

# SEARCH ENGINE MARKETING

## *The Opportunities And The Future*

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**Abstract:** In the last decade search engines have become an important tool to find valuable content for a given query. Early search engines did rely on simply computing the similarities of query and page contents to find the most relevant results. Today, most engines incorporate some external relevance measure, like the page rank, to determine the correct ranking of web pages. In this paper we will investigate the architecture of a search engine to understand how it works, discuss the history of Search Engines Marketing (SEM), the current business situation and the new features as the most famous search engines try to reach, supporting this paper with real case study comparing market share of Search Engine Marketing.

**Keywords:** Search Engine, Search Engine Optimization (SEO), Search Engine Marketing (SEM), Information Retrieval, Google, Crawling, Web Search.

## 1 INTRODUCTION

Search engines have already developed into sophisticated systems, and no doubt they will continue to enhance their technical aspect, with improved capabilities to index pages that are located deeply within the site (many links away from the initial page). Also, their abilities to handle dynamically generated pages (e.g. shopping carts) can be expected to grow. Among other perspective trends are advanced non-HTML content indexing (such as PDF and graphics), improved ability to rapidly integrate new content such as news using XML feeds or other technology, organization of search results into logical categories and other advanced features.

However, the traditional "highest-bidder" approach makes Search Engine Marketing (SEM) feel more and more like traditional print advertising. The Integrated Approach to SEM anticipates that in future, best marketing efforts will aim to leverage the three

components: paid advertising and analytics, all-sided site and content optimization and qualitative off-the-page factors enhancement. More or less what is going nowadays more like to be "Search Engine Marketing" rather than "Search Engine Optimization".

## 2 SEARCH ENGINE ARCHITECTURE

In this section we give a fast overview how internally the search engines work, as now most of search engines in the market have a common architecture but it differ in implementation for even to increase the availability and scalability or to follow the market needs cover more web resources or make concerns for the paid advertisement from customers to make their clients be highly ranked as what it called "Sponsored Search" a Money Motivated for providing relevant results.

An overview of the architecture developing such system required a highly modular architecture that uses plug-in APIs for media type parsing, documents format, HTML analysis data retrieval protocols, and queries, as well as flexible scalable platform of novel web search engines.

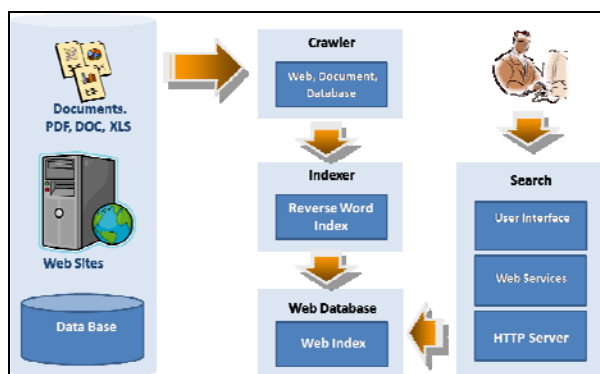


Fig. 1: overview of information retrieval architecture.

As shown in Fig. 1, We had developed an illustration to demonstrate the architecture of Search Engine platform, as it commonly consists of:

**Searcher:** Given a query, it must quickly find a small relevant subset of a corpus of documents, and then present them. Finding a large relevant subset is normally done with an inverted index of the corpus; ranking within that set to produce the most relevant documents, which then must be summarized for display.

**Indexer:** Creates the inverted index from which the searcher extracts results.

**Web Database:** Stores the document contents for indexing and later summarization by the searcher, along with information such as the link, structure of the document space, and the time each document was last fetched.

**Crawler:** A fetcher which requests web pages, parses them, and extracts links from them.

### 3 SEM HISTORY

In next sections, we walk through history of SEM, its revolution as a part of search engines revolution, displaying the current state of the market.

### 3.1 Past Overview

1997 – 1999 were the early years of search engine era. Internet Marketing and more specifically SEM mainly consisted of submitting your sites to the search engines. These "voices from the past" are still heard today when this or that Search Engine Optimization company and / or automatic submitting software will claim to do search engine promotion for you by submitting your site to hundreds and thousands engines and directories. The search engines' indexing programs, called "robots" or "spiders", looked through all of the HTML code of a page and used some page ranking algorithms that they kept in secret.

