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The research as described in this document was done by the first author as noted below. She was a student at the Munich University of Applied Sciences (MUAS) in 2014 - the topic was given as a student project. It has not been peer reviewed, but has been edited for basic grammar and accuracy. References have been standardized as far as possible according to the Harvard system. Consider this document as a working paper, to be used for basic referencing but not as seminal source for research work. It could be useful for research in the fields of Website Visibility, Information Retrieval Analytics and Search Engines.

**The evaluation of free website visibility
measurement tools – Part 1**

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Abstract

Introduction. The Internet grows daily in importance to the average computer user. More users than ever before have access to Internet resources from work or home. Many companies offer their products and services for sale online. Many users mostly do not type in a Web address of an online shop from memory. They use search engines to find the best products/sources online. Since users do not like scrolling down to find results, it is important to be listed on a result page of a search engine as high up as possible.

Measurement Tools. Some tools to measure website activity, design issues, user preferences and actions, etc are available. Some are expensive but there are also many free alternatives. One well-known program is Google Webmaster tools. If a company does not want to use the Google tool, there are also many others. In this paper, a number of free non-Google tools are tested on a high traffic website.

Comparison of the Results. There are two important factors which are compared: site speed and keyword density. It was found that the products differ widely in what they offer.

Conclusion. Search engine optimisation is a very important factor to make a website visible to search engines. The kind of tool compared in this paper provides a good starting platform towards analysing website visibility and trends.

Keywords

website visibility, search engine optimisation, internet, free tools

1. Introduction

The Internet as an information tool grows in importance. Internet access through some device is becoming a standard requirement in many households, while mobile devices (mostly smartphones) are being used more and more for access.

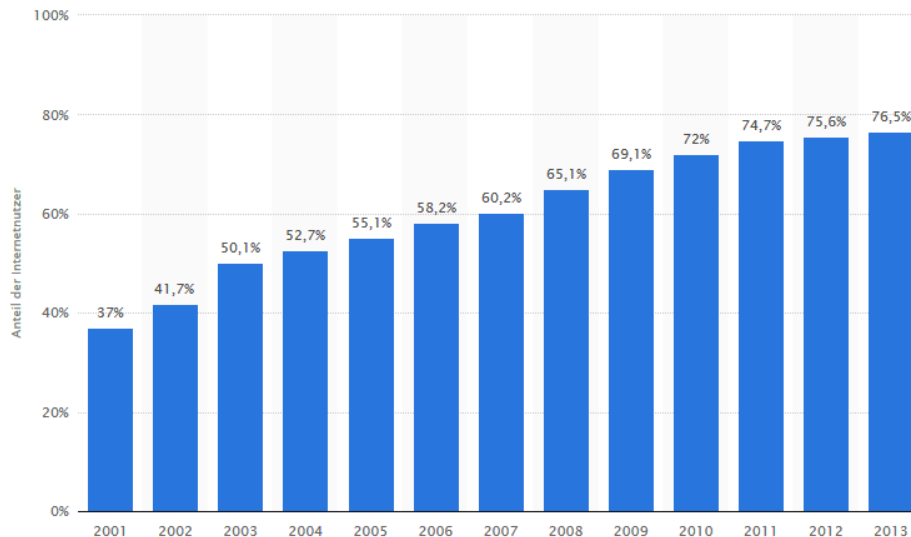


Figure 1: Internet Usage Development 2001-2013 (Statista 2014).

Figure 1 indicates the growth of the number of global Internet users over just more than a decade. It is continuously increasing and unlikely to stabilise soon. Casual information-seeking is only one basic motivation for Internet usage. More and more a commercial motivation for hosting a website on the Internet is becoming evident. Companies also try to sell their products - not only in walk-in stores, but they offer them on the Internet in so-called online shops. In both cases, many people start the process of online shopping by first using a search engine like Google or Yahoo! (Moral & Gonzalez 2014). Users often do not type in the direct Web address if they want to visit a website (Shih *et al* 2012).

However, it is not easy to be listed high up on a search engine result page for certain queries. To be mentioned is only the start - to be rated highly is the ultimate goal (Malaga 2008).

Generally two strategies are used to achieve high rankings – optimising a website (SEO) or using a paid system to draw traffic (PPC) (Kritzinger *et al* 2013).

As most users do not have the time to click through many search engine result pages, the entries listed first are the most frequently clicked links. Only two to three percent of users continue reading pages after the first ones (Shrivastva *et al* 2014). It is also claimed that as much as 91% of all users will never read past the third result page (Weideman 2009). Search engines can help companies to become more popular and even get more customers, because they find the company by searching for a certain keyword, for example “orange bag” (Shih *et al* 2012). If a company sells the orange bag the person is looking for, the customer might order the product immediately, or recommend the online shop to friends.

Even universities, which are not (traditionally) oriented towards making profits, need to consider the visibility of their homepages. This is needed to remain competitive in the modern market of the global student (Weideman 2013). The aim of the tools investigated in this paper was to assist webmasters in understanding user search behaviour better, allowing them to redesign the website according to search engine specifications. This process is called “Search Engine Optimisation” (SEO) (Sen 2005).

