

# Search Engines: The Propellers of Information Diffusion

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## ABSTRACT

Gone are the days when one used to grope in the dark for a relevant piece of information. In the present day world, one is inundated with information, courtesy the World Wide Web. This surfeit of information brings in its wake, a different challenge; that of information overload. The search engines, led by Google, enable surfers to dig into this enormous set of information and fish out the requisite data. To that extent these search engines are a sine qua non and the flag bearers of information dissemination. The present paper is a modest attempt to understand the functioning of these search engines. The paper, by enlisting the various search engines and their purpose, tries to highlight the range of options available to surfers. Finally the paper attempts to envisage as to what the future would look like in the terrain of Internet search.

## Introduction

Communication and data dissemination in the present day world happens at the speed of thought. If technological advances in the telecommunication industry have made communication possible even to the remotest part of the world, the search engines have lend a hand in ensuring that the requisite information reaches the desk of the surfer.

(Koren and Salzberger 2004) aver that the biggest limitation of the Internet is the information overload. The role of these search engines gains monumental importance as they cull out information relevant to user from an ocean of data available on the World Wide Web. Over the years, these search engines have also evolved and have undergone transformations so as to address the specific needs of users. Gone are the days when people used to visit libraries to take notes or had the patience to manually scrutinize books, magazines and newspapers.

Today, the search engines have become a part and parcel of everyone's life and it is hard, rather impossible, to fathom a life without them. The fact that the Internet search engines group information at eye-blink speed helps people from all walks of life. (Keane, O'Brien and Smyth 2008) term search engines as one of the most used resources on the Internet.

Be it a student trying to gather information about a particular science project, a retired personnel trying to figure out the best investment option, new moms trying to get some parenting tips or a businessman intending to find out possible raw material suppliers, the search engines is what one turns to.

## How the Search Engine Works

To a layman, Google is, and rightly so, synonymous to a search engine. Simply put, a search engine is nothing but a program that searches the World Wide Web for keywords entered by the user and returns an output which is nothing but a range of documents where such keywords were present.

In a typical search engine program, a spider is sent out to fetch all possible documents containing the specified keywords. These spiders or crawlers basically use the hyperlink structure to thoroughly go through the pages available on the World Wide Web.

The indexer of the search engine then peruses the documents so fetched and generates an index relying on the words present in the document. This index enables the search engine to sort out all relevant documents in split seconds. The basic model of a search engine is given in Figure 1.

A proprietary algorithm is present in each search engine which tries to list in the output, as far as possible, only consequential results for each query. The search engine's technical efficiency ensures that optimum memory usage, indexing time or indexed file sizes.

While the engine algorithms are kept clandestine, they are invariably based on a) keyword analysis and b) link analysis. While the former evaluates a page on the magnitude of frequency of specific words, the latter evaluates the page on the dimension of number of times a page is linked to from other sites. The rank of the other sites is also taken into consideration by the algorithm.

It is in the best interest of the search engine to generate

the most relevant search results; failing which users would change loyalties and switch to competition. The iProspect Search Engine User Behavior Study has revealed that 60 percent of Internet surfers refer only to the results returned on the 1st Search Engine Results Page (SERP). The study has gone on to establish that barely one-tenth of the users go beyond the 3rd page of the results returned to a specific query.

