IMPLEMENTATION OF SELECTED SEO TECHNIQUES TO INCREASE VISIBILITY, VISITORS AND ACHIEVE HIGHER RANKINGS IN GOOGLE SEARCH RESULTS FOR NEWLY CREATED WEBSITES

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ABSTRACT
Due to the exponential growth of the Internet in recent years, search engines have the complex task of sorting through billions of pages and displaying only the most relevant pages for the submitted search query. Google has become an essential link between people and the information they seek online. For this reason, any webmaster or search engine optimization (SEO) engineer should be actively learning the techniques that drive visitors to their site. This paper describes the application of selected Search Engine Optimization (SEO) techniques to a newly created website across the entire website lifecycle, from inception, through development, and finally to launch and optimization of the site. Several SEO experiments were defined and evaluated by collecting and analyzing real traffic and visitor data through the use of Google Analytics. This research further analyzes search engine ranking factors and their effectiveness on Google’s search ranking algorithm by analyzing the number of users who visit the site and site rankings. The metrics for effectiveness of the SEO techniques were Number of Visitors, Pageviews and Ranking. The results of the research confirmed that there was a noticeable increase in the number of users who visited the site and the search engine rankings also increased. The implementation of SEO showed a positive effect on the Google search rankings and the increase in traffic. The results of this research confirm and extend results of earlier SEO research. This paper provides a thorough analysis and step-by-step implementation of selected search engine optimization techniques that are shown to increase visibility, get more visitors and achieve higher rankings in search results for a general class of website. For this reason, it is hoped that this paper can be used as a guidebook for new SEO engineers and as a basis for later continued SEO research.

Keywords: Google Search, Pagerank, SEO, Search Engine, Web-traffic

I. INTRODUCTION
Searching online has become part of the everyday lives of most people. To look for information about the latest gadget to getting directions to a popular restaurant, most people have made search engines part of their daily routine. Beyond trivial applications, search engines are increasingly becoming the sole or primary source directing people to essential & quality information. For this reason, search engines occupy “a prominent position in the online world”
[2]; they have made it easier for people to find information among the billions of web pages on the Internet. Due to the large number of websites, search engines have the complex task of sorting through the billions of pages and displaying only the most relevant pages in the search engine results page (SERP) for the submitted search query. With the continued growth of the Internet and the amount of websites available, it has become increasingly difficult for sites looking for an audience to achieve visibility. According to a recent study, there are about 3 million new websites appearing on the Internet every month [4]. As a result of this continued growth, it has made it increasingly difficult for websites to stay visible among all the other competing sites. Another study found that “more than 80% of first visits to a website come from web search among these visits more than 76% use Google’s search worldwide” [3]. Furthermore, it shows that “84% of Google searchers never go beyond the second page of the search results, and 65% hardly ever click on paid or sponsored results” [3]. These studies show how achieving top rankings in the search engine results is key to a site’s continued visibility. Therefore, getting top positions in the search engine results is critical to the constant flow of users to the websites, and this is where the value of SEO comes in.

SEO methods are not meant to deceive or manipulate the search engines in an unethical way; they are implemented to help improve the visibility and relevancy of a website in the organic search results by helping them achieve high rankings. SEO can be thought of as a collection of techniques for the strategic editing of the webpage; this process exposes the most relevant page factors to search engines and helps increase its importance in the search engine results page. SEO is not a simple process to implement because it requires a lot of experience, background knowledge and patience. Search engines can be very unpredictable with their ranking algorithms constantly being updated and enhanced; so it’s the job of the SEO engineer to keep up-to-date and stay current. As discussed earlier, Google has stated that its ranking algorithm takes into account more than 200 factors when determining website rankings. It is therefore important for SEO engineers to know what the most important factors in order to undertake a successful SEO implementation. Although Google will not fully disclose all the factors that are taken into consideration, it does however provide guidelines for SEO engineers or webmasters to follow for improving the overall rankings of websites.