Those days were spammers' Heaven: it was rather easy to get your site ranked high. You could just use your keywords lots of times on the page, in the META tags, HTML comments etc. and hide it from the human visitors by making the text tiny or completely invisible with the help of HTML tricks. The search engines didn't have any sophisticated technique to recognize this kind of spam, and such sites usually got high rankings very easily. Today, you still can find some samples of this primitive optimization (however you will have to give it a hard try, because nowadays most of such Web projects have been banned by the search engines for excessive keyword usage).

The only exception was Yahoo which has always been indexed by humans who could in most cases identify and ban spamming pages.

Gradually, search engines started recognizing spam and applying corresponding penalties to Web pages using spam methods. However, search engine optimizers were always one step behind the search engines in finding new ways of cheating the indexing algorithms. Hence each search engine is committed to delivering only relevant results to its visitors, the engines needed to take control away from the spammers and auto-submitters. Many began to try different ways of indexing.

### 3.2 The Rise of Google

If someone is asked today about the first search engine to remember, the answer will be Google in 100% cases. Google has started its way to be the King of search engines in 2000 and in 2002 its right for this title has been firmly established, with around 70% of searches done on the Internet. While other search engines were focusing on transforming to universal portals, Google kept a simple and – which has become

its distinctive feature – fast interface that solely targeted delivering relevant search results.

Google also developed advanced features such as indexing and searching PDF (portable document format) and SWF (shockwave flash) files. Additionally, Google's sophisticated techniques to use the "off-the-page" factors made it extremely spam-resistant. Google's dominance has become steady in 2000 with Yahoo having switched from Inktomi to Google as secondary search result provider. Now, Yahoo uses the combination of Overture's and own search software and index repository, thus being fully independent on Google, however, without any slightest impact on the dominance of the latter.

### 3.3 Global Consolidation

By 2001, the results of all major engines were produced from a number of mixed / hybrid sources. Yahoo search results combined Yahoo-directory listings, Overture (PPC) results, and Google results. MSN provided results from Overture (PPC), LookSmart, and Inktomi.

The years 2002 and 2003 brought major reshuffles among search engines: in this period, Google purchased Blogger.com, Yahoo bought Inktomi, and AltaVista and AllTheWeb became a part of Overture. Also, there were many shifts caused by emerging search engine partnerships. Further in this course we will give you a complete and actual chart of relationships between the contemporary search engines.

### 3.4 SEM Today

If you thought nowadays SEM can still be done by acquiring (and using) an auto-submission software, drop this idea since now on. SEM requires an integrated approach to improving site content, quality and popularity. For a Web site to reach its top potential, it must incorporate target audience analysis, competitive analysis, cost per click optimization, and - last but not least - copywriting and copyediting. And, because things keep changing, search engine marketers need to devote a good deal of time staying on top of the SEO industry and its trends.

Today very few (and mostly inexperienced) optimizers / marketers would use spam methods to achieve high ranking. In many cases, spamming and the so-called "black-hat" SEO is recognized by

automatic spiders, for these become more and more intelligent.

## 4 SEM MARKET SHARE

The concept behind SEM is quite simple: when a consumer or business person searches the Web through either a text box or by clicking through a directory hierarchy, they are in "hunt mode." [2] This mode is unique because it indicates that the person is looking for information, usually of a direct or indirect commercial nature. Marketers understand that this "hunt mode" means that the searcher may very well be somewhere in the buying cycle, researching a product or service to try and satisfy an immediate need or future need. That makes search engine results some of the best sources of targeted traffic, whether that traffic originates from "organic" [2] unpaid search listings or paid advertising listings.

To leverage the power contained within this targeted traffic source, marketers must understand the nature of these search engines by making a comparison between the most three famous search engines, Google, yahoo and msn.

To support such comparison, we provide a real case study of one of the companies working in this area, The Rimm-Kaufman Group which provides paid search marketing services and web effectiveness consulting to online retailers, providing a report they prepared at Feb. 2008 comparing the marketing results over the three search engines.

Regarding to this, we introduce the ideas of Ad spend, Bid Competitiveness and Monetization. Each idea gives an indicator of the share of each engine in SEM.

### 4.1 Ad Spend

Ad spend on UK internet advertising surged in 2006, overtaking newspaper ads for the first time, a report from BBC Business says.

Ad spend can be defined as How much revenue you generated per dollar, you spent on an advertising method. The next graph shows how the most three search engines share nowadays market in this way of Ad spend.