2. Tools

As mentioned before, search engines can help companies draw attention from their target customers (Shih *et al* 2012). However, to reach that aim, it is very important to be ranked highly on the search engine result pages. Some tools to measure visibility are expensive (including www.ranks.nl, for example), but there are also some useful free alternatives. One of the most popular is Google Webmaster tools. Companies like “The International Business Times” use it (Sohn 2012). It “... provides a rich set of statistics and reports about a website’s traffic...” (Moral *et al* 2014). If a company does not want to use the Google tool, there are also many others. In this paper, free non-Google tools are tested on a popular and high-traffic website.

Table 1: List of tools which were tested.

Tool	Website
GTmetrix	http://gtmetrix.com/
SEO SiteCheckUp	http://seositecheckup.com/
Woorank	http://www.woorank.com
Site trail	http://www.sitetrail.com/analysis/
Pingdom	http://tools.pingdom.com/fpt/

2.1 GTmetrix

The tool’s website claims that “GTmetrix can help you develop a faster, more efficient, and all-around improved website experience for your users”.

This analytic tool tests a website and rates several important factors which are relevant for search engine optimisation. GTmetric is specialised to measure the loading times for several elements and factors of the webpage (Bari 2014). The user of the GTmetrix tool can choose if he/she wants to receive a regular or the full report.

The report can be downloaded as a pdf document, which is very useful. The difference between the two result-exports is the amount of details. The tool tests, for example, if the image dimensions are specified. Smaller images make a website load faster. In both reports the result of that factor is rated, but the full report lists the images which have no specified image dimensions.

2.2 SEO SiteCheckUp

This tool analyses the problems of the test website. This means that “SEO SiteCheckUp” tells their customer where they have deficits with their website design, allowing them to pinpoint and address these problems.

2.3 Woorank

With this tool it is possible to test a website once, without payment. After that, the user has to register for a seven day test version (also free). When the test time has expired, the user has to pay a small fee every month, but the subscription can also be cancelled every month.

There are two versions of access: the cheaper version (and the free test) cannot download the results – users can only view results online. If one uses the more expensive version, customers can export the report of the search engine problems as a pdf file.

In this paper, the free analysis was used. The report could not be saved locally on the computer, which makes it hard to compare the results to other analysis tools. One option to record results is to use screenshots, which takes time and is not as useable as an editable document.

2.4 Trail

This website offers a large number of services. Users can specify and save their favourite websites to be tested. They will be informed if the site is listed elsewhere - this feature is called “Website News”. It is also possible to analyse a website, but it does not have the feature of downloading reports. Users have to save screenshots for recording their results.

2.5 Pingdom

This website analytics tool also provides some special features. It is possible to monitor if the website is down or if the server is running the right way, as it is promised on the landing page of the website. The first website test is free - afterwards users have to pay. The tool can be used online and it is not necessary to download a program or an application to use all the features. As this paper is about measuring the visibility of a website, Pingdom is also able to do that.

3. Comparison of Results

Since there are many different tools to measure website activity and visibility, it is important to know which one fits the user's needs best. It is not easy to compare the results of the tools directly, because they all display the tested factors in a different way. Some parts of the results are comparable and some are not, therefore it is important to consider all of them. This paper starts with the comparable ones first.

To test the whole range of features it is recommended to use a high traffic site to check the quality of the tools. The popular online shop www.amazon.com is an example of such a high traffic website (Linden *et al* 2003).

3.1 Comparison of two important factors

The comparison results are listed below.

3.1.1 Page speed

The page speed is measured by all tools except Pingdom.

The time a webpage takes to load on the user's screen is important. A user might lose interest in the website if it takes too long to load - the page load time should be a maximum of 10 seconds (Dreyer 2005). Table 2 presents these times for www.amazon.com, as measured by the tools. They compare well, except for the excessive time reported by SEO SiteCheckUp.

Table 2: Comparison Page Load Times.

Tool	Speed
Site Trail	1.756 seconds
GTmetrix	3.05 seconds
Woorank	1.25 seconds
SEO SiteCheckUp	47.066 seconds

The results in Table 2 show the measured page download time differs very little – excluding the last one. The time which is presented by the tools Site Trail and Woorank is the most similar and the time of SEO SiteCheckUp is much higher than the others. It is the authors' opinion that this tool measures the load time incorrectly, and its results will be checked for other tests, to see if it consistently does so.

Several measures can be implemented to improve the page speed, but as it is not the aim of this paper only this factor is noted. By compressing pictures that are presented on the website, and using JavaScript the speed can be optimized (Schiff 2013).

3.1.2 Keywords

The use of keywords is an important factor in the measurement of both website usability and search engine optimisation (Konstantinidis 2008). Search engines look for keywords on the websites; therefore it is more likely that, if a website consistently uses certain keywords and key-phrases, that the site will appear on the first page of the search engine result page.

Only three tools check the tested website for keywords:

- SEO SiteCheckUp
- Site Trail
- Woorank

Neither Pingdom nor GTmetrix provided checks for this important factor.

