

## Search Accelerator

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**Abstract:** Optimization problem consists of maximizing or minimizing a real function by systematically choosing input values from within an allowed set and the value of the function can be solved. Whenever the user enters a query in a search engine and hits 'enter' the program searches documents for specified keywords and returns a list of the documents where the keywords are found. The program uses a proprietary algorithm to create its indices such that only meaningful results are returned for each query. Users normally tend to visit websites that are at the top of this list as they perceive those to be more relevant to the query. Search Engine Optimisation is a technique which helps search engines to find and rank your site higher than the millions of other sites in response to a search query. SEO helps to get traffic from search engines. Choosing the right keywords to optimize are the first and most crucial step to a successful SEO campaign. In the context of search engine optimization keyword density can be used as a factor in determining whether a web page is relevant to a specified keyword or keyword phrase. This paper presents the factors which affect the searching of the keyword on the World Wide Web.

**Keywords:** Crawling, Key Density, Links, SEO, Web Crawler

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### I. Introduction

In mathematics, computational science, or management science, mathematical optimization (alternatively, Optimization or mathematical programming) refers to the selection of a best element from a set of available alternatives. Search engine is a general class of programs, the term is often used to specifically describe systems like Google, Alta Vista and Excite that enable users to search for documents on the World Wide Web and USENET newsgroups. The USENET contains more than 14,000 forums, called newsgroups that cover every imaginable interest group. It is used by millions of people around the world. Online services and bulletin board services (BBS's) provide a variety of forums, in which participants with common interests can exchange open messages. Forums are sometimes called newsgroups or conferences. A search engine works by sending out a spider to fetch as many documents as possible. A program automatically fetches web pages. Spiders are used to feed pages to search engines. It's called a spider because it crawls over the web. Another term for these programs is web crawler. A web crawler is a type of software agent. In general, it starts with a list of URLs to visit, called the seeds. Web crawlers are mainly used to create a copy of all the visited pages for later processing by a search engine that will index the downloaded pages to provide fast searches. Crawlers can be used to gather specific types of information from web pages, such as harvesting e-mail addresses. It is a computer program that browses the World Wide Web in a methodical, automated manner or in an orderly fashion. A web search engine is designed to search for information on the World Wide Web and

FTP servers. The search results are generally presented in a list of results often referred to as SERPS, or "Search engine results pages".

### II. Objective

With the help of Search Engine Optimisation tool on Web Search Engine we can find

- Track Ranking
- Track Page Rank
- Estimate Traffic
- Directory Submission
- Use Google Analytics
- Main Referrers

Promoting Your Site to Increase Traffic

- Submitting Your Site to Search
- Directories, forums and special sites
- Specialized Search Engines
- Paid Ads and Submissions

### III. Design & Explanation

Search engines perform several activities in order to deliver search results – crawling, indexing, processing, calculating relevancy, retrieving.

**Crawling:** -Search engines crawl the Web to see what is there. This task is performed by a piece of software, called a crawler or a spider (or Googlebot, as is the case with Google).

Spiders follow links from one page to another and index everything they find on their way. Having in mind the number of pages on the Web (over 20 billion), it is impossible for a spider to visit a site daily just to see if a new page has appeared or if an existing page has been modified, sometimes crawlers may not end up visiting your site for a month or two. Crawlers are not humans and they do not see images, Flash movies, JavaScript, frames, password-protected pages and directories, so if we have tons of these on the site, it is better to run the Spider Simulator below to see if these goodies are viewable by the spider. If they are not viewable, they will not be spidered, not indexed, not processed, etc. - in a word they will be non-existent for search engines.

**Indexing:** -After a page is crawled, the next step is to index its content. The indexed page is stored in a giant database, from where it can later be retrieved. Essentially, the process of indexing is identifying the words and expressions that best describe the page and assigning the page to particular keywords. For a human it will not be possible to process such amounts of information but generally search engines deal with this task. Sometimes they might not get the meaning of a page right but if we help them by optimizing it, it will be easier for them to classify the pages correctly and to get higher rankings.