II. SEO TECHNIQUES

SEO Early Beginnings: The early 1990s marked the debut of the earliest search engines; some of the popular ones were Info seek, Alta Vista and Yahoo!, which was more of a directory than what most people think of a search engine. “Like Yellow Page influencers, early SEOs took advantage of alphabetical order to get to the top of rankings. This included listed pages with names like ‘AAA,’ ‘1ForU,’ and similar titles. In addition to this rudimentary tactic, early SEOs took advantage of chronological order by submitting websites at certain times (midnight), thus attaining the first result for the given query” [40]. Early SEOs devised and implemented tricky tactics in order to gain more visibility and appear on top of competing pages. With the continued growth of the Internet, new search engines appeared that used more complex algorithms for ranking pages. “These algorithms used the metrics of keyword density (the number of times a specific word or phrase is used on a given page divided by the total number of words on the page) and meta tags like ‘key-words’ to supplement their understanding of the content of websites. SEOs
followed pace and started the process of keyword stuffing (artificially adding given keywords to a page) in order to be seen more relevant” [40]. Again, you can see that as search engines evolved in the way they ranked pages and determine relevancy, SEO engineers evolved as well by finding creative ways to influence search rankings, either by using unethical (black-hat SEO) or ethical (white-hat SEO) tactics. In an article published by The New York Times that dates back to November 1996, it talks about how web developers went “to great lengths to try to get their Web site to appear at the top of the list that is displayed after a user submits a search query” [41] using a black-hat SEO technique called keyword stuffing. The article describes how web developers simply loaded “a site with certain keywords often hidden behind graphics or in black type on a black background,” so that "a search engine that simply counts the number of times a certain keyword appears in a single site will display such sites higher in the relevancy ranking” [41]. It’s interesting to see how these tactics were taking place in 1996, just as the Internet was experiencing its tremendous growth and two years before Google launched.

As you see, gaining high rankings for certain keywords was a much simpler task in the early days than it is today. Implementing tactics such as keyword stuffing on the web page would almost certain guaranteed top page placements of the page. Nowadays the algorithms of the search engines have become more complex and thus making it more difficult for SEO engineers to manipulate the search algorithms as before, but the “cat and mouse game between SEOs and search engines continues” [41] to this day, and it will continue to be the case.

**SEO Goals:** The goal of SEO is to help websites or web pages achieve top placement in the organic search results by increasing the relevancy of a website or web page to the search query that user type on the search engine. Displaying the most relevant pages for the search query has many benefits to both the user and the search engine providing the results: the user finds the most relevant results for the keyword used, and the search engine is perceived as reliable and trustworthy because its algorithm displays the most relevant pages. Since SEO is concerned with improving a site’s rankings on the organic or natural search results, the process requires time and knowledge of tactics to implement. Time is a huge initial investment to be made to the website or page being optimized, and an ongoing maintenance to maintain the site’s top rankings. Depending on how competitive the target keyword is (or group of keywords) that will be used for optimization, SEO may take weeks or even months before seeing any results. Although the results of the SEO may not be seen immediate; the long-term benefits of SEO can mean top rankings and a high volume of user visiting the site. According to [43], “it’s critical for websites to appear on Page 1 of Google, especially in one of the top three organic positions, as these spots receive 58.4 percent of all clicks from users.” It is no wonder that websites with products or services to sell are all competing to reach to the wanted to be number one. As an example, when a highly competitive keyword such as “auto insurance” that gets 1.5 million Google searches every month, means that the top three positions receive 876,000 (or 58.4%) of all the visitors, with 546,000 (or 36.4%) of the visitors going to the No. 1 position according to [43]. This can be extremely lucrative for sites appearing at the top of the results, especially when they have this constant flow of visitors going to their site every month, many of which become clients. Another study determined that searchers are most likely to click on organic links as opposed to paid listings; it determined that “72.3% of Google users clicked on links generated through searching compared to 27.3%, who clicked on paid listings” [8]. This is another reason
why companies that know the effectiveness of SEO spend time and money implementing strategies so that their site achieves top rankings. The previous studies show that if websites want to maintain visibility and a continuous flow of visitors, they need to start paying attention on ways to achieve top rankings through effective SEO execution. But before undertaking any SEO process and start implementing specific search engine optimization methods, it’s important to distinguish between on-page SEO and off-page SEO methods. The next sections explain both implementations, along with their main differences and a brief summary of the techniques within each method.

On-page SEO: On-page SEO deals with anything you have direct control of, in the code or content of your web site (e.g. text, headings, images, links, etc…); basically anything that you implement or upload to your site is considered on-page SEO. On-page SEO lays the foundation of all your SEO efforts because this is where you have most of the control, any updates implemented on your site can either work for you or against you on the search results. Therefore it’s important to get on-page correct before launching into off-page SEO. As discussed earlier, Google uses over 200 factors to determine page relevancy and importance for deciding what pages will be displayed in the top search results; you will see that many of these factors are in direct control of the SEO engineer. Some of important factors are keyword research, title tag, description meta tag, robots.txt, optimized URLs, content, HTML headings, images, correct use of the “rel=nofollow” attribute, keyword placement and sitemap.

Off-page SEO: As opposed to on-page SEO which gets implemented on the website with a high direct control, off-page SEO consists of all promotion that takes place outside of your website; it can be considered as the combination of all the things that can help your site get higher rankings. It’s primarily focused on acquiring back links from authority sites in a gradual manner, and any technique that accomplishes this goal is by definition a candidate off-page SEO technique. Off-page SEO is by definition an open-ended process and is more driven by the SEO engineer’s individual creativity on how to achieve back links to the site.

