsidy their partners, and even the consumers to get used into their network.

■ Three screens and one cloud

On Nov 17, 2009 Microsoft announced the availability of the Windows Azure platform at the Microsoft Professional Developers Conference (PDC). Ozzie described in his keynote address the company's "three screens and a cloud" vision, where software experiences are seamlessly delivered across PCs, phones and TVs, all connected by cloud-based services. The three screens and one cloud means Microsoft would provide a seamless experience for our consumers as they move from home, to their car and finally to the office; linking and backing up information to the cloud – the 'data centres that are sitting way up

there’ – so that even if someone lose a device, he or she does not lose critical information.⁹¹ Microsoft’s approach is to have a different platform for each screen, Windows for PC, Xbox for TV and Windows Phone for mobile devices, but having the same languages available to developers on each platform and the cloud.⁹²

Google is much harder to see how their strategy is working out as two of the OSs for two screens aren’t out yet, but what we do know is that their Android platform allows developers to build applications to run natively on the device. Their Chrome OS for PCs will only use web standards to access services so won’t require many developers to learn a new language. Currently Google announced Google TV on May 20, 2010, a software platform for set-top boxes and HDTVs based on the Android operating system and co-developed by Google, Intel, Sony and Logitech. Moreover, the advantage of using HTML for the PC screen is that the same website/service will be accessible on any device as they can generally all connect to the internet too.

To sum up, no matter Microsoft or Google, and even Apple are trying to expand their market share and install base from computers to mobile phone, or from mobile phone to TV. It is no doubt the final winner could enjoy the largest revenue from advertising business and other potential business opportunities. The battle is hot now and any of these giant companies don’t want to lose the battles.

Table 5- 13 Comparison between Google and Microsoft Operating system

	Google	Microsoft

⁹¹ Source from <http://www.leadershiponline.co.za/articles/other/351-three-screens-and-the-cloud>, accessed on July 21, 2010.

⁹² Source from <http://michaelgillettonline.com/2010/06/08/3-screens-and-the-cloud-its-more-than-just-microsoft/>, accessed on July 22, 2010.

OS Scope	<ul style="list-style-type: none"> • Android (Mobile and Tablet) • Chrome (Netbook and computer) 	<ul style="list-style-type: none"> • Windows serial (Desktop, Server etc.) • Windows Mobile (Mobile) • Xbox (Game console)
Business Model	<ul style="list-style-type: none"> • Advertising everywhere (include internet, mobile, TV) 	<ul style="list-style-type: none"> • License with OS • Embedded Market campaign
Revenue stream	<ul style="list-style-type: none"> • Search advertising • Display advertising 	<ul style="list-style-type: none"> • License fee from OS • License for value-added application • Market campaign
Competitive Advantage	<ul style="list-style-type: none"> • Open source alliance (no license fee) • Low entry barrier on technical development • Increasing developer communities 	<ul style="list-style-type: none"> • Brand Equity • Integration and Security for Enterprise • Quality Assurance • No.1 Desktop install base • Large partner network
Disadvantage	<ul style="list-style-type: none"> • Two operating system confuse all their alliance partners • Linux-based has less security with quality issue 	<ul style="list-style-type: none"> • Less and less alliance partners develop on Windows Mobile solution
Strategy	<ul style="list-style-type: none"> • Let market choose • Broaden the battle line (internet->Mobile->Netbook->TV->Cloud) 	<ul style="list-style-type: none"> • Accelerate integration across multi-platform • Develop free and low cost application (discrimination pricing) • Broaden the battle line (internet->Mobile->Netbook->Digital Home->Cloud)

Source: Summarized by this study

5.5 Next Battle on Location Based Service Platform

A location-based service (LBS) is an information and entertainment service, accessible with mobile devices through the mobile network and utilizing the ability of geographical positioning capability of the mobile device.⁹³

LBS services can be used in a variety of contexts, such as health, work, personal life, etc. LBS services include services to identify a location of a person or object, such as discovering

⁹³ Source from http://en.wikipedia.org/wiki/Location-based_service, accessed on July 25, 2010.

the nearest banking cash machine or the whereabouts of a friend or employee. LBS services allow users to find Points of Interest using their current location. LBS services include parcel tracking and vehicle tracking services. LBS can include mobile commerce when taking the form of coupons or advertising directed at customers based on their current location. Other examples like including personalized weather forecasts services based on their location, or the ability to play mobile games against people in their local area.

