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Introduction

Destination marketing organizations (DMOs) play an important role by linking the supply and demand of tourism destinations. On the Internet, a primary goal in DMOs' marketing and promotional programs is to ensure relevant information is available and accessible to potential visitors (Werthner & Klein, 1999). With search becoming a dominant mode in the traveler's use of the Internet for trip planning, DMOs are investing considerably in search engine marketing with the aim to improve the chance for their website to be visited by online travelers (Google, 2006; Sherman, 2007; TIA, 2008). Therefore, understanding the effectiveness of their current search engine marketing programs is of great importance because it can help identify gaps and provide directions for strategic change.

The use of search engines can have significant impact on the online traveler's impression, perception, and overall evaluation of a DMO's website (Kim & Fesenmaier, 2008). As such, marketers utilize a variety of techniques to influence search engine users, including paid ads, meta tags, webpage content design, and link campaigns. The ranking of search results is widely recognized as the most important factor that impacts the searcher's behavior (Pan et al., 2007). For example, the majority of search engine users do not look beyond the first three pages of search results (Henzinger, 2007; Spink & Jansen, 2004). This suggests that, if a website is not displayed in the first three pages of search results, the likelihood for it to be reviewed is slim. Therefore, one of the important goals in search engine marketing is to improve the ranking and, consequently, the visibility of the website, among numerous competing ones. However, past studies have shown that the visibility of tourism businesses in search engines is diminishing, leading to problems for accessing relevant information (Wöber, 2006; Xiang, Wöber, & Fesenmaier, 2008).

Search engine marketing (SEM) is a controlled communication process with online travelers. It requires a thorough understanding of travelers' needs and the ability to identify strategic responses to these needs. It has been long recognized that DMOs should focus on what online travelers are searching for in order to make certain their websites are visible in response to search queries. While past studies provided insights into the "challenges" for the tourism industry in general, they did not address the visibility issue specifically related to one of most important players in tourism, i.e., DMOs. Also, little is known about the degree of visibility of tourism websites in relation to specific areas of search. In addition, the data used for user queries in previous studies are dated and cannot reflect the most current trends on the Internet. Therefore, the goal of this paper is to utilize recent user queries to investigate the visibility of DMO websites in search engines and, by doing so, to identify potential gaps in DMOs' search engine marketing strategies.

Research Methods

A set of 18 cities was selected to represent urban tourist destinations in the United States, including six small cities, six medium-sized cities, and six large cities based upon 2002 census populations. Following Xiang *et al.* (2008), Google was chosen as the focal search engine because of its dominance in the search market. The research design consisted of three steps: 1) identifying search queries; 2) mining search results from Google based upon these queries; and, 3) benchmarking visibility of these DMO websites.

In Step 1, Google AdWords Keyword Tool (<https://adwords.google.com>) was used as the sampling frame to identify search queries. This tool is provided by Google for marketers to view the volumes and competitiveness of certain queries and, thus, allows them to select keywords for their search engine marketing campaigns. Given the popularity of Google, it presumably captures the highest volume of search for a single search engine. Specifically, for each destination the city name (e.g., "New York City") was manually typed into the interface and all the queries (150 for most cases) suggested by Google, along with their average monthly volumes, were extracted, resulting in 2,678 queries for all 18 destinations. To establish the basis for comparison between destinations, these queries were coded into travel-related

categories (e.g., city name, attractions, accommodations, etc) and non-travel related ones (e.g., general search terms such as “New York City water” or “companies in NYC”).

In Step 2, a Web crawler program written in Perl programming language was used to simulate the use of Google by search engine users by applying the queries obtained from Step 1 for each of the 18 destinations, individually. Web addresses (URLs) of organic search results on the first three pages were extracted. Then, a pre-compiled list of the Web addresses of DMOs in these destinations was used to identify the occurrences of these websites displayed as part of Google results, along with the query term, search results page number (1, 2, or 3) and ranking (from 1 to 10) within a specific page.

In Step 3, analysis was conducted by comparing the visibility of DMO sites among destinations. Specifically, this analysis examined the occurrences of DMO websites among all search results between these destinations. To further show the potential “impressions” on search engine users, a second analysis was conducted with the focus on website visibility in relation to the volume of search queries in Google. A compound score was calculated for each DMO website by the sum of its occurrences within each category of search queries identified in Step 1 multiplied by the search volume for that specific category.

Findings

Volumes of search queries for these cities extracted from Google Keyword Tool were huge. The monthly average of queries for all 18 cities was approx. 9 billion (N=8,909,209,686). On average, each destination generated 19,036,481 queries per month, ranging from 213,491 (Americus, GA) to 72,599,890 (Las Vegas, NV). The average monthly volume of the least frequently used query for all 18 cities were in the hundreds (N=410), indicating the list of the top 150 queries related to the city names is a comprehensive representation of all possible queries about a specific city and, thus, provides a good basis for understanding the search domain.

