

# Search Engine Optimization (SEO): Technical Analysis Concepts

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**Abstract--** Search Engine Optimization (SEO) is an art of making a website to achieve higher position in a search engine when searchers type in their queries. While looking for any content on the web, searchers enter their queries in the search engines (Google, Yahoo, MSN – to name the top 3) of their choice and submit their queries.

This paper introduces the concept of speculative search engine optimization (2SEO). Based on some recently conducted studies, guidelines are provided on how to optimize scholarly literature for speculative search engines in general and for any other search engine (like:-Google Scholar) in particular. I am trying to discuss the risk of researchers' criminally' over-optimizing' their articles.

**Keywords--** Speculative search engines, Google Scholar, ranking algorithm, search engine optimization, SEO.

## I. INTRODUCTION

A Search Engine is one of the most important tools that help you find information on the web. The utility of Search Engines in web search lies in the fact that they are responsible for retrieving large amounts of information very easily using certain keywords. Potential customers will enter 'keywords' in a Search Engine and perform a search. Search engines are huge databases, which use their own internal algorithms to decide which web pages to display when someone enters a keyword or key phrase. The idea is to produce the most relevant results, from up to 300,000,000 records. For the reason of sheer size, the indexing of these records has to be computed automatically, and the most relevant results returned to your browser. To complicate matters, each search engine has its own unique algorithm, and sometimes they use each other's listings (and a variation of those algorithms) as well. Oldest Search engines

- ALIWEB - The Web's Oldest Search Engine - Est. 1993.
- Lycos - launched in 1994.

Search engines index the websites on the World Wide Web and store thousands of web pages in their database. They present a list of web sites based on the words, known as "keywords", typed in by the user. The higher your Web Site is on this list, the greater chance somebody will visit it.

Types of search engines

- Automatic Search Engines: AltaVista, Excite, Google
- Directory Search Engines: Yahoo, AOL, AltaVista

- Pay Per Click Search: Overture, Google AdWords
- Meta Search Engines: Ixquick, MetaCrawler, Dog pile

### 1.1 Search Engine Optimization

SEO is the art and science of helping websites get found in the major Search. The process is often complicated, timely and manually intensive. It can be a waste of time if your pages are not structured in a search engine friendly manner. Hence, SEO can be thought of as the medium one can use to communicate with a search engine, so that it knows exactly what your web site is about. It is also about achieving a high level of search engine visibility through a wide variety of well-optimized keyword phrases that are directly related to your business. Search Engine Optimization- refers to a variety of techniques used to improve a web page's keyword or keyword phrase Search Engine ranking. Search engine Optimisation is an important aspect of search marketing. It is a technical process of manipulating a website with the aim of optimizing or promoting keyword search phrases relevant to that website to the search engines, so they in turn will index the site as highly relevant to that keyword search phrase. Once indexed, the search engine will list the website in its 'natural listings'.

### 1.2 Identify unindexed URLs in search engine

The unindexed URLs are easy to spot when they occasionally appear in Goggle's results. They have the following characteristics:

- No extract
- No page size
- And no cached copy of the page

If they lack the extract and/or the cached copy, they have the probably of being indexed. Only the URLs that do not contain all the three above mentioned remain unindexed.

**More visitors = More sales.**

## II. BENEFITS OF SEO

Search engine optimization is capable of providing you a strategic edge over your competitors

- \_ It has a positive psychological impact on a visitor
- \_ Help you create a brand identity
- \_ even the 'brand recall' would be much higher.

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- \_ Increase in targeted on-line traffic.
- \_ Better web site positioning.
- \_ Dominate in competition with your mirror sites.
- \_ Fast measurable ROI.
- \_ Increased and boosted product sales and online visibility.
- \_ Lower client acquisition costs.
- \_ Broaden web-marketing share.
- \_ Compete efficiently against larger competitors
- \_ Continuous Visibility
- \_ Make the most out of the best tool for advertising
- \_ The cheapest marketing tool even on the net

### *Secret Benefits of Optimization Techniques:*

- Meaningful page title
- Headings and sub-headings used
- Opening paragraph describes page content
- Quality content provided
- Frames avoided
- 200 word minimum per page
- 100kb maximum HTML size
- Descriptive link text
- Keyword research carried out.

### III. PRELIMINARY PREPARATION FOR WEB PROMOTION

Alt tag preparation- your word count should be between 10-25 words with 30-60% being your primary keywords. Do not type complete sentences for your alt text. Keep it short and sweet, and you shall do well.

