International Conference On Emanations in Modern Technology and Engineering (ICEMTE-2017) ISSN: 2321-8169
Volume: 5 Issue: 3 01 - 05

Website marketing using Search Engine Optimization

Neelam Phadnis
Department of Computer Engineering
LR Tiwari College of Engineering, Mira Road
University of Mumbai ,India
kulkarnineelam@gmail.com

Omkar Phadnis
Analytics as a Service
Accenture Operations
Mumbai, India
omkar.g.phadnis@accenture.com

Abstract **-** Search engine optimization has come to mean a lot of things to a lot of different people. In the strictest sense, SEO is about the on-page and off-page design strategies you can use to improve your search engine ranking. This usually means tweaking your web site, using design elements and content. And in most cases, it also means spending no money at all. Search Engine Marketing, is not just SEO. SEM includes PPC or pay-per click advertising. Search engine marketing is about doing whatever you need to do to ensure that your web site ranks as high as possible in search engine results. This means not only that you make the needed changes to your web-site design, but that you also employ other tactics, like using a paid advertising program or investing in content strategies. The ultimate goal of SEO is to bring more people to your web site.

Index Terms – *search engine optimization, websites, page rank .*

*****

I. INTRODUCTION

The basic goal of a human searcher is to obtain information relevant to an inquiry. One of the most important elements to building an online marketing strategy for a website around SEO and search rankings is developing a thorough understanding of the psychology of your target audience. Experience the need for an answer, solution, or piece of information. For example, the user may be looking for a website (navigational query) to buy something (transactional query) or to learn something (informational query). Formulate that need in a string of words and phrases (the query). Most people formulate their queries in one to three words. Execute the query, check the results, see whether you got what you wanted, and if not, try a refined query. Once you grasp how your target market searches for your service, product, or resource, you can more effectively reach and keep those users. Search engines are tools—resources driven by intent. Using the search box is fundamentally different from entering a URL into the browser's address bar, clicking on a bookmark, or picking a link on your start page to go to a website. Navigational searches are performed with the intent of surfing directly to a specific website. Searches are performed with intent; the user wants to find something in particular, rather than just land on it by happenstance.

Informational searches are primarily non-transaction-oriented . The information itself is the goal and no interaction beyond clicking and reading is required. Brand searchers with positive impressions of your site, information, company, and so on; attract inbound links; receive attention from journalists/researchers; potentially convert to sign up or purchase. Transactional searches don't necessarily involve a credit card or wire transfer.

The search engines also look at sequences of search queries to determine intent. You can verify this by trying search sequences such as a search on Rome followed by a search on hotels. Keeping track of users' previous search queries and taking them into account when determining which results to return for a new query—known as adaptive search—is intended to help the search engines get a better sense of a user's intent.

Search engine optimization is essentially the science of designing your web site to maximize your
search engine rankings. This means that all of the elements of your web site are created with the
goal of obtaining high search engine rankings. Those elements include: Entry and exit pages, Page titles, Site content, Graphics, Web site structure. In addition to these elements, however, you also have to consider things like keywords, links, HTML, and meta-tagging. search engine optimization is based on a vast number of elements and strategies. And it's an ongoing process that doesn't end once your web site is live.

II. WHAT IS A SEARCH ENGINE

What do you do when you need to find something on the Internet? In most cases, you pop over to one of the major search engines and type in the term or phrase that you're looking for and then click through the results, right?
But of course search engines weren't always around. In fact, it was nothing like the web of interconnected sites that's become one of the greatest business facilitators of our time. Instead, the Internet was actually a collection of FTP (File Transfer Protocol) sites that users could access to download (or upload) files. To find a specific file in that collection, users had to navigate through each file.
The whole process made finding files on the Internet a difficult, time consuming exercise in patience. In 1990, Alan Emtage created the first search tool used on the Internet. His creation, an index of files on the Internet, was called Archie.

