The Converging Search Engine and Advertising Industries

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Executive Summary

Search engines have become the gateway to the Internet. If the information exists in cyberspace, a search engine will find it. In the last 10 years, search engines have become almost as indispensable as the computer itself. They cannot be divided from an online Yellow Pages-type directory to become the fastest-growing sector in the Internet space. Because of search technology, information has become much more accessible to anyone with a computer. Small-to-medium sized businesses can reach consumers almost anywhere in the world at little or no cost and consumers can enjoy all the added value of having the answers to their enquiries at their fingertips.

While the world of search is still in the high-growth transitional phase, the market has consolidated rapidly with the top-four firms having almost 90% of market share. The competition at this level is fierce and alliances are being formed on a daily basis across all industry sectors to reinforce each respective firm's position in search and to gain access to new markets. In the tumultuous world of search, legal and regulatory issues are far from being resolved and the dynamics of competition are in constant change. A great many companies in a wide range of industries are affected by search.

The growth of online advertising is fuelling the acquisition spree of search firms to add more products to their offerings, which in turn help them to capture more users and more share. This positive virtuous cycle is widening the gap between the top four and those who are trying to increase their slice of the pie. At the same time, these product offerings, which include software programs and desktop tools and applications, are threatening the business models of traditional software firms that generate their profits from the perceived value that consumers place on their products.

So, how far will search go? What is the technology that drives search? Who will stand in the way of its development? What factors are keys to providing the right environment for growth? Who will benefit? Who will disappear?

Introduction

In January 1998, Google´s co-founders, Larry Page and Sergey Brin, stated, "We expect that advertising-funded search engines will be inherently biased towards the advertisers and away from the needs of the consumers".[1]

In 2002, after having a widely successful search engine for a few years, Brin and Page finally gave in to commercialism and came up with AdWords to capitalize on the growing search advertising market. By the end of 2005, Google's AdWords and AdSense together had produced $6.1 billion in revenue. Google has recently been dubbed, "the world's most valuable online advertising agency disguised as a web-search engine".[2] So how did the search engine evolve from a consumer-oriented information localizer to become one of the fastest-growing advertising mediums to date? How is search changing consumers? How are companies adapting their advertising models to take advantage of and better understand search and online advertising? What ancillary industries are helping companies maximize their online ad spending?

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(1) S. Brin & L. Page *The Anatomy of a Large-Scale Hypertextual Web Search Engine*, 1998.
(2) The Economist, *The Ultimate Marketing Machine* Jul. 6, 2005.

1. Technology Description

1.1. History of Text-Based Search Engines

Search-engine technology has evolved dramatically to keep up with Internet growth. In 1994, one of the first web search engines, the World Wide Web Worm, had an index of 110,000 web pages and web-accessible documents. As by November 1997, the top search engines claimed to index from two million-to-100 million web documents.[3] At the end of 2005 Google had claimed access to over eight billion pages in its index, as compared to the five billion available through MSN.

The number of queries search engines handle has grown exponentially as well. During March and April 1994, the World Wide Web Worm received an average of about 1,500 queries per day. In November 1997, Altavista claimed it had handled roughly 20 million queries per day and, by the end of 2005, the total average daily number of queries handled among the top search engines was 170 million. How do the current search engines handle and provide the information the consumer is looking for in an effective manner?

There are a few distinguishing characteristics and system setups that define a basic search and two types of search-engine applications. The first and most common is the "crawler-based" kind and the second is the "human-powered" type.

1.2. Description of Applications

Crawler-Based Search Engines

Crawler-based search engines, such as AOL, Google, MSN & Yahoo! create their listings automatically. They "crawl" or "spider"[4] the web, then people search through what they have found. If webmasters changes their web page, crawler-based search engines eventually find these changes and this affects how their

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(3) SearchEngineWatch.com.
(4) The terms "spider" and "crawl" refer to the functionality of the search-engine process where the programs fetch web pages from links and continue jumping from one page to another via links.

sites are listed. Savvy web-oriented content providers are constantly perfecting the order of keywords on their pages so they increase their chances of being retrieved by the crawler and ultimately viewed by the consumer. A few key items determine the outcome of the search results returned to users:

- **Keywords:** search engines will check to see if the search keywords appear near the top of a web page, such as in the headline or in the first few paragraphs of text. They operate under the assumption that any page relevant to the query topic will mention these words right from the beginning, which is often the case with news headlines and websites.

- **Frequency:** the other major factor is how search engines determine relevancy. When scanning sites, a search engine will analyze how often keywords appear in relation to other words on a web page. Pages with a higher frequency are often deemed more relevant than other web pages. Therefore, if a certain site has a lot of content, there is a correction mechanism in place to offset the number of times a specific word may appear with respect to the amount of text.

- **Off-the-Page Factors:** sophisticated webmasters go to great lengths to reverse engineer the frequency systems used by a particular search engine. As a result, all major search engines now also make use of "off-the-page" ranking criteria.

  - **Link Analysis:** by analyzing how pages link to each other, a search engine can determine what a page is about and where that page fits into the ranking system for its perceived importance. Link popularity, defined as the number of links that point to a site, is a key criterion used by search engines to rank pages. There is a weighting factor within links that comes from a scoring algorithm (explained in Section 2) that measures convergence. This convergence is the product of a series of iterations that allow page-ranking programs to reach a final conclusion, thus returning a "page rank".[5] Due to the growing amount of fraud and "webmasters' interest in increasing" their page ranks, sophisticated techniques have been developed and are now used to screen out attempts by webmasters to build "artificial" links.

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(5) Shishigin, M & Ridings, C. PageRank Uncovered.

- **Click-Through Measurement:** a search engine may monitor the results selected by the user for a particular search, then eventually drop high-ranking pages that do not attract clicks, while promoting lower-ranking pages that do attract visitors. Theoretically, this should return the best and most relevant sites to searchers over time. As with link analysis, correcting systems are employed by the search engines to compensate for artificial links generated by site owners wishing to falsely increase their own popularity.

Human-Powered Directories

A human-powered directory, such as the Open Directory or Wikipedia, depends on humans for its listings. This works when someone submits a short description to the directory for the entire site, or editors write one for the sites they review. A search looks for matches only in the descriptions submitted. Changing web pages has no effect on the listing, unlike crawler-based engines. Techniques that can be useful to improve a listing with a search engine do nothing to improve a listing in a directory.

1.3. Substitute Products

Yellow Pages

The classic 2-kg directory is the closest "non-web-based" search platform for consumers to locate goods and services. For local-area searches, consumers looking for anything from a restaurant to plumbing services would turn to their home reference guide, the Yellow Pages, to find what they were looking for. Today, the Yellow Pages is still published annually all over the world and derives a hefty percentage of its revenues from advertisers wishing to reach consumers in the local area.

Encyclopedia

The encyclopedia is one of the oldest forms of reference material available and has largely moved from print to being available on line with the most up-to-date material.

2. Description of the Firms

Market Overview

According to the most recent data from comScore Networks released in February 2007, Americans conducted 6.9 billion searches in January 2007, up 26% over the previous year. Google increased its share of search and distanced itself further from Yahoo! by gaining 3.4% of the market starting in August 2006. This extra share came mostly from MSN, whose search share saw a 1.9% decrease over the same period.

Figure 1. Share of Online Searches by Engine

Share of Online Searches by Engine - July 2006

- Yahoo! 28.5%
- MSN 12.8%
- AOL 5.6%
- Ask 5.1%
- Other 3.3%
- Google 44.7%
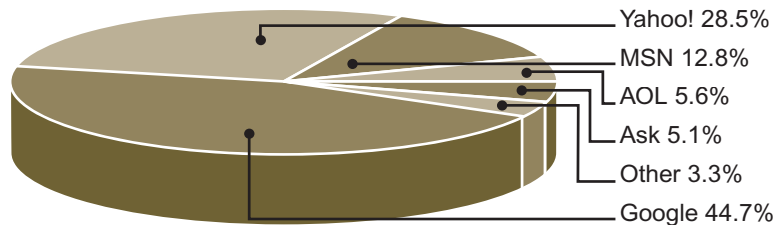
Source: ComScore (2006-2007).
Note: Total U.S Home, Work and University Internet Users

To understand what drives market share and consumer preferences, it is worth taking a look at the underlying search mechanics offered by the major search engines and understanding the differences that explain why you do not get the same search results returned when using Google, Yahoo!, MSN Search or AOL Search. It is also worth understanding why consumers use smaller and more specialized search engines, such as Ask.com, Clusty, Snap.com and Amazon's quasi directory/search engine A9.com. Understanding consumer psychology and behavior is the key to understanding how the search infrastructure is set up and how all other players function in the search landscape. The development of the most pioneering search engine was based on rather simple logic and human behavior. By trying to simulate how humans behave and maneuver around a website, Google was born.

