

# DEVELOPMENT OF SEO PERFORMANCE OF SELECTED

Slovak University Web Portals

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## ABSTRACT:

This article deals with the issue of performance of faculties at Slovak universities in the field of marketing implementation in search engines, offering economically oriented studies. We have realized a primary research oriented at determining the situation of the search engine visibilities of the selected 21 faculties. The aim of the article is to determine the overall trends in this area and to find the solutions to improve the performance in the respective criteria. We have prepared a set of recommendations for the leader of the rankings, the Faculty of Management, Comenius University in Bratislava, to move forward and strengthen its positions in this market segment.

## KEY WORDS:

Benchmarking, e-marketing, educational marketing, search engine marketing, search engine optimization, university marketing

## Introduction

University faculties in Slovakia are competing on highly saturated markets thus they are forced to use innovative marketing methods to attract their customers – potential students. In the commercial sector the e-marketing communication is considered being most innovative and efficient. Companies are modifying their communication mix, including more online and mobile components into the mix.

E-marketing covers the activities of online or Internet marketing and the mobile marketing tools as well. Its application enables the companies to reach the target audience more precisely thanks to more effective targeting possibilities compared to traditional marketing communication methods. We think that these methods are optimal for the use by the university faculties as well, as the potential customers (students) are the user group which is using the Internet and other technologies intensively and spends a lot of time by browsing the Internet and working/playing with the social networks (or social media). The faculties should compete on many levels to success on the highly competitive markets with the education services (Horváthová, 2008).



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# 1 Problem Formulation

Based on the prerequisite introduced we can anticipate that the faculties will be active in the use of these modern communication methods. From the broad spectrum of the tools available we have chosen the search engine optimization (SEO). Systematic application of SEO enables the faculty to reach the student searching for the information about the faculty s/he is intending to enter. SEO is a very effective tool which helps to drive relevant traffic to the faculty web site from the search engines without the need to pay extra for each visitor received.

The primary aim of this article is to determine the trend in the SEO performance development of the faculties. We compare the results in the performance and want to demonstrate, if and in what extent the faculties have moved forward in the examined area. At the beginning of the data analyses we formulated the following hypotheses:

- H1: there will be a positive trend in the SEO performance of the faculties comparing the data from 2007 and 2012,
- H2: the top 5 faculties according to the 2007 results will also perform best in the 2012 evaluation.

# 2 Problem Solution

## 2.1 Research methodology

In February 2007 and February 2012 we conducted a research aimed at measuring the performance of the economic faculties in Slovakia in the SEO area. The following series of steps was applied:

1. Selection of faculties included in the research.
2. We decided to include all faculties offering economically oriented education. Totally 21 faculty web sites were evaluated. This direction was chosen because of our assumption that these faculties should have the best knowledge of the possibilities of the online communication and thus should be able to implement these methods in praxis.
3. Preparation of the criteria mix. These criteria will be used according to their relevancy in the calculation of the final performance of each faculty. We describe the criteria mix in the section 3.2.2 in more detail.
4. Data gathering. We used the tools and methods described in the chapter 3.2.3 to determine the value of each criteria for each web site.
5. Data transformation. Each value had to be transformed to a number to be able to use mathematical functions later in the process. We describe this process in the chapter 3.2.4 in detail.
6. Data analyses and calculation of the final performance index.
7. The data received from the analyses in 2007 and 2012 were further compared to determine the trends in the SEO performance development and decide on the acceptance / rejection of the hypotheses.

## 2.2 Research realization

### 2.2.1 Faculties selection

As described above we selected the Slovak university faculties oriented at offering the economic studies. In 2007 there were 21 faculties on the market (total private and public). In 2012 one more faculty was active for the market; however we did not include it into the study as the results from two data ranges could not be compared. In Table 1 we list the faculties along with their names and web sites.