The program basically downloaded directory listings for all of the files that were stored on anonymous FTP sites in a given network of computers. Those listings were then plugged into a searchable database of web sites. In 1991, however, another student named Mark McCahill, at the University of Minnesota, created Gopher, a program that indexed the plain-text documents that later became the first web sites on the public Internet. Both of these programs worked in essentially the same way, allowing users to search the indexed information by keyword.

The first real search engine, was developed by Matthew Gray in 1993, and it was called Wandex. Wandex was the first program to both index and search the index of pages on the Web. From 1993 to 1998, the major search engines were created: Excite — 1993, Yahoo! — 1994, Web Crawler — 1994, Lycos — 1994, Infoseek — 1995, AltaVista — 1995, Inktomi — 1996, Ask Jeeves — 1997, Google — 1997, MSN Search — 1998.

A search engine is a piece of software that uses applications to collect information about web pages. The information collected is usually key words or phrases that are possible indicators of what is contained on the web page as a whole, the URL of the page, the code that makes up the page, and links into and out of the page. That information is then indexed and stored in a database. The process of collecting information about web pages is performed by an agent called a crawler, spider, or robot. The crawler literally looks at every URL on the Web, and collects key words and phrases on each page, which are then included in the database. A search algorithm for a search engine takes the word or phrase being searched for, sifts through a database that contains cataloged keywords and the URLs those words are related to, and then returns pages that contain the word or phrase that was searched for, either in the body of the page or in a URL that points to the page. Very often, more than one type of search algorithm is used.

Google is the king of search engines, in part because of the accuracy with which it can pull the results from a search query. Yahoo! is a search engine, and it is. But it's also a *web directory*. MSN relies heavily on page content, a web site that is tagged properly and contains a good ratio of keywords will be more likely to be listed by the MSN search engine.

III. WHAT ACTUALLY HAPPENS

A robot, spider, or crawler is a piece of software that is programmed to "crawl" from one web page to another based on the links on those pages. As this crawler makes it way around the Internet, it collects content (such as text and links) from web sites and saves those in a database that is indexed and ranked according to the search engine algorithm. When a crawler is first released on the Web, it's usually seeded with a few web sites and it begins on one of those sites. The first thing it does on that first site is to take note of the links on the page. Then it "reads" the text and begins to follow the links that it collected previously. This network of links is called the crawl frontier; it's the territory that the crawler is exploring in a very systematic way. The links in a crawl frontier will sometimes take the crawler to other pages on the same web site, and sometimes they will take it away from the site completely. The crawler will follow the links until it hits a dead end and then backtrack and begin the process again until every link on a page has been followed. The crawler sends a request to the web server where the web site resides, requesting pages to be delivered to it in the same manner that your web browser requests pages that you review. The difference between what your browser sees and what the crawler sees is that the crawler is viewing the pages in a completely text interface. No graphics or other types of media files are displayed. It's all text, and it's encoded in HTML. The crawler can request as many or as few pages as it's programmed to request at any given time.

IV. SEARCH ENGINE OPTIMIZATION

Optimization means selection of a best element from a set of available alternatives. Search engine optimization can be defined as the process of transforming your website in such a manner that it appears in top ten results or at the top in popular search engine results such as Yahoo, Google. SEO was started in 1997. SEO is very important in context of online marketing strategy. Today only graphically rich website is not enough but search engine friendly. Traffic sent by search engine is free People take important decisions eg buying a product. SEO helps in keeping website in the top in search results. You also need to win trust of search engines. Earlier it was easy to crack search engines algorithms—add keywords. Complexity of search engines has enhanced- not easy to get place in the top results. Google is the most popular search engine – organizations use SEO strategy for getting place in its top results.

A. On the Page SEO

On-page optimization consists of all the elements that can bring about an improvement in the search engine results by making changes on the webpage itself

Fig. 1 On Page SEO

It is under full control of the publisher. The publisher can take decisions on the type of content to be published. It is divided into 3 groups – content, HTML and architecture. Use of Heading Tags- Visitors only read first few characters of heading of the webpage, so heading tag known as H1 tag should have important keywords in the heading tag. Alt tags must be used so that visitors are able to see the content behind

the image when they move over mouse on the picture. Meta tag- these tags describe what the page is about. So if we don't include important keywords in meta tag, we may miss a chance that someone comes across on our website.