#### *3.1 Fact: Search Robots cannot read Images:*

Some cannot read the text shapes in a Image, BUT some do read the "alt=" attribute in a correctly formatted "img src=" tag i.e.:

```

```

Each image must have an alt attribute. Alt attribute should contain a brief description of image, preferably described using relevant keyword set. This is extremely important when using images as links as this is what search engines will use in place of the link text that would normally be used to describe the link.

#### *3.2 File renaming:*

File name should be renamed according to ptimized keywords for search engine promotions. Internal links are important, and links with relevant keywords to website should be created for added advantage.

#### *3.3 Link Building:*

Link building involves the careful selection of relevant websites of your own.

This helps both parties gain credibility, popularity and better search engine positioning according to the ranking criteria of various search engines. Link building is crucial to your site's rankings on the major search engines, and it's one more aspect of the SEO process that we will take care of on your behalf. Link Building, is simply exchanging links with other companies in similar industries (not your direct competition). Link building is very important because each incoming link to your website acts like a referral and Search Engines love referrals! We have to ensure that we link with the right type of websites, i.e. Good quality with a good Google PR. Although search engines have different criteria or algorithms in how they rank websites, popularity and relevancy are crucial. Some of the larger search engines, such as Google, will award your site a higher pageranking (PR) if you link to established and popular sites. Think of it as a vote of confidence in your site.

#### *3.4 One-way link building :*

Link building services provide you non-reciprocal one-way links that ultimately improve your rankings in search engines Non Reciprocal one-way links are always better than reciprocal links as Google gives more importance to Non Reciprocal links. So if you want better Link Popularity than you should always run a oneway link campaign

#### *3.5 Two-way link building (Reciprocal Linking):*

Back-Link campaign effectively, may act as a super booster to your incoming traffic, net visibility, high page rankings and top listing among the major important search engines on the very keyword(s) / phrase(s) to intend to hit high on. Back- Links are confirmed by making many webmasters share / trade their site's links with other webmasters interested in the same. Search Engine List offers you links to search engines and directories from all around the world to help you achieve top search engine ranking. Make your own website submissions.

### IV. KEYWORD ANALYSIS/RESEARCH

Keyword analysis is the process of scrutinizing prospective keywords to select the right ones of the website. It is the stepping-stone to the success in the Web world. Find the right word, helps you taste success. This analysis process performed captures all the keyword phrases that are important to your business, products, and services. Keyword research is to identify the search terms that your potential clients will be using on the search engines.

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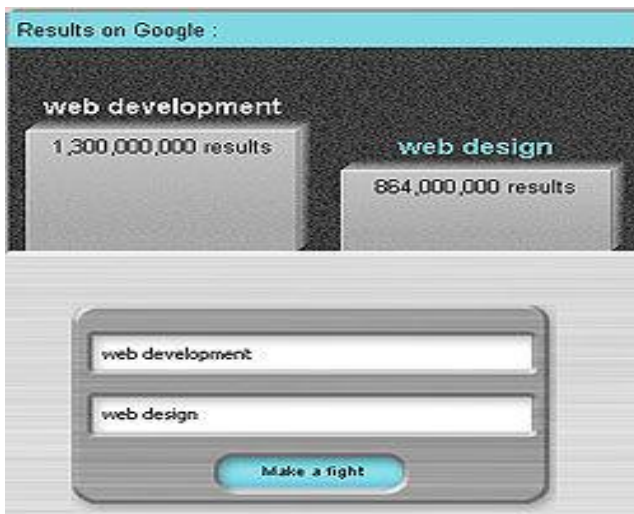
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The next step involves determination of the competitiveness of these keywords and start constructing the primary and secondary keywords and key phrases to target your customers. By using free tool like Overture and Wordtracker, keyword analysis on search terms can be done.

Compare the number of results for two competing keywords. Web development keywords more popular than web design keywords.

### Secrets on Keyword Analysis/Research

- Consider domain names
- Visit your competitor's web pages and look in the title and Meta tags.
- Search for brand names (fig 1.)
- Consider synonyms
- Think of singular and plurals keywords
- Use hyphenation and variations



**Fig 1. Google analysis about searching**

### 4.2 Using Meta tags on WebPages

Each page should have a unique set of keywords and description stored as metadata. Some search engines use Meta tags, as a contributing factor to page ranking and some don't.

#### 4.2.1 Title (<Title>):

The title tag is the most important Meta tag and all too often is not utilized properly. As with the description tag the title tag is what will attract visitors to your website. When web surfers query a search engine the results are based on relevance. When the websites are listed they are usually listed in the following manner: (The title is highlighted with blue)

#### 4.2.2. Description (<meta name="Description..."):

The description tag is the next most important Meta tag. As with the title, your description will typically be listed in the search engines. The description is highlighted in red above. Like the title, you will have to tread the fine line between creating an effective description that will attract visitors and rank well in the search engines for your keywords.