FACULTY ID	FACULTY NAME	WEB SITE URL
1	Faculty of Commerce, University of Economics in Bratislava	of.euba.sk
2	Faculty of National Economy, University of Economics in Bratislava	nhf.euba.sk
3	Faculty of International Relations, University of Economics in Bratislava	fmv.euba.sk
4	Faculty of Economic Informatics, University of Economics in Bratislava	fhi.sk
5	Faculty of Business Management, University of Economics in Bratislava	fpm.euba.sk
6	Faculty of Business Economy in Košice, University of Economics in Bratislava	euke.sk
7	Faculty of Economics, Matej Bel University in Banská Bystrica	ef.umb.sk
8	Faculty of Management at Comenius University in Bratislava	fm.uniba.sk
9	Faculty of Economics and management at the Slovak Agricultural University in Nitra	fem.uniag.sk
10	Faculty of Economics, J. Selye University	selyeuni.sk
11	Faculty of Mass Media Communication at UCM Trnava (FMK)	fmk.ucm.sk
12	Faculty of Economics, Technical University of Košice	ekf.tuke.sk
13	Faculty of Management of University of Prešov in Prešov	unipo.sk/fm
14	Faculty of Social-economics Relationship of University of A. Dubček in Trenčín	tnuni.sk
15	Faculty of Public Administration, Pavol Jozef Šafárik University in Košice	fvsupjs.sk
16	Faculty of Economics and Business, Pan-European University	uninova.sk
17	School o Economics and Management in Public Administration in Bratislava	vsemvs.sk
18	Vysoká škola manažmentu / City University of Seattle	vsm.sk
19	International School of Management Slovakia	ismpo.sk
20	Slovak Manager Academy	sales-manager.sk
21	The Banking Institute / College of Banking	bivs.sk

Table I. University faculties included in the research

### 2.2.2 Selection of optimal criteria for the performance evaluation

The criteria selection is probably the most important part of the evaluation process. The criteria have to be relevant and reflect the purpose of the research. Two categorizations of the criteria applicable for this research are commonly used.

The first one is described by Mintzberg (Mintzberg, 2005). He distinguishes between hard and soft criteria. These categories are applied when categorizing the managerial styles used by management of people and are also applicable for our purposes. The hard criteria can be defined as those, whose value is independent from the evaluator. This means that the value should be the same regardless who is realizing the evaluation. The condition is that the value detection is realized at the same time. As an example of this criterion we can state the Alexa Rank. This value ranking from 1 to several million describes the position of the web site in the rankings created by the Alexa company. This value can be checked on the Alexa web site or with the use of a special toolbar (e.g. alexa toolbar, webrank toolbar etc.). The value is the same if two different people are checking it for the same web site at the same time. However it is changing in time when new calculations are made by Alexa. The second criteria group is composed by the soft criteria. These are dependent on the opinion and experience of the evaluator. Different evaluators can evaluate the same web site differently at the same time. The example of the criterion is the web site usability. This is a relatively subjective value. The evaluation should be made using points (e.g. from 0 to 10) or percentage.

From the point of view of the purpose of the evaluation we can distinguish the primary and secondary criteria. Primary criterion is the one that directly measures the performance of the web site in the specific area which is being measured. If we measure the SEO performance, the primary criterion is the position of the web site in the search engine results page (SERP) on the specific key word. The better implemented the SEO strategy is; the higher is the position in SERP. The secondary criteria are evaluating the SEO performance indirectly, e.g.

through a cumulative ranking, which reflects the effectiveness of the SEO strategy but also incorporates other factors. This group can be further subdivided into two categories: the causal and the consequential criteria. The causal group is created by the factors by those the SEO performance can be influenced. For example, when optimizing the intensiveness of key word usage in the headings throughout the web site, the SERP rankings can be improved. The effects of optimizing the secondary causal criteria performance can be measured by the primary and secondary consequential criteria values. A time shift will appear here as the changes have to be recognized by the relevant search engines and reflected in the SERP rankings. The secondary consequential criteria are those which measure the SEO performance indirectly. Again the Alexa Rank can be mentioned here. The rank reflects wide range of values and is created not only by the values that reflect the SEO performance directly. For example the important part of the ranking algorithms is the traffic of the web site. However this traffic is not only the result of SEO activities and thus is not the direct metric for their evaluation.

For the purpose of our study we have created the following criteria mix. We included the hard criteria in the mix to maximize the objectiveness of the results. The primary criteria are very important when calculating the final performance index. This importance is reflected in the "weight" of each criterion as listed in Table 2.