2.1. Search Engines and Their Technology

Google

It is important to first take a look at the technology used by Google because it represents the state of the art subsequently adopted by other search engines. With the crawler platform, Google uses a ranking algorithm to classify the location and frequency of keywords on a web page. The Google search engine has two important features that help it produce high-precision results and make it so popular among users. First, it makes use of the link structure of the Internet to calculate a quality ranking for each web page. This ranking is called a PageRank. Second, Google utilizes these same links to improve the quality of search results. These links are converted into the maps that facilitate the rapid calculation of a web page's PageRank. Here is a brief look at the mathematics behind the Google PageRank formula:

"We assume that page A has pages T1...Tn which point to it (i.e., are citations). The parameter (d) is a damping factor that can be set between 0 and 1. We usually set it all to 0.85. C(A) is defined as the number of links going out of page A. The PageRank of page A is given as follows: PR(A) = (1-d) + d (PR(T1)/C(T1) + ... + PR(Tn)/C). Note that PageRanks form a probability distribution over web pages, so the sum of all web pages' PageRanks will be one." [6]

In the above formula, the damping d factor is the probability that the "random surfer" will get bored and request another randomly selected page to jump to. An important variation is to add damping factor *d* to a single page or a group of pages. This allows for personalization and can make it nearly impossible to deliberately mislead the system in order to get a higher ranking.

In summary, PageRank should be thought of as a model of user behavior. The Google engine assumes there is a "random surfer" who is given a web page arbitrarily and keeps clicking on links, never hitting "the Back button" but who eventually gets bored and starts on another random page. The probability that the random surfer visits a page is its Google-assisted PageRank. The mathematics employed to model the movements of the random surfer is provided by an algorithm that operates on a "black-and-white" basis with respect to the ranking system. Simply put, if a website has legitimately good content and is extremely

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(6) S. Brin & L. Page: The Anatomy of a Large-Scale Hypertextual Web Search Engine.

resourceful, yet has no links or other sites do not link to it, it will not be recognized by PageRank and therefore it essentially does not exist.

Yahoo!

Yahoo! lays claim to being the Internet's oldest directory, but up until 2002, it was more of a "human-powered" directory. In October 2002, Yahoo! replaced its human-compiled directory listings with Google search results and ran with that setup until February 2004, when it developed its own crawler technology. Currently, Yahoo! still provides some of the features that made its human-compiled directory so appealing by allowing users to search from its Yahoo! Directory home page (http://dir.yahoo.com/).

The actual results returned by Google and Yahoo! depend on the query. For popular or common queries such as sports, music and news, there seems to be little or no difference. But once you get past those commonly searched topics, the results tend to diverge dramatically. For example, when searching for "cash flow discounting", Yahoo! returns remarkably different results from Google. One explanation offered up for the differences displayed is that Yahoo's email and search teams are now working together to leverage what they've learned about spam. Since Yahoo! mail processes billions of email messages, their knowledge is likely to be quite helpful in providing Yahoo! with a much deeper understanding of the characteristics of spam to return more relevant search results.

MSN Search

In July 2006, Microsoft launched MSN Search after spending almost two years developing its own search technology. Previously, MSN had retrieved results from its search partner, Yahoo!. In November 2005, the engine was under beta release on a special site that MSN migrated from its regular sites until the official launch. Microsoft backed up the unveiling of its engine with a large-scale advertising campaign to help it gain market share. Unfortunately, from a pure technological standpoint, MSN Search does not offer anything new from what is available at Google and Yahoo!. The firm has also failed to gain market share since the launch.

In a recent *IT Week* article, the decline of MSN Search's market share was attributed to the fact that it was "simply not as good as its competitors" because it did not do a good enough job distinguishing between real organic citations and

low-quality links and did not provide high-quality results like Google when it came to returning information-based websites and pages[7].

AOL Search

Searching on AOL will result in more or less the same results that are offered by Google as the majority of its listings come from Google. The single advantage over Google comes only to AOL users who use the "internal" version that provides links to content available within AOL. The disadvantage is that many of Google's features are not offered by AOL Search.

Ask.com

Formerly known as Ask Jeeves, this engine became relatively well known in 1998-1999 because it allowed users to search by typing in questions in the search query box. The site worked well for users because the company had a force of 100 "search monitors" working to scour search logs and find the most appropriate sites. Today, known as "Ask.com", the site employs crawler-based technology with a Teoma search engine. Teoma, which means "expert" in Gaelic, is run from an algorithm called ExpertRank. Ask.com claims that its algorithm provides better results because it identifies topics, the experts on those topics, and the popularity of millions of pages among those experts - all at the same moment the search query is conducted.[8] Ask.com takes these topics and puts them into "thematic clusters" to suggest the best ways to narrow or expand a search. This feature is called "zoom" and is quite popular among users.

Snap

Founded by Overture (discussed at length later) creator, Bill Gross, Snap claims it is different than other engines because it offers a fast display of visual results and tries to predict what you are looking for as you type in your search request. Then it allows you to browse the results without having to press the "go-back" button. Its user interface is very user-friendly.

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(7) IT Week Search Wars: Microsoft Needs a new Hope January 22, 2007.
(8) Ask.com.

Clusty

Clusty was founded by search software company Vivísimo in 2004 when it took its search technology to the web. The name Clusty comes from "clustering", because the focus of the search hones in on grouping the results into topics or clustering them. This is very similar to what Ask.com does. It is not so much their technology that differentiates them from the rest of the pack, but rather their approach that queries the top search engines and combines the results to create an ordered list based on competitive ranking. According to Clusty, this "metasearch" approach, "helps raise the best results to the top and push search-engine spam to the bottom."

A9.com

A9.com is the search engine and directory launched in April of 2004 by Amazon.com. It can perform generic searches like other engines, but also offers the possibility of searching the book results from Amazon.com. The results are derived from Windows Live Search and supplemented by Alexa, an Amazon subsidiary specializing in web-traffic and web-indexing information. They also have a convenient Yellow Pages directory for users wishing to find services in their local area.

2.2. Competitive Forces

Internet usage and the search landscape

There are approximately 1.1 billion Internet users worldwide, representing a global penetration rate of approximately 17% as of February 2007. Asia has the most users with 389 million, followed by Europe with 313 million, North America with 232 million, Latin America with 89 million and Africa with 33 million.[9] The North American market has the highest penetration rate at 69.4%, followed by Europe, with 38.6%.[10]

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(9) www.internetworldstats.com.
(10) Population data based on 2007 estimates from www.world-gazetteer.com and Internet penetration from Nielsen//Netratings.

Table 1. The Top 20 websites visited in the United States

Rank	Website	Market Share
1	www.myspace.com	5.38%
2	www.google.com	4.34%
3	mail.yahoo.com	4.17%
4	www.yahoo.com	4.14%
5	mail.myspace.com	3.49%
6	www.hotmail.com	2.02%
7	www.msn.com	1.80%
8	www.ebay.com	1.62%
9	search.yahoo.com	1.40%
10	search.msn.com	0.74%
11	www.facebook.com	0.69%
12	images.google.com	0.50%
13	www.youtube.com	0.44%
14	blog.myspace.com	0.42%
15	www.wikipedia.org	0.36%
16	my.yahoo.com	0.36%
17	address.yahoo.com	0.32%
18	www.aol.com	0.31%
19	music.myspace.com	0.31%
20	www.amazon.com	0.30%
Total		**33.11%**

Source: Hitwise (January 2007).

Before analyzing the competitive forces of search in greater detail, it is helpful to first take a look at how fragmented the overall Internet audience is with respect to its preferences for particular websites and then take a look at some key figures that define the landscape. The degree of fragmentation is illustrated by the table (left), which shows that the top 20 websites visited in the U.S. market represent only 33% of the total websites visited. While only one website (MySpace) has over 5% market share in the United States, Google (via its exclusive advertising contract with MySpace and ownership of YouTube) reaches approximately 15% of the Internet audience in the United States This fragmentation is related to the much talked about "long-tail" phenomenon. The long-tail of our present culture, as described by Chris Anderson (editor of *Wired* magazine) in his book The Long

Tail, says that the Internet has effectively brought an end to shared culture. By reducing the common content shared in an industry driven by pop culture, companies such as movie studios and record labels are no longer able to release "hits" that will automatically be embraced by the market as a whole. Because of the freedom consumers now have to easily write and critique anything from bands to movies in their personal message boards and blogs, this long-tail phenomenon has made the marketer's job incredibly difficult. As the consumer's palate broadens, the job of marketers becomes more difficult. Though sharing music and movies is in some cases illegal, it has also helped consumers rapidly spread likes and dislikes faster than the music companies can find and sign new artists. This consumer empowerment has left the record labels looking for a new gig. Where does search fit into this picture? It is simple. Search organizes all the content available and makes its easily accessible for everyone. A small unknown band or independent movie can be located in cyberspace and probably heard/viewed just by typing the name into a search engine.

