MEASURING LOCAL SEARCH RELEVANCE

"Measuring Local Search Relevance" **is written by Ari Klein, Director of Customer Success at CrowdFlower – the leader in enterprise crowdsourcing. This paper provides an overview of an innovative methodology developed by CrowdFlower and** *YP* **to measure the relevance of local search engines' results.** *YP*'**s role in the development of this white paper has been to provide raw data and access to their business and business processes in support of the findings. All opinions expressed within the paper are solely those of CrowdFlower.**

YP^{SM} local search products enable consumers to discover, connect, and transact with local businesses across online and mobile platforms. Core to the YP^{SM} product offering is the proprietary search algorithm, which powers owned and operated properties such as the YP.com^{SM} site, YPmobile® apps, and m.yp.com. By delivering highly targeted local search results*, YP* makes local business discovery more relevant and engaging for consumers. This white paper presents the findings from tests conducted to benchmark the relevance of *YP* local search results against those of top search engines using a methodology that solicits user satisfaction of search results.

OVERVIEW

To quantify performance relative to other local search engines, *YP* contracted CrowdFlower, an independent third-party, to employ an innovative and impartial methodology for the relevance measurement of local search results on *YP* and other sites. For over a year, CrowdFlower worked with *YP* to test approximately 13,000 local search query results per month to track user satisfaction (as a proxy for search relevance) of YP.com^{SM} local search results and those of other popular local search engines.

The study matches YP local search technology against other popular local search engines: Bing local (bing.com/local), Google Maps (maps.google.com), and Yahoo! Local (local.yahoo.com). They were chosen for the study because of their high user reach and ability to offer search results across all local business categories. The search queries in the study span a wide range of local business categories. Sites that focus on a narrow set of vertical categories, such as restaurant or entertainment-heavy sites were not included because their scope does not match the breadth of this study.
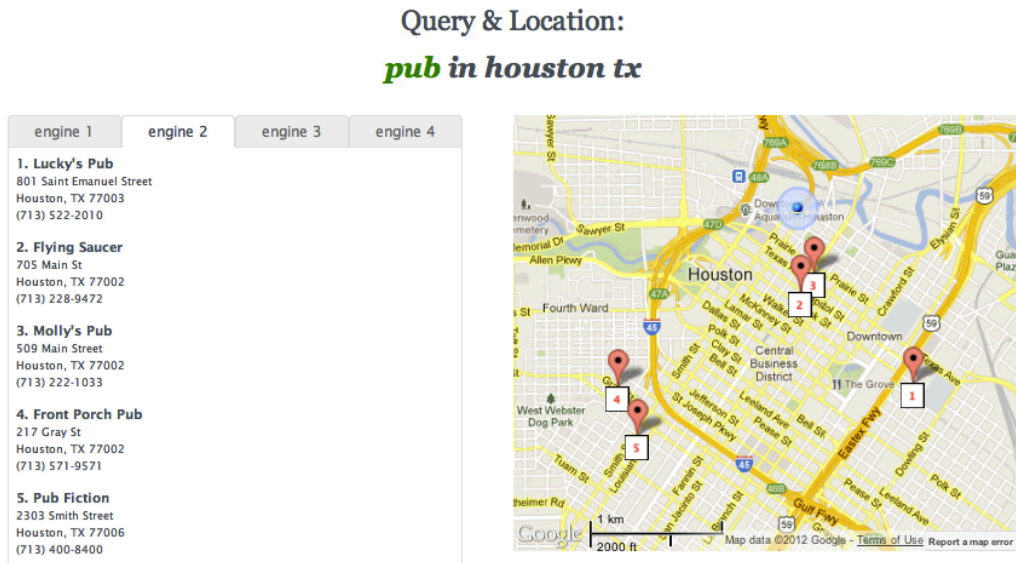
In the evaluation task, search queries are presented to contributors who are asked to rate their satisfaction with the relevance of the results. To eliminate possible bias, the search results are presented in unbranded lists that show only basic listing information such as business name, address, and phone number. *YP* utilizes the study results to

drive product enhancements, gauge its success relative to other local search providers, and confirm its leadership in local search. Using this methodology, the study clearly shows that YP^{SM} is able to deliver local search results that consistently match or beat the relevance of the top local search engines.