NO.	CRITERION NAME	CATEGORY	WEIGHT
1	SERP ranking on KW 1	PRI	8 %
2	SERP ranking on KW 2	PRI	8 %
3	SERP ranking on KW 3	PRI	8 %
4	SERP ranking on KW 4	PRI	8 %
5	SERP ranking on KW 5	PRI	8 %
6	SERP ranking on KW 6	PRI	8 %
7	SERP ranking on KW 7	PRI	8 %
8	SERP ranking on KW 8	PRI	8 %
9	Page Authority	SCO	3 %
10	Page MozRank	SCO	3 %
11	Page MozTrust	SCO	3 %
12	Internal Followed Links	SCA	4 %
13	External Followed Links	SCA	4 %
14	Total Linking Root Domains	SCA	5 %
15	Facebook Shares	SCA	2 %
16	Facebook Likes	SCA	2 %
17	Tweets	SCA	2 %
18	HTML errors	SCA	3 %
19	HTML warnings	SCA	2 %
20	CSS errors	SCA	2 %
21	CSS warnings	SCA	1 %

Table 2. Criteria mix used in the evaluation

### 2.2.3 Data gathering

We will briefly describe the criteria meaning and contents and the way we got the data / values for each criterion. SERP ranking for KW 1-8. We decided to check the SERP ranking for 8 key words. We selected the key words which are highly relevant for the faculties. Some of them are general and some of them are specific to the segment the faculty operates in. The eight used key words are: university, high school, UNI (shortcut of university), economic faculty, economy studies, faculty of management, university studies. Of course we used the key words in Slovak original as all of the faculties use the web site in Slovak language. By each key word we used three separate methods to get the data (SEPR performance). The first one is manual. We entered the key

word into www.google.sk and checked the position. E.g. if the web site of faculty appeared on the 3rd screen in 5th position, we noted the number 25 into the sheet. The second method was using the tool of automatic SERP detection on the portal www.seotools.sk/poscheck.php (Seotools, 2012). Here the tool automatically detects the position and displays it after entering the URL and key word. The third method was automatic as well. We used the Seomoz.org tool to detect the position (SEOMoz, 2012a). Only positions in the range from 1 to 30 were taken into account. If the position is worse, we replaced it with the number 31 before starting the data transformation (as a pre-transformation step). To calculate the value e.g. for the No.1 criterion, we applied arithmetic average to these 3 values which were gained by 3 different methods.

Page Authority – this is a value (rank) which is given to each web site by the tool Open Site Explorer (OSE) (SEOMoz, 2012b). We checked the value for the web site using the OSE tool. The higher the value is, the better it is.

Page MozRank – analogy to Page Authority, it is the rank for the respective page by Seomoz.

Page MozTrust – this is an indicator calculated from counting the clicks to the page from highly trusted locations combined with user feedback. Also here the rule "the higher the better" can be applied.

Internal Followed Links – the back links to the web site content generated in the same domain. The higher number is better meaning that the content is wisely interconnected allowing the user to follow the content throughout the web site.

External Followed Links – external backlinks from all the web sites in the world (from a different domain). The higher number is better.

Total Linking Root Domain – number of external domains (back links) to the respective web site. This is the value determined by OSE as well.

Facebook Shares, Likes, Tweets - these values monitor the activity of faculties at the social networks. These are not so important for measuring the SEO performance however they indirectly influence the results; therefore we added them to criteria. These values are available in OSE as well.

The last four criteria (HTML errors and warnings, CSS errors and warnings) are from the group of criteria checking the compatibility of the web site coding to the internationally accepted W3C standards (W3C, 2012a, 2012b). They belong to secondary causal criteria as well, but do not affect the performance markedly. However, they have some relevance, because the spider can be limited in grabbing the page content if it does not cope with the W3C standards (e.g. xHTML 1.0).

In Table 3 we show the values gathered using the methodology described for the first 8 criteria – the primary criteria oriented at measurement of the SERP position. Because of the great extent of the data, we are not able to list all the values for each criterion and for each faculty in this article. The same process as in 2007 was repeated in 2012 to get the results enabling comparison of these two years.

FACULTY/CRITERIA ID	1	2	3	4
1	-	-	-	-
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	-	-	-	-
6	24	-	-	-
7	5	18	-	8
8	1	-	-	9
9	11	-	30	-
10	18	-	-	-
11	12	-	-	15
12	25	-	-	-
13	4	-	-	-
14	14	-	-	-

15	12	-	-	-
16	-	2	-	-
17	-	1	-	-
18	-	4	-	-
19	-	-	-	-
20	-	-	-	-
21	-	-	-	-

Table 3. Values gathered for first 4 criteria (2007)

As we can see from the results, 8 of the faculties did not reach any SERP rankings on the first three pages, there were 9 faculties which reached 1 measured position, 3 of them positioned 2 times and one faculty, the leader in this rankings (the Economic faculty UMB), reached 3 measured positions.