Hidden text or links: text or links that are the same color as the background.

Keyword stuffing: One of the earliest forms of search engine spam, this is when the spammer uses the target keyword in large instances all over the page with the hopes that the search engine finds it relevant.

Doorway pages: These are low quality pages that offer no value to the users. They are created with the sole purpose of ranking for specified keywords; once the visitor arrives at the doorway page, he or she is taken to the homepage or other pages where products or services can be promoted.

Cloaking: This refers to the practice of presenting a page to the search engines and a different page to the users. The purpose of cloaking is to deceive the search engines into displaying a page that it would not otherwise be displayed. Link farms: The intention of link farms is to create as many sites as possible, all of them linking to your site. The idea is to inflate the number of back links going to the spam my site in order to deceive the search engine by into thinking it’s an authority site. Google has stated that its “aim is to give users the most valuable and relevant search results. Therefore, we frown on practices that are designed to manipulate search engines and deceive users” [10]; therefore, it is recommended to stay away from any of the previously mentioned black-hat SEO tactics, or risk the removal from Google’s search results.
III. IMPLEMENTATION OF SEO PROCESS

In this paper, natural search engine ranking factors were discussed, implemented and analyzed. In addition, their effectiveness on Google’s search engine ranking algorithm were tracked and measured. The following list provides a high-level overview of the SEO process implemented in this research:

1. **Topic website research**: Perform market research to validate search interest on *alpiste*, the topic of this research. Confirm that people were searching for *alpiste* related information online.

2. **Domain name selection and website setup**: Selection of the domain name, and the technical details of setting up the website and establishing a web hosting service. The consequences of the choices made at this stage may influence the effectiveness of the SEO techniques.

3. **Keyword research**: Effective keyword research is at the heart of SEO. Keywords can be considered to be the link that gets searchers to websites. For this reason, keyword research can be considered the most important part of the SEO process because it is in this phase that keywords are discovered and identified to be used in the SEO efforts. Selecting the wrong keywords can negatively affect your SEO strategy.

4. **Data collection**: Setup a tracking tool for website data collection. It’s important to gather detailed statistics about visitors to the site being optimized because it can provide you with useful data such as how users are arriving at your site, what keywords are responsible for sending the most visitors, what countries are sending the most visitors, etc… This is important because you want to continually track and measure your SEO progress and effectiveness.

5. **On-page SEO strategies implementation**: On-page SEO is the set of techniques that the SEO engineer applies to resources on-page (composition of web pages, use of correct tags and keywords) that have measurable impact on the way the page or set of pages being optimized is ultimately ranked by Google. These set of on-page SEO strategies are listed below:

   - **Title tag**: It defines the page title and it communicates what the page is about to the search engines; therefore, the target keyword should be inserted within this tag. It describes the overall theme of the optimized web page. Moreover, the title tag is what gets displayed in Google’s search results as the hyperlink title.

   - **Description meta tag**: It provides a summary description of the web page and its contents. Also, this description appears in Google’s search results, just below the title. For this reason, it’s recommended to use your target keyword within the description.

   - **Use of robots.txt**: The robots.txt file gives directions to search engines of what pages or directories should be crawled. Having this file configured correctly will make sure all your optimized pages get indexed.

   - **Optimization of URLs**: An optimized URL is one in which the URL text is self-explanatory and self-documenting. The text of the URL gives the reader a brief description of the theme of the page’s content; therefore, the target keyword should be within the URL.

   - **Content first**: Search engines process web pages from left to right, top to bottom. A strategic way to structure the web page content is to place the most important text at the top and should contain your target keyword for optimization.
Headings tags: These tags are used to emphasize important text and structure on the web page. They also inform the search engines what your page is about and how it’s organized. The <h1> tag defines the most important heading and <h6> defines the least important heading, so it’s important to include your target keyword into the <h1> tag.

Images: Use the image alt attribute to provide an accurate description of the image being used; if possible, use your target keyword in the description. The alt attribute from the <img> tag specifies the alternative text of what the image is about in case the image doesn’t load or cannot be displayed correctly. This short text description is helpful to the search engines and to people with disabilities so they can understand what’s contained on the image.

Use of the “rel=nofollow” attribute: In a HTML anchor tag <a>, the rel attribute defines the relationship between the current page and the page being linked to by the anchor. The nofollow value signals web spiders not to follow the link. In other words, it tells Google that your site is not passing its reputation to the page or pages linked to.