VALIDATION PROCESS

Crowd contributors are shown results for a local search query (a search term and geography pair) from four different engines. They are asked to rate each result set as Perfect, OK, Bad, or Can't Tell/Invalid Search. The study takes Perfect and OK ratings to mean "Satisfied" and Bad rating to mean "Unsatisfied." The study is "single blind" – the participants are not aware which engine provided each result set. The results are stripped of site branding and other data that could reveal the original engine, such as: ratings, reviews, and coupons. Each set of search results is presented alongside a standardized map view (Figure 1) allowing contributors to visualize the locations of the businesses in the result sets. Only contributors residing in English speaking countries are eligible to be in the study, and they are primarily based in the U.S.

Figure 1

THE QUERIES

About 13,000 queries are tested monthly. Each query is comprised of a search keyword and a location (typically a city and state or zip code). The queries fall into 4 main subsets (see Figure 2). The majority of the queries (approximately 65%) are randomly selected from user searches on the YP.com[SM] site. The remaining queries are sampled from the most commonly searched categories (High Traffic), *YP*'s top monetized categories (Top Monetized), and a control set (Monitoring) that remains constant month over month.

Figure 2
Query Distribution /// Sample = 13,000

High Traffic
12%

Monitoring
10%

Top Monetized
13%

Random
65%
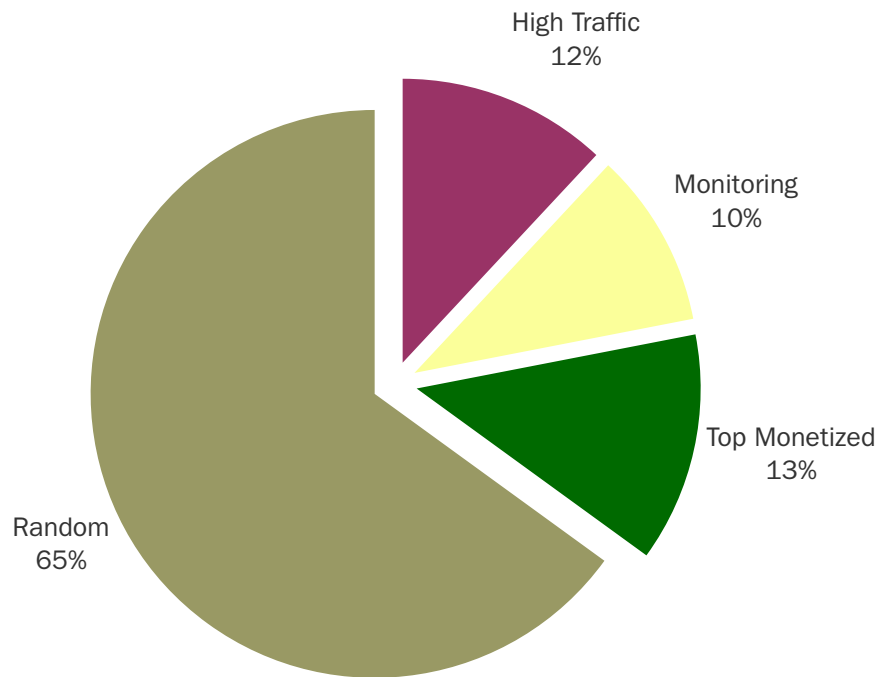
DATA ACCURACY

To ensure accuracy of the data collected, prospective contributors are required to pass through a training module specifically tailored to *YP*'s search relevance evaluation task. Additionally, contributors regularly evaluate queries from a control group (called the golden set) where their responses are tracked against the already-known correct answers. Each month, additional golden set queries are included to measure ongoing contributor work quality. Data and Search team members at *YP* and CrowdFlower identified the highly accurate responses to queries in the golden set. They are included to detect contributors who may be careless with the task, assign random ratings to queries, or don't understand the instructions. Contributors whose ratings fall below the accuracy threshold are flagged as unreliable and their responses are removed from the analysis.

