Simple On-Line Business Software Solutions (SOBSS): Effectiveness of Branded Paid Search

Draft: Aug 28, 2018

© Dmitry Krass

Not for distribution

1. SOBSS Overview

   Simple On-Line Business Solutions (SOBSS) provides cloud-based software to support a variety of basic business functions, from project planning, to personnel scheduling, to bookkeeping. The primary audience is Small and Medium Enterprise (SME) companies in North America – i.e., companies that cannot afford either the state-of-the-art software, or the office staff to properly support essential business functions.

   SOBSS was a brainchild of its CEO, Steve , who was running a small marketing agency in early 2000's. Frustrated by having to create, update and manage tens of Excel spreadsheets to support basic business functions and not having sufficient budget to hire more than a skeleton office staff, Steve decided to create his own intuitive and easy-to-use software. He always had and interest in software and computers, so this became a bit of an obsession with him. As the number of software tools he developed grew, he began to share them with his friends, to rave reviews. Soon he realized that what he created addressed a real need in the marketplace and SOBSS was born.

   While the growth was quite explosive in early on, the competitive landscape became increasingly more crowded over time. While in the first few years, SOBSS could rely on on-line version of word-of-mouth, where customers searching for some variation of "business solutions for small business" would find them, by 2018, there were dozens of competitors in SOBSS space. Attracting new customers became both harder, and more expensive.

2. SOBSS Customer Portfolio

   SOBSS offers a number of subscription options to its customers, depending on the specific products they want and the amount of on-line storage they would like to secure. Customer contracts run month-to-month and a monthly subscription can range from $10 to $100 per month. To date, customers who sign an initial monthly contract have been very likely to remain with SOBSS for quite a long time – the best sign of the value of SOBSS offerings.

   To attract new customers, SOBSS offers free basic version of its most popular software for one year. During this time, customers may choose to upgrade to one of the paid options. Otherwise, the software will automatically deactivate after one year. On average, around 10% of customers who sign up for a free trial decide to upgrade to a paid subscription.

While SOBSS has customers around the world, it two primary markets are US and Canada. The basic data about North American Customers is provided in Exhibit 1 below.

In the US market, SOBSS was one of many players in the business software space. In the Canadian market, it was initially the only one offering software adapted specifically for Canadian business environment (particularly with respect to the reporting requirements), so it gained a dominant market share. However, by 2018 the number of offerings increased and the market share was clearly under pressure.

3. SOBSS Marketing Strategy

The overall goal of SOBSS' marketing strategy is to drive customer traffic to its website and motivate the customers to sign up for free trials; the conversion from free trial to a paying customer is largely left to individual customers.

Initially, SOBSS relied on customers finding its site on their own through popular search engines (primarily Google). Over the years SOBSS marketing team has become very skilled in Search Engine Optimization (SEO) that ensures that company's website appears near the top in Google search results.   In addition, as paid search became more prominent, SOBSS began to take advantage of this channel to drive traffic to its website. In fact, paid search (PS) remains the dominant advertising channel for SOBSS. While it employs a variety of other channels, both on-line and traditional (including some recent TV and Radio ads in key markets to improve brand recognition), over 50% of its advertising budget is spent on PS. Further background information about PS and SEO can be found in Appendix 1.

When a user clicks on SOBSS ad and is redirected to the company's website, they can be identified as existing customer (also known as "returning user"), or a new user. While attracting new or returning users is seen as beneficial, the primary goal of SOBSS marketing strategy is to maximize the number of users signing up for free trials ("new trials").

As described in Appendix 1, there is a significant difference between branded and non-branded PS. For the latter, SOBSS has to decide which ad words to bid on, in what markets, what should the bid limits be, etc. In fact, there is a team in the Marketing department that designs, tracks and adjusts non-branded PS on continual basis. The branded PS is much easier: it boils down to deciding whether to bid on a searcher who just entered "SOBSS" as part of their search string. SOBSS followed the "maximal" strategy, which is quite common for branded PS: whenever a branded keyword appeared, it was bid on until the branded PS budget for the time period ran out. The latter was an infrequent occurrence – typically, SOBSS ad was displayed for every branded search.

