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Search Engine Marketing: Key Factors in Design and Implementation

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Abstract: This paper is primarily focused on approaches and techniques to online promotion of electronic business models using special tools, including search engine optimization, (SEO), online advertisements and new methods of generating visitors to a Website. In last decade, the emergence of search engine marketing as one of the fastest growing industries has been observed. Search engine marketing has been categorized as: paid and non-paid. Paid marketing included pay-per-Click (PPC), pay-per-impression (PPI), and pay-per-percentage (PPP), survey site, focus line and paid inclusion while non-paid marketing includes natural SEO and link popularity index. This is still a relatively new market and most of the companies lack in the knowledge or the tools to manage their marketing strategies in order to maximize the return of their investments (ROI). It can be effectively applied to technical aspects in managing paid and non-paid search engine marketing required in the Service Oriented Architecture (SOA) dimension. In this paper an attempt has been made to analyze the following factors: online promotion techniques, search engine optimization, on-page optimization, paid and non paid search marketing, and factors that affect SEO.

Keywords: Components, Search engine optimization, Pay per click, Page rank, Web metric.

I. Introduction

The Search Engine Optimization (SEO) is often considered the more technical part of Web marketing. SEO may be defined as the process of optimizing Web pages or whole sites in order to make them more search engine-friendly, thus getting higher positions in search results pages across a range of detailed combination of keywords or key-phrases entered by search engine users. Nothing is more important for improving company's Web channel and their marketing index than making sure Website is optimized for the search engines. Google has point out that its algorithms use more than 200 factors in order to boost Website position. In opposite of the positive ranking factors are negative factors and filters which are used by search engine [1], [7]. The major factors for good ranking positions in all the main search engines are: -

- A. *On-page optimization* – It matches Web page content with key-phrases or keywords. The main factors to optimize Web pages are keyword and key-phrases density, keyword formatting, putting keywords in anchor text and the document meta-data (page title tags, Meta description tags, Meta keyword tags etc). Each Web page on some Website should have different title tag, Meta tag description and Meta tag keywords. The frequency of the key-phrase in the text of the Web page is a key factor in determining the position for a key-phrase [7].
- B. *External links (back links, backward links) & inbound links* – Google and other search engine counts link to a page from another Website as vote for this page i.e. Web pages and Websites with more external links from other Websites will be ranked more highly. The quality of external links is also very important factor, if they are from a Website with a good reputation and with relevant content and key-phrases. Web focused companies should improve this aspect of SEO and the process is named as external link building and internal link architecture. Web centered companies should always try to get links from Web pages with the higher Page Rank (PR) i.e. with a PR rating at least four. Page Rank is a scale between 0 and 10 used by Google to determine the importance of Websites according to the number and quality of inbound links and external links (backlinks) [2]. Incoming or external links to Website should always come in natural textual form rather than in graphic form (banner advertisements, images etc). Moreover, the factors like: domain name maturity, internal link structure, URL structure, bounce rate etc. are also very important for good ranking position in the search engine to maintain the rank or popularity [4], [8].

II. Search Engines and Web Directories

A Web directory is a pre-defined list of Websites that is compiled by human editors and categorized according to subject and topic, and it is selective. Humans compile Web directories in the form of a qualitative decision concerning the content on each listed Website. Consequently, Web directories are popular with Internet users

looking for particular information because they feel that they have to identify “the best of the Web” for the topic in which they are interested, in particular. The Web directories also authorize search engine catalogues to provide secondary results for whenever their human-compiled directory fails to produce matching results related to the user’s query. For example, the world’s largest Web directory Yahoo! and Google search index for just this purpose [5], [14].

On the other side, search engines are programs that let the user to search for information by keywords. They suggest an interface to the user for submitting the search request on the basis of keywords, full text or headline. After obtaining results, they allow the users to click on certain hyperlinks. Search engine is an information retrieval tool that is used for the query of keywords to find relevant Websites on the Internet. Figure 1 shows the different components of the search engine and how the components work together to deliver search results. The different components are: -