The tool SEO SiteCheckUp shows that the word “amazon” is used 23 times, resulting in a keyword density of 2,11%. The second most frequently used word is “reviews” and has a density of 1.93%, which is the same as the word “customer”. This tool provided fairly complete results.

Site Trail distinguishes between meta keywords and normal keywords (Golle *et al* 2004). It identified meta keywords like “Amazon”, “Amazon.com”, “Books”, “Online Shopping” and others. The density ranking of the normal keywords started with the highest density of 1,5% for the words “games” and “books”. In the second place was “accessories” followed by “cloud player”. The difference between the results become even clearer by looking at the first ranked keywords.

Woorank’s results are closely related to those of SEO SiteCheckUp, but Woorank only counts the number of times the words are used. It does not give the percentage of the density. “Amazon” is used 34 times, followed by the words “customer” and “reviews”. Both are used 21 times, the reason for that might be that both words are mostly used together as in: “customer reviews”. The next keyword was “kindle” - listed 20 times.

4. Report differences

The Site Trail tool checks the social media presence of the tested webpage, and provides an analysis. Social media sites included in the test are YouTube, Flickr, Twitter, Facebook and some others. No other search engine optimisation tool did such a detailed analysis of those aspects. The visitors’ origin for the tested page amazon.com is also checked. Figure 2 shows an example of the results of this analysis.

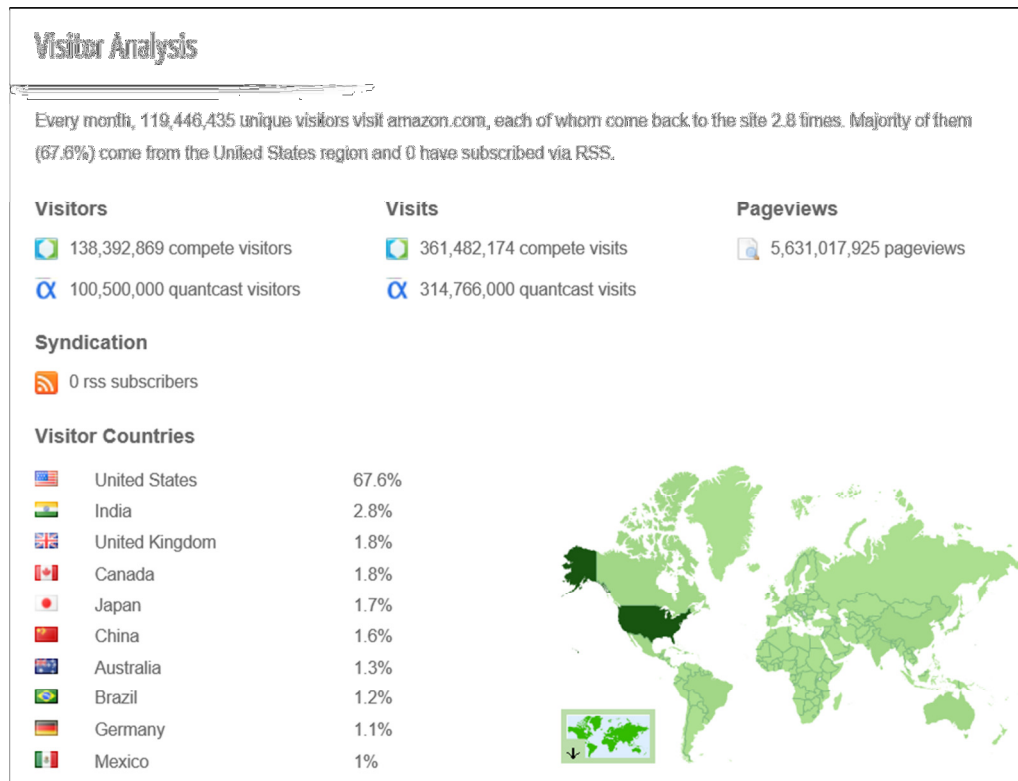


Figure 2: Extract of the results of Site Trail.

The longest and arguably most useful analysis was provided by GTmetrix. Their report was 28 pages long and split into many detailed subcategories.

5. Conclusion

It is not easy to compare the reports of the different tools; they have totally different structures and also test different features. The way they test the webpage also seems to be different for some tools - this can be seen in the results. It is important to run these kind of tests regularly, and follow up the results, in order to work towards increasing a website's popularity and success amongst human visitors. To get the best out of a website it is advisable to test the website not only with one tool, but with more than one. Since almost every tool provides results which the others do not, it is the best way to get the maximum benefit out of these tools.

In final conclusion, there is no perfect tool which fits everyone's needs - every company or person wants to know different things and do not have the same aim. It is of course commendable to test the visibility but the success of the measurements which are done after that depends on the person who does them. It should be someone who knows enough about the topic and has some experience in that field (Mancini 2013).

Finally, it does appear as if GTMetrix provides the most useful feedback. Similarly, SEO SiteCheckUp seems to provide incorrect answers at times, and its results should be treated with care.

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