4. SOBSS Marketing Results for 2016 Fiscal Year

In early June, 2017, Steve met with his marketing team to review the results from the previous year (SOBSS' Fiscal Year runs from June 1 until May 31, so results from FY2016 were just finalized) – see Exhibit 2 for details.

Jessica, the company's Chief Marketing Officer, provided an overview. Overall, the results were quite strong, with continued 15% Year-over-year growth in customer base. The marketing budget for 2016 was increased by 20% from the previous year and the results suggested that this investment was paying off – the number of Trials, the most significant indicator of new customers, was up substantially.

"Our gross Cost per Trial (CPT) has inched up to over $87, which is a concern", said Jessica. "Still, even at this level the ROI on our marketing expenditures is very healthy."

"In terms of marketing strategy, we continue to invest heavily in PS, and this channel continues to produce good results for us, though average Cost per Click (CPC) is increasing. One particular concern is CPC for *Branded* PS, which has gone up substantially. This trend is particularly pronounced in Canada, where we maintain a dominant market share, but are facing stiff competition from several start-ups, who continue bidding on our branded adwords, thus driving up CPC. Thus, while branded PS remains only a small proportion of the total PS budget in the US, its share is inching up in Canada. Incidentally, I checked a recent Search Engine marketing report for North Americas, and the increase in CPC for branded PS we observed appears to be part of a general trend" (the report Jessica is referring to can be found in Exhibit 3, see also Reference 3).

"Nevertheless", she continued, "Our team's analysis indicates that branded PS continues to be our most efficient channel, by far, in terms of CPT. Thus, we certainly do not advocate any deviation from our current strategy: whenever a potential customer searches for our brand, we want to place a bid. We certainly do not a competitor stealing 'our' customer."

Steve was a bit sceptical. "When someone specifically searches for SOBSS they know exactly what they want; our SEO will ensure that our website is listed at the top. I do not think it will matter whether a competitor places their ad or not – this person will find their way to our website one way or another. I think this whole branded PS initiative is misguided".

"But our analysis does not support this", Jessica countered. "For example, we looked at SEO vs branded PS results for last year. Of all searches that included our branded adwords, two thirds of the time the searcher did click on our website in the organic search area – testifying to the effectiveness of our SEO. However, the other third of the traffic came via our branded PS ad. This is a significant volume of traffic! I would certainly not want to lose it if we turn off or limit our branded PS."

"I am not sure we would lose it", Steve responded. "If our branded ad is not there, will the searcher not just click on the organic search results? Currently, they see two ways to get to where they want to go. If we remove one of them, they will just use the other way, right? I

think the budget spent on branded PS should be redirected to non-branded PS, or other channels."

In fact, the argument Steve and Jessica were having on the value of branded PS is far from settled – see Appendix 2 and references [1], [2]. After reviewing the available evidence, it was decided that the only way to determine the value branded PS was creating for SOBSS was to conduct an experiment where branded PS ads would be turned on and off during certain test periods.

Jessica was very apprehensive about this test – she was worried about the potential traffic loss during the test period, as well as market share erosion. Thus, she insisted that the test be limited to a short time period.

5. SOBSS Branded PS experiment

After consulting Ganesh, the IT guru at SOBSS, the following experimental design was picked:
- Experiment would run for 16 consecutive days in both US and Canada
- During these days, branded PS would be turned on and off over consecutive two-hour time blocks: on each day, branded PS would be used during 12 "test" hours, and would be turned off during 12 "control" hours. Note that the "consecutive 2-hr block" design was driven by technical considerations: it turned out to be impossible to turn branded PS on/ off instantaneously – it took time for signals to percolate to the auction engine. Thus, during the "off" time some branded PS activity is still possible, and during the "on" time, the branded PS may not turn on right away. To minimise the on/off transition periods, the two-hour block design was selected.
- Both PS and SEO traffic would be tracked during the pre-experiment, experiment, and post-experiment periods. In particular, total users, new users and new trials would be identified.

The experiment was executed in July 2017. The results can be found in the accompanying Excel file. Note that during the experimental period, the average CPC for branded PS was *$1.00* in Canada and *$0.50* in US, respectively.