#### 4.2.3 Keywords (<meta name="Keywords..."):

Due to abuse by many websites in the past search engines have reduced the importance of the keywords Meta tag when ranking a web page for keyword relevance. Many have actually decided to not even consider the Keywords tag altogether, Google being one of them. While it has reduced in significance, Directories like Yahoo still place a significant importance on this Meta tag, so you should include it in your WebPages.

#### 4.2.4 Copyright (<meta name="Copyright..."):

The copyright Meta tag, as with the rest of the Meta tags to be discussed, are hidden. They are not viewable in the search engine results or your web page. The copyright Meta tag is essentially an opportunity for you to enter your company name in the Meta tags. Some engines will read this tag, which could result in you ranking higher for your company name in the engines then you would otherwise receive.

#### 4.2.5 Robots (<meta name="Robots..."):

The robots tag is a set of instructions for the search engines when they visit your website. You can tell the search engines to index all of your web page, only the ones promoted, or none of your WebPages. This is an important tag in the event you have pages that you do not want indexed on the search engines.

#### 4.2.6 Distribution (<meta name="Distribution..."):

The distribution tag will tell the search engines if your website is intended for a worldwide audience or not. While most websites are meant to be viewed by everyone, few include this Meta tag on their web page. Using Meta Tags wisely to attract search engines & visitors -Meta tags help search engines to classify your website by providing a brief summary about that particular page. Most of the major search engines support important meta tags (title and description). Meta tags helps to provide a brief summary of the page; most of the search engines take the information from title and description tag for search engine listing.

#### 4.2.7 Importance of Content optimization

The first 100-200 words on the page are regarded as very important by the search engines. All the keyword group oriented content should be concentrated in this area. This does not imply that keywords and keyword phrases should not be used throughout the page. For the optimum results body text should be approximately 400-800 words. If appropriate, body of the page should include images with captions and alt tags accurately describing the image. Some relevant keyword groups are found on the home page, but more keywords should be added to optimize the home page content better.

### V. NAVIGATION LINKS

“A site which is easy to navigate means exactly what it says”? Easy to navigate means effective web site navigation. A person might lose focus if he is not able to find details he is in need of. There is more reason than one to make your site easy to navigate though. Main website navigation links should be available at the head and foot of each web page. There are many interesting linking structures and ideas to have an effective linking process, but an apt idea is to have at least two separate routes. One for the users, and the next for the search engines.

Good ideas for effective web site navigation are:

- Topic related hyperlinks inside the basic page text.
- Placing text links to the most important pages in the footer.
- Using tabs if they make sense for your site design.
- Use text wherever possible.
- Use breadcrumb navigation to help search engines "see" the site structure.

**5.1 Breadcrumb Navigation:-** This site uses breadcrumbs right under the tabs. People like the sense of control and seeing where they have been. Using breadcrumbs also gives you a non-intrusive excuse to have many keyword rich links pointing to each page of your site.

**5.2 Contextual Navigation: -** You can always find something else to link to in the text of each page. You can have an example or a more in depth explanation. If nothing else, think what questions your user may have and answer these on these hyper links. You may not easily be able to capture all of your pages this way, but you should get most of them because ideally your topics should stream together.

**5.3 Footer Text Links: -** Most people do not find text links at the bottom of the page offensive. Many sites have a navigation scheme on the side, but are limited as to what words they can fit in the text of side column navigation.

Footer text links can allow you to use optimized text throughout your site to help search engines define what exactly different pages are about.

**5.4 Robots.txt: -** META robots tag is used to tell search engines which pages they should index.

```
<META NAME="ROBOT" CONTENT="Index, Follow">
```

Make sure you have a robots.txt file in the root of your web server. This will tell the search engines to index your site and which pages they should index. Well-behaved spiders will always check this file first. Standard contents for this file are as follows:

User-agent: \*

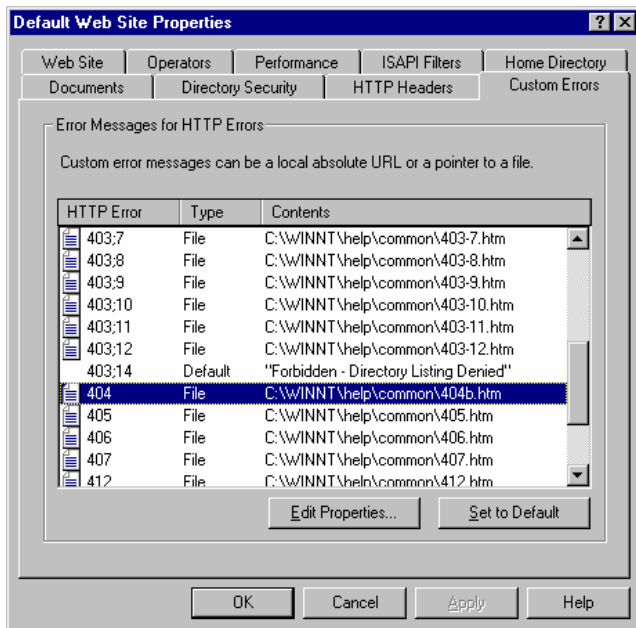
Disallow:

The robots.txt file will enable you to instruct the web crawlers where they can and cannot go on your server. The most popular usage is to prevent the search engines from spidering content such as include folder, CSS file, image folder, administration or payment pages that you do not want to appear in search engine listings. If you don't want search engines to cache the page, because the site contains time sensitive information. This can be achieved simply by adding the "noarchive" directive.

```
<Meta name="robots" content="noindex, nofollow, noarchive">
```

**5.5 Broken links & Custom Error page:-** A link that fails its very purpose or in other words a link that doesn't leads the user to the destination page when clicked. Broken Links hurt "Brand Identity" as well as "Search Engine Placement" and also prevent websites from attaining top Google keyword placement. Broken links and server downtime also create search engine placement issues and prevent sites from being found early on the search engines. Broken links, server downtime, or server maintenance interferes with search engine spiders as they attempt to crawl websites and further contribute to search engine placement difficulties. Custom Error pages can be used to redirect the user to your homepage or a sitemap in the event of a dead link. This will keep them on the site rather than assuming you are no longer in business. First, open up Internet Service Manager and right click on the website that you want to set the custom 404 Error for. Click on Properties and then choose the Custom Errors tab. Scroll down until you get to the 404 HTTP Error. You'll notice on the right that it has the filename that is associated with the 404 status listed. You can edit this file directly, if you like, or choose a new file (fig 2. by choosing Edit Properties).





**Fig 2. Choosing Edit properties.**

**5.6 Avoiding "Under construction Page":** - If you're not quite ready to show what end user is looking for, then don't post an under construction page. Develop it fully before posting it. If you post links to an under construction sign and you're almost certain to annoy busy, impatient Web surfers. Search engines warn that submission of under construction pages might cause, removal of sites from the search list. Search engines are interested in delivering a complete product, rather than an incomplete product to please their customers. Google and other search engines will not index web pages without content or under construction page. To avoid such warnings from search engines or handle such problems, it is better to post your business name and contact information on a home page that says "Coming Soon". Let people know how to get in touch before the site is there, and roughly when the site is scheduled to make its debut. But even there, go easy on the animated earthmovers and spinning under construction signs.

**5.7 Competitor analysis:** - To gain competitive advantage in the current trend in business, you ought to have a complete competitor analysis done. IT helps in identifying opportunities and capitalizing on them. Competitor Analysis is a central part of search engine optimization in determining the most appropriate your site should be aiming. In order to understand your positioning within your marketplace on the Web, you need to know how your top competitors are doing - and what they're doing - when it comes to search engine.

Optimization (SEO) strategies.  
You try to identify the answers to the following questions

- Where is your competition on the Internet?
- Which competitors are most popular on the Internet?
- Which competitors are less popular on the Internet?
- How is the link popularity from your website against your competition?
- Basic principles of Competitor Analysis
- Find out organizations offering the same product or service now.
- Find out organizations offering similar products or services now.
- Find out Organizations that could offer the same or similar products or services in the future.
- Find out Organizations that could remove the need for a product or service.

**5.8 Keyword density analysis:** - Keyword density refers to the ratio (percentage) of keywords contained within the total number of index-able words within a web page. The preferred keyword density ratio varies from search engine to search engine. Keyword density can be achieved by adding keywords to the home page. The density rating tells you if you use your keywords continuously throughout the web page. You will want to have 70-80% of your primary keyword usage in the first half of the body. This means that you will have between 20-30% in the second half, which adds to the continuity of the web page. Overuse of keywords within a page will result in a "high density" rating that will lower the ranking of your page.

**5.9 Back link Analysis:** - Quality back-links is one of the most important factors in Search Engine Optimization. It is not enough just to have a lot of back-links; it is the Quality of back-links along with the Quantity that helps you rank better in Search Engines. A back link could be considered as a Quality Back-link if, it links to your website with the keyword (key phrase) that you are trying to optimize for and the Theme of the back linking website is the same as your website.