- (i) *Crawler* – They regularly search the Internet to collect & categorize information about Web pages. The result is stored in a central repository.
- (ii) *Page repository* – It is a storage place for complete Web pages collected by crawlers. Web pages are then sent to the indexing module for processing.
- (iii) *Indexing module* – It is a basic processing unit that extracts important information from Web pages and provides the information in different indexes.
- (iv) *Indexes* – These are used to store the important information of each Web page.
 - Content index – It is based on keyword, title, and anchor text.
 - Structured index – It is based on hyperlink structure of Web-based applications.
 - Special purpose indexes – It is based on images and PDF documents.
- (v) *Query module* – It converts user’s natural language query to search query. The query module is used for different indexes to return a set of most related Web pages.
- (vi) *Ranking module* – Process the set of relevant Web pages returned from Query module, & sort them in an order based on the sum of content score & popularity score (overall score) of the Web page [11], [12].

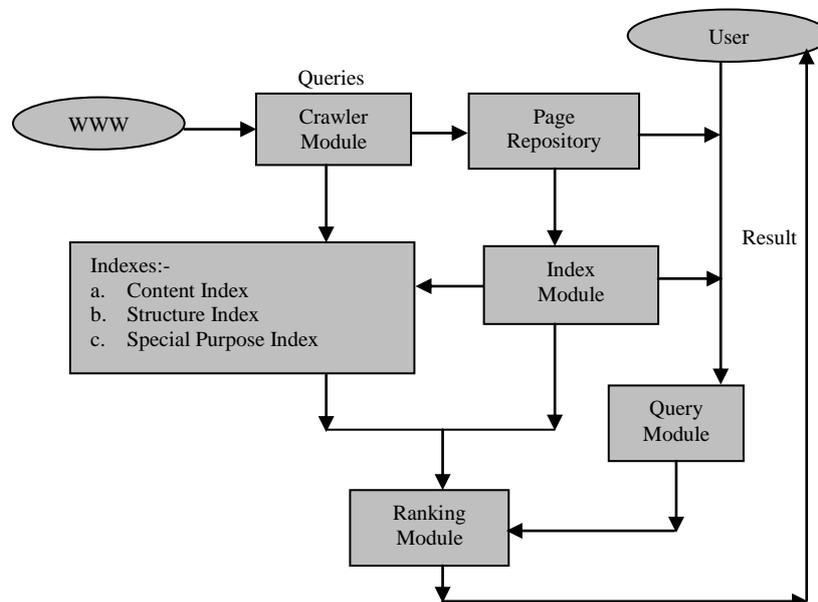


Figure 1. Search Engine Architecture.

III. Marketing Strategies of Search Engines

Promoting Websites online can acquire various forms. Nevertheless, the most popular ways to advertise the Websites are through search engine optimisation, non-paid, paid search engine marketing, and Web metric advertising techniques.

- A. *Non-Paid Search Engine Marketing Management* - Popular search engines such as Google is based on their unique algorithms using the factors like quantity and quality of keywords and links to calculate its search result rankings. These components support six functionalities for managing non-paid advertisement. These functionalities are creating keyword list, analyzing keyword density, analyzing keyword proximity, validating outgoing links, calculating link popularity, and search for potential link partners. These functionalities are all necessary to promoting a Website’s ranking in organic searches [10].
- B. *Paid Search Engine Marketing Management* - Pay-per-click (PPC) advertising is the important form of paid search engine marketing. They are mainly attractive to advertisers because they only pay every time there is an action (click) occurred. Figure 2 outlines the flow of PPC advertising. PPC advertising is

relatively easy to set up. It offers the flexibility for advertisers to choose their own budgets & decide the placements of their ads. There are currently three first tier search engines that provide PPC advertising: Google, Yahoo Overture, and MSN. The scope of this paper will only cover Google’s Search Engine due to its popularity and availability of Web services APIs. Pay-per-click advertising is a lot useful method than traditional advertising campaigns as seen on TV, radio, and other media. PPC advertising targets audiences who are most expected to be prospective customers. For example, when a user types in the word “Digital Camera” in the search engine, he or she is most likely allowing for purchasing a “Digital Camera”. Secondly, PPC ads are unobtrusive and easy to read. PPC ads for Google are placed to the top and right edge of the page. Each advertisement is short and concise, but closely relevant to the searched keywords. Also, the format of display of PPC advertisements does not necessarily promote competition [3]. The overall effectiveness of PPC ads is seen by a much higher conversion rate in PPC as compared to traditional advertisement campaigns. In addition, Google search engine captures a wide range of information that can help advertisers monitor and measure the success of their advertisements. This information can be used to generate the following statistics, which are supportive to analyze Web search engine marketing management data.