**Processing:** -When a search request comes, the search engine processes it – i.e. it compares the search string in the search request with the indexed pages in the database. Since it is likely that more than one page (practically it is millions of pages) contains the search string, the search engine starts calculating the relevancy of each of the pages in its index with the search string. There are various algorithms to calculate relevancy. Each of these algorithms has different relative weights for common factors like keyword density, links, or meta tags.

**Retrieving:** -The last step in search engines' activity is retrieving the results. Basically, it is nothing more than simply displaying them in the browser – i.e. the endless pages of search results that are sorted from the most relevant to the least relevant sites.

### IV. Factors

Factors which determine Search Engine Optimisation are Keywords, Links, Meta tags, Title, Keyword Density, URLs, Click Popularity.

**Keywords:** -Keyword density is the percentage of times a keyword or phrase appears on a web page compared to the total number of words on the page. In the context of search engine optimization, keyword density can be used as a factor in determining whether a web page is relevant to a specified keyword or keyword phrase. In the early days of search engines, keyword density was an important factor in how a page was ranked. However, as webmasters discovered this and the implementation of optimum keyword density became widespread, it became a minor factor in the rankings. Search engines began giving priority to other factors that are beyond the direct control of webmasters.

**Link:** -Search engines like Google rely on quality and quantity of sites that link to a web site to determine its ranking.

**Metatag:** -The meta description tag contains a description of the page that is informative and reflects the content of the web page. The website will be indexed if related keywords are found in the meta description tag.

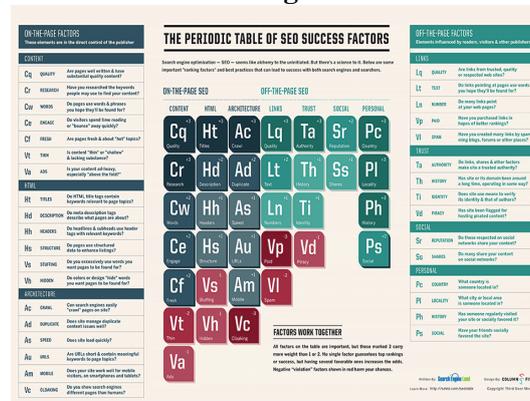
**Title:** -Title is the biggest ranking factor. Most search engines use the website's title tag as the main factor of sites listing in search result pages.

**Keyword Density:** -Density of keyword means frequency of keyword present on web page compared to total number of words on the page. Frequency of keyword in title tag and frequency of keyword in body tag should be strong optimization factors. Density of keyword should be within 2% -8% for improving website ranking.

**URL:** -URL represents the address of a site on the internet. Search keywords are included in URL so that a crawler will find it easily. Short length URLs are preferable by search engines.

**Click Popularity:** -More number of clicks to the site is known as click popularity. It is also significant factor to lift website top in ranking result. If visitor clicks websites, search engine provides certain value to that site. But Search Engine keeps track of who is clicking by tracking their IP address. So owner can't click to his site hundreds of times to improve click popularity as clicks from single IP address will be consider as only once.

**V. Figure**



**Fig1 (Representing the factors which affects the success of Search Engine Optimisation)**

**VI. Conclusion**

Search engine optimization (SEO) is the process of improving the visibility of a website or a web Page in a search engines results page. Businesses operating in an online environment typically strive To promote their products and services on search engines. To gain more lead generation and ultimately Customer'son-going effort to improve a domain name, page rank and search engine performance is Required. The key aim of a company's SEO effort is to increase traffic to their website. The following Report addresses 9 key topics in detail, outlining how organisations can gain competitive advantage Regardless of their industry or competitive environment. The key topics will be ordered as follows:

- SEO for mobiles
- Impact of social media
- Tools for SEO campaigns
- Page Rank
- Best practice techniques in 2013
- Process audit recommendations
- Search engine market analysis
- Understanding the impact of Project Panda
- Understanding the impact of Project Caffeine

By examining these topics, organisations have the ability to focus on further developing their existing SEO improvement efforts.

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