Search and its powerful tools for cataloguing and capturing all available data in cyberspace are making it possible for consumers to take a more active role in finding what interests them and are also organizing their searches as they drift and merge into countless subcultures. This is also good for advertisers because they need data to know who and where their market is. Before going deeper into the effects on advertising, it is good idea to consider the following data with respect to the global search landscape:[11]

- The average searcher views 93 search pages a month in 27 minutes, which represents 3.4% of total time spent on the Internet

- The search audience grew by 10% over the previous year and the most dramatic increases were in France and Spain, which grew 27% and 21%, respectively.

- France and Spain have the heaviest users of search; U.S. searchers are the lightest users.

- Despite Google's dominance, it is important to understand searcher behavior

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(11) Source: Comments adapted from speeches given by Nielsen//NetRatings' Alex Burmaster (European Internet Analyst); Hitwise's Heather Hopkins (VP of Research) and Richard Zwicky (CEO of Enquisite) at the Search Engine Strategies Conference – London (February 13-15, 2007).

doesn't take place in isolation – around two-thirds of searchers visit at least two different search engines.

- Based on click-through activity from August 1, 2006, to January 20, 2007, Google had a 71.6% share of the global search-engine market, 80.2% of the UK search-engine market, and a 78.4% share of the French market.

- Google's audience has grown almost 2.5 times the rate of search's – continuing to eat into the share held by its competitors. It now has almost 3 times the audience of its nearest rival, Yahoo! Search.

- Google (www.google.co.uk and www.google.com) powered 77% of UK Internet searches in the four weeks leading up to February 10, 2007; Yahoo! Search (uk.search.yahoo.com and search.yahoo.com) powered 8%; Ask.com (uk.ask.com and www.ask.com), 5%; and MSN Search (search.msn.co.uk and msn.search.com), 5%.

The rate at which the two major players in search, Google and Yahoo! are distancing themselves from the rest of the market is astonishing. Even a firm with the resources of Microsoft cannot compete in this sector. So what are the key factors that drive consumers to one search engine vs. the other? And more importantly, what keeps them there? Do they exhibit loyalty at all?

Search Loyalty

What factors determine the loss in market share for some and gains for others?

- **Default Home Page:** one of the main reasons that MSN has lost share is that users are steadily switching from MSN to other sites as their default home page. This could partly be due to the increased features offered by the likes of Google, with its recent e-mail service and host of desktop offerings.

- **Multiple Search-Engine Usage:** according to recent surveys by Forrester, 40% of online consumers are loyal to one of the large four search engines, but 49% use multiple engines at least once a week.[12]

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(12) Source: Forrester – december 2005.

- **Finding Content:** the Forrester findings also show that Google leads in providing the best search results for information-related tasks, while Yahoo! and MSN are viewed to be more effective in locating video and music content.

Barriers to Entry

The search business has a number of major barriers to entry. First, engineering talent is limited and only a radical breakthrough in the actual search technology could propel a newcomer into the ranks of the top four. Second, data centers capable of supporting millions of searches are expensive and the infrastructure already in place would cost billions to replicate. Third, because the industry is still in the early development stage and switching-costs and user loyalty are low, there is potential for change in the competitive landscape. Finally, the extreme rivalry among current competitors for market share keeps them so busy thinking strategically, they are incapable of anticipating the competition's maneuvers.

Opportunities

What can smaller players do to capture share or how can the larger engines edge out their competition? The answer lies in a few key elements:

- Understanding consumer usage of search engines and preferences.

- How much do users want from search engines? Do they just want to be directed to relevant sites or do they want a constantly reliable "go-to" information source for all their computing needs?

- To what extent do the offerings of free software applications and e-mail services attract users and generate loyalty?

- To what extent do users want hundreds of returned query results or are they looking for just a few relevant pages without the interferences of spam?

2.3. Consumer Preferences in Search

What do the majority of consumers expect from search engines and how do the search engines succeed in meeting their needs? As the number of web surfers rapidly increases, one has to wonder what is drawing them to the web and whether they are finding what they are looking for. Here are some key insights that can help provide answers[13]:

* A recent survey conducted by Choice Stream in 2006 indicated that consumers are willing to sacrifice privacy for personalized content. The percentage of people who fall into this category is also increasing (57% in 2006 vs. 46% in 2005).

* Web audiences are becoming increasingly varied. As more people obtain access to the Internet, a more diverse range of needs will have to be satisfied. This relates to the long-tail phenomenon again, where the attempt to classify sub-groups is becoming nearly impossible.

* Research has revealed a search-failure rate of 31.9% on general search engines among business users (Outsell, 2006). Another study by Convera (2006) reveals that professionals in every industry can't find vital, work-related information on major search engines. Because of the divergence in needs, a whole array of smaller, more specialized search engines is entering the market on a frequent basis to cater to the specific needs of users.

* Local Search. More and more often, consumers are turning to search than ever before to find reviews and tips on restaurants and other services in their immediate vicinity.

While the likes of Yahoo! and Google are the "mainstream" source of search queries, the growth of smaller, dedicated engines will continue to serve the market segment of those people who do not always find the best results on Google. In the next section, we will explore some of the latest developments in search that are setting the course for the future.

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(13) Source: Prescott, Jason. Vertical Search on the Rise (February 2007).

2.4. New Search Technologies

The search business has proven to be a lucrative one, with firms like Google doubling their revenues almost every year and maintaining envious 30%+ operating margins. With figures like these, it is no surprise that there are many brains at work worldwide trying to come up with more innovative search technologies. Here is a look at some of the most recent developments in the field of search:

- **Natural Language Search.** Distinctly different from the current, non-linguistic search-processing models that consumers are familiar with. "Today's popular search engines are limited in terms of functionality and interaction with the user. Natural language represents the future of search, and the new paradigm in human-information interaction."[14] The force behind natural language search is a San Francisco company, Powerset, Inc. They are building a large-scale search engine that breaks the confines of keyword search, enabling people to express their intent powerfully and naturally in ordinary language.[15]

- **Consumer Preference Detection Search.** As consumers increasingly express their opinions via web blogs, message boards and online communities, a new search technology is being used to try to take the pulse of consumers' preferences in order to develop/preempt marketing trends that will enable large multinationals to do away with focus groups and surveys in order to gain a better view of their clients. This search technology is being developed and put to work by Nielsen BuzzMetrics. Formed in 2006, BuzzMetrics emphasizes that "blogs and their attendant message boards and forums are tuning forks for consumer sentiment that threaten to upend traditional branding efforts." They go on to claim that their search engines have the power to "sweep the Internet and drill down into the rich veins of extemporaneous word-of-mouth commentary and conversation found on line."[16] Because consumer commentary and postings on the Internet have had significant impact on product sales, companies want to be able to prevent product blunders and find out what makes a hit. They are therefore turning to marketing and ad agencies, which in turn, are scrambling to find a solution. Because companies spend more and more on monitoring their brands, the solutions offered by BuzzMetrics and their innovative search technology will make them an attractive data provider. BuzzMetrics' competitors include Umbria, Cymfony, BrandIntel, Biz360 and MotiveQuest.

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(14) PR Newswire, *Powerset and PARC Sign Exclusive Deal to Commercialize Breakthrough Search Engine Technology in Consumer Search.* (February 9, 2007).
(15) www.powerset.com.
(16) Edmonton Journal. A new buzz to branding: New search-engine technology . . .] (January 21, 2007).

- **Classification Search.** As demands for information become increasingly specialized, a new breed of search engines has captured user attention. According to Information Today, which dubbed 2006 as the year of the "classification engine," the status of classified searches is becoming increasingly valuable as users want to explore different aspects of a subject instead of picking the highest-ranked search results from the search returns section.[17] The most well-known classified search engine is Ask.com. As mentioned above, its search results are classified by topic and how experts rank these topics. Many critics already consider the organic search results retrieved of Ask.com to be superior to those of Google. Unfortunately, Ask.com's current market share is 5%, so it has to do more to make consumers aware of its capabilities.

  A more specialized example of a classified search engine is Northern Light. It was the first in its field when it was introduced in 1997. Northern Light decided to stop functioning as a public website in 2002 and to focus on the enterprise markets. However, in September 2006, Northern Light reintroduced its public web-search service, which scours both public and private database content. Northern Light provides a wide range of business content that is not available on the public Internet. However, it is not a full-service business research product (like Factiva, LexisNexis, OneSource) for enterprise markets.

- **Enterprise Search.** While it been around for awhile, changes in enterprise search are attracting the attention of regular search engines because the technology used by enterprise search is more sophisticated. Consumers using a web search are usually satisfied with what they receive after a few queries, whereas the expectations of enterprise search users are a bit more demanding.

