Analysis of market and competition in the digital world on the example of one higher education institution

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Abstract

The subject of this paper is the process of market research and analysis regarding subjects for whom their Internet presence is especially important for their business success. Digital marketing is the main method of improvement when it comes to Internet-based business. Globalization and digitalization trends have allowed for a more direct contact with potential users, which, in turn, significantly increased the dynamics and economics of doing business. The main prerequisite of efficient application of digital marketing is to be well prepared, i.e. to have properly conducted research using digital tools. This paper will present the analysis and research of online presence of the Faculty of Technical Sciences compared to other faculties, i.e. the main competition. Results gained by research are further elaborated upon and connected with the possibilities of developing a digital marketing strategy with the goal of improving the position of the Faculty of Technical Sciences within the target group on the Internet.

Key words: *analysis of competition, digital marketing, digital tools, market research;*

1. INTRODUCTION

The subject of the paper is the presentation of the digital research tools which enable a successful research process on the Internet. Globalization as a trend instigated the development of online business, and digital marketing is one of its aspects. The development of digital marketing was brought about by the tools for Internet research, which provide huge help when formulating the business strategy of an organization whose business is Internet-related. This paper will show the connection between the way a higher education institution operates and their Internet presentation. The aim of this paper is to show how the corporate online presentation can be analyzed, and which tools are the most effective. The empirical part of this study is based on the example of the Faculty of Technical sciences and its competition.

The research process initiatives increasingly move towards the use of modern technologies, such as collaboratories, e-Science, e-Social Science, computational social science, e-Humanities, e-Research, and 'digital scholarship' [1]. According to this statement it can be said that the process of research is in many ways improved with the use of digital tools and it gives a sufficient amount of data that could be analyzed and presented in the research section of this paper. The conclusion of the paper itself shall overview the connection between the research results and their connection with the organizations doing successful business, in order to give a short overview in the end regarding the improvements that can be made to the Internet presentation of the Faculty of Technical Sciences, with the aim of strengthening the brand and improving the market share.

2. RESEARCH PROCESS ON THE INTERNET

Research is a systematic and objective investigation of subjects or problems, in order to reach relevant information or principles [2]. The research process is the basic process that needs to be realized before starting the formulation of any strategy. Research as the first step in the realization of a strategy is not any different in the offline and online environments, except for the tools and techniques used. The questions posed before the research starts are: "What do you want to research?" and "What are the goals of the research?" [3]. Only when you have the answer to both of these questions can you start the research process. In order to better understand the entire situation that is being

researched, it is necessary to see the fundamentals through which we can view the research, and these are: clients, market, competition, intermediaries, influencers, potential partners, wider macro environment [4]. In order to satisfy all the stakeholders, it is necessary to do PEST and SWOT analysis in the Internet environment. That means to get to the external factors which influence the organization, as well as the inner strengths and weaknesses of the organization. The Fig. 1 is one of the example that shows how "the TOWS matrix overviews not only the inner strengths and weaknesses situation, but the external possibilities and borderline threats as well, while also showing the four fields for creating the strategy for market success" [5].

Figure 1. The TOWS technique for SWOT analysis

After presenting the basic hypotheses and the tools that need to be used, the research steps include [6]:

- Identification and defining the need or problem,
- Approach development,
- Research design,
- Gathering data,
- Analysis of the gathered data,
- Creation of the market research report.

Considering that the mentioned steps are the same both in the offline and online environment, it is necessary to highlight the ideas and objects particularly for the online research. Apart from the basic data, it is necessary to pay attention to the search engine optimization elements, such as the domain authority, page authority, backlinks, the traffic from different countries, social media appearances, as well as the surveys realized via the Internet [4]. These parameters will be elaborated in detail and presented in the empirical part of this research. In order to better understand the entire Internet research process, it is necessary to provide an overview of the basic tools used in digital research.

3. ANALYSIS OF DIGITAL RESEARCH TOOLS

The research process on the Internet could not be successfully conducted without the certain tools which enable successful research. One of the main advantages of the digital research tools is that they are more economic, providing better results that can be more easily interpreted from the reports [7]. When the research is done, it is necessary to individually analyze

each part of the digital marketing. The key elements observed during the research, regarding the digital research tools, are [7]:

- SEO – *search engine optimization* (domain authority, page authority, google ranking, title, mete description, backlinks),
- SMM – *social media marketing* (Facebook, twitter, Instagram, LinkedIn),
- Website design, content, and perception
- Online survey of customer satisfaction.

These research-friendly elements are not the only elements for digital research, but they are observed ones for the purpose of this study. In the case of SEO analysis, the tools that can be used and the parameters which can be measured are useful for researching factors that influence Google website ranking [8]. Tools that can be used for researching SEO factors [9] are the following:

- Google keyword planner,
- Google trends,
- SEMrush,
- Majestic,
- Moz open site exloprer,
- Link research tools.