Content analysis of search queries showed that about 40% of all queries are potentially travel related. However, in terms of search volume, only 3.5% (approx. 300 million) were related to travel, indicating travel-related queries were only a small part of all queries about a destination. They included categories such as “city name” (67.6%), “city name with state name” (15.5%), “accommodation” (9.1%), “attraction” (2.4%), “deal” (1.2%), “transportation” (1.0%), “dining” (.6%), “activity” (.6%), “entertainment” (.3%), and “car rental” (.3%). These categories constituted approximately 98.4% of all possibly travel-related queries.

Mining the visibility of DMO websites in Google showed that, in total, they occurred 702 times on the first three pages of search results. Considering it was generated by 150 queries for each city, this was just a small fraction, suggesting the competition space for DMO websites was huge. Among these 702 instances, 422 (60%) were displayed on the first page of search results and 244 (35%) among the top three search results on the first page. This showed that overall DMOs did a reasonably good job for being ranked at a competitive position.

Comparison of visibility of DMO websites showed that, in terms of total number of occurrences, Fort Worth, Chattanooga, and Myrtle Beach were the top three in order followed by New York City, San Jose, Memphis, Las Vegas, San Francisco, Baltimore, Orlando, and Chicago. This seems to suggest that those top three medium-sized cities have less competition in the information space and thus their DMO sites could achieve higher ranks.

A further examination of these occurrences weighted by the search volume for each city showed that Las Vegas, Chicago, and Orlando were the top three in order, indicating that these websites potentially generate the largest numbers of “impressions” through Google. Figure 1 shows the calculation of the compound score for the case of Chicago. The first column lists the top 10 query categories wherein the DMO website occurred in Google search results, which constituted approx. 90% of all occurrences. Column 2 (“Site Occurrences”) shows the frequencies (N) and the percentages of website occurrences, from the highest (24% for “attraction”) to the lowest (3% for “shopping”). Column 3 (“Search Volume”) shows the volumes of search (N) and percentages in Google within these categories. Column 4 (“Impressions”) is the compound score for each of the query categories.

Query Category	Site Occurrences		Search Volume		Impressions
	N	Percent	N	Percent	
attraction	8	24%	57,986	2.5%	463,888
travel info	7	21%	32,472	1.4%	227,304
city + state name	4	12%	371,108	16.0%	1,484,432
activity	3	9%	18,555	0.8%	55,665
accommodation	3	9%	220,345	9.5%	661,035
dining	2	6%	11,597	0.5%	23,194
city name	2	6%	1,577,208	68.0%	3,154,416
events	2	6%	11,597	0.5%	23,194
map	1	3%	11,597	0.5%	11,597
shopping	1	3%	6,958	0.3%	6,958
total	33	100%	2,319,424	100%	6,111,683

Figure 1 Website Visibility Weighted by Query Volume (the Case of Chicago)

It is interesting to observe that there seems to be huge discrepancies between website occurrences and search volumes for the same query categories. For example, the category the DMO website most frequently occurred is “attraction”, which, however, represents only 2.5% of the travel-related search volume. The largest discrepancy occurred in the category of “city name” where the DMO website was presented 6% of all occurrences, while the search volume for this specific category was 68%. The explanation for this may be “city name” is a more generic query and its competitive space is considerably larger than other travel queries (e.g., “attraction”). Overall, there are substantial discrepancies for most query categories, which suggest DMOs may not be responding effectively to travel queries.

Conclusions and Implications

This study identified a process for benchmarking the visibility of DMO websites in Google. The results show that Google AdWords Keyword Tool provides a comprehensive representation of queries about destinations and, thus, can serve as a basis for understanding the search domain from the demand side. Obviously, the search domain for information related to a tourist destination is huge, which reflects the current status of Google as the number one search engine on the Internet. Potentially travel-related queries only constitute a small fraction of all queries. The analysis of DMO website visibility showed that they are ranked relatively high, which may indicate that DMO websites are reasonably effective for being “seen” by Google as the portal to destination related information.

Comparison of visibility revealed considerable variations among DMOs. This reflects the competitiveness of the online information space as well as potential effectiveness of DMOs’ search engine marketing strategies. Also, the potential impressions DMO websites could generate vary substantially among these DMOs due to the various volumes of search for these destination. Further, there seems to be huge gaps between the areas DMO websites are visible to online travelers and volume of search. This may suggest that DMOs need to re-consider their strategies in order to achieve the best outcomes.

While it was based upon a relatively small sample of destinations and the findings should be interpreted with caution, this study provides a preliminary understanding of the effectiveness of DMOs’ search engine marketing efforts. The methodology employed in this analysis reflects the online search domain in a more comprehensive way. The results offer important insights into potential gaps existing between DMOs’ marketing endeavors and the search domain. Future research can be conducted on more search engines and in a longitudinal fashion with more representative sample of destinations in order to fully capture the dynamics of search on the Internet.

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