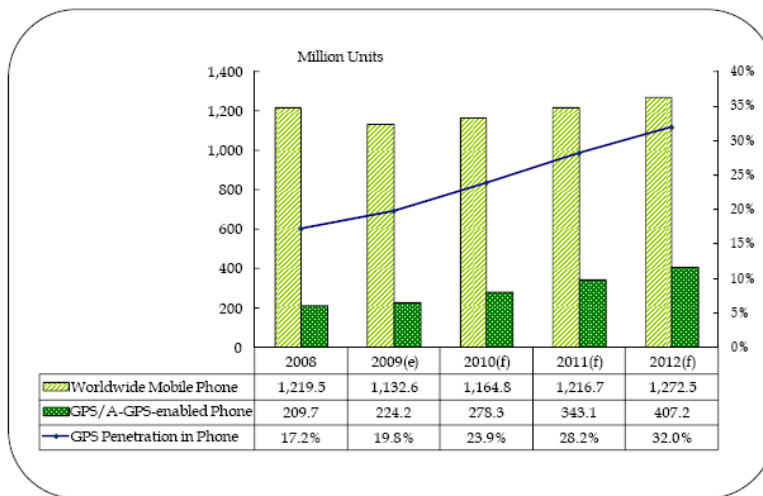
■ Global Market size and forecast report

The average selling price (ASP) of GPS chip is down to \$4 to \$6 US dollars around 2008 to 2009. Therefore it's no longer a relatively high cost of the feature for mobile phone manufacturers. Apple was launched GPS function with its 3G iPhone in July 2008, and allowed the users to plan the travel path based on Google Map plus GPS. Moreover, users could find several LBS-based applications from Apple Store. Google also entered this market in 2008. During the Android Developer Challenge, more than 30 percentages of 50 Innovative Awards applications were related to LBS-based.

According to the report of MIC 2009⁹⁴, the global GPS-enabled mobile phones will reach 32 percentages of worldwide GPS mobile phones around 407.2 million units in 2012.

⁹⁴ Source from MIC - AISP 情報顧問服務網:行動寬頻下之適地性(LBS)服務發展趨勢, Oct 2009.

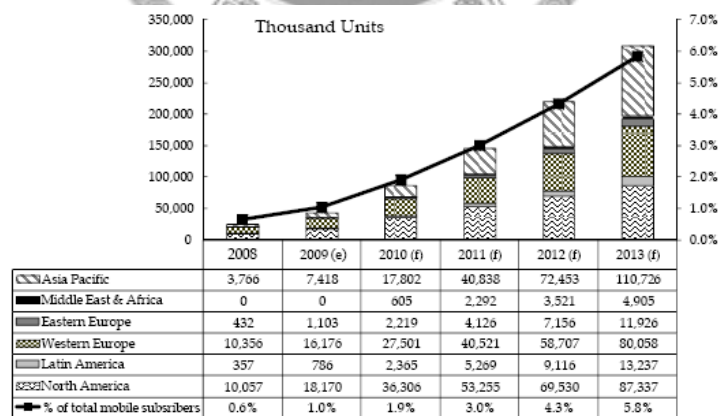
Figure 5- 36 GPS-enable Phone market trend and forecast (2008~2012)



Source: MIC ITIS project report on Jun. 2009

In the same report, the expectation of CAGR from 2008 to 2013 will be 65.3 %. The total LBS application mobile phones will reach 308 million units, which is 5.8 percentages of total mobile subscribers.