As we noted, we are not able to list all of the original values used for the final performance index calculation. To illustrate the different values that were possible to reach in Table 4 we list the values for the last 4 criteria in the mix, now for the year 2012.

FACULTY/CRITERIA ID	18	19	20	21
1	3	0	139	153
2	41	0	204	1308
3	41	11	51	41
4	3	0	14	156
5	1	0	8	14
6	32	1	23	17
7	68	43	8	95
8	24	1	22	230
9	23	0	8	148
10	14	0	5	29
11	127	0	18	14
12	12	2	1	47
13	44	0	3	872
14	7	0	8	246
15	12	0	16	49
16	8	0	3	0
17	140	6	34	622
18	0	0	4	101
19	5	0	5	50
20	1	2	5	71
21	16	0	144	142

Table 4. Values for the criteria 18-21 (year 2012)

## 2.2.4 Data transformation

Being able to use the data for further calculation requires their transformation. We did the transformation in the following series of steps:

- I. Substitution of non-numeric data. These data (e.g. "not available" by the HTML validator or "-" if not present in the first 3 SERP) were substituted by their numeric equivalent. The number applied differed by

each criterion. We used the relative method which says that this non-numeric value is substituted by the worst value available in the value set for the respective criterion, plus 1. We will state an example: if the number of HTML errors could not be determined in case of one faculty in 2007 because the spider was not allowed to enter the page, we substituted the original "not available" value by the number 141. The worst result reached by other faculties was 140, thus we added one more point to make this faculty worse than the weakest result in the data series.

2. Transformation of the numeric data to points. In this step we needed to ensure that a higher numeric value represents a better performance in the respective criteria. Some of the values did not require transformation (e.g. Google Page Rank – the higher value is better), however, by some of them it was necessary (e.g. the number of HTML errors – the higher value meant the worse result). We applied the simple formula which in this case calculated the difference between the highest value reached by all web sites in this criterion and the respective value of the concrete web site. If for e.g. the highest value in HTML errors was 140 and the web site with ID 1 reached 3, the result after this transformation was 137.
3. Scale leverage. To be able to apply weights which will relevantly influence the final result we needed to reach the same scale in each data row. Thus we divided the current value in each criterion by the highest value reached by all competitors. The result of this operation was that all values were on the scale 0-1.

## 2.2.5 Data analyses and calculation of the final performance index

After the data transformation had been finished, we could start with calculating the final performance index for each faculty web site. We used the following formula:

$$FPI = PR_1 \times WE_1 + PR_2 \times WE_2 + \dots + PR_{21} \times WE_{21}$$

Legend:

FPI Final Performance Index

PR<sub>x</sub> Partial Result in the respective criteria

WE<sub>x</sub> Weight of the respective criteria

The methodology of the final score calculation is further characterized e.g. in the book of Miklošik (Miklošik, 2010). We list the final results calculated for each faculty web site in Table 5.

FACULTY ID	FPI 2012	FPI 2007
1	18,1 %	17,8 %
2	24,1 %	23,5 %
3	24,2 %	23,5 %
4	25,1 %	25,0 %
5	32,3 %	27,5 %
6	38,5 %	33,2 %
7	30,1 %	38,8 %
8	40,8 %	42,5 %
9	38,5 %	34,8 %
10	21,8 %	23,5 %
11	21,7 %	20,1 %
12	21,5 %	22,2 %

13	20,9 %	19,9 %
14	14,6 %	15,5 %
15	17,1 %	18,9 %
16	28,2 %	29,0 %
17	28,2 %	28,5 %
18	31,6 %	29,9 %
19	21,9 %	18,9 %
20	20,0 %	18,9 %
21	19,5 %	17,8 %

Table 5. Final Performance Indexes

## 2.3 Results of the research

### 2.3.1 Primary goal fulfilment

The primary aim of this article was to determine the tendency in the development of SEO performance of the university faculties. We can determine the trend comparing the results in FPI 2007 and 2012. In order to have a comparable outcome, also the comparison of the performance in the first 8 (primary) criteria is relevant. Thus we also compared the performance in the SERP criteria. We list the results in Table 6.