References:

[1] T. Blake, C. Nosko, and S. Tadelis, "Consumer Heterogeneity and Paid Search Effectiveness: A Large-Scale Field Experiment.", *Econometrica*, Vol 38, No. 1, 2015, pp 155-174.

[2] A. Simonov, C. Nosko, J. M. Rao (2018) "Competition and Crowd-Out for Brand Keywords in Sponsored Search." *Marketing Science* 37, No. 2, pp 200-215. https://doi.org/10.1287/mksc.2017.1065

[3] Merkle Inc., "Digital Marketing Report: Q2 2018", https://www.merkleinc.com/thought-leadership/digital-marketing-report/digital-marketing-report-q2-2018

Appendix: Background on Paid Search (PS) Advertising and Search Engine Optimization (SEO)

1. <u>General Background</u>

When a user types a search string into their favorite search engines, two types of results are produced: the *paid ads* (generally placed at the top and to the right of the window) and the search results (also known as *organic search*) placed below and on subsequent pages. Since Google has close to 90% market share in North America (see Exhibit 4) we will assume that is the engine of choice, though all of them perform similarly.

The typical search results are displayed on Exhibit 5. Note that the results associated with the same search string will vary by date, user and location. In this case the search string was "Avis car rental" and the search was done from Toronto, Canada on Google.com. The top four results are all marked with a little "ad" icon – these are paid search results. Immediately below these is the top organic search result (avis.ca website). Not surprisingly, this is the most relevant match to user's search string, as determined by google. The fact that this result appeared at the top is the result of both, Google's internal algorithms and the Search Engine Optimization work done by Avis (in this case, the latter ensures that the website design maximizes the chances of it being ranked at the top by the search engine).

While the company, in this case Avis, has only indirect control of the organic search results (e.g., if the search string was more general, such as "car rental in Toronto" it is unlikely that avis.ca would appear on top), the situation is very different when it comes to paid search (PS). Every time a search string is entered by a user, the search engine auctions the paid search placements based on (a) bids and (b) relevance. The basic auction mechanism is as follows. All companies wishing to participate in such an auction must, in advance, specify the keywords (also known as 'adwords') they wish to bid on, as well as how much they wish to bid. The search engine then computes the "ad rank", which is the product of the bid and the "quality score" (the latter is an evaluation of how relevant the company's ad is to the user, and is computed using a proprietary algorithm). It also computes the "minimum ad rank". Only the ads scoring above this minimum are placed (up to a maximum of four ads), and are ordered by ad rank. The companies whose ads are selected are only charged if the user clicks on their ad. The cost-per-click (CPC) amount charged is based on the formula that takes into account the ad quality score and the bid of the *next* highest bidder (the so-called second-price auction – the CPC for the top-ranked ad is based on the bid of the second-ranked ad, etc.). The key aspect of this formula is that the higher the quality score, the lower the CPC charged. Thus, the more relevant your ad, the less you pay. If the user clicks on organic search result, no CPC is charged.

Note that the description above is am over-simplification of the actual auction process – the participating companies can specify their bid strategy over time, vary it with respect to users coming from certain geographies, etc. You can learn more about keyword auctions here: https://support.google.com/google-ads/answer/142918?hl=en and here https://www.wordstream.com/articles/what-is-google-adwords.

One key aspect of PS advertising is the difference between branded and non-branded keywords. A non-branded keywords is a keyword that does not contain the target website's brand name or some

variation (i.e. domain name or misspelling). For example, brand keywords for Google would include Google, Google.com, YouTube. A branded keyword typically indicates that the searcher is either doing research, or conducting a navigational search, i.e. they already know what website they are looking for, but using a search engine to navigate to it conveniently. Obviously, ads by the company whose brand is searched for have very high quality score. As a result, the CPC is usually much lower than for non-branded keywords (an order-of-magnitude difference is not uncommon).