Figure 5- 37 Total mobile subscribers units and market forecast (2008~2013)



Source: MIC ITIS project report on Jun. 2009

The forecast CAGR of LBS-related value of output will be 120.8% from 2008 to 2013, and reach \$20.7 billion US dollar in 2013.

■ **Four famous LBS applications on Google Android market and Apple Store**

Actually the LBS-related applications were first developed on mobile network and operators beginning under the government policy related to emergency and security protection. In 1996, Federal Communication Commission of U.S. announced Enhanced 911 report and requested all the mobile phones need to support simple position function for emergency usage. Starting from 1996 to 2007, most of the LBS application models were developed by mobile operators. However after 2008, more and more mobile phone providers joined the market to provide innovative applications from their aspects like Apple, Google, and Nokia. Therefore, this study would only focus on the three players Apple, Google and Nokia, and doesn't include all other applications from mobile operators or other players.

Currently Apple App Store and Google Android Market are two major application providers for the users. The statistic report till May 2009 from Skyhook on the download of App Store indicated the most download categories on its Store were the services related to traveling and navigation. And this trend could be found on Android Market. The following section would introduce the top innovative LBS application from Apple and Google.

(1) Cab4me

Cab4me helps people to find a cab when people need it. Start on the Google map interface and select people approximate pickup location. The map also shows the taxi stands whenever the data is available for users' area. Then switch to the call tab to get a list of local cab companies. If a cab company is found in our database, people can get additional information like available car types or payment methods. If the Cab4me do not have a cab

company for users' area, a local web search is performed. Furthermore, the payment methods would also appear on the phone page.

Figure 5- 38 The snapshot of Cab4me user interface



(2) JOYity

JOYity is established by Germany company Zelfi. AG in 2008 with a platform for designing and running a new kind of mobile games. Players interact with the platform itself as well as through the platform with other players in real life. The games can employ location-based services, requiring players to go to places in real life or to meet other people in order to solve in-game quests. Also, game designers can create their own games using the Android device.

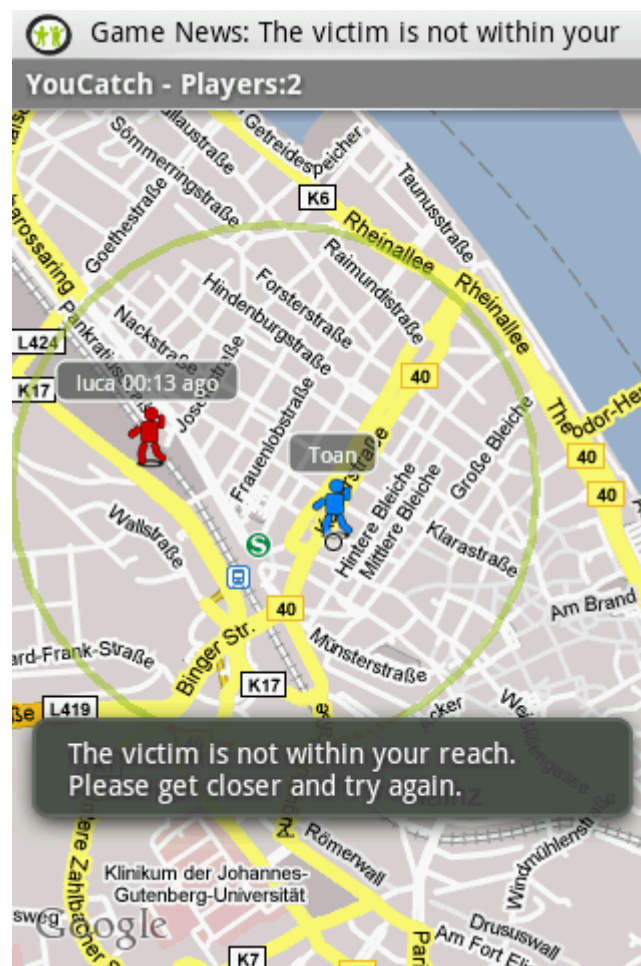
Since JOYity games usually make extensive use of location-based services, the platform utilizes the GPS and map features of Android. JOYity reacts to the players' positions and movements. For example, a game may include a riddle asking the player to look for a particular object close to their current position.