Furthermore, all elements that influence SEO can be analyzed. It is recommended to use more tools for some research, in order to ascertain the relevant data. Tools used when analyzing social network presentation [9] are the following:

- Followerwonk,
- Socialmention,
- Buzzsumo,
- Social Crawlytics,
- LikeAlyzer,
- Facebook Pages Manager.

Similar to SEO analysis, the mentioned tools are used in case of SMM analysis, as well. Apart from the SEO and SMM research, in order to analyze websites of higher education institutions, it is necessary to analyze website design, content, and perception, as well as the subjective feeling of the Interent presentation. In order to additionally improve the entire technical part of the research and use of tools, we can utilize the user satisfaction regarding the internet presentation itself, using various online surveys [10], such as:

- Our Web Survey
- QuestionPro
- Survey Monkey
- Survey Gizmo
- Opinio
- Lime Survey
- Zoomerang

The list of tools for digital research of customer satisfaction rounds up the total overview of research tools used in the research section of the paper, representing the tools necessary for digital research. The following section shows the research process when it comes to Internet presentations.

4. RESEARCH PROCESS PRESENTATION

After the overview of the theoretical basis and methodology to be used in the paper, the next step is the elaboration on the research process, regarding the websites of higher education institutions. The first institution to be observed is the Faculty of Technical Sciences (FTN) from Novi Sad in comparison to the state and private faculties as its competition:

- Faculty of Organizational Sciences (FON)
- Faculty of Electrical Engineering (ETF)
- Singidunum
- Fimek

The above faculties are taken as the most representative competitors of the Faculty of Technical Sciences. The research will be conducted using five elements:

- Number of visits to the website,
- On-page optimization,
- Off-page optimization,
- Social networks,
- Website users' satisfaction survey.

The listed parameters of the research are the basic parameters to be analyzed when doing research in the digital world [11]. The research of the listed technical elements is conducted within a period of one month, while the survey included a sample of 118 students of the Faculty of Technical Sciences, who have stated their satisfaction with the Internet presentation of the Faculty. After presenting the research elements, the results and the analysis of the gained results will be shown in the following section.

5. ANALYSIS AND OVERVIEW OF THE RESULTS BASED ON THE COMPETITION PRESENTATIONS

The overview of the research results will be presented in the order mentioned in the previous section of research process presentation. Number of visitors to the website is the first analyzed parameter – using *SimilarWeb* as an appropriate tool for this type of research [12]. The results are shown in Table 1.

According to results, it can be concluded that the Faculty of Technical Sciences has the largest number of visits to the website, which is understandable as it has the largest number of students. There is room for improvement in the area of interaction with the visitors, so as to improve the average visit duration and the number of pages viewed per visit.

Table 1. An overview of website visitors

Name of faculty	Total Visits	Avg. Visit Duration	Pages per Visit	Bounce Rate
FTN	197.11K	00:03:53	5.39	30.39%
FON	156.28K	00:07:24	5.88	22.10%
ETF	195.05K	00:05:13	5.40	33.46%
Singidunum	176.79K	00:03:30	4.73	32.69%
Fimek	9.40K	00:04:54	6.90	17.12%

The second element observed was the page optimization, i.e. the key words used most often when searching for the Faculty of Technical Sciences on Google. This research was enabled by Google's search tools that provide relevant results for this type of research [13]. The results are shown in Table 2.

Table 2. An overview of keywords used when searching for FTN

Keywords	Average monthly search
ftn novi sad	14800
studentska služba ftn	1600
ftn studentska služba	480
tehnicki fakultet	720
studentski servis ftn	490
ftn raspored	390
ftn upis	210

Regarding meta description, these key words need to be looked at as well, to check their position and see whether they could be utilized to improve the Google rank of the Faculty of Technical Sciences' website. As an interesting keyword there is the "tehnički fakultet" which does not yield FTN as a result on the first 5 pages. This issue needs to be rectified, as people might be mistakenly typing "*tehnički fakultet*" in order to reach FTN. The next element of analysis is the off-page optimization, which concludes the SEO research. For this part, forums and blogs where FTN crops up the most have been taken into consideration – for example:

- http://www.ana.rs/forum/index.php?topic=141583.0
- http://forum.krstarica.com/showthread.php/635599-FTN-koji-smer-upisati
- http://www.sportklub.info/forum/archive/index.php/t-3948.html
- http://www.sk.rs/forum/showthread.php?t=77043
- http://www.elitesecurity.org/t419317-Da-li-upisati-FTN-Novi-Sad

The presented forums, blogs and websites appear first when looking at the Faculty of Technical Sciences as a topic. As a means of improvement, it is worth considering starting a blog or a forum which could be used by the marketing department of FTN in order to

communicate with stakeholders, in a similar way the competition is doing – for example:

- http://forum.etf.rs/lofiversion/
- http://www.fonforum.org/
- http://forum.fim.singidunum.ac.rs/forum.php

This can help in developing a better backlink network and improve off-page optimization. Special part of the research concerns social networks. As a dominant social network among the young people, Facebook, i.e. Facebook pages of the faculties have been analyzed regarding certain parameters. The tool used for the analysis was Likealyzer, which can show the number of likes, comments and engagements [14]. The results are shown in Table 3.

