Improvement of company marketing strategy based on Google search results analysis

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Abstract

Google is now probably the most widely used Internet searching tool. Most companies that sell their goods or services electronically try to reach that customers will be able to find their offer through Google search. The person or company who searches for a product or service through Google enters keywords into the search. Then the customer chooses from the first few offers most frequently. It is therefore in the interest of every company that sells some products to be placed in a leading position of this search. However, how to achieve this goal? The paper deals with the analysis and quantification of some characteristics of companies that may affect their ranking in local search results using the search domain Google. In the paper we try to experimentally determine which factors affect ranking in Google search. Of course, it is necessary to quantify the impact of these factors. To select these factors and to determine their impact, we use exact methods of mathematical statistics, hypothesis testing, correlation and regression analysis. Confirmation and quantification of the impact of some qualitative and quantitative characteristics of the firm can be used to formulate recommendations for improving corporate strategy of the firm for acquiring new customers.

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1. Internet and Internet Marketing

The time in which we live today can be characterized as a period of change and progress. Especially in the field of development of modern information technology and development of related services based on these technologies. Technological progress has intervened in almost all areas of daily life, but also in business, which led to the creation of a new phenomenon called e-economy or new economy. E-economy in general is a set of qualitative and quantitative changes, which in recent years has transformed the structure and functioning of the rules of the economy. (Madlenak, 2010)

The most significant change, as can be seen in last decades is a huge development of the Internet. Establishment of the Web and Web browsers in early nineties of the 20th century meant that Internet has transformed from a communication tool into the revolutionary technology. During the last decade of the 20th century the number of Internet users rose to 400 million. Such a sharp increase in the use of the Internet became the basis for the new economy. (Kotler, Armstrong, 2004)

Internet has changed the whole business environment, started the industrial development of e-commerce. Companies have found that they can use advantages of the Internet to reduce the cost of e-commerce, for example, using the Internet as an additional communication tool. Most companies are trying to use Internet for its own benefit, for expansion of products and services to new markets, to get more customers and gain a better position against other companies. Electronic commerce in the context of Internet use provides new approaches to the market, faster identification of new market segments, interactive access to the market and also marketing personalization. Internet has become an important element for communication with customers and enables companies more effective presentation of their products. (Knutelska, Sustekova, 2013)

Internet intervened also in the field of marketing. Internet is used as a tool of identification of customer needs and a tool of finding new customers. One of the many definitions says that internet marketing is one way of achieving the desired marketing objectives through the use of Internet technologies. (Janouch, 2011)

Another definition says that marketing on the Internet is a qualitatively new form of marketing that can be characterized as management of the process of satisfying human needs by information, services or goods through the Internet. (Nondek, Rencova, 2000)

Internet marketing includes a range of activities related to influencing, persuasion and maintaining of relationships with customer. (Janouch, 2011) The main difference between Internet marketing and traditional off-line marketing is mainly in the field of communication. In classical marketing the information flow is one-way, while in internet marketing also consumers seeking for information are active.

1.1. Internet search engines

As mentioned, Internet is the most dynamically developing medium of today. More and more information can be found on the Internet on the website. On the Internet continually new and new website are created and for the average user is very difficult to orientate. The solution provides the Internet search engines that help users to find relevant information. This way a new discipline - Search Engine Marketing (SEM) - Marketing based on search engines was born. During several years of Internet development many internet search engines have been launched. In this paper we focus on the most used searching engine Google.

1.2. Search Results

After the user decides to look for certain types of information through automated Internet search engine and entered the keywords to internet search engine, the search results appears on the computer screen. These results can be classified into two main groups: paid results and natural results. In the case of the Google search engine paid links are in search results above and on the right side of natural results.
1.3. Local results

Local results are one way of presenting search results that are used by some search engines such as Google, Bing or Yahoo!. Local search allows that if the user is looking for some local company or institution through a Google search, the search results will offer the desired information available in the vicinity or in the area which the user has entered into the search engine. Classic search results we get completed by the results in the form of map with marked points on the right side of search results. Each point on the map is covered by one of the local results. Every local result has the exact address where the company is located, the website of the company, connection with Google+ or customer reviews.

2. Local search results ranking in Google

The occurrence of companies or institutions in local search result is of great importance not only for the average user, who is offered a search results near the place where he actually is, or the results are related to a particular city or place that he entered within the query to search engine. The local results displaying is of great importance for the companies too. If the user is looking for some service or some shop and use for his search a searching engine Google in which entered his request, Google offer him in search results a map together with links to websites of traders or service providers that he was looking for. For traders or companies who provide local services or services that can be used only on given place, is of great importance to be listed in the local search results. Examples of such services are the services provided by financial institutions. Therefore in next analysis we will focus on financial institutions and we will try to determine, which factors of company characteristic is important for local search results ranking.