- Conversion ratio – It is defined as the total number of conversion actions divided by the total number of clicks (i.e. conversion means converting a visitor to a customer).
- Cost per sale – It is the total number of clicks required to produce one sale * average click price.
- Click value – how much a click is worth paying for.
- Return of investment – It is the net profit after subtracting PPC advertising costs.

C. *Web Metric Analysis* - With the tools to manage both paid and non-paid search engine advertisements, the third component now focuses on Web metrics that are used to monitor the effectiveness of the marketing campaigns. Search engines constantly update their algorithms to provide better search results. Therefore, it’s imperative to consistently track the marketing results & make any important adjustments. The Web search engine marketing metrics are presented in five different reports: keyword search engine ranking report, Alexa traffic ranking report, Google AdWords campaign performance report, return of investment report, and conversion rate report.

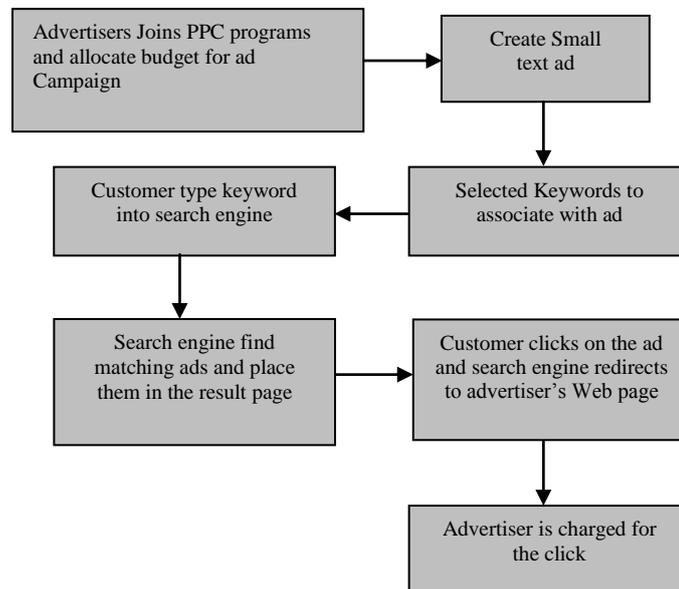


Figure2. Pay Per Click Process Flow

IV. Advantages of SEO

Some of possible benefits of search engine include increase in motivated & interested customers to Website which means increased sales for small business, club, school or association etc. [1], [9], [6]. The crucial benefits of search engine optimization are: -

- A. *Improve competitive edge* - Increasing the likelihood of customer finding you online means they are less likely to find your competitors. The faster and easier your products and services can be found, the more likely you will keep your current customers and increase your online market share.
- B. *Expand customer base & target audience* – SEO makes your site easier to find and locate on the internet. It improves ranking, increases traffic and chances of making sales. By expanding your market online you are exposing your products and services to more motivated and interested customers.
- C. *Increase your return on investment* - Studies shows that customers are five times more likely to purchase your products and services after finding your Web site through a search engine rather than

online advertising. Better Website ranking means an increase in customer visits significant to increase in sales opportunities. Search results get the highest conversion rates, turning your Website visitors into clients.

- D. *Save time & money* - Search Engine Optimization saves your time and money by utilizing free search engine services to promote your products and services. Once your Web site is optimized and submitted it will go on to be crawled and indexed by search engines and is maintained with minimum effort. The more popular your site gets over time the higher your search engine ranking will become.

V. Disadvantages of SEO

In spite of the positive effects of SEO, low costs & targeted reach of online visitors, there are some disadvantages: -

- A. *Too many Website visitors*- Highly ranked Websites obtain considerably more visitors than those which are invisible to the search engines. Large Websites with lots of images / Flash / downloads may find some problems with on very old host servers. Cost implications may alter and it is possible that the amount of spam received will also increase.
- B. *Too many Website leads / sales* - This can be a major problem. There is a cost concerned in handling unwanted leads and Cornish Web Services think this is the major disadvantage of a highly search engine optimized Website. With PPC advertising, if a business receives too many responses then it is easy to pause the advertising and there will be an immediate drop in leads or sales [14]. But it is not possible to quickly remove a highly ranked Website from the search engines without causing long term damage to search engine ranking [6]. Sometimes ranking is intentionally allowed to slip of the Website when sales enquiries are too high, but this is a very rudimentary method and changes happen slowly.