Table 3. Facebook page analysis

Name of faculty	Like rank	Likes	Engagement Rate	Posts per Day
FTN	62	15,183	2.44%	0.78
FON	37	7,807	0.92%	0.15
Singidunum	54	137,925	0.61%	0.77
Fimek	58	6,679	1.84%	2.30

The analysis of the gained results leads to the conclusion that FTN has a favorable position in comparison to the competition, while there is enough space for improvement, for example:
- *Ask more questions to your fans,*
- *Encourage your fans to ask more questions for you to answer,*
- *Publish posts more often,*
- *Publish more photos,*
- *Create a Facebook campaign in order to gain more likes.*

The next analysis was the survey of the satisfaction of FTN students regarding the website itself and its content. The results are shown as tables and charts. Table 4 presents the countries of origin and Table 5 the study level for the surveyed students.

Table 4. Overview of students by countries

Country	Number of students
Serbia	85
Bosnia and Herzegovina	30
Montenegro	2
Croatia	1

Table 5. Study level of the surveyed students

Study year	Number of students
First	10
Second	29
Third	44
Fourth	25
Master	10

Figure 2 shows the departments that the students come from, and Figure 3 shows the ratio of satisfied and dissatisfied students regarding the FTN website.
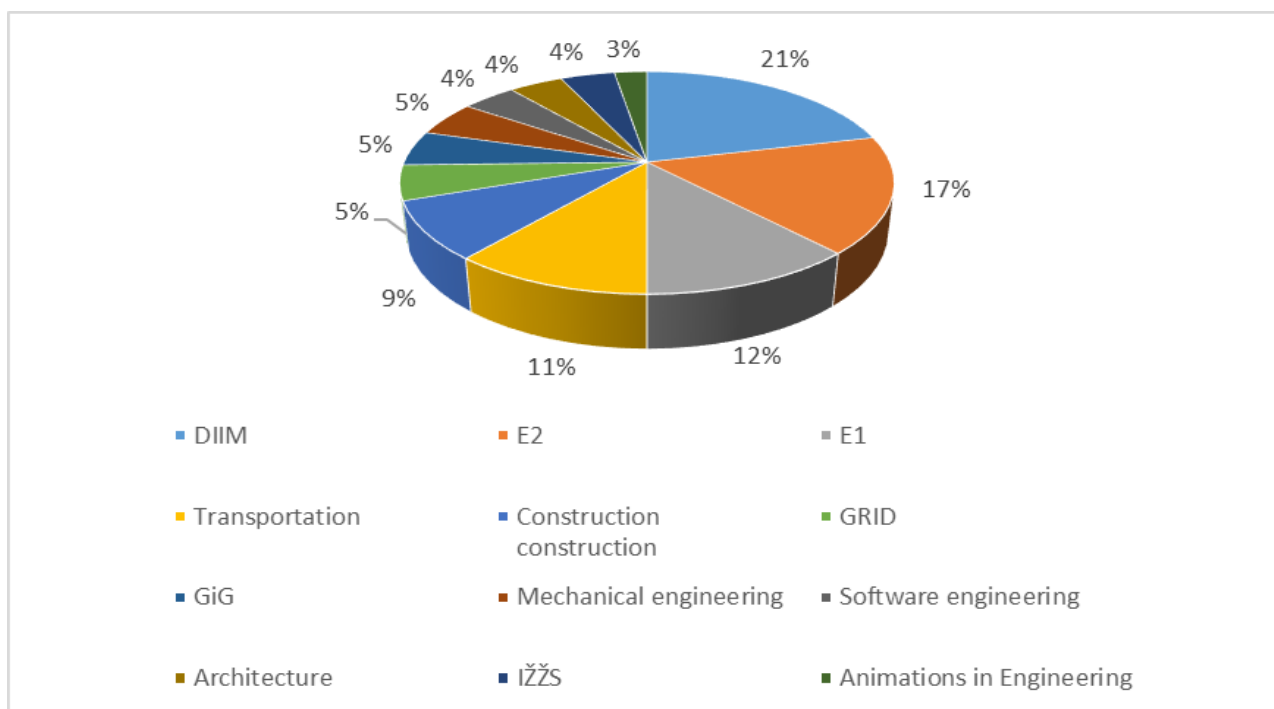
Figure 2. Number of students per departments
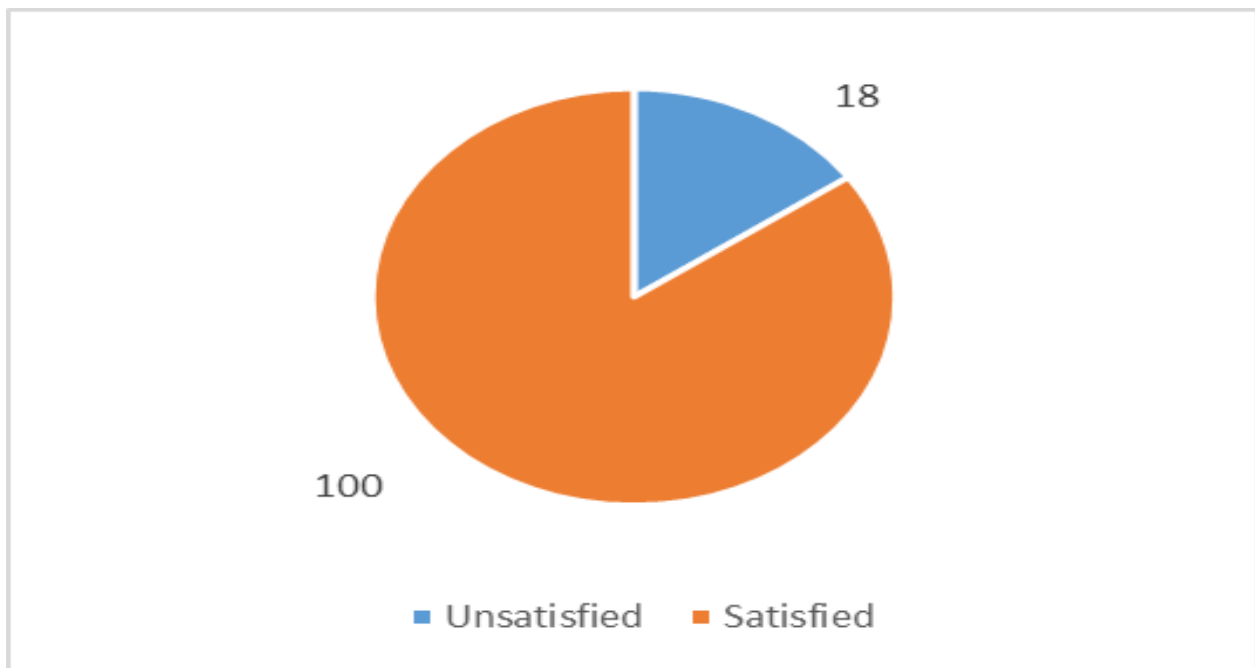
Figure 3. Satisfaction of the surveyed students regarding the website

