IMPROVISATION OF WEB PAGE VISIBILITY BY SEARCH ENGINE OPTIMIZATION

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ABSTRACT:

Search engine optimization (SEO) is the process of improving the visibility of a website or a web page in a search engine's search results. Search engine technology scales dramatically to keep up with the growth of the web. With the tremendous growth of information available to end users through the Web, search engines come to play ever a more critical role. In general, the earlier (or higher ranked on the search results page), and more frequently a site appears in the search results list, the more visitors it will receive from the search engine's users. SEO may target different kinds of search, including image search, local search, video search, academic search, news search and industry-specific vertical search engines.

SEO is a technique which helps search engines find and rank the website higher than the millions of other sites in response to a search query. SEO thus helps get traffic from search engines. Apart from the problems of scaling traditional search techniques to data of this magnitude, there are new technical challenges involved with using the additional information present in hypertext to produce better search results. Validate the taxonomy by automatically classifying a large set of queries from a Web search engine. This paper deal with now is semantic web search engines is the layered architecture and use this with relation based page rank algorithm.

Keywords: SEO, search engine, search engine ranking, search engine marketing.

1. INTRODUCTION

Web mining technologies are the right solutions for knowledge discovery on the Web. Web mining can be divided into three different types, which are Web usage mining, Web content mining and Web structure mining.

1.1 Web Mining

Web mining - is the application of data mining techniques to discover patterns from the Web. The term Web Data Mining is a technique used to crawl through various web resources to collect required information, which enables an individual or a company to promote business, understanding marketing dynamics, new promotions floating on the Internet, etc. There are roughly three knowledge discovery domains that pertain to web mining: Web Content Mining, Web Structure Mining, and Web Usage Mining.


1.1.1 Web Content Mining

Web content mining is related but different from data mining and text mining. It is related to data mining because many data mining techniques can be applied in Web content mining.

1.1.2 Web Structure Mining

The goal of Web structure mining is to generate structural summary about the Web site and Web page. Technically, Web content mining mainly focuses on the structure of inner-document, while Web structure mining tries to discover the link structure of the hyperlinks at the inter-document level.

1.1.3 Web Usage Mining

Web usage mining is the third category in web mining. This type of web mining allows for the collection of Web access information for Web pages. This usage data provides the paths leading to accessed Web pages. This information is often gathered automatically into access logs via the Web server.

1.2 RESEARCH QUESTION

The central problem and forthcoming questions come together in the main research question:

*How does a web site's search engine ranking affect the amount of visitors from search engines and the value of these visitors?*

In order to be able to answer the main research questions the following sub questions need to be answered.  The first three questions are so called knowledge questions to provide background information for reference in the further research. The latter three questions will need to be investigated during this research and will be rephrased into propositions later on in this report.

1.2.1 Knowledge Questions

1. What are the different methods of influencing search engine ranking?

2. What is the effect of each method on search engine ranking?

3. How can the added value of a high search engine ranking for a web site be defined?

4. How does a web site’s search engine ranking effect the amount of visitors from these search engines?

5. What is the effect of an increasing search engine ranking on the value per visitor of the web site visitors from these search engines?

6. What is the relationship between the amount of visitor’s horn search engines to a web site and the total value of these visitors?

The research was two folded; first there was an exploration in the methods in which one can alter search engine rankings. Second there was an analysis on the effects of increasing search
engine rankings on the amount of visitors from search engines to the web site and on the web site's added value.

2. REVIEW OF LITERATURE

As more and more Internet users draw on search engines to navigate over the World Wide Web, the importance of these search engines is still increasing. According to Nielsen Ratings, 81 percent of the global Internet population visited a search engine in December 2006 (Thurow, 2007) and this figure is still increasing. When an Internet user makes use of a search engine, he or she enters a certain phrase into the search engine. This phrase is commonly called a site’s keyword or keyword phrase. When a keyword is entered into a search engine the search engine determines the most relevant results for that query and display the results in order of supposed relevancy.

2.1 SEARCH ENGINES

Search engines are programs (website) that search documents for specified keywords and return a list of the documents where the keywords were found. A search engine is really a general class of programs; however, the term is often used to specifically describe systems like Google, Bing and Yahoo! Search that enable users to search for documents on the World Wide Web. Typically, Web search engines work by sending out a spider to fetch as many documents as possible. Another program, called an indexer, then reads these documents and creates an index based on the words contained in each document. Each search engine uses a proprietary algorithm to create its indices such that, ideally, only meaningful results are returned for each query. A search engine is a web site that collects and organizes content from all over the internet.

2.2 SEARCH ENGINE MARKETING

It is the process of gaining traffic from or visibility on search engines. The phrase is also sometimes shortened to “search marketing.” SEM is an umbrella term that covers two broad areas:

- Gaining traffic through free SEO efforts
- Gaining traffic through paid search advertising

The internet is the largest and the cheapest means of advertising available to man today. Major search engines like Google, Bing are used extensively by website customers to search for website online. With over 2 billion people using the internet every single day throughout the world, it is absolutely critical for businesses worldwide to utilize the internet wisely and ensure they have immense visibility on various search engines. Convonix provide cutting edge internet marketing solutions to clients worldwide. We ensure that website business draws maximum benefit of search engines and the internet on the whole as well.

