A Study on Tactics for Corporate Website Development Aiming at Search Engine Optimization

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Abstract—**Along with the rapid growth of network information, using search engines to search information has become an integral part of one's life everyday. In recent years, there is a research focus on the search engine optimization technologies used to quickly publish business information onto the search engines by which higher rankings can be kept. The present paper analyzes the impact of receiving and recording of search engines and ranking rules to get understanding of the features of search engine algorithms commonly used and proposes the optimization tactics for the development of a website.**

Keywords-component; Search Engine Optimization(SEO); Web Design methods; Internet marketing

I. INTRODUCTION

In September 2009, China Internet Network Information Center (CNNIC) released "2009 Research Report on China Search Engine User Behavior". By the end of June 2009, the size of Chinese search engine users reached 235 million people, whose annual increase is 59.49 million people and annual growth rate is 34%. It is expected that, by the end of 2009, the number of Chinese search engine users will reach 260 million people. Search engines have become the fourth-ranked network application [1].
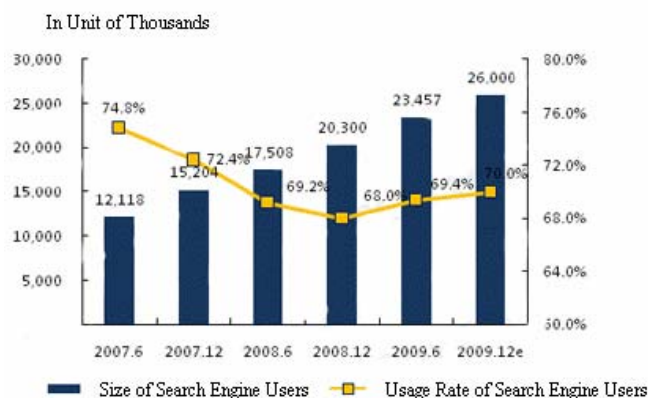

Figure 1.   Size and Usage Rate of Search Engine Users

The above survey reveals that about 70% of the website flow-rate comes from those major search engines through which users acquire various kinds of information regarding their life, study and work. It is obviously that search engines have become an integral part of users' life while enterprises have found the marketing role of search engine during their network marketing, too.

As the Internet develops, enterprises are faced with increasingly fierce challenges in the network economy and the choice of effective marketing communication tools would be the key for an enterprise to win in the competition. Because of its unique and rapid search function of information, search engines have become a powerful tool for network marketing. Enterprises expect to get a better ranking involved in search engines so that the competitiveness of enterprises can be improved. Under such circumstances, the search engine optimization has been developed rapidly in China and gradually formed an industry demanding in-depth research.

Search Engine Optimization is referred to as its abbreviation of SEO. Aiming at its retrieval capability of web-pages, Search Engine Optimization demands the basic elements of a website should be constructed to fit the search engine retrieval principle so that the possible web-pages can be to gained by search engines and higher ranking in the natural search results of search engines can ultimately achieved to realize the purpose of website promotion.

Based on the receiving and recording of search engines and their ranking rules grasped, the present paper, applying the search engine optimization techniques to the entire process of website development, researches and analyzes a set of website development tactics appropriate for the receiving and recording of search engines and ranking rules to provide reference for the developers of corporate websites in their Search Engine Optimization.

II. AN ANALYSIS ON THE RECEIVING AND RECORDING OF SEARCH ENGINES AND RANKING RULES

At abroad, an analysis, issued by "Webconfs Search Engine Tools Network", on Google, MSN, Yahoo and other search engines has found that there are 77 major factors affecting the receiving and recording of search engines and ranking rules, including correct, wrong and some neutral factors. The vast majority of factors apply to Google while some applies to MSN, Yahoo and other non-mainstream search engines. Although

each search engine's ranking algorithms are differentiated, there is still an overwhelming part which is of common nature. Therefore, such an analysis would also be useful for Baidu, Yahoo and some other domestic search engines in their related optimization.

Positive factors included in the 77 factors impacting the receiving and recording of search engines and ranking, when getting removal of negative factors and neutral factors, were aggregated in a comparison according to the category to draw the analysis chart shown in Figure 2 from which it is found that the highest score reaches 26 points for "link" factor, "key words" factor reaches 25 points. So, these are two main factors affecting the receiving and recording of search engines and ranking, which would be deemed as the leading direction for drafting the website development tactics. Meta tags, except for Description and Keywords, have become increasingly unimportant since they are getting smaller and smaller impact on search engines. Besides, the 77 impact factors in the chart are not immutable because, in 2009, the search engine algorithms of Baidu and Google have been adjusted in a certain extent that brings new changes onto search engine optimization. Only the continuous research and analysis on changes of search engine algorithms can always keep an enterprise's high rankings of its website involved in the search engine optimization process.
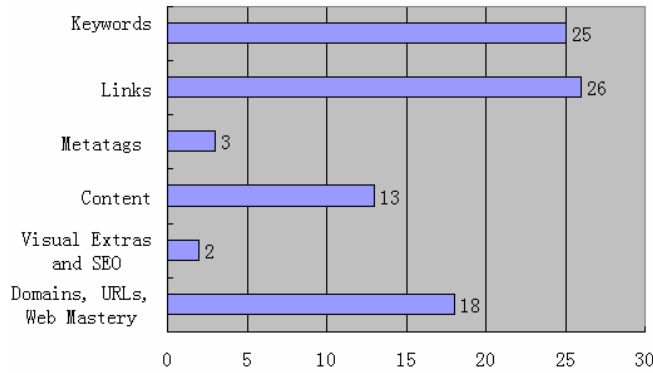