## VI. GOOGLE SITEMAP

Google sitemap is created to improve the visibility of your URLs on Google. Google Sitemaps is an easy way for you to submit all your URLs to the Google index and detailed reports about the visibility of your pages on Google. Here are 4 simple steps to build your Google sitemap online

6.1.1 Enter your full website URL and some optional parameters in the form below.

6.1.2 Press 'Start' button and wait until the site is completely crawled (the progress will be indicated)

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6.1.3 You will see the generated sitemap details page, including number of pages, broken links list, XML file content and link to a compressed sitemap. Download the sitemap file

6.1.4 Inform Google about your sitemap location using the HTTP request,

### 6.2 ROR (Resources of a Resource) structured feeds:-

ROR promotes the concept of structured feeds (which is related to the concept of structured blogging) enabling search engines to complement text search with structured information to better understand meaning. ROR information is typically stored in a ROR feed called `ror.xml` placed in your website's main directory. Unlike Google Base, all search engines can easily access ROR feeds: at <http://www.your-website-name.com/ror.xml> ROR is a rapidly growing XML format for describing any object on a website (sitemaps, products, services, menus, images, reviews, contact info, business info, etc), so any search engines can better understand its content. ROR file can be created in both RDF (Resource Description Format) and RSS (Really Simple Syndication) format

### 6.3 Website statistics

#### What is Webstat?

A free yet reliable invisible web tracker, highly configurable hit counter and real-time detailed web stats. Insert a simple piece of our code on your web page and you will be able to analyse and monitor all the visitors to your website in real-time! Free, Fast, Responsive, Quick loading and Reliable Service. Invisible Tracking - no ads on your website. Accurate real-time website statistics with detailed visitor tracking and analysis.

#### How does it work?

You put your code into your webpage and every time someone visits a webpage and the code send valuable information about the visitor back to your log. Stat organises all this information into charts & lists to make your analysis easier.

#### Why Stat?

- No programming to do
- No servers to maintain
- No software applications to install
- Can monitor traffic to your website
- Can know about referrals to your website
- Can find out page loads on your website

## VII. CONCLUSION

SEO is a never-ending process. It's hard to keep up with the different techniques that are used to boost a site's ranking on search engines. Laying the ground works for SEO will help once a site starts to get index. Doing so before the site is indexed will aid tremendously in the sites ranking. Effective SEO strategy can reap significant dividends and is important. The impact of SEO is undisputed. Effective programs drive traffic and show demonstrable and great returns. Always keep in mind that SEO is an ongoing process and can be incorporated into your annual online marketing budget along with things like regular website updates, newsletter mailings to site subscribers and online and offline media planning.

Always be aware of the experience of your top, loyal customers and their needs since you don't want to lose what you have to attract more customers. The optimization of your web site results in the increase in the number of targeted visitors, improvement in your sales and customer loyalty, and of course, increases the brand recognition.

## REFERENCE

- [1] Bzip2 Homepage <http://www.muraroa.demon.co.uk/>
- [2] Google Search Engine <http://google.stanford.edu/Harvest>  
<http://harvest.transarc.com/>
- [3] Mauldin, Michael L. Lycos Design Choices in an Internet Search Service, IEEE Expert Interview  
<http://www.computer.org/pubs/expert/1997/trends/x1008/mauldin.htm>
- [4] The Effect of Cellular Phone Use Upon Driver Attention  
<http://www.webfirst.com/aaa/text/cell/cell0toc.htm>
- [5] Search Engine Watch [http://www.searchenginewatch.com/RFC\\_1950\\_\(zlib\)](http://www.searchenginewatch.com/RFC_1950_(zlib)) <ftp://ftp.uu.net/graphics/png/documents/zlib/zdoc-index.html>
- [6] Robots Exclusion Protocol:  
<http://info.webcrawler.com/mak/projects/robots/exclusion.htm>
- [7] Web Growth Summary:  
<http://www.mit.edu/people/mkgray/net/web-growth-summary.html>
- [8] Yahoo! <http://www.yahoo.com>
- [9] Keyword density Analyzer -<http://www.gorank.com/analyze.php>
- [10] Google Site map creation- <http://www.xml-sitemaps.com/index.php>
- [11] Finding perfect set of keywords- <http://www.goodkeywords.com/>
- [12] Delete Duplicate Keywords- <http://www.globalpromoter.com/seo-tools/delete-duplicate-keywords.cfm>
- [13] Advanced Robots.txt File Generator-  
<http://www.globalpromoter.com/seo-tools/robots-txt-file-generator.cfm>
- [14] Keyword Difficulty Checker- <http://www.searchguild.com/cgi-bin/difficulty.pl>