2.2.1. The effectiveness of each type of search engine marketing

Search Engine Optimization (SEO) is a necessary component of any successful business website. The internet has become the primary resource for information on virtually everything, from goods and services to relationships. To meet the needs of customers searching for solutions, businesses need to ensure their website content is easily visible and what better way than SEO to
achieve.

**Establish a Plan of Action:** It’s important that website know what website ultimately want to achieve with website SEO campaign.

**Assess website Capabilities:** Search engine optimization involves a broad mix of skills ranging from dealing with code and server side issues to creative keyword copywriting to ongoing content promotion and link building.

**Determine Measurements of Success:** Measuring the success of a SEO program is essential and should match the specific marketing goals that have been set.

**Implement and Promote:** The right keyword research should result in a Keyword Glossary that can be used for a content optimization audit and serve as a resource for future content creation, digital asset optimization and link building.

**Maintain an Ongoing Program:** In the world of search engines and online marketing, many things can and do change. Ongoing SEO efforts also provide oversight of implementation, continued link acquisition, opportunistic content promotion, coordination with other departments such as Public Relations, Advertising, Customer Service and HR as well as search analytics insight.

### 2.2.2. The added value of search engine marketing for a web site

Increasing search engine visibility can create value in different ways. In addition to monetary value of the visitors to a web site one could also consider matters like brand awareness, time spent on the web site and quality perception to add value to the organization behind the web site.

![Figure 1 - Time spent for viewing each search result Vs the frequency that the results are selected.](image)

**2.2.3. The effect of search engine ranking on the quantity of web site visitors**

First, the visitor is looking at the list and decides which result he wants to click on and review. At this stage the visitor is directly influencing the ranking. If site is located at the first page or in the first place, but visitor is not clicking on it, Google will understand that the site is not liked by visitors. (In some cases changing the description of the site will solve the problem) Next stage will be viewing the site. So time of site viewing is an additional
parameter of visitor influence. If the visitor is leaving website during seconds, Google will understand that website is not relevant or problematic. It is important to understand the next action of the visitor after leaving site.

2.2.4. The effect of the amount of visitors from search engines on the value of the visitors

Whether the use of query operators changes the documents retrieved by three popular Web search engines. One hundred queries containing query operators were selected from the transaction log of a major Web search service. The query operators were then removed from these one hundred advanced queries. Both the original and modified queries were submitted to three major Web search engines.

3. METHODOLOGY

The research goals are two folded, first try to understand how search engine ranking can be influenced in the most profitable manner, second find out what the effect of an increasing search engine ranking is on manors such as the amount of visitors and the value created by these visitors. This bilateral nature is mirrored in the research methods in which one can find two distinctive methodologies. First a literature review is executed to answer the primary knowledge questions and second multi-case studies are carried out to investigate the second part of the research and answer the research questions.

3.3 CASE STUDY DESIGN

In case studies five components are especially important during the design process. First the study questions need to be well formulated. This resulted in the main question capturing how a web site's search engine ranking influences the amount of visitors from search engines and the value of these visitors. The fact that the question is in a 'how' form also empowers the plan to answer it by means of a case study. Second, propositions have been established at the end of chapter two to answer the question and find the right direction for the research. Collected data are analyzed and judged against these propositions in order to answer the main question.

The propositions are as follows:

\( P1: \text{An increase in search engine ranking will result in a significant increase in the amount of visitors to a web site through the search engine.} \)

\( P2: \text{An increase in the search engine ranking of a web site will result in an increase in the added value per visitor.} \)

\( P3: \text{An increase in the number of visitors from search engines to a web site will result in an increase in the total added value of these visitors to the web site.} \)

The third component consists the definition of what the 'case' is. As already discussed above, this research will be based on a multi-case study. Within this study the units of analysis are the web sites 'search engine rankings as each web site has a certain ranking in search engines for certain keywords which generates a certain amount of visitors who in turn contributes a certain value to the web site.

The case studies take place among customers of the affiliate marketing broker M4N and are chosen based on availability. The two test cases are part of two different but both highly competitive markets. During the research period the search engine ranking of the two test cases
was optimized in two ways. First on the web sites were both the text component and the link component were analyzed as discussed in the previous chapter. On-site attributes were altered in such a way that the web sites itself were optimized for search engines. Then the link popularity of the two web sites mentioned above the research questions are answered based on findings in a case study. Because the stated theoretical framework does not focus on either critical or unique cases as well as does not imply to be representative for a wide base of cases, a single-case design is not the optimal type of case study for this research.

The evidence from multiple cases is often considered more convincing which then make the overall study to be regarded as more robust. With multiple cases it is also possible to follow replication logic, when uncovering a significant finding from a single case this finding can be replicated in a second, third or even more cases. If each case gives similar results literal replication it strengthens the theoretical framework enhanced through a service of M4N. Within this service the affiliates are stimulated to refer to the web site of the advertiser in order to increase the popularity component. Therefore many web sites that are topically related or widely perceived as highly authoritative are contacted to ask for a link to the web site that is being promoted. As mentioned in review of literature not only the quantity of inbound link is important, the quality of these new links is crucial as well.