- **Video and Multimedia Search.** Pixsy, a media search platform that powers private-label image and video search engines, has recently partnered with Quigo, a company that provides online ad services. While Quigo is one of many firms specializing in search-marketing solutions to help advertisers maximize their budgets, Pixsy is a media search platform that has won many awards for its innovative emerging technology, which allows users to search photo and video content across the web. Pixsy has a flexible search capacity, unlike the traditional approach based on relevance. With Pixsy, users can also search according to category, provider, media type and freshness.[18]

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(17) Information Today, Northern Light: better the second time around? (February 1, 2007).
(18) www.pixsycorp.com.

While it is important to focus on the latest developments in search, all eyes are on the competition for the lion's share of the search-advertising market and analysts are constantly scrutinizing the industry leaders for insight. Google and Yahoo! are doing all they can to maintain their competitive edge and explore all search-related fields, as described above.

Despite being the number-one web portal, Yahoo! generates almost all of its revenue from advertising, much the same as Google. Unfortunately, Yahoo! is seriously lagging behind Google in search advertising. As the two compete for the search advertising market, Yahoo! has found itself in the underdog position and its delayed overhaul of its search-advertising platform in February 2007 will hopefully give it more power to compete, according to company sources, but the platform will take some time to implement as Yahoo! moves its hundreds of thousands of advertisers to the new paid search system.[19] This proves how scalability in search will give Google the upper hand in the near future.

2.5. Search-Engine Optimization

Companies that want to increase their PageRank or equivalent measure on other search engines are increasingly turning to professional services that offer ways to optimize search-engine exposure and ultimately the amount of business generated from Internet traffic. According to a 2006 study by Forrester Research, 71% of Americans found a website via a search engine.[20] With search engines being the gateway to websites, it is important for companies to do everything in their power to increase their chances of being included in the search results of one of the major search engines. The combination of rising "keyword" costs and companies' needs to appear in the listed search results has given birth to a new sub-segment of the search industry, search-engine optimization (SEO).

SEO specializes in optimizing retailers' websites by offering software packages to smaller firms and consulting services to larger retailers that, if successful, will drive more users to their site and increase their online sales. These programs/services focus on the following:

• Simplifying URLs to make them more accessible to search bots.

(19) Yahoo!'s New Ad Plan Aims to Compete with Google. E-commerce (February 6, 2007).
(20) Tampa Tribune, How to Catch a Mouse (February 26, 2007).

- Making site navigation easier to make the site more search-engine friendly.

- Reducing complexity to allow a site to be fully "spidered".

- Increasing the indexability of pages within the website and creating back-links.

- Campaign Planning and cost management/analysis.

Recent research has shown that approximately 59% of North American consumers don't pay attention to the ads that appear around search results and 36% say they don't trust the ads that appear in the "sponsored results" section.[21] So to get better results from their search-advertising spending, companies are turning to an ever-growing number of vendors offering search marketing optimization and consulting. These companies (e.g., 360i, iCrossing, IMPAQT, iProspect, Outrider, Reprise Media) offer a wide range of services including optimization of keyword selection, maximization of website indexability, managing click fraud, etc.

(21) VanBoskirk, Shar. The Forrester Wave: Search Marketing Agencies, Q4 2006 (November 2006).

3. Affected Sectors

3.1. Advertising

It was said in the late 19th century by Philadelphia merchant, John Wanamaker, "Half the money I spend on advertising is wasted; the trouble is I don't know which half." Until just a few years ago, this was the sad case with advertising dollars spent by companies trying to reach their target market. They tried as hard as they could to focus their spending to increase the probability of reaching consumers. Unfortunately, calculations for a cost/benefit analysis of advertising dollars spent and consumer response often returned rather immeasurable results.

Why Traditional Advertising Is Just Not "Cutting It"

In the past, any company wanting to reach its target market, let's assume the target is households in this example, would do so by purchasing a 30-second commercial segment on a local television station. Based on the Nielsen rating, the firm would know how many television sets were tuned into a certain channel at any given moment and would be charged a corresponding CPM (cost-per-thousand) rate that represented the cost to expose an audience to the ad. Should Nielsen estimate that 500,000 people were watching a certain program at the time the ad was aired, the advertiser would pay the industry standard of $20 per CPM, resulting in a cost of approximately $10,000 for the commercial. The term "watching" is a bit questionable because nobody knows if the consumer is actually paying attention to the TV, who (if anyone) in the family is watching, if they are a potential customer, and so on. With TV advertising, advertisers match their ads to their audiences via content-specific channels and by using certain time segments of the day, but they will never really know with 100% certainty if they have reached their target. The same logic applies to print advertising, where advertisers are merely paying for access to a defined audience.

So after decades of little or no innovation in the advertising industry, a new technology has become available to directly track advertising dollars and captured clients. Taking it a step further, firms advertising their products are being charged by advertising agencies only for the clients they capture. Who are these wonderful new advertising agencies that produce such measurable results? Search engines of course.

3.2. Search-Engine Advertising

According to a recent article in the Financial Times, "the advertising industry is on the brink of a technological revolution".[22] The size of the worldwide advertising market for 2006 was approximately $424 billion. Advertisers spent $5.75 billion on search-engine marketing in 2005, a 44% increase compared with 2004. According to the Search Engine Marketing Professional Organization (SEMPO), spending on search advertising reached nearly $10 billion in North America in 2006, a 62% increase over 2005.[23] Data for the European market is currently being gathered by SEMPO and will be available in the second quarter of 2007.

Currently, approximately 8% of worldwide advertising is done on the Internet and the total United States advertising market is worth approximately $283 billion (roughly 65% of the global market).[24] According to Eric Schmidt, Google's optimistic CEO, the total global advertising market opportunity over the coming years is worth between $600 and $800 billion. Recent figures reflect the rapid growth of the search and sales-lead advertising sector, which has seen an impressive 85% compound average annual growth rate over the last four years.

Figure 2. Internet advertising revenue, by channel
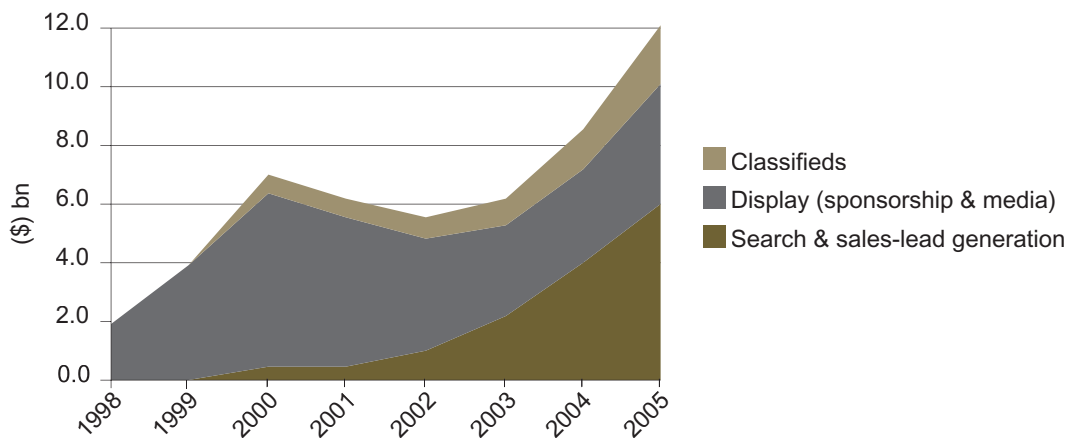
Source: IAB & PwC.

(22) Waters, Richard. "Act Two: how Google is muscling its way into the advertising mainstream," MEDIA Financial Times (January 19, 2007).
(23) Mediaweek, Spending on Search Hit Nearly $10 billion in 2006 (February 12, 2007).
(24) Universal McCann and Zenith Optimedia.

Why Companies Invest in Search/Online Advertising

Many factors contribute to the rise in search-advertising spending. The most obvious is consumers spend more and more of their free time on the Internet. An additional factor is accountability. With search advertising, companies can have greater transparency with their ad spending. They know that if somebody clicks on a sponsored link it is because they are a potential customer. Finally, the most important aspect of search advertising's attractiveness is its ability to target consumers in an almost "individual" manner. Taking into consideration the following two companies with sizeable advertising budgets it is easy to see why they are directing more towards search.

Procter and Gamble, the company with the world's largest advertising budget, at over $1 billion a year, had the following to say about search advertising and its helpfulness in targeting the users of over 30 types of its Tide detergent: "The ability to target all of those products and services to the right user, at the right time and right price, with the right outcome and the right information, that's the scale..."[25] The same logic applies to Hewlett-Packard, which is aggressively studying the impact that search can have as they try to market their wide array of products via television, radio and the Internet to consumers in the "long-tail".