JOYity uses a variety of media for user communication. For instance, the player may have to examine an image and listen to an audio file to deduce the information necessary to progress.

■ Game 1: Youcatch

YouCatch is an intriguing reality game that'll give you boosts of adrenaline. Start the game and get ready for pure excitement as you take part in this game of cops and robbers.

Figure 5- 39 The snapshot of Game:YouCatch user interface from JOYity



■ Other games like roads of San Francisco, and City race Munich

(3) SitorSquat

Bathroom Finder lets people know what bathrooms are nearby. They'll show up on a map based on your current location, and you can see which ones are open as well as read reviews from actual restroom users. Restrooms have ratings and photographs so you'll know exactly what you're getting before you stop. According to the app store, SitorSquat is billed as a "wiki for recording and accessing bathroom information globally." The information is supplied by app users, so the more people contributing information, the easier it will be to find clean restrooms nearby.

Figure 5- 40 The snapshot of SirorSquat user interface



(4) Trapster

Trapster is a free service that alerts drivers to police speed traps, red light cameras and DUI checkpoints. Trapster is partnering with several police departments to get cops to add their own traps to the database. The company is training cops how to use the software. The

Travis County Sheriff's Department in Austin, Texas, is already publicizing its use of the app, and the company expects to announce more partnerships soon.⁹⁵

Figure 5- 41 The snapshot of Trapster user interface



■ Analysis and discussion on future challenge and opportunity

- (1) Currently the common restrictions from these applications are the sizes of communities both for users and merchandises and the database. Since the more people contributing information for the database, the better the application or service will provide, like Cab4me, SitorSquat and Transter. The service providers on the platform need to provide the incentive to create a positive feedback loop for both users and merchandisers together to improve the database and information.
- (2) The competitive advantage of LBS application is 'any where, any time' for future advertisers to target their audiences based on their position and collected data.
- (3) LBS application is starting from mobile operators, and they already invest lots of effort to establish several solid positions. Therefore there will be a new competitive or co-

⁹⁵ Source from <http://www.cultofmac.com/trapster-iphone-speeding-app-attracts-the-most-unlikely-users/26511>, accessed on July 26, 2010.

operative relationship between mobile phone manufacturers and mobile phone operators.

(4) Google provides the free map services (Google Map) for the software developers to develop innovative applications and services for the users, and tries to establish another platform to collect more users information, behaviors, and locations for its future mobile advertising business. However the market still takes time to grow and become mature.

5.6 Summary

Google, Yahoo! and Microsoft have violent competitions on internet advertising business, mobile phone advertising business, and location-based services business. Currently Google challenges on Microsoft's operating system and also enters the phone business to grab the market share from Apple. On the battle of social network service, Facebook seems stronger than Google with its fast increasing web traffic and visitors.

It's obviously that more and more competitors start to build a strategic alliance to fight with others, and these scenarios would be discussed on the final chapter.

To sum up, no matter Microsoft or Google, and even Apple are trying to expand their market share and install base from computers to mobile phone, or from mobile phone to TV. It is no doubt the final winner could enjoy the largest revenue from advertising business and other potential business opportunities. The battle is hot now and any of these giant companies don't want to lose the battles.