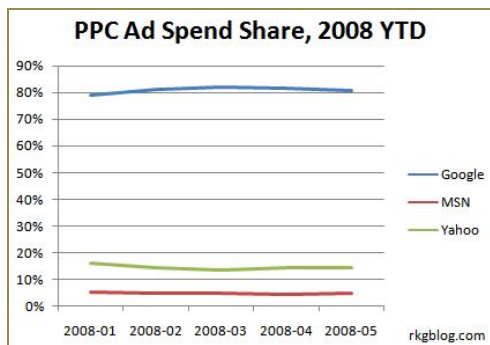


Fig. 2: PPC Ad Spend Share, 2008 YTD [1]

Google comprises about 80.8% of RKG's total agency PPC (Pay Per Click) ad spend that goes to the Big Three engines. Yahoo comprises 14.5%, and MSN at 4.7% takes up the rest.

Google is by far the dominant engine, and that's been the case all year.

## 4.2 Bid Competitiveness

Dividing monthly ad spend share by monthly click share yields a CPC (Cost Per Click) index. This index provides a measure of the competitiveness of the bid landscape on each engine. Advertisers prefer fewer competitors in their auctions, of course. Search engines want to bring in more advertisers to drive up CPCs. CPCs are also influenced by click quality—smart advertisers use sophisticated tools to align their bids with click quality.

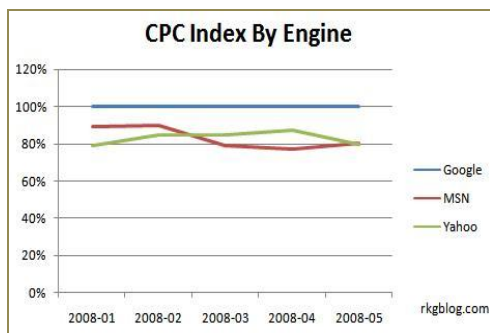


Fig. 3: CPC Index By Engine [1]

This graph shows Google enjoys higher CPC index than Yahoo and Microsoft.

Lower CPCs are good for advertisers. But CPC doesn't tell the whole story. It isn't how much a click costs that matters; it is how much that click costs relative to how much that click sells that matters.

## 4.3 Monetization

Wall Street cares about how well each engine does at translating searches into revenue. Dividing monthly ad spend share by monthly impression share yields a CPM (Cost per thousand impressions) index.

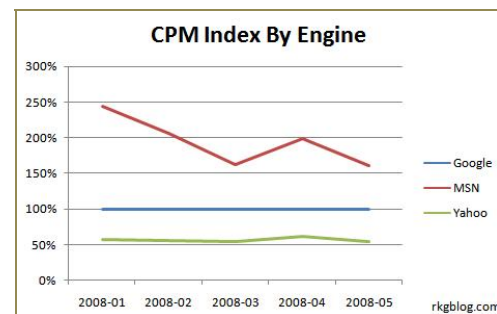


Fig. 4: CPM Index By Engine [1]

This graph shows MSN earns more per impression than Google and Yahoo. Basically flat year-to-date, perhaps with slight gains for Google.

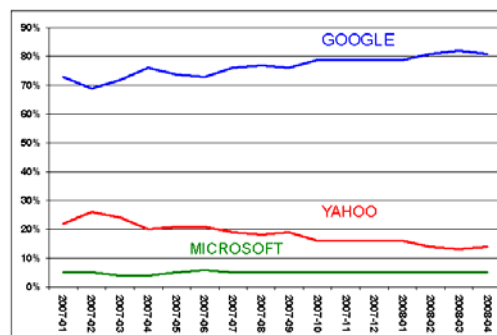


Fig. 5: Paid Search Market Share [1]

The conclusion that Google continues to gain paid search market share.

## 5 SEM, WHAT IS NEXT?

Search engines of the future will be personal assistants, butlers, guides and gurus, providing potential answers to our most obscure questions. Search engines of the future will permeate many more aspects of our lives becoming more pervasive, personalized and localized.

Frederick Marckini, CEO of iProspect, said that the paradox of Web search and SEM is that properly optimized sites contain customer-specific language. "Who is talking about the language of the customer?" asked Marckini. "Only search engine marketing firms." [3]

Both "natural" search engine optimization and PPC advertising bring traffic. SEM firms optimize for both types of online promotion, yet all of this traffic results in conversion to buyer rates of only 2-3 percent.