B. Off the Page SEO

Off-Page optimization is the technique to improve the search engine rankings for keywords.

Fig. 2 Off Page SEO

Back links are the best way to increase the rank of a page/website and the best way to increase back links is link exchange or submitting the URL while doing online advertisements. **Social Networking** is a process of sharing information on sites that facilitates content sharing, data exchange, adding unique content etc.

V. ANALYZING RANKING FACTORS

A. Positive Ranking Factors

Page Level Link Metrics refers to the links as related to the specific page, such as the number of links, the relevance of the links, and the trust and authority of the links received by the page. Domain level link authority is based on a cumulative link analysis of all the links to the domain. Factors considered include the number of different domains linking to the site, the trust/authority of those domains, the rate at which new inbound links are added, the relevance of the linking domains. Page Level Keyword Usage describes use of the keyword term/phrase in particular parts of the HTML code on the page (title element, <h1>s, alt attributes, etc.). Domain Level Keyword Usage refers to how keywords are used in the root or subdomain name, and how impactful that might be on search engine rankings. Domain Level Brand Metrics includes search volume on the website's brand name, mentions, whether it has a presence in social media, and other brand-related metrics. Social metrics considered include mentions, links, shares, Likes, and other social media site–based metrics. Page Level Traffic/Query Data include the click-through rate (CTR) to the page in the search results, the bounce rate of visitors to the page, and other similar measurements.

B. Negative Ranking Factors

Malware being hosted on the site; search engines will act rapidly to penalize sites that contain viruses or Trojans. Cloaking, Search engines want publishers to show the same content to the search engine as is shown to users. Google has a strong policy against paid links and sites that sell them may be penalized. Promoting the sale of paid links may be a negative ranking factor. The rate of acquisition of links is also a positive or negative ranking signal.

VI. DEVELOPING A SEO FRIENDLY WEBSITE

Developing an SEO-friendly site architecture requires a significant amount of thought, planning, and communication, due to the large number of factors that influence the ways a search engine sees your site and the large number of ways in which a website can be put together.

A. Visibility

The first step in the SEO design process is to ensure that your site can be found and crawled by the search engines. To rank well in the search engines, your site's content should be in HTML text form. The search engines do crawl images and Flash files, these are content types that are difficult for search engines to analyze, and therefore they do not help them determine the topical relevance of your pages. Search engines use links on web pages to help them discover other web pages and websites. For this reason, it is recommended taking the time to build an internal linking structure that spiders can crawl easily. Google, Yahoo!, and Bing all support a protocol known as XML Sitemaps. Using the Sitemaps protocol you can supply the search engines with a list of all the pages you would like them to crawl and index.

B. Content is King

The content your webpage has is obviously very important and should be rich in keywords.Also it should be updated often because sites with fresh content would not require the crawler to crawl them again and search engines rank such sites higher thus promoting those who keep updating their content regularly.A list of important keywords should be researched and prepared and then these keywords should be strategically placed. Having very high density of keywords is called as keyword stuffing and this is a red flag for most search engines and good have a negative effect on your rankings so keywords need to be used in good measure.

C. Designing site architecture

A logical and properly constructed website architecture can help bring great benefits in search traffic and usability. At the core of website information architecture are two critical principles: usability, or making a site easy to use; and information architecture, or crafting a logical, hierarchical structure for content. List all of the requisite content pages (blog posts, articles, product detail pages, etc.). Create top-level navigation that can comfortably hold all of the unique types of detailed content on the site. Reverse the traditional top-down process by starting with the detailed content and working your way up to an organizational structure capable of holding each page. Once you understand the bottom, fill in the

middle. Build out a structure for sub navigation to sensibly connect top-level pages with detailed content.