Chapter 6 Conclusions

6.1 Research Conclusions

(1) Strategic Group⁹⁶ and Strategic Alliance⁹⁷

A strategic group is a concept used in strategic management that groups companies within an industry that have similar business models or similar combinations of strategies. This study collects some significant cases of strategic group and strategic alliance. All these evidences demonstrate the successful application of strategic groups or strategic alliance from both corporate and business strategy management (see Table 6-1). Although Microsoft failed to acquire Yahoo in 2008, the relationship between Microsoft and Yahoo seemed to improve from this moment. Soon and after Yahoo and Microsoft announced together to become strategic group with the new search alliance and manage together on some of the internet advertising business and integrate the resources and network to share with their customers – advertisers. In 2010, Yahoo, despite of invested lots of resources on the early stage on Mobile Internet, announced to strategic alliance with Nokia to share the each resources together and integrate more services for each customers. The agreement involves Yahoo providing its email and instant messaging services on all of Nokia's handsets. Nokia, for its part, will make its mapping services available to Yahoo customers. At the same time, the two companies are to start work on what they call 'ID federation between their services'.

⁹⁶ Source from http://en.wikipedia.org/wiki/Strategic_group, accessed on July 12, 2010.

⁹⁷ A Strategic Alliance is a formal relationship between two or more parties to pursue a set of agreed upon goals or to meet a critical business need while remaining independent organizations. Source from http://en.wikipedia.org/wiki/Strategic_Alliance, accessed on July 12, 2010.

Google and Microsoft both recognize the potential challenge from Facebook, MySpace and Twitter and also understand the trend and the power of growth of social network services. Therefore in 2006, Google spanned three years and nine months and gained the search exclusive rights to provide Web search results and sponsored links across MySpace. Google also powered search and ads for other Fox Interactive properties.⁹⁸ Soon after Microsoft announced the strategic alliance with Facebook, it would provide search and advertising listings to Facebook's users.⁹⁹ In the end of 2007, Microsoft had beaten out Google in the high-stakes bidding war and resulted in a 1.6 percent stake in the Facebook.

In the early 2005, Google bought Android for its Mobile arsenal and planned to enter into wireless and Mobile Industry. Five years after, Open Handset Alliance (OHA) with more than 73 participants, establishes Android to become one of the leaders of open source platform and operating system for Mobile Phone.

(2) Merger and Acquisition becomes an important strategic tactics

Merger and Acquisition (M&A) becomes an important strategic tactics since the competition among different industries and companies are violent. Moreover, different markets might indicate different entry barrier, technical know-how, game rule and competition environment. Therefore more and more companies adopt M&A strategy as their tactic instead of expand or explore new market by themselves. In addition, M&A strategy could also benefit the company from the following four aspects and achieve the final success.

⁹⁸ Source from http://news.cnet.com/Google-pledges-900-million-for-MySpace-honors/2100-1032_3-6102952.html?tag=mncol, accessed on July 12, 2010.

⁹⁹ Source from http://news.cnet.com/Microsoft-lands-Facebook-ad-deal/2100-1024_3-6108514.html, accessed on July 12, 2010.

Table 6- 1 The summary of strategic group and strategic alliance among different companies.

Category	Strategic Partner	Cooperate Scope
Strategic Group	Yahoo + Microsoft	Search + Internet Advertising
Strategic Alliance	Yahoo + Nokia	Map + Mail
	Microsoft + Facebook	Exclusive Advertising
	Google + MySpace	Exclusive Advertising
	Google + Open Source	Operating System Mobile Phone Platform
	Microsoft + its partner network	Operating System Platform

Source: Summarized by this study

- Reduce learning period

There is no doubt M&A strategy could reduce the risk from expand new market or develop new technology, and reduce the learning period and save the research and develop time and resources.

- Synergy

Synergy is one of the most crucial parts that companies need to take into consideration as M&A. However, M&A cases don't always guarantee there are synergies between two firms. Some firms use M&A strategy as a tactic to protect its own competitive advantage on its market or prevent the potential competitors to harm its market.

- Rapidly time-to-market

Every few moment there is emerging technology or application bring into internet. Rapid time-to-market to attract the large portion of targeted audience is crucial for every

successful business. M&A strategy help the firms reduce research and develop time, experiment and testing time, and provide the up-to-date services for their customers.