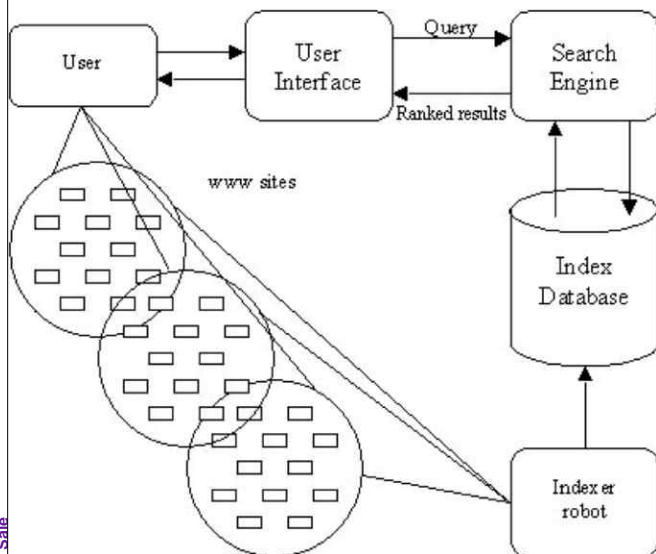


Figure 1: Basic model of a Search Engine

### Market Share

When it comes to the share of the pie of the Internet search engine industry, no one even comes remotely close to the behemoth Google. The Mountain View, California based multinational which has invested heavily in Internet search, cloud computing has beaten the other players hollow. (See Table 1 for the search engine's market share)

Table 1\*: Search Engine Market Share (Worldwide)

Search Engine	Global Market Share (%)
Google	84.72
Yahoo	6.42
Baidu	3.67
Bing	3.14
Ask	0.56
AOL	0.38

\* Source <http://marketshare.hitslink.com>

Studies on consumer behaviour in Internet search point to the fact that no search engine worth its salt would displace Google as the market leader any time soon. (Sherman 2004) points out that while changing search engines might appear to be an easy alternative for users, empirical data suggests that surfers exhibit a great deal of inertia in doing so.

### Search Engines Galore

While the search market shows clear monopolistic tendencies, the realm of search engines is not restricted to likes of Google and Yahoo. If one was to dig deeper one would find a plethora of search engines and/or databases which have a humungous pool of information.

**1) General Search Engines:** A search engine and/or databases may be categorized as general wherein search is possible by keying in a certain topic. The prominent engines that fall in this category include Ask.com, Baidu, Bing, Google and Yahoo.

**2) Slashtag Search Engines:** Blekko, a new search engine launched in the November of 2009, uses human input, as against the sophisticated algorithms of Google, to refine search results. Blekko.com uses 'slashtags' which is a curated list of sites on a given topic. The intent of this new start up, funded by prominent Silicon Valley investors like Marc Andreessen and Ron Conway, is to do away with the limitations of Google. Specifically, Blekko aims to weed out spam and SEO manipulation which makes many sites inconsequential. Blekko may not have the ammunition to displace Google, but it surely has adopted a creative approach to search which may make it a well-liked secondary search engine for certain kind of search queries.

**3) Country Specific Search Engines:** The search engines like Accoona and ZipLocal (China and United States), Biglobe (Japan), Daum, (Korea), Rediff (India), Search.ch, (Switzerland), Maktoob and Onkosh (Arab World) have a geographically limited scope.

**4) Commercial Search Engines:** Business.com, GlobalSpec, Nexis (Lexis Nexis), Thomasnet best serve the interest of business houses. Bixee.com (India) CareerBuilder.com, LinkUp.com, Hotjobs.com and Dice.com (United States), Eluta.ca (Canada), Monster.com (USA, India) Naukri.com (India) and Yahoo! HotJobs have proved to be a haven for the head-hunters and job seekers.

**5) Topical Search Engines:** When it comes to day-to-day news, Google News, Daylife, MagPortal, Newslookup, Topix.net and Yahoo! News hog the limelight. If Westlaw, Quicklaw and Manupatra provide the legal angle, Bing Health, GenieKnows, GoPubMed, Healiala, Searchmedica, WebMD, Nextbio and VADLO stand in good stead for the medics.

**6) Location Search Engines:** Wiki Mapia, Bing Maps, Géoportail, Google Maps, MapQuest and Yahoo! Maps provide the surfer with directions, milestones and landmarks with enviable precision.

**7) Answer Search Engines:** To get an answer for a specific question, a user may turn to Answers.com, eHow, Uclue, Yahoo! Answers and DeeperWeb.

**8) Meta Search Engines:** Brainboost, Clusty, Excite, Harvester42, Info.com, Kayak, Mamma, MetaLib, Myriad Search, Turbo10 and WebCrawler are all