D. Taxonomy

The taxonomy is essentially a two-dimensional hierarchical model of the architecture of the site. Ontology is the mapping of the way the human mind thinks about a topic area. One effective technique for coming up with an ontology is called **card sorting**. Card sorting can help identify not only the most logical paths through your site, but also ambiguous or cryptic terminology that should be reworded.

E. Auditing existing website

Auditing an existing site is one of the most important tasks that SEO professionals encounter. Perform a site:yourdomain.com search in the search engines to check how many of your pages appear to be in the index. Compare this to the number of unique pages you believe you have on your site. Test a search on your brand terms to make sure you are ranking for them. Check the Google cache to make sure the cached versions of your pages look the same as the live versions of your pages. Check to ensure major search engine "tools" have been verified for the domain. You can also use commands such as inurl: and intitle to check for duplicate content. Another duplicate content task to perform is to make sure each piece of content is accessible at only one URL.

Make sure you have clean, short, descriptive URLs. Descriptive means keyword-rich but not keyword-stuffed.

Use the Google Webmaster Tools "Test robots.txt" verification tool to check your robots.txt file. Also verify that your Sitemaps file is identifying all of your (canonical) pages. Look for pages that have excessive links. Make sure the site makes good use of anchor text in its internal links. If the domain is targeting a specific country, make sure the guidelines for country geotargeting are being followed. Too long a load time may slow down crawling and indexing of the site. Search engines can't easily tell what is inside an image, and the best way to provide them with some clues is with the alt attribute and the filename of the image. These can also reinforce the overall context of the page itself.

F. Leverage Intent

When you are building keyword research charts for clients or on your own sites, it can be incredibly valuable to determine the intent of each of your primary keywords. This type of analysis can help to determine where to place ads and where to concentrate content and links. As an SEO practitioner, you should be aware that some of the visitors that you succeed in attracting to your site may have arrived for the wrong reasons (i.e., they were really looking for something else), and these visitors are not likely to help your business goals. Research firms Enquiro, Eyetools, and Didit conducted heat-map testing with search engine users. The graphic indicates that users spent the most amount of time focusing their eyes in the top-left area, where shading is the darkest. Study perfectly illustrates how little attention is paid to results lower on the page versus those higher up, and how users' eyes are drawn to bold keywords, titles, and descriptions in the natural ("organic") results versus the paid search listings This research study also showed that different physical positioning of on-screen search results resulted in different user eye-tracking patterns.

VII. WEB ANALYTICS

Analytics software can provide you with a rich array of valuable data about what is taking place on your site. It can answer questions such as: How many unique visitors did you receive yesterday? Is traffic trending up or down? What are the most popular search terms with which people find you? What are the most popular pages on your site? What are the best-converting pages on the site? Search analytics tools specifically monitor how your website interacts with the search engines.

Google Analytics is now the most widely used web analytics service on the Internet. Integrated with AdWords, users can now review online campaigns by tracking landing page quality and conversions. Google Analytics analysis can identify poorly performing pages with techniques such as funnel visualization, where visitors came from (referrers), how long they stayed and their geographical position. It also provides more advanced features, including custom visitor segmentation.

Google Analytics is implemented with "page tags", in this case, called the Google Analytics Tracking Code, which is a snippet of JavaScript code that the website owner adds to every page of the website. The tracking code runs in the client browser when the client browses the page (if JavaScript is enabled in the browser) and collects visitor data and sends it to a Google data collection server as part of a request for a web beacon Whether you want to boost sales or find more users, Google Analytics has the features you need to improve your business across your sites and apps.

VIII. PAID SEARCH ENGINE MARKETING

Paid search marketing means you advertise within the sponsored listings of a search engine or a partner site by paying either each time your ad is clicked (pay-per-click - PPC) or less commonly, when your ad is displayed (cost-per impression - CPM). 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.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.

A. Cost per Click

Cost-per-click (CPC) means that you as an advertiser appearing on a Search Engine Result Page, pay the search engine for each user's individual click on your Ad. In other words, it is no visit no fee. This is one advantage of CPC, you get charged only and unless a user visits your Ad site. With CPC, you can set a manual bid. Your bid is the maximum amount you're willing to pay per link click.