In order to determine which engine produces the best results, each query is evaluated by at least three, and up to five, trusted contributors. Their responses are aggregated to provide one high-confidence answer.
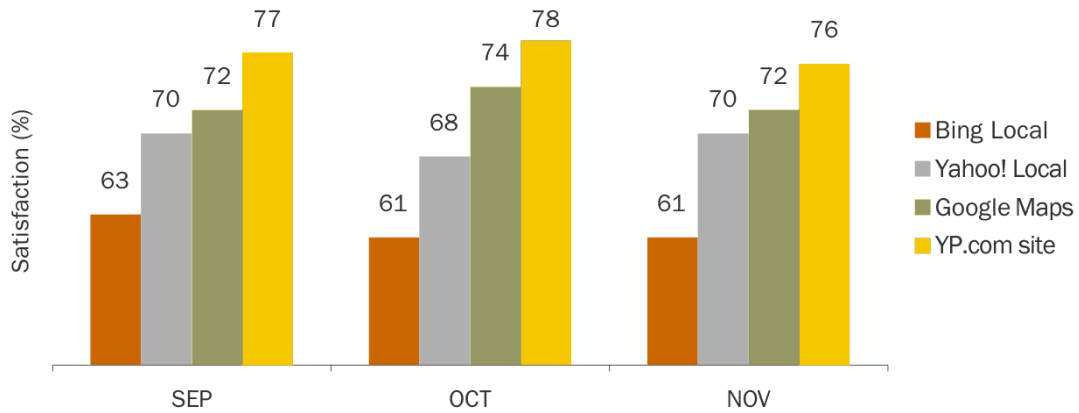
THE RESULTS

According to the November 2012 results, YP[SM] search results were found more relevant compared to Bing local, Google Maps, and Yahoo! Local. Users were satisfied with YP.com search results 86% of the time, compared with 83% for Google Maps, 82% for Yahoo! Local, and 74% for Bing local (Figure 3). YP.com presented the highest quality search results and, incidentally, had the lowest frequency of null result sets. Measurements throughout the past year have shown YP[SM] local search results outperforming Bing Local and Yahoo! Local in satisfaction with relevance, while consistently remaining competitive with Google Maps.

Figure 3
Full Search Query Set
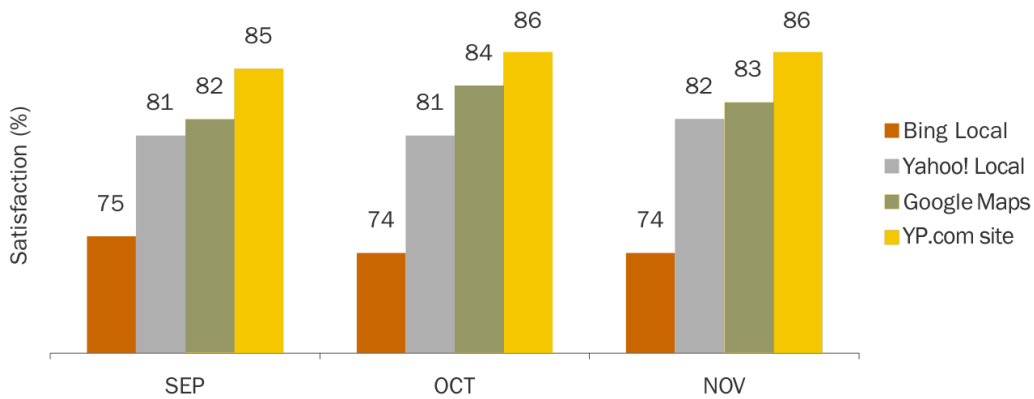
YP[SM] local search results consistently outperform other local search engines in consumer satisfaction for named searches of specific businesses. This may be due to *YP*'s specialized focus on local business, extensive database of over 18 million business listings, and the proprietary contextual and geo-sensitive search algorithm (Figure 4).
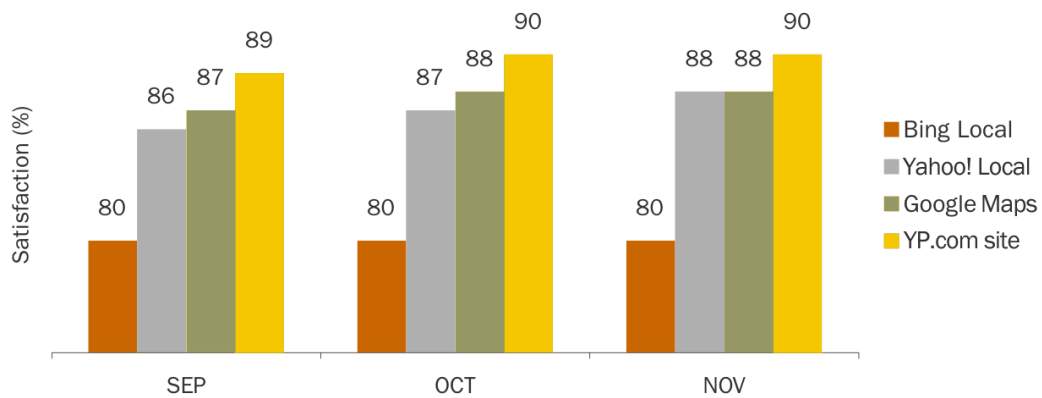
Figure 4
Name Searches