- Increase entry barrier

Web traffic and targeted audiences are two crucial factors on the internet. M&A strategy could help the firms generate these two factors as their competitive advantage from other firms in a very short period. This action will also increase the entry barrier for the competitors to enter the same market or provide the same service on the internet.

To sum up, from investigating many case study on internet industry, this study come out the conclusion that deciding proper business plan and model drive the first step of success, however sustainable profit formula and effective strategy implementation assure the final success. In addition, a company on different industry with different role might have different competitive advantage, business model and strategy. Currently the competitors might come from other industry with totally different strategy and competitive advantages. These will bring more challenge for future manager under the keen competition.

There are many research papers and articles to discuss what's the key success factor of Google. However, it's difficult to use one framework or analysis model to clarify or identify the successful stories of Google search, Google itself or other relative business. This study provides different aspects from different dimension to analyze the success lessons from Google and understand the competitive landscape among different industries and battles.

6.2 Further Research Suggestions

6.2.1 The trend of future search engine and competition

(1) Intelligent Search Engine

Currently Microsoft, Twitter start to use semantic technology as the core of search, and Google also has many projects investing in natural language search technology. It's obviously the future search engine might have better intelligence to understand more precisely related to the questions and the query behind the searchers. It's no doubt a good news if the searcher can use natural language search instead of keyword search in the near future.

Below is the descriptions from a freelance Chris Dannen wrote on BNET Blog, a technology professional blog: "What we're seeing actually is that with a lot of data, you ultimately see things that seem intelligent even though they're done through brute force. Because we're processing so much data, we have a lot of context around things like acronyms. Suddenly, the search engine seems smart, like it achieved that semantic understanding, but it hasn't really. It has to do with brute force. That said, I think the best algorithm for search is a mix of both brute-force computation and sheer comprehensiveness and also the qualitative human component."¹⁰⁰,

(2) App is King

On May 2010, Facebook launched Open Graph API to link the information outside the Facebook. Open and free as a platform is the trend for the application and service on the internet. From the author's point of view, the final battle will compete on value-added

¹⁰⁰ Source from <http://industry.bnet.com/technology/10009171/google-shouldnt-fear-facebooks-search-engine-may-actually-get-worse-with-more-users/>, accessed on July 9, 2010.

applications and services because these are apparent ways of revenue streams. Apple already tastes a good result from its App store with 3 billion dollar. Google, Microsoft, and Nokia now all follow the same business model and try to benefit from potential market based on App.

(3) Ethical issue

Currently Facebook has occasionally revealed personal privacy information on its platform and causes the privacy policy issue. How to protect personal information and all privacy information on these kinds of social network platform or services? How to balance the privacy concern with the firm's business benefit? All these ethical issues need to be considered among consumers, enterprises and governments.

Emerging technology and services bring the benefit for the consumer, however is the consumer the final winner among the keen competition on the internet? Or consumer need to protect himself or herself with all belongs on the internet.