B. Cost per impression

Cost-per-impression (CPM) means that you as an advertiser appearing on a Search Engine Result Pages, pays the search engine for every 1,000 times your ad appears on the page. Advertisements are sold through the traditional cost per impression but with the visitor taking some specific action with

regard to the ad [5] .The user doesn't have to click-through, it's just about page impressions.

IX. SEO TECHNIQUES

SEO techniques can be classified into two broad categories: techniques that search engines recommend as part of good design, and those techniques of which search engines do not approve. White hats tend to produce results that last a long time, whereas black hats anticipate that their sites may eventually be banned either temporarily or permanently once the search engines discover what they are doing.

An SEO technique is considered white hat if it conforms to the search engines' guidelines and involves no deception. White hat SEO is not just about following guidelines, but is about ensuring that the content a search engine indexes and subsequently ranks is the same content a user will see. White hat advice is generally summed up as creating content for users, not for search engines, and then making that content easily accessible to the spiders, rather than attempting to trick the algorithm from its intended purpose.

Black hat SEO attempts to improve rankings in ways that are disapproved of by the search engines, or involve deception. One black hat technique uses text that is hidden, either as text colored similar to the background, in an invisible div, or positioned off screen. Another method gives a different page depending on whether the page is being requested by a human visitor or a search engine, a technique known as cloaking.

Another category sometimes used is grey hat SEO. This is in between black hat and white hat approaches where the methods employed avoid the site being penalised however do not act in producing the best content for users, rather entirely focused on improving search engine rankings.

Search engines may penalize sites they discover using black hat methods, either by reducing their rankings or eliminating their listings from their databases altogether. Such penalties can be applied either automatically by the search engines' algorithms, or by a manual site review. One example was the February 2006 Google removal of both BMW Germany and Ricoh Germany for use of deceptive practices.

X. CONCLUSION

Search engines are the most effective marketing strategy for online promotion of websites as it is the major source of getting new customers in today's time. If an organization is looking for new customers it is important that they know a lot about SEO.[4] As there are a huge number of search ranking algorithms it becomes difficult for the SEO engineers to influence all the search engines and in turn rank high on all of them. But there are a number of techniques which can be employed by you, like white hat SEO ,which will get you a higher ranking and these techniques also follow the guidelines of the search engines. On the other hand you can improve the ranking of your website using unethical ways like black hat SEO but chances are that these methods will more likely get you red flagged by the search engines.[10] There are different marketing strategies-Paid and Non Paid strategies. Paid search engine marketing strategies is where you buy advertising space in the search engine .So instead of trying to increase your rank on the search engine you pay to appear in the top of web searches while in the Non paid search engine marketing strategy the rank of your website will depend on the quality of your content and the amount of traffic you can garner. Optimization of your webpage will result in increase in the number of customers who visit your website which will affect your sales and increases your brand recognition in turn increasing your rankings too.

REFERENCES

[1] Swati Patil, B Pawar : Study of Website promotion techniques and role of seo in search engine results
[2] Albert Bifet,Carlos Castillo,Paul-Alexandru Chirita,Ingmar Weber: An Analysis of Factors Used in Search Engine Ranking.
[3] Sanjeev Dhawan, Nirmal Kumar, Divya Sethi : Key Factors in Design and Implementation
[4] George S. Spais: Search Engine Optimization (SEO) as a dynamic online promotion technique: the implications of activity theory for promotion managers
[5] Mangani, A. J Revenue Pricing Manag 920040 2: 295. Doi:10.1057/palgrave.rpm.5170078
[6] Surbhi Gupta , Shivangi Miglani , Vaibhav Sundriyal : Search Engine Optimization Techniques.
[7] Joeran Beel , Bela Gipp ,Erik Wilde :Academic Search Engine Optimization (ASEO): Optimizing Scholarly Literature for Google Scholar & Co.
[8] Manpreet Kaur, Hari Singh : Web Health Analyzer for Search Engine Optimization