Does Search Advertising Really Pay Off?

There are two or possibly three approaches[26] to online advertising, depending on how you look at it.

1. Sign up with one of the major or minor players to bid on keywords and have your company's name appear in the section of "sponsored search results".

2. Hire a consulting or ad-management firm that specializes in search-engine optimization. By fine-tuning the appearance of keywords and links on a website, the owner may increase its chances of appearing in the "organic search results" section.

3. Both of the above.

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(25) Financial Times (January 17, 2007).
(26) It is important to note that these three approaches do not take into account the additional revenue companies can earn by selling space on their own websites. This can also be managed via firms like Doubleclick and Google's Adwords.

Has search become a viable alternative to television, print and radio ad spending? The answer is yes, simply because people are dedicating more time on line vs. traditional media sources.

The online advertising market's rapid growth owes much to the fact that consumers are, in certain geographic areas, spending more time on line than in front of the television. According to a survey done by Google in the UK in March 2006, the average web user now spends 164 minutes on line each day, compared to 148 minutes for TV viewers.[27] The data published by Google are obviously biased to some extent because it is the biggest player in online advertising and will of course want to show advertisers that they should focus more of their marketing budgets towards online/search advertising. While many may dispute Google's findings, it is clear that people are spending more time on line and surprisingly, this is also contributing to a rise in regular television viewing. This may seem counterintuitive because the amount of leisure time is finite.

But the numbers don't lie. For the most recent period measured by Nielsen, the average American household watched 8 hours and 14 minutes of television a day and the average individual American watched 4 hours and 35 minutes a day.[28] What's most astonishing is not the amount of time the average person or household watches television, but rather, that these figures are the highest ever measured in Nielsen's 50-plus years of tracking viewership. For a long time, it was assumed that having more content available on the Internet would chip away at the time people spent watching television. According to Fortune magazine's Geoff Colvin, this phenomenon is much like that of Coca-Cola. "The Coca-Cola company discovered long ago that if it could get people to bring home bigger bottles of Coke, those people would drink more than they used to. Just getting more Coke in front of them increased their consumption."[29] The Internet is effectively the equivalent of bigger bottles. High-speed, broadband connections have allowed consumers to access more channels and they are therefore, surprisingly, watching more.

Investing in Online Advertising: Considerations

Knowing that people are spending more time surfing the Internet, do people actually pay attention to those sponsored ads that appear along with the organic results? The data from eye tracking studies of user behavior indicate that people spend

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(27) BBC News: Super surfers outs couch potatoes (March 8, 2006).
(28) Fortune, TV is dying? Long live TV! (January 23, 2007).
(29) Ibid.

most of their time looking at natural results rather than paid to ads.[30] So why aren't companies focusing more of their online advertising budgets towards search-optimization techniques instead of paying higher keyword rates for popular words when click-through rates are approximately 4.7% for the average keyword?[31]

Companies are slowly adopting policies aimed at search advertising spending and taking a wait-and-see approach. One must also realize that it will take time for companies (especially the larger ones) to fully understand the capabilities of search advertising, because the technology is changing every 6 months, they are cautious about getting into long-term agreements over something that could become outdated relatively quickly.

On another front, a recent study that tracked the impact of advertising by British Sky Broadcasting, the AA and Orange, urged advertisers to change the way they planned campaigns by coordinating marketing on television and the web.[32] Here are a few results from the survey:

- BSkyB, which spent an average of 20% of its marketing budget on line and 11 per cent on television, provided the most striking proof that combining media worked best to raise brand awareness. BSkyB's share of Internet searches peaked just after its combined advertising spend on television, the web and other media was at its highest.

- At times when the company did not advertise on the Internet or when it was doing only Internet advertising, there was no corresponding rise in searches.

- For the AA, researchers found a similar correlation. When television advertising for AA car insurance increased, Internet searches for the same term rose. Again, the number of searches continued to be high just after television spending peaked, but fell away when the commercials went off the air.

- By contrast, the Orange data provided evidence that combining Internet and press advertising could increase brand searches.

If companies are aware there is a strong correlation between television and Internet advertising, what do they need to know about search advertising?

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(30) Primedia Insight. "Long-Tail Optimization – Hold the Brands," February 7, 2007.
(31) NetConcepts, August 2006.
(32) www.hitwise.co.uk, September 27, 2006.

3.3. How Search Advertising Works

With a simple model, it is easy to see why search-engine advertising is such a fast-growing segment. To see the simplicity, let's assume that we have an imaginary consumer who is doing a keyword search via a search engine on "MBA programs". First, she goes to Google, Yahoo!, MSN or her preferred search engine. Then she types in the words "MBA programs" and the search returns a list of results. She glances at the list of results and clicks on one of the links. At this point, she has repeated her interest in the query, first by typing in the search words, and then by clicking on one of the returned links under the "sponsored results" section. It is important to distinguish between the sponsored results vs. normally returned search results. The average cost (cost-per-click can be any-where from $0.01 to $100 per click) for an advertiser for a series of events like this where the consumer is led to the advertiser's site is approximately $0.50.[33] This corresponds to a CPM of approximately $500. So why are companies lin-ing-up to pay a CPM that is 25 times more expensive than traditional advertising? Well, in this example the consumer has shown her interest and she has visited the online store and effectively started shopping. Contrast this to the airing of a commercial to a household where you don't even know who is watching the TV during a commercial break or if anyone is remotely interested in buying the product or service.

The question of what search results are returned when a consumer types in a specific keyword or phrase is a contentious area to say the least and this will be discussed at length later in this document. But before looking closer at the details of online advertising, let's take a quick glance at how it all got started.

Online Advertising's Roots

"No medium since black-and-white television has penetrated 50% of U.S. house-holds as quickly as the Internet: both did so in eight years" [34]

The first advertisements appeared online in 1994 and were in the form of "ban-ner-ads" that ran across the top of the page. These ads were first presented on HotWired and companies such as United Airlines and Maytag introduced their

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(33) This figure represents the industry average; the cost of keywords related to "MBA programs" are much higher per click.
(34) Nielsen and Doubleclick. The Decade in Online Advertising, 1994-2004, DoubleClick, April 2005.

websites to consumers via banner ads. Advertisers were charged for every 1,000 clicks that came through to the page where their ad appeared (at rates ranging from $5 to $80 per 1,000 clicks)[35], regardless of whether the user clicked on their specific ad. This was essentially the same model used by television ads as advertisers still paid on a per-impression basis. In 1995, Infoseek went a step further and came out with "targeted ads" that would appear based on a keyword search query. One of the sector's first and most successful search engines, OpenText, attempted to mix targeted search queries with paid listings, but users did not receive the idea well as they thought it spoiled the pureness of search. In 1996, Procter & Gamble made a revolutionary deal with Yahoo! to switch from paying on a per-impression basis to a model where they would pay when users clicked-through to their ads. A few years later, GoTo.com (later Overture and now part of Yahoo!) received a warmer welcome when it did the same thing as OpenText tried to do without success, i.e., combine text ads linked to search queries. By 2001-2002, the pay-per-click model had taken over the industry and become the standard.

With the pay-per-click model, how much the advertiser pays depends on three factors:

- **Bid price for keywords:** so that their ad appears next to the search results.

- **Impressions:** how many times their ad is seen, leading to the possibility of users clicking on the ad.

- **Click-through rate:** when users ultimately click to go to their website.

By 2002, companies had begun to demand a more accountable pricing system and came up with the effective-CPM pricing model so that instead of paying for impressions delivered (which was still common up to 2002), advertisers would pay for performance-based ads (i.e., only ads that were clicked on). The effective CPM is calculated by dividing total earnings by the number of impressions in thousands. For example, if a publisher earned $180 from 45,000 impressions, the CPM would equal $180/45, or $4.00.[36]

At present, search engines and sites that sell advertising space will guarantee an advertiser a specific number of impressions (number of times an ad is pre-

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(35) Today called Wired News and part of Lycos.
(36) http://www.google.com/adsense/glossary.

sumably seen by visitors), then set at a rate based on that guarantee multiplied by the CPM rate.[37] Today, search engines offer PCP (pay-per-click) or CPC (cost-per-click) advertising almost exclusively so advertisers pay only for the clicks that lead consumers to their website. This is extremely popular and effective way for smaller businesses to reach out to their potential customers.

Looking ahead toward future potential revenue models, it is worth noting that Bill Gross, the founder of GoTo.com, founded Snap.com. He is currently setting up a cost-per-action pricing model where an advertiser who posts an ad on Snap.com only pays for the ad when it leads to a purchase.