Figure 2. The Analysis Chart of SEO affecting factors

III. SEARCH ENGINE ALGORITHMS

A. PageRank Algorithm

PageRank Algorithm, originated from Google's founder, LarryPage, is used to identify the importance of web-pages divided in levels of 1-10 of which 10 represents full score, the higher PR value (PageRank value), the more popular the pages. as in (1): when the PR value of a website has its score as 1, it means that this website has not popularity while the PR value of 7-10 indicates that such website is very popular (or extremely important) [2]. Supposing Page-A has its page-t1, t2, and... tn linked to it, then Page-A has its PR value algorithm as follows:

$$PR(A)=(1-d)+d\{PR(t1)/C(t1) \ldots PR(tn)/C(tn)\} \qquad (1)$$

B. HillTop Algorithm

There exists a fundamental flaw for PageRank Algorithm since an absolute "importance value" is assigned to a webpage based on its linked quantity and quality. However, the "PageRank value" is not a word for a query, so even when a webpage only occasionally mentions key word departing from a thematic query in the content, the page can also obtain a higher ranking because of its high level of "PageRank value" [3].

The Hilltop Algorithm is a fast positioning method subject to classification of "experts" proposed by Krishna Bharat and George A. Mihaila, which has been applied by Google to the front-end of Pagerank. That is, the request is treated firstly when it reaches using Hilltop Algorithm and given weight. Secondly, when nothing is searched out, it returns to "0" after which the Pagerank Algorithm is used for calculations. Finally, related ranking is conducted according to the result upon the weighing of two algorithms.

C. New Algorithm for Search Engines

At present, in order to provide users the accurate results searched in a more scientific and rational way, Google uses its sequencing technology combining PageRank and HillTop to determine the ranking of a webpage. Such a new algorithm has its formula as follows:

$$\{(1-d)+a(RS)\}*\{(1-e)+b(PR*fb)\}*\{(1-f)+c(LS)\} \qquad (2)$$

Of which, a, b and c are the regulation controls of weight and d, e, f are the damping controls while fb is the factor base. The new algorithm consists of three parts, the RS Correlation Scores, PR Page Rank Scores and the LS Industry.

IV. TACTICS FOR WEBSITE DEVELOPMENT

A. Tactics for Domain Name and Host

In the initial planning of a website, the selection of a domain name is also an important factor related to the search engine optimization (SEO) of a enterprise's website. A search engine pays priorities to different domain name suffixes, especially to domain names with suffixes like edu or gov However, this class of domain names can only be used by the education sector and government agencies while a corporate website has no right to apply for any registration. Under the same circumstances, non-commercial website suffixes like .org and .net have more advantages for a higher ranking than .com. For Chinese websites, the Chinese domain suffixes of .cn and .com.cn have certain advantages than .com of non-regional nature.

As for a website space, it should be ensured that the storage space of web-pages is considered by a search engine to be "safe" without any contrary to the relevant rules? "Safe" pointed out here includes two aspects, namely, the running stability of the space and its network environment.

B. Tactics for Website Content

The actual content of a website is an important factor of the optimization strategies for a website. When a website is

expected to be searched in the front pages among the search results, then real content thereof is needed. The search engine spiders can only determine the quality of a website based on its content rather than judging from pictures or flash animations. All pages should be provided with enough content to be searched by a search engine as index. This is the basic need for the successful optimization tactics for a search engine[4].

C. Tactics for Keywords

Keywords are a factor for mathematical operations using search engine algorithm. It is used to determine the correlation between several billions of web-pages and the specific search. Those deemed as the most relevant to a keyword by search algorithms will be arranged in sequence[5]. So, it should identify the core keyword in the position and perspective of a customer as far as possible.

In order to get a better ranking for a website, the density of keywords must be defined well within the scope allowed by search engines. Some studies have shown that the density of keywords within 2% -8% is thought to be useful for the improving of a website's ranking. On the contrary, excessive use of keywords will result in keywordstuffing which would be difficult to read to cause loss of visiting flow rate[6].

D. Tactics for Links

Links are the soul of a website, through whose hyperlinks users may obtain a wealth of website content. Besides, the search engine spider also tracks in-depth layers of a website's links to complete the crawl of information of a website. Search engines, especially Google, will determine a website's ranking basically subject to the number of high-quality external links pointing to this website, i.e., external links or reverse links known as inbound links or back-links. The outbound links to other sites from a website as well as the links connecting pages each other within a website would also bring about more or less impact onto rankings[7].

V. CONCLUSION

The research on tactics for website development aiming at the search engine optimization has great significance of academic theory and broad application prospects. Its application leaves more room for improvement waiting for scholars' in-depth study and exploration. The present paper proposes the tactics for domain name space, for website content, for keywords and for links, which are effective for search engine optimization. Nevertheless, along with the development of search engine technologies, to explore continuously new tactics for optimization is bound to be a long-term and constant study.

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