6.2.2 Future research suggestion

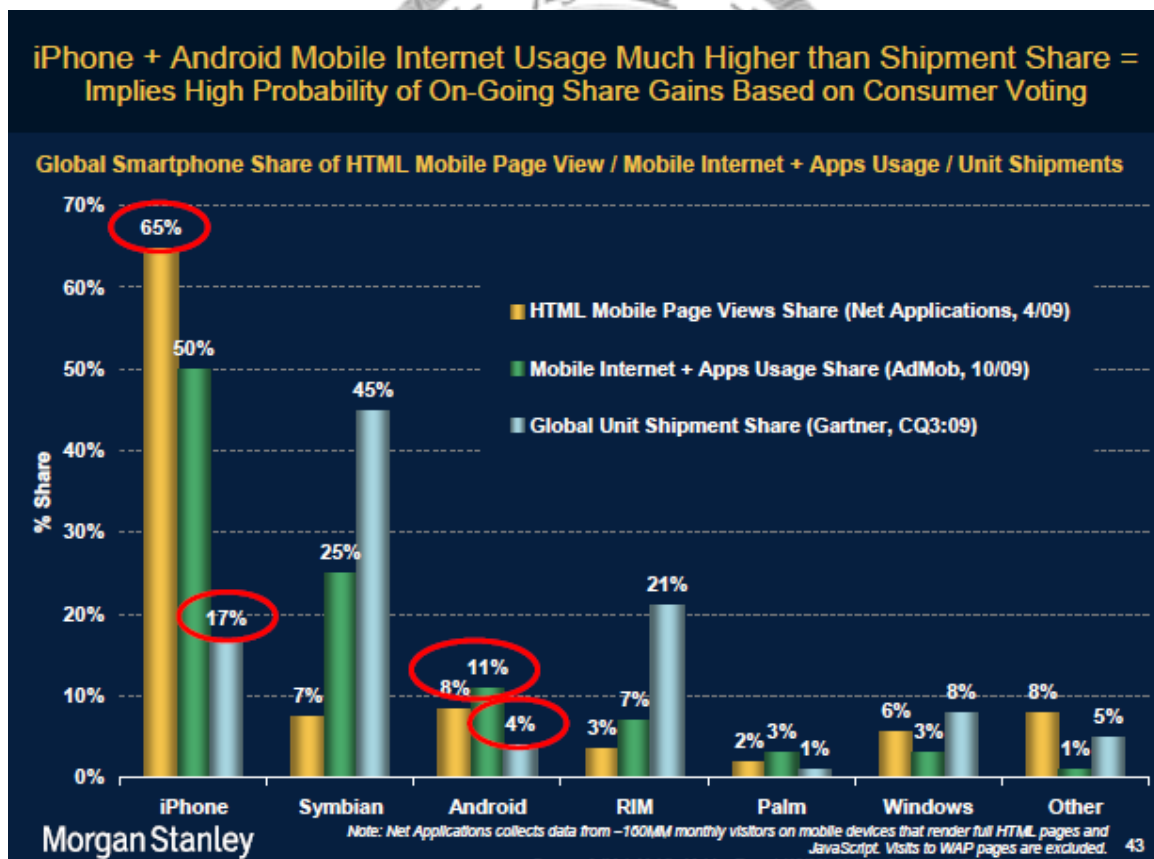
“Mobile + Internet” nowadays already becomes a new industry and every giant from the original mobile and internet industry is trying to expand their market share by merger and acquisition, vertical or horizontal integration, and alliance (See Figure 6-1). On June 2010, Apple has spent \$275 million to jump into the world of mobile advertising by acquiring Quattro Wireless. It remains to be seen what changes Apple will make, and how they plan to compete with ad giants like Google.

On the Computex 2010, the big operating system news is for Google's Chrome OS, with the announcement that the final version will be released to the public this fall. The

Chrome OS not only challenge the market share of Microsoft, but also gives a high pressure for Apple iPad. Apple iPad faces massive competition from Google Chrome OS.

Therefore it's a real world battle and competition. Before Google was the search engine provider bundling on Microsoft operating system. However today they become a competitor. Apple iPhone product is so successful and so does the story for Google on advertising market. But now both of them decide to cross and expand to the other one's market. In the near future, it is no doubt to observe the competition among these industry giants and learn about each business and platform strategy and the tactics as well.

Figure 6- 1 Global SmartPhone on Mobile Internet Usage¹⁰¹



¹⁰¹ Morgan Stanley Annual Report for Mobile Internet 2009

Cloud Computing battle is definitely the next battle not only start on the internet, but also might come from any unexpected direction. All the giant companies in the world announce they already prepare to enter the new ways of life: 'Cloud Computing'. Will this new concept of life or technology change the world? How do all these competitors compete in the complicated environments and new ecosystems? These are all good topics need to be follow for future research.



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