Pay-Per-Click Advertising: A Closer Look at How it Works

For an advertiser with a limited budget or even for a large multinational, pay-per-click advertising is an excellent way to get cheap targeted traffic. For consumers, it is a double-edged sword. The consumer is able to find links to whatever it is he is looking for, but with one exception, the results are business and product related. On Yahoo! Search, the search algorithm still returns the links that would be most "relevant" to a user, but the first three links that a user sees will first come up under the section "sponsor results" and to the right of the page, the rest of the links to advertisers that have paid will appear. A seasoned searcher quickly becomes aware of the difference between the sponsored results and the algorithm-run returned results.

A pay-per-click search engine allows advertisers to open an account and deposit some money as a starting balance. They enter their site's URL, title and description and bid on relevant keywords. A site selling perfume would thus bid on keywords such as, "perfume," "fragrances," "women's perfume," etc.

When someone searches for "perfume" the details of the perfume site appear (assuming it is in the top 10 or so of bidders), in the form of a search result with the URL, title and description posted by the advertiser. If a consumer then clicks on the listing, the advertiser's account is debited for the amount it bid on that keyword. What makes the system so attractive to advertisers is that someone who has searched for their product is already "in the market" when they come to the site that is selling the product they're looking for.

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(37) Ricart, J.E, Subirana, B. and Valor, J. *Sources of Information Value*, Palgrave Macmillan, 2003.

Pricing Models for Search Advertising

Before going into the details of sponsored-search advertising, it is important to note that a website does not have to pay to be returned as one of the query results in a search engine. A site that is popular on its own and is linked well and visited often will appear at the top of the list after a search query is done. So to a certain extent, the "pureness" of the search is not compromised. In a way it helps consumers because paid listings generate revenue for the search engines, the same revenue that allows them to provide searchers with unpaid editorial listings for free.[38]

Paid Placement vs. Paid Inclusion

The paid placement system is the most visible. Advertisers pay to have their site included in the "sponsored links" section and pay based on the keyword bidding system. Paid inclusion is different in that the website owner will pay a fee to have its site included in the returned results of editorial listings (those that are not sponsored). Unfortunately, paying for this service does not guarantee a higher ranking because search engines rely on their algorithms to return editorial listings. The one benefit for website owners of using paid inclusion is that the website will be included in a day or two as compared to the normal two-to-four-week timeframe that it takes for the crawler-based engines to find the page naturally. At present, Yahoo! is the only search engine that still offers paid inclusion.

Google AdWords

Google AdWords remains the most popular search advertising program. AdWords is a quick and simple way to purchase highly targeted cost-per-click (CPC) or cost-per-impression (CPM) advertising, regardless of budget. AdWords ads are displayed along with search results on Google, as well as on search and content sites in the growing Google network, including AOL, EarthLink, HowStuffWorks, & Blogger. With searches on Google and page views on the Google Network each day, advertisers posting via Google AdWords ads have the potential to reach almost anyone. AdWords and AdSense accounted for 99% of Google's $6.1 billion in revenues in 2005 (56% from AdWords and 43% from AdSense)[39].

(38) SearchEngineWatch.com.
(39) Source: Company Filings.

- **The "How To":** To create an AdWords keyword-targeted ad, advertisers choose keywords for which they want their ad to appear and then specify the maximum amount they're willing to pay for each click. A nominal one-time fee is required to get started and then advertisers are billed when someone clicks on their ad. AdWords has a "Discounter" which automatically reduces the actual CPC that advertisers pay to the lowest cost needed to maintain their ad's position on the results page.[40] Advertisers can control their costs by selecting how much they're willing to pay per click or per impression and by setting a daily budget for spending in their account. The ads are created and managed by the user and can be scheduled to appear on specific days at specific times. For example, a new advertiser paying in U.S. dollars can activate its AdWords account with just $5, and can then choose a maximum cost-per-click (CPC) ranging from $0.01 to US$100.

Google has taken its model a bit further by developing AdSense. Adsense is a program that can give advertisers revenue by allowing them to host Google relevant ads on their websites.

- **The "How To":** After setting up an AdSense account, advertisers copy and paste a block of Google HTML and targeted ads start showing up on their website. When a user clicks on an ad, the website owner gets paid. However, Google does not disclose exactly how much it pays sites for clicks because the amount varies. The fee Google pays affiliated/partner sites is called the "traffic acquisition cost" (TAC). In some cases Google pays up to 100% of the cost so it can capture volume and share; in other cases, it pays less. It is clear that Google's margins are much smaller on AdSense than Adwords, but by having created this new mechanism for revenue, the bottom line is handsomely benefited.

Yahoo!-Sponsored Search

Yahoo! has both a paid-inclusion plan and pay-per-click program. It only takes a $5 deposit to open a sponsored-search account. The click-through charges (the cost advertisers pay for each click-through) are deducted from this amount. After that, an advertiser can spend as much or as little as it likes each month based on the keywords it selects and how much it bids for each one. Yahoo! also offers

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(40) Google.

its trademarked "Content Match" program as a feature of its sponsored-search program, whereby users are able to reach potential customers through online publishers, newsletters and e-mails. The original foundation of Yahoo's system came from Overture (which it acquired in 2003). Recent improvements to the system have proved difficult and Yahoo! has lost a bit of its footing in the race for market share against the likes of Microsoft and Google. Nevertheless, keyword advertising accounted for about half of Yahoo's $3.7 billion in revenue in 2005.

MSN's adCenter

MSN's adCenter is similar to Google's; it offers similar tools such as exclusive targeting, budget controls and keyword generation, etc. Microsoft was a bit behind in its entry into the game of search-engine advertising, with the launch of adCenter in May of 2006. Before, Microsoft was working with Yahoo! for its search-engine advertising needs. AdCenter is promising to give advertisers sophisticated information about consumers, including their location, age, gender and sometimes their income level. According to Joe Doran, senior director for monetization in Microsoft's MSN ad-planning group, "That's more than what Google and Yahoo! offer." Microsoft's Online Services Group, which includes the MSN online and search business, accounts for $2.3 billion in revenue, or 5% of the firm's overall revenue.[41]

Ask.com

Ask.com has a similar advertising setup to the other large engines which includes a cost-per-click model and a bid model based on effective CPM. It differentiates itself by claiming to prevent click fraud through its "purification" process.

Snap.com

As mentioned above, Snap.com is breaking new ground with its "cost-per-action" advertising program that helps advertisers guarantee cost-effective marketing expenditures. Snap.com also offers the traditional CPC model, a "fixed-cost-per-action" platform where advertisers can specify which action they want to pay for (i.e. purchasing a product, registering for a service, etc.) and a "variable-cost-per-

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(41) Source: Company Filings.

action" that allows the advertiser to choose a fixed percentage of the purchase price and pay only when the item is sold to a customer via Snap.com.

3.4. Digital Intermediaries

With the proliferation of online advertising, it is only natural for intermediaries and middlemen to enter the game and help companies manage their online advertising efforts. These intermediaries offer targeted online advertising placement and scheduling services for both advertisers and providers. A few of the big names in the industry are: DoubleClick, ValueClick and aQuantive.

DoubleClick[42]

DoubleClick became one of the first and most successful active intermediaries to enter the online advertising arena. To unite users and advertisers, DoubleClick has created a comprehensive database of user and organization profiles that are adapted specifically for ad-campaign targeting purposes. The business model is designed around selling advertisements within commercial sites, in contrast to the normal available-space basis, and customized with content aimed at the consumer. This strategy is dependent on software that tracks specific surfers' Internet history and builds a cookie-inspired profile of their preferences and interests. DoubleClick also categorizes every Internet page displaying DoubleClick ad banners in order to promote affinity targeting. As a consequence, DoubleClick's rates run relatively high because the tailor-made response is greater than a banner, non-customized ad. DoubleClick's Motif platform is capable of reporting the total time a "flash-media" ad is displayed on a user's page and the subsequent interactions the surfer makes with the respective ad.

ValueClick

ValueClick's media-services segment offers e-mail marketing, search marketing and ad placement through a network of more than 10,000 websites.

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(42) Ricart, J.E, Subirana, B. and Valor, J. Sources of Information Value, Palgrave Macmillan (2003).

aQuantive

aQuantive offers digital marketing services to help clients make the most of their online ad budgets. Its services include online media buying and planning, ad campaign management, e-mail direct marketing, search-engine optimization, and data warehousing and analysis. aQuantive's Atlas DMT unit provides marketing technology and software which allows clients to manage and track digital campaigns. Its DRIVEpm and Mediabrokers subsidiaries buy blocks of online media advertising to resell on a targeted basis.

3.5. Original Equipment Manufacturers (OEMs)

The battle for domination of the search environment has worked its way back up the value chain to computer-hardware manufacturers such as Dell. In May 2006, Google agreed to pay Dell to install Google software on Dell's PCs before they left the Dell factory. This illustrates just how competitive the playing field is getting in the area to acquire market share in the search-engine business. By linking up with Dell, Google has enabled itself to install its toolbar on each and every Dell so that the user is more likely to be directed to Google's homepage (albeit via Microsoft's Internet Explorer), resulting in more click revenue as the new PC owners navigate the web and search via Google.