Satisfaction (%)

	SEP	OCT	NOV
Bing Local	63	61	61
Yahoo! Local	70	68	70
Google Maps	72	74	72
YP.com site	77	78	76

■ Bing Local
■ Yahoo! Local
■ Google Maps
■ YP.com site

CATEGORY ANALYSIS

In addition to total search and named search results, YP[SM] queries are broken down by category for each engine evaluated. Across category searches, YP[SM] local search performs better than, or on par with, the other local search engines (Figure 5).

Figure 5
Category Searches

Satisfaction (%)

	SEP	OCT	NOV
Bing Local	80	80	80
Yahoo! Local	86	87	88
Google Maps	87	88	88
YP.com site	89	90	90

■ Bing Local
■ Yahoo! Local
■ Google Maps
■ YP.com site

Below, Figure 6 shows a breakout of all categories in the study and highlights those categories where the YP[SM] search technology performs as well or better than the competition. The brand satisfaction rate for YP[SM] is in parenthesis.

Figure 6

YPSM **RESULTS BETTER THAN COMPETITIVE SET**

Apartments (92%)
Attorneys (98%)
Auto Repair and Service (96%)
Beauty Salons (96%)
Chinese Restaurants (94%)
Credit Unions (98%)
Dentists (96%)
Employment Agencies (93%)
Florists (96%)
Insurance (100%)
Real Estate Agents (95%)
Restaurants (98%)
Grocery Stores (96%)

YPSM **RESULTS ON PAR WITH COMPETITIVE SET**

Automobile Salvage (79%)
Colleges and Universities (94%)
Hotels (92%)
Movie Theaters (85%)
New Car Dealers (96%)
Physicians and Surgeons (89%)
Security Control Systems and
Monitoring (89%)

There were no categories where YP search technology had the lowest satisfaction rate versus the competitive set in the month presented

CONCLUSION

YPSM search products address the evolving local search needs of consumers while helping advertisers grow their business. By leveraging CrowdFlower and its microtasking platform and expertise, YP was able to understand consumer satisfaction with the relevance of their local search results – in order to improve their search algorithm. The technology drives the YP Local Ad Network, enriches the search experience for over 60 million [1] monthly customers, and enables advertisers to effectively engage with consumers across 300 affiliated online and mobile publishers.

YP is committed to maintaining its leadership in local search by analyzing consumer data, monitoring key performance indicators, and employing innovative research techniques to continually improve the YPSM search experience. CrowdFlower's platform and unique research approach helps support *YP*'s efforts to improve its search algorithm. In turn, this enables an unparalleled local search experience that drives local commerce.

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[1] comScore Key Measures, YP.comSM Network, November 2012

ABOUT CROWDFLOWER

CrowdFlower is the leader in enterprise crowdsourcing. CrowdFlower's technology platform offers quality-ensured crowdsourcing at massive scale. They offer the ability to distribute microtasks to a group of on-demand contributors with automated management and quality control. CrowdFlower takes large, data-heavy projects and breaks them into small tasks that are distributed to more than 4 million contributors around the world.

ABOUT *YP*

YP is North America's largest local search, media and advertising company. Its mission is to help small businesses and communities grow. Millions of searches occur daily using *YP* products to find, compare and select local merchants. The company's flagship consumer brands include YP.com[SM], a top 40 U.S. Web domain, the highly rated YP[SM] app and the YP Real Yellow Pages[SM] directory, the largest Yellow Pages directory in the world by revenue. The YP[SM] Local Ad Network provides advertisers with an opportunity to reach more than 180 million monthly users across more than 300 affiliated online and mobile publishers.