2. Branded Keyword PS Debate

The simple question is: should the company pay for branded keywords? This question is surprisingly difficult to answer. On the one hand, if you do not pay for your own brand, someone else will, and their results will appear in the paid search space. Refer again to Exhibit 5. Since the search string contained "avis", this was a branded keyword search (for Avis). Note also that avis.ca ad appears at the top, thus Avis must have bid on their branded keyword. Note also that the next three PS ads are from competitors (in this case, rentalcars.com, expedia.ca and kayak.com). Thus, all of these likely bid "avis" keyword as well (for them, it was a non-branded keyword, of course). Had Avis not placed a bid on their own brand, they would not have appeared in the PS results at all and the user may have been diverted to a competitor. This logic is typically born out by internal analysis (whether based on predictive modeling or not) that show that branded keywords is the most cost-efficient way to generate PS traffic. As a result, this is a large, and growing, part of PS revenue for Google and other search engines.

The flip side of this argument is that branded search string indicates that the user knows exactly what they are looking for – your brand. Thus, if it does not appear in the PS results, the user will find it in the organic results (where your website should appear at the top, assuming your SEO is working properly). By this logic, if branded PS is not used, the potential traffic will largely be picked up by the organic search (for free!), and thus any budget spent on branded PS is wasted. Moreover, any post-factum analysis of the results where branded PS was used is biased: paid ad attracted a lot of traffic because users were indifferent between clicking on paid ads or organic results; the only valid analysis should be based on a designed experiment.

In fact, a number of such experiments have been described in the academic literature, but have failed to settle the argument; see references to this case. The most prominent one, appearing in a very prestigious journal *Econometrica* in 2015, is described in [1]. It was sponsored by eBay.com and followed a carefully designed experiment where branded PS was turned on and off. The results indicated that any traffic lost when branded PS was not active was picked up by the organic search, and thus branded PS advertising had no net impact. The article also showed that models not using experimental data over-estimated the impact of branded PS by orders of magnitude. As a result of this study, eBay has discontinued all use of branded PS. The other side is illustrated in reference [2], published in 2017 in only slightly less prestigious *Marketing Science.* There the authors describe a series of experiments for a large variety of companies where the use of branded PS was randomized on Bing search engine. The results suggest that if a company is not facing still competition, as in the case of eBay, much of the branded PS traffic is indeed picked up by organic search results. However, in the more common case where the company is in a competitive marketplace, a large portion of branded PS traffic is lost to competitors, suggesting that turning off branded PS is quite dangerous. Of course, whether results obtained for Bing are applicable to Google is also questionable.

A quick search of the web under "branded paid search" or similar strings shows a near-unanimous opinion that branded PS is extremely important and useful (it is hard to find even a single dissenting voice). On the other hand, this opinion is coming from companies earning revenue from facilitating PS, thus their views may be heavily biased.   It is interesting to note that typing "keyword auction google" into the Google search window (on Aug 28, 2018 from Toronto Canada) did not result in Google listing among the PS results – suggesting that Google did not place a bid on its branded keyword – at least on that occasion.

Questions:

1. What analysis is Jessica using to support her assertion that branded PS is the most efficient marketing channel? What ROI for branded PS does this analysis suggest? List clearly the key assumptions underlying this analysis and briefly comment on them.
2. Is there evidence that SEO results compensate for branded PS when the latter is turned off? Contrast these results with the analysis in Question 1 above.
3. Summarize your results and recommendation to SOBSS management regarding branded PS.

Customer Region	Average Monthly Revenue	Average Annual Renewal Rate	Average Upgrade Rate	% of All NA Customers
Canada	$40.00	85%	10%	25%
US	$60.00	80%	7%	75%
Total (NA)	$55.00	81%	8%	100%

Exhibit 1: Profile of North American customers

Region	Marketing Spend				Results (SEO Excluded)			
	Total 2016 FY	PS Non-Branded	PS Branded	Other Channels	Users	New Users	Trials	Gross Cost Per Trial
Canada	$982,000	$485,309	$103,891	$392,800	500,000	45,455	15,000	$65.47
US	$6,876,000	$3,641,004	$140,796	$3,094,200	1,875,000	220,588	75,000	$91.68
Total	$7,858,000	$4,126,313	$244,687	$3,487,000	2,375,000	266,043	90,000	$87.31