4. DATA ANALYSIS

Competition in search engine optimization (SEO) will be composed of both the traditional organizations that vie for business in website market and the websites and domains ranking predominantly for keyword phrases important to website SEO strategy. They may be the same, they may be different. Rise of Mobile & Local, Google Updates Top Concerns for Search Marketers" offers more analysis and insights from the report. Marketers want to centrally manage their channels, see results on a platform that brings in data from across their programs... The ability to evaluate information is critical to SEO, social media, and web marketing, and it’s often something that people do badly, not because of any real failing on their part, but simply because many of us come from a background that doesn’t give us a chance to practice or experience this kind of stuff before we start work.

![Figure 2 - The relative amount of visitors for each ranking in both test cases and the AOL results](image)

4.1. Patterns in data on proposition 1 (P1)

Google is a one-trick pony and a castle built on clouds. But it is a very good trick, and a very powerful castle. However, have website ever heard of sudden soil liquefaction? That could
happen with Google, because most of their revenue comes from fundamentally non-loyal advertisers who will switch their budgets to wherever the eyeballs are. So Google’s mission in life is to ensure that the eyeballs stay there, and that they get some bedrock under that castle—in the form of diversification and significant alternative revenue streams. In other words, become more like Apple. That’s why they’re buying Motorola Mobile. Google, like every other mega-net-co like Amazon and Microsoft, is trying to become more of the necessary and inextricable fabric and infrastructure of the Web and business, much the way DNS is. They’re doing this in the battle over logins, email, social and messaging platforms, office software, and all that happy good stuff that’s becoming cheaper in attempts to lock us in. How do I fit in? So long as Google’s got the eyeballs, they’re the kingmakers, and I tweak things this way and that, trying to affect who becomes and stays king.

For the Sim Online case several keywords entered the top 10 in the search engine result pages of Google Netherlands. For each rank the web site had on the search engine result page and the amount of visitors from the search engine was measured. Each shift in search engine ranking towards the top results gives a significant increase of traffic. In order to test the stated proposition the results from the two test cases are compared to the figures in the AOL case. Therefore in both test cases the shifts in search engine rankings were combined with the relative amount of visitors from search engines.

In comparison to the AOL results the findings in the Sim Online case are slightly based towards the top results as a higher search engine rank results in more visitors than predicted based on the AOL case. It must be noted that Sim Online ranked on the fourth place in the search engine results at the end of the search engine optimization process, for this reason no results are available for the Sim Online case for the top three rankings. On the other hand there is the case of Car Safety in which did provide reliable results for the rankings all along the top five. In this last test case click through rates on the search result pages seem to be a bit more evenly spread. The bias towards the top results that was shown in the Sim Online case is even more clearly present in the case of Car Safety. Click through rates on the results on the second to the fifth place are far higher than in the AOL case.

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Relative value per visitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4</td>
<td>79.94</td>
</tr>
<tr>
<td>#5</td>
<td>89.45</td>
</tr>
<tr>
<td>#10</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Table 1 - Relative amount of added value per value for the specific search engine rankings in case #1 (Sim Online)

Based on the findings in the two test cases it is safe to say that an increase of search engine ranking results in over 5 percent additional visitors from search engines. For this reason the first proposition in this research is being accepted in these two cases affirming that an increase in search engine ranking will actually result in a significant increase in the amount of visitors to a web site through this search engine.

5. CONCLUSION AND IMPLICATIONS

Search engine marketing becomes an increasingly important aspect of the online marketing mix. For this reason both search engine optimization and search engine advertising are
entitled to receive more attention from academics and this is one of the motives for writing this thesis. For reasons of accountability it is essential to get insights in both the costs and the benefits of search engine marketing. This research seeks answers to questions that concern the relationships between the search engine ranking, the amount of visitors from search engines and the value that comes from these visitors. These three aspects are the cornerstones of this research and goal of this research is to find the possible relations between them.

Because Google has a market share of 95% in The Netherlands research will focus on this search engine only. Since this research was set up to explore this area of online marketing, no intention is implied to give any statistical data about specific industries or newly developed theories. This research should be considered as a general overview of existing literature and a hand vest for future research in the environment of search engine marketing.

5.1 ADDED VALUE OF SEARCH ENGINE MARKETING

Search engine visibility can add value in different ways, e.g. monetary value, brand awareness and perceived quality. Not only does an enhanced search engine ranking increase the probability that a website visited and thereby increase its website traffic, it also creates a scent of quality among Internet users. Since search engine users almost blindly trust the output of a search engine query, they seem to perceive that a higher ranking actually stands for a boner brand. Since a boner perceived quality is likely to result in higher conversion rates, this aspect enforces the business model for search engine marketing. This cycle incorporates that investing in search engine marketing increases search engine visibility, which in turn should result in increasing website traffic and forthcoming website value. When value is added to the website this can be reinvested into the search engine marketing.

REFERENCES