Local results are for some companies and institutions an important source of visitors or customers. Displaying of the company in local search result is important for attracting the attention of potential customers and informed them that searched service or product is available in the desired location. If the search engine will display a company in local search results, this increases the chance that a potential customer decides to visit the company.

The research realized in this article is focused on improving of the ranking in local search result for financial institutions in the area of electronic commerce. Research is focused on the analysis of various factors that can influence the local search results ranking of financial institutions in Slovakia or in the world in general. Based on the observed results a company or financial institution can suggest itself an appropriate marketing strategy that by improving placement in the local search results will bring it new customers.

2.1. Research preparation

We tried to repeatedly input different keyword, or better key phrases, into the search engine Google. This way we obtain a set of data, where for every search were observed some characteristics that might or should influence the final ranking in the search. For every key phrase we recorded the first 7 results found. We made together 30 searches, that means, together we have 210 measurements.

For every keyword or key phrase search we obtain 7 resulting measurements, companies or organizations that Google searching engine order by a certain algorithm to the resulting sequence. For each company, we watched several characteristics, which we assumed would be important in determining the final ranking of the companies in the search. These characteristics are divided into qualitative and quantitative. Among the quantitative characteristics of the company were included:

- number of citations in Google with the same data such as the name of the company, address, phone number,
- number of citations without numbers – similar like the previous variable, but without the phone number,
- number of +1 - this is in profile company, it's a similar figure as the number of "likes" on Facebook.
- number of followers is the number of people who follow the profile of the company,
- number of evaluations in the local profile, verbal evaluation from users,
- evaluation is the average number of stars in the company evaluation from the customers.
All these quantitative variables can take on only integer values (except for variable Evaluation), the smallest possible value is 0. Next, we watched several qualitative variables that take the values "yes" or "no." For further processing of data, we transform these values to integers, where 1 = yes and 0 = no. These qualitative characteristics were the following:

- **verified company** - verified firms have next to its logo icon of the verification,
- **keyword in the title** - an indication of whether the company has in its title the keywords related to its activities,
- **photos** - an indication of whether the company has added photos in its profile,
- **relevant description** is an indication of whether the company has added a relevant description in the profile, that you at least once times contain the keyword,
- **right category** is an indication of whether the company has in its profile correctly chosen category of its activities,
- **profile connected to G +**,
- **profile on the Web** - whether the company has a local profile is placed on the web via Google maps,
- **G + connected to the web**. (Durica, Svabova, 2014).

### 2.2. The objectives of the analysis and data processing method

Based on the obtained data set we analyzed the impact of individual company characteristics to place of the company in Google search results. The aim of analysis was to detect which company characteristics can help the company in choosing the optimal marketing strategy and getting new customers. Based on the knowledge of the relationship between the ranking of Google search results and company characteristics the company can improve its position, which will bring it new customers and new profits. The aim was to analyze which observed qualitative and quantitative characteristics of the company significantly affect the location of the company in Google search results. For data analysis we used statistical methods. The variables we described using the basic statistical characteristics. Next, we analyzed them graphically. We analyzed the effect of each variable on the results of ranking in the search, using graphical analysis, statistical hypothesis testing and correlation analysis (Andel, 2011; Stankovicova, Vojtkova, 2008; Soltes, 2008).

Including all variables, both qualitative and quantitative, we were searching for the best linear model. Using the estimated linear model we can formulate recommendations for the company that can help it in improving its ranking in the search, where the effect of firm characteristics we can specify more precisely.

### 2.3. Analysis of the impact of qualitative variables to Google search results ranking

Based on a simple classification of the values of all qualitative variables, we compared the average ranking of Google search results. For every qualitative variable we analyzed whether its impact on results ranking is statistically significant. Under significance level of 0.10 as significantly influencing the ranking proved to be 4 qualitative characteristics of companies: photos, relevant description, profile on the web, right category.

For example variable **profile on the web**, talks about whether the company has or has not established its own local profile on the web via Google maps, which a potential customer can see in the contact section. Or the second variable **photos**, talks about whether the firm in the name of the profile has a photo or has not.

In next table the basic characteristics of the variable **ranking of results** based on the values of qualitative variables photos, relevant description, profile on the web, right category is written. Here we can see the mean results rank for a value of the qualitative variable “yes = 1” and for a value “no = 0”.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes (1)</th>
<th>No (0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>photos</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>relevant description</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>profile on the web</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>right category</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>profile connected to G +</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>G + connected to the web</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 1. Descriptive statistics of qualitative variables.