Keyword placement: The placement of the target keyword within the web page being optimized is important. By strategically placing the target keyword in key places, the web page will be seen as relevant page. This will also help boost the page’s search rankings.

Sitemaps: It’s recommended to create an HTML sitemap for users and a XML sitemap for search engines. The HTML version provides users easy access to all of the key pages in the site. The XML sitemap makes it easy for search engines know the site’s structure; it’s a way to tell Google what pages exists in your site so that they can get indexed.

6. Off-page SEO strategies implementation: Off-page is primarily focused on link-building. This is the process of acquiring backlinks from reputable sites in a gradual reputation-building process. And any technique that the SEO engineer can create that accomplishes this goal is by definition a candidate off-page SEO technique. Some off-page SEO strategies and key ideas are listed below:

Importance of keyword in the backlink: Google’s ranking algorithm places high value on the text that appears within the link. The text within the link gets associated with the page and describes the page it links to. For this reason, it’s important to have the target keyword within the text of the back link. Having the keyword in the text will help the site achieve higher rankings.

Importance of gradual link-building: It’s important to build back links in a gradual manner. The link-building process should be natural and steady. It is for this reason that SEO takes a lot of work and patience to implement. Furthermore, it’s an intentional part of Google’s strategy for gradual reputation building that it not be quick or overnight. In fact, if a site were to acquire dozens or hundreds of back links overnight, Google would almost certainly consider this a red flag (spam) that most likely will get your site penalized. But if the site content is compelling, people can find it through search and link to it. If this occurs, the site owner has no control of the amount of backlinks that the site will generate, and certainly Google can detect that this back links weren’t intentional.

Importance of quality content: As pages are created and uploaded to the site, it’s important to publish content that make people want to share, read and link to. When this occurs, the site has a higher probability of getting more back
links. The content should be of high quality, unique and must provide value to the users. Furthermore, the content needs to be published and promoted where potential users will find it.

*Writing articles to establish domain authority:* Writing articles and getting them published on other reputable sites, is a strategy that can help your site get back links. Getting an article published on trusted sites such as About.com, Wikipedia.org or NewYorkTimes.com and getting a back link in return, will help increase your website’s reputation and achieve higher rankings.

*Personal networking to establish a reputation:* Reaching out to those in your site’s community that “that cover topic areas similar to yours. Opening up communication with these sites is usually beneficial” [19]. Contacting sites that are related to what your site is about is a great way to network, promote and increase your site’s exposure.

*Finding your website’s natural affinity group:* Find websites that are related or cover similar topics as yours for potential networking opportunities. Getting back links off-topic sites do not count as much as links from sites that have related content to yours. As seen from the previous list of tasks, the SEO process is involved and it requires extensive keyword research. The experimental site (*casodelalpiste.com*), served as a platform for the trial application of a set of selected SEO techniques. These SEO experiments were evaluated by collection and analysis of real data from the website through the use of Google analytics.

Furthermore, their effectiveness on the number of users who visit the site and search engine rankings were measured and analyzed. It was proven that SEO had positive influence on Google search rankings and on the volume of users who visited the site.

**IV. CONCLUSION**

You have seen saw how early SEOs implemented rudimentary search engine optimization methods, using naming conventions such as “AAA” to take advantage of alphabetical ordering to appear at the top of the results in the early web directory portals; keyword stuffing was another early tactic used, with the hope of making the page more relevant to the search query. Implementing such tactics would almost certainly guarantee top page placements in the early Internet days, but search ranking algorithms have become more complex, which has made it more difficult for SEO engineers to influence search engines as before. Although this is the case, there are certain approved methods and guidelines that can be followed which are called white hat SEO techniques. On the other hand, black-hat SEO methods refer to the set of techniques that are meant to deceive game or manipulate the search engine’s algorithm with the intention to gain high rankings. Furthermore, SEO falls into two categories: on-page SEO or off-page SEO.

As explained earlier, on-page SEO deals with any updates performed on the code or content of the web site (e.g. text, headings, images, links, etc…), and this is where SEO engineers have the most control. On the other hand, off-page SEO consists of all promotion that takes place outside of the website and is primarily focused on getting back links (i.e. links pointing to your site from other websites).

In conclusion, ethical and approved SEO methods are not meant to deceive or manipulate the search engines in an unethical way; they are implemented with the goal of improving the visibility and relevancy of websites in the organic search results. SEO can be considered as a collection of methods for the strategic editing of web pages in
order to increase their importance and their relevancy in the search engine results. As a SEO engineer, it’s important to stay current with search trends and changes in search technology in order to launch more effective SEO strategies. And as stated previously, the “cat and mouse game between SEOs and search engines continues” [41] to this day and it will continue in the coming years.

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