3.6. Software and Applications Providers

What does the prevalence of search have to do with software manufacturers? Not much in fact, but search doesn't have much to do with OEMs either. In a constant effort to get users to generate more click revenue, Google came out with "Google Pack" in January 2006. The Google Pack is a set of free downloadable programs that include Mozilla's Firefox browser, Picasa (photo software), Adobe's PDF reader and Symantec's Norton anti-virus software. The Pack also includes Google's desktop, instant messaging and Google Earth mapping programs.

3.7. Mass Media

Recently, Google has been moving to capture audiences through all forms of mass media, including television, radio and print. In August 2006, Google reached an

agreement with Viacom to distribute video programming from MTV Networks to hundreds of websites. These video clips will come from some of MTV's most popular programs and will be delivered to specified websites that belong to the Google advertising network. The agreement is in effect a syndication arrangement that should prove to be a new source of advertising as people increasingly spend less time getting their video images from the television and more from the Internet. Google has also recently reached similar syndication agreements with the Associated Press (AP) and XM Satellite Radio. The AP deal allows Google to use content from the AP across a wide range of its own products and services. If Google had things its way, it would probably not have done the deal. It did so reluctantly due to the large number of complaints registered by press-related agencies over unsanctioned use of their photos and articles on search-engine sites with advertising. In the XM Radio deal, XM agreed to allow Google's advertisers to automatically insert ads on their non-music channels. This deal should provide Google and advertisers access to over 7 million subscribers through its dMarc media network.

In another landmark deal announced in August 2006, Google signed up with the social networking site MySpace.com, the most popular content website in U.S. and third most visited site after Google and Yahoo!, with over 100 million users. The site lets users post diaries, pictures, personal details, music, etc., to share with their friends. Google has agreed to pay MySpace.com over 700 until 2010 if all goes according to plan. It is basically a revenue-sharing agreement based on the traffic-acquisition-cost (TAC) principle where they have agreed to some undisclosed percentage of revenue share (industry estimates[43] an 85% to 90% TAC rate). The site will carry the Google search engine and advertising from Google's network of advertisers.

3.8. Online Marketplaces

eBay, the world's largest online auction teamed up with Yahoo! to be the exclusive provider of branded advertising on eBay's site. The deal also involved Yahoo! agreeing to use eBay's online payment system to allow its customers to pay for its services. This is another example of how search firms are moving in all directions to capture users that will eventually generate advertising revenue. In another move to capture or, stated more appropriately, "monopolize" the online universe, Google launched a new buying service in June 2006 to make online

(43) Source: UBS Investment Research.

purchases easier for web-users. The service, called "Checkout," makes it easier for consumers to make transactions as they only have to enter their credit-card information once and then any e-commerce site that is "Checkout enabled" can quickly process the consumer's request. This new service is a huge threat to one of the biggest online merchants, Amazon.com. One of the key factors of Amazon.com's success over time has been its "1-click" buying program, which makes it so easy for consumers to make repeat purchases and has generated a large amount of brand goodwill.

Table 2. Online AD Networks

Top U.S. Sites	Avertising Partner	Unique Visitors*
Yahoo!	House	128 million
MSN	House	120 million
AOL/Time/Warner	Google	119 million
Google	House	109 million
eBay	Yahoo!	78 million
Amazon	Google	48 million
MySpace	Yahoo!	48 million
Verizon	Yahoo!, MSN	35 million

* April 2006.

Sources: comScore Networks, Susquehanna, 2006.

4. Regulation and Legal Aspects

4.1. Click Fraud

Click fraud is a huge concern for all the main players in search advertising. Click fraud occurs in pay-per-click online advertising when a person, automated script, or computer program imitates a legitimate user of a web browser by clicking on an ad for the purpose of generating an improper charge per click.[44] The fraud itself is generated by online robots or ("bots") that are programmed to click on advertisers' links and make it difficult to detect. The clicks can also come from employees of rival firms who want to increase the advertising costs of another firm and could go to its advertisements and click repeatedly to increase the amount they are charged to place their ads. In dollar terms, click fraud is a billion-dollar issue that will only increase as the online advertising sector grows.

For small to midsized firms whose advertising budgets do not allow for national campaigns or print advertising, online search advertising is an ideal medium to reach customers. But it is also an ideal breeding ground for click fraud. Advertisers set monthly limits as to how much they are willing to spend and once they hit that limit, the search engine drops them from the site. Competitors can effectively remove their competition from advertising on a site via fraudulent clicking and are then able to buy-in on a keyword basis at a lower price.

The amount of click fraud is difficult to quantify as estimates of the proportion of fake clicks run from as low as 5% to as high as 50%. The exact figure is very difficult to pin down, but evidence shows that click fraud has penetrated deeply into the online advertising arena. A June 2006 study of over 400 online advertisers believed that approximately 14.6% of the clicks they received were fraudulent.[45] As a result, many advertisers are changing their online advertising strategies to reduce click-based spending. Doing the math, of the $5.5 billion generated from online ad spending in 2005, roughly $800 million could be fraudulent. Click Forensics, an independent monitoring firm, has gathered data from 1,300 advertisers for its Click Fraud Index. As of June 2006, estimates of click fraud for advertisers that use tier-one providers like Google and Yahoo! experienced a
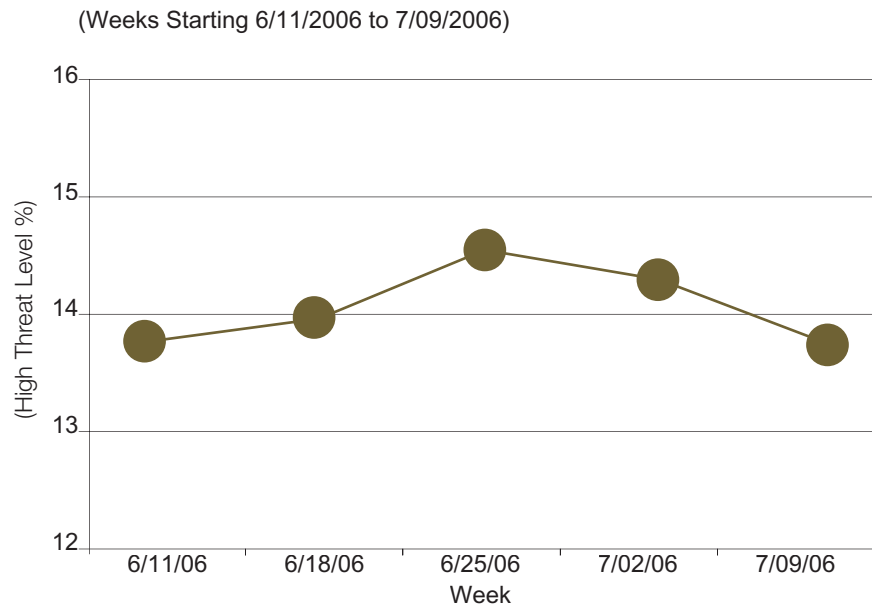
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(44) Source: Wikipedia.com.
(45) Source: Outsell Inc.

12.8% fraud rate and among the tier-two and tier-three advertisers, fraud rates are 20.3% and 27.1%, respectively.[46]

Figure 3. High Threat Level Clicks by Week

(Weeks Starting 6/11/2006 to 7/09/2006)

To combat fraud, Google, Yahoo!, and the other major pay-per-click have found themselves dedicating ever more time and resources to fighting the problem. At the same time click scams are becoming more sophisticated with the proliferation of complex software to mask the sources of clicks. The fraud has even led to the creation of a new market segment comprised of independent click-monitoring firms such as Outsell Inc, Click Forensics and Clickrisk.

The May 2006 settlement of a $90 million class-action lawsuit against Google on behalf of all advertisers that have taken part in Google's AdWords program allows them to apply for reimbursement for invalid and fraudulent clicks that occurred since 2002. Google avoided having to make a cash settlement, agreeing instead to reimburse the advertisers in the form of "advertising credit".

It is likely that in the future there will be much closer scrutiny and monitoring of clicks by either the search engines themselves or third-party measurement firms. If the advertisers don't feel comfortable with the quality of the clicks they

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(46) Source: Financial Times July 20, 2006.

are paying for, the sustainability of the search advertising model could be under threat. On the other hand, the market's free-hand correcting mechanism is in place via the bidding system for keywords. The level of fraud for a certain item will be (or should be) reflected in the price advertisers are willing to pay, thus factoring out the fraud. Unfortunately, if click fraud continues to rise, it may prove to be true that John Wanamaker's famous saying may also hold true for search advertising.