Exhibit 2: Marketing Results for FY2016

Price for Brand Keyword Clicks on Google Continues to Spike

Google Brand US Paid Search
Y/Y Growth
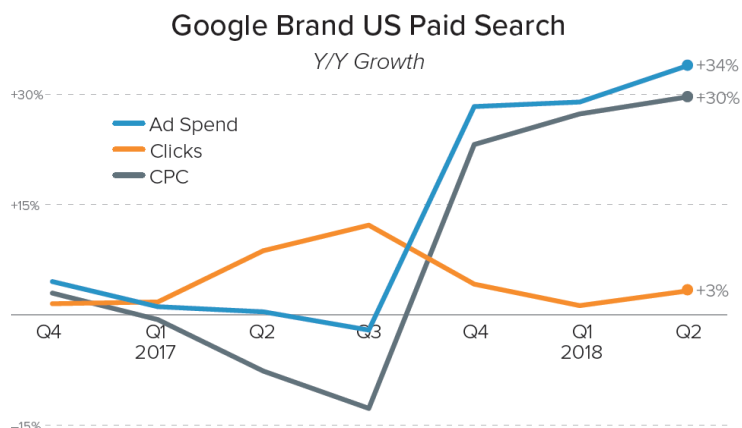
The average CPC paid by Google search advertisers for keywords that included their own brand name rose 30% Y/Y in Q2 2018, while brand keyword clicks rose just 3%. Brand keyword CPCs had fallen as much as 13% Y/Y in mid-2017, following a Google change to Ad Rank that seemed to have the opposite effect on non-brand keywords. Brand CPC growth entered correction territory in late 2017 and remains elevated.

Exhibit 3: Branded Keyword Paid Search trends. Source: "Digital Market Trends Report: Q2 2018", Merkle

Date	Region	Google	bing	Yahoo!	DuckDuckGo	YANDEX RU	MSN	Baidu
2017-07	Canada	90.5	5.23	3.32	0.49	0.03	0.08	0.16
2017-08	Canada	90.08	5.2	3.39	0.53	0.02	0.43	0.16
2017-09	Canada	90	5.27	3.35	0.56	0.02	0.46	0.17
2017-10	Canada	90.65	5.42	2.95	0.57	0.02	0.09	0.14
2017-11	Canada	91.57	5.4	2.1	0.55	0.02	0.1	0.11
2017-12	Canada	91.45	5.52	2.04	0.56	0.08	0.09	0.12
2018-01	Canada	91.21	5.42	2.36	0.51	0.15	0.1	0.12
2018-02	Canada	90.88	5.22	2.57	0.46	0.47	0.14	0.12
2018-03	Canada	90.62	5.44	2.66	0.51	0.48	0.04	0.11
2018-04	Canada	90.68	5.47	2.57	0.54	0.47	0.01	0.12
2018-05	Canada	90.85	5.64	2.49	0.54	0.22	0.01	0.13
2018-06	Canada	90.8	5.59	2.49	0.53	0.27	0.07	0.12
2018-07	Canada	90.48	5.64	2.63	0.51	0.35	0.15	0.11
2017-07	US	87.09	6.52	5.35	0.55	0.07	0.06	0.02
2017-08	US	85.82	6.79	5.56	0.6	0.81	0.06	0.02
2017-09	US	85.82	6.67	5.43	0.63	1.07	0.07	0.02
2017-10	US	86.76	6.97	5.17	0.65	0.11	0.07	0.02
2017-11	US	88.44	6.83	3.71	0.64	0.08	0.07	0.02
2017-12	US	88.6	6.97	3.39	0.66	0.08	0.07	0.04
2018-01	US	88.24	6.86	3.91	0.6	0.09	0.07	0.07
2018-02	US	88.26	6.69	4.08	0.52	0.1	0.06	0.14
2018-03	US	87.37	7.2	4.43	0.58	0.04	0.06	0.16
2018-04	US	86.59	7.83	4.54	0.66	0.01	0.08	0.15
2018-05	US	86.95	7.81	4.27	0.68	0.01	0.09	0.06
2018-06	US	87.03	7.64	4.25	0.69	0.12	0.08	0.07
2018-07	US	86.39	7.46	5.06	0.64	0.17	0.07	0.09

Exhibit 4: Search Engine market share in North America. Source: http://gs.statcounter.com/search-engine-market-share/

Exhibit 5: Search results for "Avis car rental", Google, Aug 28, 2018