Chapter 132
Search Engine Optimization

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ABSTRACT

In this chapter, the authors discuss at length the subject of search engine optimization (SEO), its different characteristics, and why basic SEO knowledge is considered as a useful tool for any web business. The chapter will address both the theoretical and practical issues related to the design and implementation of SEO and also will cover previous research done on this topic. In order to give a better understanding of the importance of SEO in the current state of the internet and in information search, basic knowledge of how search engines operate along with their recent updates will also be provided. The development of World Wide Web (Web 2.0) along with the growth of search engines over the last decade has brought significant changes in web content. In this context, the authors show how SEO has evolved over the years. Nowadays, social media and social signals have increasingly become one of the many factors search engines take seriously into account, which is another issue that this chapter will address.

INTRODUCTION

The extensive range of information resources and services is certainly one of the most important features of the Internet while at the same time, web search is considered as a crucial application for managing the massive volumes of distributed web content. Beyond argument, search engines have made an enormous contribution to the web by making the process of finding information online a very quick and easy process. Today, major search engines are considered to be the most common and trusted tool or service to retrieve information from the Internet (Spink & Xu, 2000). Also, they are the primary method used for navigation for hundreds of millions of users worldwide and one of the most common online activities (Purcell, 2011; Purcell, Brenner, & Rainie, 2012). The majority of Internet traffic depends largely on them (Safran, 2013) and thus, web search is one of the best sources of traffic for any website. However, it is true that the vast majority of all search traffic comes from the first or the first pages of search results as users usually focus on the top ranks.

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There are two ways an online user – customer will find a business website via a search engine: through a pay-per-click campaign (PPC) or through an organic result listing that is based essentially on what is called Search Engine Optimization or briefly, SEO. The latter can be defined as the process of affecting - improving the visibility of a website (or a web page) so that it ranks well for particular keywords in a search engine's "natural" or "organic" (un-paid) search results (Ledford, 2009; Potts, 2007). Generally, the earlier, and more frequently a site appears in the search engine results page, the more visitors it will receive from the search traffic. In other words, it is a set of techniques that take into account the evaluation criteria of search engines regarding website content and structure (Giomelakis & Veglis, 2015a).

There have been plenty studies regarding online users' click behavior on search engine results pages. According to the results, 90 percent of search engine users never read beyond the third page of search results (iProspect, 2006). Also, the top listing in Google's organic search results receivers 32.5 percent of the traffic, compared to 17.6 percent for the second and 11.4 percent for the third position. Finally, websites listed on the first page in Google's results generate 92 percent of all traffic from an average search (Chitika, 2013). From all the above, it is evident that if a website is not in the first search results page or even worse is absent from the top 30, it has almost no chance of being read by a user (Clay, 2006). As a consequence, and while more and more websites are indexed by search engines and compete one another to ensure their own market share, it is clear that factors as the highest ranking and top of the results page become increasingly essential for businesses of all kinds (Enge, Spencer, & Stricchiola, 2015; Giomelakis & Veglis, 2015a).

This chapter provides an overview of Search Engine Optimization, with a focus on its different characteristics as well its history and how it has evolved over the years. In order to give a better understanding of the importance of SEO in the current state of the Internet and in information search, basic knowledge of how search engines operate along with their recent updates are also provided.

BACKGROUND

Search engines are software that catalogs the World Wide Web and provides search using keywords into their vast databases containing full-text indexes of web pages. Users actually search this database of retrieved web pages, not the World Wide Web itself. As a consequence, they manage to take rapid results something that would be impossible if engines were trying to search billions of pages on the web in real time (Veglis, Pomportsis, & Avraam, 2004). When users click on search results they retrieve the current version of a web page. It is worth mentioning that search engines consist of three parts: the web crawler or spider, the indexer and also the query processor (Mudgil, Sharma, & Gupta, 2013). The crawler systematically browses the World Wide Web, looks at every URL (Uniform Resource Locator) collecting keywords and phrases on each page, which are then included in a massive database. The crawler is also responsible for keeping indexed pages up to date (Ledford, 2009). Search engines start with a set of very high quality sites and then visit the links on each page (of those sites) to discover other web pages. This complex process repeats over and over again until the crawling is complete. Through links, web crawlers (i.e. automated robots) can reach the many trillions of interconnected documents (Enge, Spencer, & Stricchiola, 2015).

Search engines use algorithms so as to find and collect information about web pages. Generally, a search algorithm can be characterized as a problem-solving procedure that takes the problem (i.e. the users' word or phrase), sifts through a vast database of cataloged keywords with their URLs, and then returns