FACULTY ID	SERP 2012	SERP 2007
1	4,7%	0,0%
2	12,5%	12,5%
3	10,4%	0,0%
4	9,0%	0,0%
5	16,0%	0,0%
6	27,4%	14,2%
7	19,6%	43,0%
8	25,0%	33,9%
9	25,7%	11,8%
10	9,1%	17,5%
11	0,0%	16,6%
12	11,2%	12,9%
13	11,7%	23,8%
14	0,0%	7,1%
15	0,0%	7,9%
16	19,3%	12,1%
17	25,0%	22,3%
18	10,2%	11,3%
19	7,4%	0,0%
20	0,0%	0,0%
21	8,8%	0,0%

Table 6. SERP performance comparison

As we can see from the results in Table 5 and Table 6, some of the faculties have improved their performance while the performance of the others has declined. To determine the trends in the performance development we calculated the differences in the performance (both FPI and SERP) and calculated an average of these two values as the final results of our research. The results are listed in Table 7.

FACULTY ID	FPI +-	SERP +-	TREND
1	0,3 %	4,7 %	2,5 %
2	0,6 %	0,0 %	0,3 %
3	0,7 %	10,4 %	5,5 %
4	0,1 %	9,0 %	4,6 %
5	4,8 %	16,0 %	10,4 %
6	5,3 %	13,3 %	9,3 %
7	-8,7 %	-23,4 %	-16,1 %
8	-1,7 %	-8,9 %	-5,3 %
9	3,7 %	13,9 %	8,8 %
10	-1,7 %	-8,4 %	-5,1 %
11	1,6 %	-16,6 %	-7,5 %
12	-0,7 %	-1,7 %	-1,2 %
13	1,0 %	-12,1 %	-5,5 %
14	-0,9 %	-7,1 %	-4,0 %
15	-1,8 %	-7,9 %	-4,8 %
16	-0,8 %	7,2 %	3,2 %
17	-0,3 %	2,7 %	1,2 %
18	1,7 %	-1,1 %	0,3 %
19	3,0 %	7,4 %	5,2 %
20	1,1 %	0,0 %	0,5 %
21	1,7 %	8,8 %	5,3 %
FACULTY ID			7,5%

Table 7. SEO performance development trend

As we can see in the last column of the table above, the overall development trend is positive. The total SEO performance of the faculties has improved by 7,5 %. This is not a significant improvement; however it is good that the trend is positive.

### 2.3.2 Overall research findings

We can formulate the following interesting findings of this research:

- The overall SEO performance of the faculties is insufficient. If we have a look at the final performance indexes, we can see that no faculty has performed over 40 %. This means that the marketing managers at the faculties have a lot of work to improve the rankings of the faculty web portal. The best faculty in our rankings was the Faculty of Management at Comenius University in Bratislava, with the score 40,8 % in 2012. We can also see that this faculty improved reasonably compared to 2007, where it occupied the fifth place.
- There are significant differences in the performance of the faculties. The best faculty score was 40,8 % as we already mentioned, the score of the worst faculty is just 14,6%. The market leaders are quite safe at the moment as the rest of the competitors are not performing well. On the other hand as we already noted, the overall performance is weak and even the leaders should mobilize to perform much better and start with a systematic implementation of the e-marketing strategy.
- Nearly all web portals have reasonable problems with the code compatibility. Only one portal (faculty no. 16) is almost 100% compatible to the W3C standards. Number of errors or warnings reaches hundreds by some of the portals. If we have analyzed the numbers of all pages on the web portals as well, we could see number reaching thousands of errors. We recommend fixing these issues as most of them do not require significant changes in code. The accessibility for search engine crawlers will be improved and the compatibility with browsers as well.

- The rankings in search engines results pages (SERP) are insufficient as well. If we have a look at the SERP results, the best score in 2012 is just over 27 %. For two of the key words (no. 3 and no. 8) no faculty web page was ranked in the first 30 results. This is very sad because the key words were selected wisely and are appropriate and interesting for this segment.
- Regarding the SERP performance also the comparison between public and private university faculties can be interesting. We could anticipate that the private faculties will perform much better because of their status. The public faculties are also dependent on the number of students which affects their financing significantly, however the dependency is not such straight as by the private faculties which need to generate profit for the investors. We compared the average SERP positions (1 is the best. 31 the worst=not positioned on the first three pages). The results are listed at the Figure 1. As we can see at the figure there exist the differences and the public faculties do perform better in SERP. However, they were much higher in 2007 as in 2012. In 2012 the results were very similar which does not confirm our assumption. We think that this state can be regarded as alarming mainly at the private faculties.