<table>
<thead>
<tr>
<th>Descriptives</th>
<th>Statistic</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>range</td>
<td>0 Mean</td>
<td>4.12</td>
<td>.148</td>
</tr>
<tr>
<td></td>
<td>1 Mean</td>
<td>3.21</td>
<td>.358</td>
</tr>
<tr>
<td>relevant description</td>
<td>Statistic</td>
<td>Std. Error</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>range</td>
<td>0 Mean</td>
<td>4.11</td>
<td>.147</td>
</tr>
<tr>
<td></td>
<td>1 Mean</td>
<td>3.09</td>
<td>.366</td>
</tr>
<tr>
<td>profile on the web</td>
<td>Statistic</td>
<td>Std. Error</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>range</td>
<td>0 Mean</td>
<td>4.16</td>
<td>.168</td>
</tr>
<tr>
<td></td>
<td>1 Mean</td>
<td>3.67</td>
<td>.241</td>
</tr>
<tr>
<td>right category</td>
<td>Statistic</td>
<td>Std. Error</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>range</td>
<td>0 Mean</td>
<td>4.32</td>
<td>.228</td>
</tr>
<tr>
<td></td>
<td>1 Mean</td>
<td>3.81</td>
<td>.173</td>
</tr>
</tbody>
</table>

The previous table shows also that:

- The average rank for the company with photos is 3.21 (± 1.893) and for companies without a photo is 4.12 (± 1.999). The average rank differs by 0.91. This difference of average values has been verified by statistical hypothesis testing. We used a nonparametric alternative for t-test called Mann-Whitney U test. By this we tested the hypothesis whether the difference between the average values of the order of 3.21 and 4.12 is statistically significant, or is it just a random distinction.
- The average rank for the company with relevant description is 3.09 (± 1.716) and for companies without it is 4.11 (± 2.013). Using Mann-Whitney U test we verify whether this difference is statistically significant or not.
- The average rank for the company with profile on the web is 3.67 (± 2.02) and for companies without it is 4.16 (± 1.984). Using Mann-Whitney U test we verify whether this difference is statistically significant or not.
- The average rank for the company with right category is 3.81 (± 1.985) and for companies without it is 4.32 (± 2.01). Using Mann-Whitney U test we verify whether this difference is statistically significant or not. The test results are in the table below.

Table 2. Testing of the difference between average ranking.

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Test</th>
<th>Sig.</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distribution of range is the same across categories of photos.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>0.026</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>The distribution of range is the same across categories of relevant description.</td>
<td></td>
<td>0.025</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>The distribution of range is the same across categories of profile on the web.</td>
<td></td>
<td>0.093</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>The distribution of range is the same across categories of right category.</td>
<td></td>
<td>0.075</td>
<td>Reject the null hypothesis.</td>
</tr>
</tbody>
</table>

Asymptotic significances are displayed. The significance level is .10.
For all this 4 qualitative variables the differences are statistically significance. That means, these 4 variables influence the rank in Google search results significantly. The other qualitative variables such as verified company or relevant description have not significant changes in values of rank.

2.4. Regression analysis

Using regression analysis, we modeled the value of the variable rank depending on the values of other explanatory variables. We used linear regression model. The model we created in different ways, we used the approach called Backward elimination. To the model we included all the independent variables and on the basis of their significance test of regression coefficient, we eliminate those variables that were insignificant in the model. Finally, we get a linear regression model with only two explanatory variables. Other variables have been progressively removed so that the p-value of the test of regression coefficient significance was higher than 0.10. The resulting model is shown below.

Table 3. Linear model.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>4.192</td>
<td>.151</td>
<td>27.768</td>
<td>.000</td>
</tr>
<tr>
<td>Photos</td>
<td>-.763</td>
<td>.408</td>
<td>-.130</td>
<td>-1.871</td>
</tr>
<tr>
<td>relevant description</td>
<td>-.858</td>
<td>.453</td>
<td>-.131</td>
<td>-1.896</td>
</tr>
</tbody>
</table>

As we can see in the table above, only two variables photos and relevant description are significant in the linear regression model. That means, this two variables influence the rank of Google search results significantly. These two variables are the same as we found earlier that have the influence for the rank of the company in search results.

From the values of the coefficient in regression model we can say, that

- if some company will add a photo into its profile, its position will increase by 0.763 ranking point to a higher position in Google search results,
- if the company will add a relevant description into its profile, its ranking position will increase by 0.858 ranking point.

Both variables affect the rank in negative way. That means, the change of the value of this variable from 0 to 1 will bring the improvement of the position of that company.

3. Conclusion

The aim of the analysis was to identify and quantify the factors influencing ranking in Google search results. Therefore, we made 30 searches for different keywords or key phrases. Than we monitor 14 different factors that we supposed have some effect to ranking in the search. Among such factors remaining six quantitative and 8 qualitative ones.

4 qualitative factors were found to be significant. The first is whether the company has photo in its profile. The second one is whether a company has created its own local profile on the web via Google maps, which a potential customer can see in the contact section. The third factor is relevant description, so if company wants to reach better position in Google search results has to add relevant description of its activities into its profile. And the last factor is right category.

Regression analysis shows that two of these factors are significantly influencing the resulting rank. By adding a photo into a profile company should reach a better position in Google search results by 0.763 rank points and by adding a relevant description the position will improve by 0.858 ranking points.
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