Therefore, SEM firms must not only research how people are searching, but where they are searching for specific things. "When the context of the brand demonstrates the intent of the query and then the corpus of documents are restricted by topic," Marckini said, "that search will yield an improved result." [3]

Marckini emphasised that the focus of SEM should not only be on keywords, but on conversions. "When you increase your web site's conversion rate, you improve the results obtained from all marketing sources including search, banner ads, and direct email," he said. [3]

Another major trend Marckini sees is the verticalisation of search, which was led by the consolidation of search space. "For instance, Google does a spectacular job at search relevancy," he said. "The problem is a mass-market search interface includes the entire web, and the audience cannot be defined." [3]

The industry has lost sight of the end goal, he said. The future of SEM is marketing, and successful marketing requires knowing your audience and their behavioral patterns so that you can entice them to respond to the call for action.

Kevin Lee, CEO of DidIt.com, stated that contextual search is the future of search, and contextual search will have an impact on search engine marketers. "The search for increased inventory among the search vendors and distribution partners like Google and Overture means we are going to see an increase in types of inventory being offered," he said. [3]

For search engine marketers, the key to maintaining prominent listings will be based on a combination of relevance to user queries and ability to pay for the traffic.

## 5.1 Search Pervasiveness

How hard would it be for a car manufacturer to build a car with Google Inside? The Google Inside mobile could have voice controlled search functionally that searches for results that are pertinent to your current location on a GPS map. I can see my first voice activated search now, "Google Inside, please search for auto body mechanic and personal injury attorney within limping distance." [4]

Here's a more sensible prediction - mobile communications device manufacturers bundle voice controlled web searching features into their phones and PDAs. That's not such big leap either; many of today's PCS and integrated PDA devices already have voice recognition systems built in. Here are a few other access points we can expect to see search: our kitchen appliances - search for recipe for scallion pancakes, our airplane seats - search for places to go when you arrive at your travel destination, random street corners - do a local area search for a watch repair service.

## 5.2 Localized and Personalized Search

The trend towards personalization is nothing new, but it seems that all the search engines are really starting to roll out services that utilize all the data that they are capturing about us. One of the most thought provoking presentations of the entire conference came from Craig Silverstein of Google when he gave his vision that in 300 years search engines will be more like yeast based search pets that understand our emotions and inferences.

Gerry Cambell, General Manager of AOL Search and Navigation gave a more near future example of inference-based search. He said AOL's current search learns from their users habits and location and uses that information to provide more relevant search results. "If one of our subscribers searches on 'pizza,' our search results will return a list of stores in their ZIP code. In the near future, search results on 'Eagles' will be different for a user who visits sports sites and one who goes to classic rock sites." [4]

At this point a question to consider is how much information should a search engine be allowed to collect about a user before the user's privacy is violated. Yahoo! Search, for instance, claims to respect users' privacy by giving the user more control over the results while still extending search to include user intent.

Over personalizing search to the point that users are only seeing a narrow page of results would take the adventure and discovery out of search.

## 6 CONCLUSIONS

Recent work has presented what is the common architecture of search engines, emphasised how they work for search in the World Wide Web content. Provided a recent comparison of SEM market share of the most important search engines and displayed the history of search engines and SEM and what expected in the future. To summarise our projections for the future of search engines and SEM, let start by saying that the evolution of search engines will largely be determined by user behaviour. For end users, they expect great results from majority of the search engines. It is reasonable that we will expect even better, more relevant, results in the future, and that we will want this search functionality to be more accessible. as well more companies will want to improve their presence online to reach the consumer. The new trend towards paid search will most likely lead to the highest bidder dominating search results in some cases, makes paid search more hard to the medium and small advertisers, so they will turn back to advertise using natural search results. In the end, the search engine that gives the most useful search results will dictate the future of Search Engine Marketing.

## ACKNOWLEDGMENT

To Open Source community who makes us develop and think freely.

## REFERENCES

- [1] May 08 Paid Search Share Steady. Available from: <http://www.rimmkaufman.com/rkgblog/2008/06/05/paid-search-market-share-may-2008/> [Accessed 4 July 2008].
- [2] Introduction to search engine Marketing: Available from: [http://www.sempo.org/learning\\_center/introduction\\_to\\_search\\_engine\\_marketing/](http://www.sempo.org/learning_center/introduction_to_search_engine_marketing/) [Accessed 4 July 2008].
- [3] The Future of Search Engine Marketing Available from: <http://searchenginewatch.com/showPage.html?page=2213981> [Accessed 4 July 2008].
- [4] What is the Future of Search ? Available from: <http://www.backbonemedia.com/news-futureofsearch.aspx> [Accessed 4 July 2008].
- [5] Brin, S. And Page, L. (1998) *The anatomy of a large scale hypertextual web search engine*. In Proc. of the Seventh International World-Wide Web Conference.