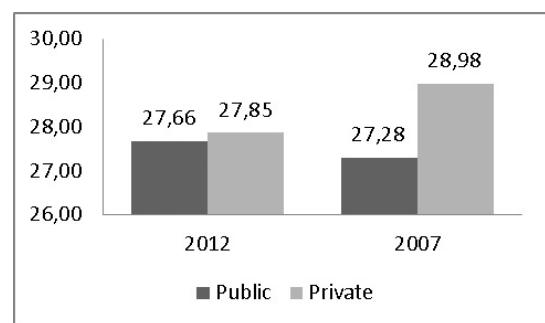


Fig. 1. SERP positions comparison

### 2.3.3 FPI leader detailed analysis

We performed a more detailed analysis of the results gained by the best faculty in the 2012 measurement – the Faculty of Management, Comenius University in Bratislava (FMUK). At Figure 2 we visualize the partial performance of this faculty in all of the criteria. We can formulate these findings and recommendations for the portal managers based on the results (analogous recommendations could be prepared for each faculty included in the research):

- The performance in four criteria is maximal. This means that the faculty portal reached the best value within all faculties in the research (criteria 4, 7, 9, 13). The first two are the SERP positions. The result 100% here does not automatically mean that the portal positioned no.1 for these two key words. However, if we have a look at the exact position, it was no. 1 for both of the key words. In this case no improvement is possible. The criterion no. 9 is the Page Authority and no. 13 the External Followed Links. As these two results are interconnected, it is no surprise that FMUK scored best in both of them. The Page Authority was 56 (out of maximum 100) so there is still space for improvement. As the main tool for reaching better results is creating more intra-portals interconnections (external backlinks), we recommend to continue building backlinks to the page. At the moment 959 followed external backlinks are tracked. It is interesting to see that the major impact of the Page Authority has the overall number of the external backlinks (and their quality, too). This supports the fact that the FMUK did not gain the best result in the criterion no. 14, which is the total linking root domains, which is considered as being the most important factor for the Page Authority widely by the experts.
- There are other 8 criteria where the performance is average, or more than 50 %. In these cases we recommend to continue realizing steps towards improvement of the score. For the criterion no. 10 (score 90.9%) the measures described in the previous point will be effective as the MozRank is calcu-

lated using similar criteria as the Page Authority. The page MozTrust (criterion no. 11) is sufficient. To improve results in the criterion no. 14 (Total Linking Root Domains) we recommend building partnerships with relevant international web portals (ideally other schools, universities, faculties etc.) and building back links from them. To improve this value, gaining more links from one portal does not help. The criterion 15 is Facebook shares. As can be seen from the performance index, the faculty is creating some Facebook buzz at the moment. At the other hand the social impact is not sufficient and the faculty should create and implement more effective strategy for Facebook communication. This includes the selection of optimal publication times (including e.g. publication of posts on Sunday where the effect is most interesting), optimal composition of posts according the post type (e.g. include more simple text posts and less link sharing) etc. We recommend implementing all the recommendations for the optimal Facebook publication for the Slovak market composed by Ataxo (Šlerka, 2011). The last four criteria in this group are from the group of W3C standards. Here the results are average. The FMUK web portal title page has 116 HTML errors, 42 HTML warnings and really too much CSS errors – 182 and CSS warnings – 1078. We recommend fixing as many of these incompatibilities as possible. Of course not always 100% compatibility can be reached because of some circumstances, e.g. some special Ajax features etc.

- The web portal is performing very weakly in two criteria – no. 12 and 16, where the results is higher than 0% but lower than 30%. To improve the performance in the criterion 12 (Internal Followed Links) the content manager of the portal should interlink the articles more intensively. This helps the user to read more content on the web, improves the visitor statistics and web portal usability. The links can include also links to external sources which helps to build the global interconnection of the portal. Facebook likes (criterion no. 16) are dependent on the attractiveness of the posts, the number of target groups (direct followers, the total reach) etc. The measures to improve this score are analogous to those described for improving the Facebook shares in the previous point.