VI. Factors Influence SEO

Ranking high on the search engines is the purpose of any search engine optimization efforts to get found. Local search, personalized search, live search, mobile search and location search are few most popular that changes the user's search behavior and therefore the search engines have to match quality, relevant results with queries to boost user's experience. Google continues to rule the search volume, while Bing is leisurely gaining some volume, particularly with the recent Bing-Yahoo marriage. It used to optimize the performance for Google. But at this time with Bing stepping in and ranking pages utilizing different criteria, it is important to identify the SEO factors that affect page rank across both search engines [11], [13], [14]. While the algorithms remain under lock and key, some insight has been gained into how they rank and the factors that affect rankings.

- A. *External Link Anchor Text* - Sites linking in utilizing keywords that match your content is one of the biggest factors in ranking for Bing and Google. Google seems to put more weight on the quality of the link where Bing likes to see content matching content. We cannot control what terms will be used when our content is linked however content that remains on topic and industry relevant will not give the author many choices.
- B. *Title Tags with Keywords* - Keywords in the title tag is a given however the placement seems to be a topic for discussion. The location of the keyword in the title tag does not seem to influence the rankings a whole lot, it is always best to have the keywords at the beginning to let readers and the spiders know what the page is about.
- C. *Recent/Fresh Content* - New and fresh content weights highly when looking for rankings for popular queries. The search engines like new content as it gives a lot of authority to sites that are updated frequently however new content is not going to increase your rankings in the long term unless there are backlinks. It is always best to have new content especially with a blog as the content is searched more often providing more chances to rank even if the higher ranking is short lived.
- D. *XML Sitemap* - Sitemaps do not affect the rankings by their mere existence but they do become a factor when the site is crawled. Site maps identify broken links that need to be fixed. Broken links not only stop the site from being crawled, they send a message to users that the site is not well maintained.
- E. *Niche Directories* - Niche directories hone in on specific topics and not a one directory fits all industries. Niche directories have a lower number of links in each category as most companies register with the general directories. These are crawled the same way as the general directories so there is opportunity to rank from these directories. These are a really good way to increase your ranking locally.
- F. *Contextual Links* - Contextual links via article marketing and Hub pages. The content is matched to the page with the importance being the content matching the topic.
- G. *No Follow Links* - These are not a huge factor unless there is an overabundance. No follow links were created by Google to prevent sites from receiving links just to get links (example: do follow links from blog comments). While they are indexed and quantified, they are not qualified. Too many no follow links will not necessarily lower your rankings especially if you have quality follow links however if there is not a balance between the follow-no follow links, the rankings will be lower.
- H. *Social Media Platforms/ Tools* - Social media sites will not increase your rankings just for having a profile but the promotion & the links count.

VII. Conclusions and Future Scopes

Website managers and designers need to understand how SEO and other kind of search engine marketing are helping to increase the popularity index of Websites. To get better position in search engine's index, company should integrate online and offline marketing techniques. For starting the implementation of search engine optimization, companies should examine a competitor in order to find related keywords to promote online. When a Website is submitted to search engine listing, the search engine crawler will sort out and index the Website based on keywords in the contents. The key to SEO is to make search engine friendly content that attracts visitors. Managing a successful search engine marketing campaign is a not easy task. Search engine marketing is a long term project that requires essential commitments to monitor the search engine behaviors and to make the right adjustments. So, Website designers should be smart about choosing the right keywords for Website content. In the search engine natural listings, Search engine optimization should improve position of a Website. Search engine position and value of Web focused companies are dependent on how search engine optimization is implemented. Although every search engine has its own algorithm for Website evaluation and ranking, fortunately there common factors in the match between search terms entered and occurrence of the words on the Web page. To improve Website position in natural search engine listings is also very important to all online business models. Online page optimization is not enough for companies which are mainly focused on online business. The number and the quality of external links are still recognized as the major ranking factor. But, Internet marketing implementation and search engine marketing could have sound impacts on online company growth and innovation.

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