4.2. Regulatory Environment

The bidding programs for keywords sold to advertisers through search engines have become a contentious issue based on whether the search engines can sell keywords registered as trademarks. For example, could the marketing department of Coca-Cola buy the keyword "Pepsi-Cola" so that every time a searcher enters the term in a search engine, advertisements for Coca-Cola appear?[47] Looking at the outcome of a case recently settled in the U.S., the answer can be interpreted as "yes". Although this case (discussed at length further on) sets a precedent in the arena of search-engine advertising, a proposed revision to U.S. trademark law could threaten the advertising capabilities of Google and its rivals.

The issue at hand is trademark dilution. Dilution is a trademark-law concept forbidding the use of a famous trademark in a way that would lessen its uniqueness. In most cases, trademark dilution involves the unauthorized use of another's trademark on products that do not compete with, and have little connection with, those of the trademark owner.[48] At present, trademark dilution has protected popular brands against "actual dilution". The proposed legislation, the Trademark Dilution Revision Act of 2006 (TDRA), if passed, would lower the actionable standard so that trademark holders would only need to show "threat of dilution" in order to enjoin another user from using the mark.[49] Recent case rulings have gone in favor of Internet advertisers in the U.S., while outside the U.S. rulings have gone against Google and other search engines in France.

One of the most recent victories on the legal battlefield belongs to Google in a lawsuit filed by the insurance company GEICO[50], where the court ruled in favor of

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(47) Source: Information Today, October 2005.
(48) Source: Wikipedia.
(49) Source: Journal of Internet Law, Nov. 2005.
(50) Government Employees Insurance Company vs. Google, Inc. and Overture Services, Inc. (August 2005).

Google's selling the GEICO keyword to a competitor. When a consumer searched for GEICO, the competitor's links appeared in the sponsored-links section along with links returned to GEICO from the organic search. GEICO argued, unsuccessfully, that these links could confuse the consumer and that they were misleading because of an implied link between GEICO and the other returned results. Under current trademark law[51], GEICO had to prove that Google's use of its trademark, was "likely to confuse an 'ordinary consumer' as to the source or sponsorship of the goods". While Google won this specific case, it is worth pointing out that GEICO only sued Google in the matter, not its insurance industry competitors who had purchased the keywords.

In France, Google lost an important case[52] in March of 2005 as the Paris Appeals court found fault in the AdWords program for failing to perform preliminary checks on whether its keywords infringed on the trademarks of third parties. Additionally Google was liable for its "suggested keywords" that violated third-party trademarks to potential advertisers. The Versailles Court of Appeals stated that Google should "find the means to block advertisements by third parties who have no right to the trademarks."

United States & Canada vs. Rest of World – Current Legal Status[53]

If Coca-Cola decided to buy the keyword "Pepsi-Cola", what recourse would Pepsi have against Google or any other search engine? If a trademark owner outside the U.S. or Canada objects to a company using its trademarked terms in the actual content of the advertisement or in the keywords that trigger an advertisement, Google will investigate and require the advertiser to remove the term from the content of the ad or keyword list. It will also prevent the advertiser from using the trademarked term in the future. For example, suppose British Airways (BA) complains that Japan Airlines (JAL) purchased the use of the "British Airways" keyword to trigger JAL ads. Upon BA's presentation of certain proof, as set forth in Google's trademark policy, Google will prevent JAL from continuing to use the trademarked term to trigger JAL-sponsored links.

Google's policy in the U.S. and Canada is different. If Microsoft complains that Apple is using the word "Microsoft" in the heading or text of its sponsored link

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(51) Federal Trademark Dilution Act (1996).
(52) Google France vs. Société Viaticum & Société Luteciel.
(53) Source: Information Today, October 2005.

advertisement, Google will require Apple to remove the word. But if Microsoft objects to Apple's purchase of the word "Microsoft" as a keyword trigger, Google will not take any action.

4.3. Regulatory Threats and Competition Law

The potential revision of U.S. trademark law, proposed in the Trademark Dilution Revision Act of 2006 (TDRA), could severely limit search-advertising capabilities. While there is some case law involving targeted Internet advertising, the question still remains as to whether users are confused, even initially, by these advertisements. The case law that does exist is fact-dependent and based on survey evidence of small sample sizes. Findings have shown that the manner in which Google segments its paid links from results generated by its search algorithms has led to the suggestion that few users are likely to be confused, even initially, by paid search results. While the academic research on this issue is inconclusive, it seems clear that a large number of consumers, if not the majority, are not confused by how Google displays its search results. As Internet users increase their level of sophistication, it also logically follows that fewer and fewer individuals will be confused. If the problem of confusion can be mended by a minor interface alteration, U.S. courts are unlikely to find legal solutions to be warranted.

Recent Cases: Edina Realty vs. The MLS Online and Merck & Co. vs. Mediplan Health Consulting

1. **Edina Realty vs. The MLS Online** (March 2006). This case involves two North American real-estate companies. Edina Realty is a major old-line Minnesota real-estate agency and TheMLSonline.com is an online realty agency with some full-service aspects. Edina Realty sued The MLS Online because MLS had purchased keywords such as "EdinaRealty", "EdinaReality", "EdinaRealty. com",... etc. Additionally, MLS hid text on its site such as "EdinaRealty information presented at TheMLSOnline.com". Edina Realty sued for trademark infringement, dilution and false advertising. The court granted summary judgement to the defendant on the dilution claim because the plaintiff did not provide enough evidence of actual dilution. While there was no finding of actual dilution, the court did cite the fact that MLS was using its competitor's trademarked name "in commerce". This violates the 1946 Lanham Act, which

provides comprehensive protection of trademarks against misuse by competitors which would confuse consumers.

2. **Merck & Co. vs. Mediplan Health Consulting** (March 2006). Settled a week after the Edina case, the court dismissed Merck's claim that use of its Zocor trademark to trigger online ads was trademark infringement. The court concluded that using the trademark to trigger online ads was not "use in commerce", and therefore was not trademark infringement. The result of this case is different from the Edina case, leaving the playing field wide open for further interpretations of existing law and new legislation.

It is easy to see what these cases may indicate for search engines. In the Edina case, the court found that a competitor who purchased keywords was in fact using its competitors trademark "in commerce". On the other hand, in the Merck case, the court found that competitors who engaged in keyword buying were not violating the Lanham Act by using their competitors' trademarks "in commerce".

It is important to note that the final outcome of selling keywords is more significant for Google than other search engines because Google is the only firm that does not block keyword ad purchases by competitors. One possible resolution is that Google will likely have to begin policing use of trademarks by users of Adwords. These users would likely migrate into more general keywords, resulting in lower click-through rates that might possibly damage Google's revenue model. From a user perspective, searching for an item based on a trademarked term is a viable search strategy and will return quality results even if the user has no intention of buying a trademarked product. Many web surfers use the trademarked term in their search query merely to facilitate the search for the category they are looking for.

5. Forecast

5.1. Searching and Beyond

The future of search is unclear, just like any other business. What is clear is the revenue potential and consumer interest in search. Over the past few years, the Internet has grown rapidly to become a fixture in households worldwide, almost as much as television and the telephone. The differentiating factor is that the Internet is entirely open, flexible and interactive. Moreover, it has grown to replace the telephone and television to become an all-in-one interactive device. So who is giving orders and setting precedents on the information superhighway?

Over the past two or three years, search has been commanding more and more attention and been doing the most to change the Internet landscape. Search has evolved from human-powered directories to where they are today. Although no third-generation search has appeared, a few small firms are pushing the limits of search and developing specialized search niches. Search engines are also entering into all the horizontal markets in an attempt to capture users and literally provide consumers with a one-stop shop for all their needs.

Looking at the search business from the point of view of big media companies, it looks like search is increasingly being viewed as a viable partner to foster future growth. Monetizing online content, especially in social network spaces, can be difficult. The recent deal with MySpace and Google shows that search can bring valuable revenue to popular content sites and can help the site benefit from its wide database of user demographic and behavioral information. In the future, we will see more traditional big media companies like Viacom and News Corp entering into partnerships with search firms to monetize and exploit their online content.

New technologies in search are capturing human behavior and refining the sciences of predicting what people will buy and not buy. By having an almost real-time screen to show data on shoppers as they make their decisions and rate their preferences, advertisers can almost meet demand exactly. The possibilities are fascinating. The key to it all is getting more and more people on line searching for things so that their searches can be tracked, analyzed and processed. Getting them to come into the virtual world is done by offering them a wide array of pro-

duct suites for free, video, music, etc. If their behavior can be tracked, advertisers will pay.

When consumers need a product or service or are merely curious about a topic, place or person, they turn to their search engine as their gateway to information. It is a self-fulfilling prophecy where the more people search, the more dvertisers will spend, and the more funds will go to search engines, the more search engines will invest in providing ancillary services, and the more extras they offer, the more consumers will be attracted, and so on and so on.

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