The Figure 3 shows that approximately 85% of students are satisfied with the faculty's website, but there is a 15% of them who are not. The analysis of the survey results yielded the following samples of dissatisfaction regarding the FTN website, which can present potential points of improvement:

- Complicated website,
- Website aesthetics,
- Poor navigation,
- Poor visibility,
- Poor functionality.

Upon elaborating on the results of the research and analyzing those, a list of conclusions has been reached. In addition to the conclusion of this study, the areas where improvement is possible are described as well.

6. CONCLUSION.

The paper shows theoretical basis regarding Internet research, as well as tools used when doing digital research. The observed tools have been used in the empirical part of the paper, which yielded the results that present the current state of FTN's website status in comparison to its main competitors. Digital research process represents an important point when discussing user relations and establishing the patterns of their behavior. These are the reasons for the research, in order to be aware of what to improve [15]. The research section of this study comes to the conclusion that FTN is better than the competition in most parameters and that it has a certain competitive advantage. However, it needs to improve certain things, such as:

- Introduce "tehnički fakultet" as a keyword in order to attain a better Google rank for this keyword.

- Add a student forum within the faculty website.
- Take more care of the websites from which the backlinks come, in order to increase domain authority.
- Use the leading position on social networks in order to better connect the website and social networks by sharing useful materials, attracting more people.
- Consider the critiques laid at the website by surveyed students regarding the design, simplicity and navigation of the website itself.

The listed items represent some of the propositions to improve the website of FTN, improve its Google ranking and achieve greater interaction with the users of social networks. This would improve the visibility of the faculty itself on the Internet, increase user satisfaction, leading to a greater number of recommendations and a greater number of students interested in this faculty. A greater number of students mean a greater market share and additional profit for the institution. In order to be able to achieve all of this, it is necessary to develop the FTN brand on the Internet with the help of digital tools, thus using the results of the research in order to create competitive advantage and retain the leading position among the institutions of higher education.

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