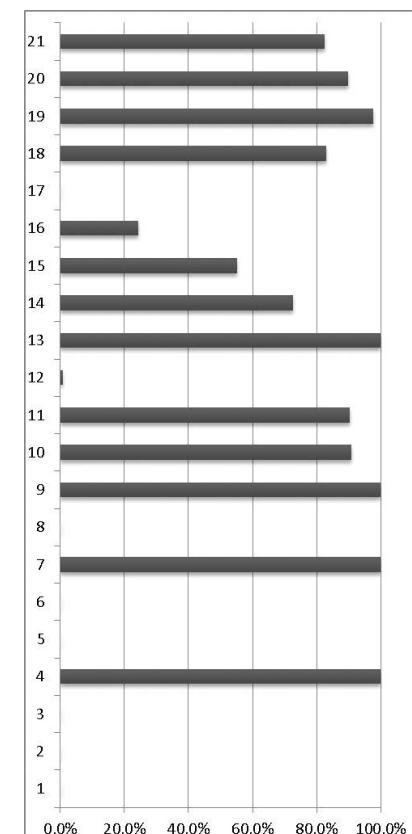


Fig. 2. Results of the top faculty (ID 8) for criteria 1-21

### 2.3.4 Evaluation of hypotheses

At the beginning of the research we formulated these two hypotheses:

- H1: there will be a positive trend in the SEO performance of the faculties comparing the data from 2007 and 2012
- H2: the top 5 faculties according to the 2007 results will also perform best in the 2012 evaluation

From the results analyses performed in the part 3.3.1 we can formulate the decision regarding the hypothesis H1. We have determined that a positive trend in the overall SEO performance, measured by the FPI index, occurred. The performance of the faculties has improved by 7.5% in total. Based on this finding, we can accept the H1 hypothesis.

To be able to accept or reject the H2 hypotheses we needed to analyze the data further. At first we identified the top 5 performing faculties in the 2007 research. They are listed in Table 8.

PLACE NO.	FACULTY ID	FACULTY WEB
1	8	fm.uniba.sk
2	7	ef.umb.sk
3	9	fem.uniag.sk
4	6	euke.sk
5	18	vsm.sk

Table 8. Top faculties in the 2007 research

For the possibility of 2012 and 2007 comparison, we calculated the rankings of the top 5 faculties in 2007 as well. The results are listed in Table 9.

PLACE NO.	FACULTY ID	FACULTY WEB
1	8	fm.uniba.sk
2	6	euke.sk
3	9	fem.uniag.sk
4	5	fpm.euba.sk
5	18	vsm.sk

Table 9. Top faculties in the 2007 research

Comparing the data in these two tables, we can confirm that the lists are very similar. The leader has not changed in the 5 year period. However the rankings in the places 2-4 have changed. One faculty has lost its top 5 position – the Faculty of Management, University of Economics in Bratislava (ID 5) and one new faculty has positioned in top 5 – the faculty FEM UNIAG (ID 9). This analysis leads to the rejection of the H2 hypothesis, which supposed the faculty list would stay intact.

## Conclusion

The realized research introduced interesting findings in the area of application of e-marketing tools in the segment of university education in Slovakia. We have evaluated the search engine performance of the selected 21 faculties of Slovak universities. We can summarize the core findings as follows:

1. The faculties are performing on average in the SEO area. The performance could be improved significantly.
2. There is a positive trend in the performance development. The overall performance index (FPI) increased by 7.5% comparing the 2012 and 2007 results.

3. The results in SERP positions are weak. The faculties are only rarely positioning on the first three pages of SERP in google.sk.

4. There are no major changes in the top performing faculties. Comparing top 5 from 2007 and top 5 from 2012 only one change has occurred.

The reasons of this weak performance can be seen in the organization of the faculty management. Frequently, there exists no specialized position oriented at marketing at the faculty. The knowledge of marketing strategies in the e-business environment is relatively unique and thus has to be concentrated and shared amongst the other marketing knowledge (Mikušová, 2008). Many marketing activities are centrally coordinated from the university and the faculties lack the marketing budget as well. We strongly recommend the faculties to start dealing with the issues of e-marketing or SEM performance as these methods are very effective compared to the traditional communication methods. The methodology and tools introduced in this article should help the faculties to measure their performance and implement necessary changes.

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