NEW APPROACHES IN INTERNET PROJECTS EVALUATION

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Abstract. A new approach to the problem of web site evaluation. Our method is efficient and cost-effective and enables one to find gaps and problems in the Internet projects and develop new ways for improving the general web site efficiency and increase the web site's influence on the users. This method is especially useful for the web sites containing public and political information.

At the beginning of the new millennium the mass communication sphere, including electronic mass media and Internet, has become one of the most efficient tools to influence human values and attitudes. Internet contains a lot of information. Every day it gains 7 million new articles and about 1 million web pages. But the average web-page life expectancy does not exceed 100 days.

According to Nua Internet Surveys, 605,6 million people in the world use Internet (about 10% of the world population). 190,91 million of them are European citizens. One can illustrate the high Internet population growth rate by the following example: during the first 5 years of the Internet age (WWW period) it gained more users than did the telephone during the first 30 years of the telephone communication.

There are a number of quantitative methods used for the evaluation of the web sites' efficiency. Among them there are rating systems and statistical systems, both external and integrated into the web sites, that provide more or less detailed and large-scale quantitative information about the users of the sites. But using these systems it seems very problematic to evaluate the changes in the users' attitudes and behavior. The most evident solution for this problem would be to carry out an Internet survey on the topic. But using this method one would be unable to evaluate the validity of the data. Besides, this method requires a sophisticated system of calculation of the users' answers, which only the well-financed web sites can afford.

Taking into account all the above-mentioned challenges, we suggest using the combination of the expert evaluation method with the quantitative analysis to evaluate web sites' efficiency. This combination enables us to take advantage of both methods and attain the best possible validity and reliability of the results. The qualitative method presupposes the use of the Internet statistics that contain certain indices of the efficiency/inefficiency of the web site. The expert evaluation method suggests using the expert groups' opinions for evaluating the impact of the web sites. We suggest involving the following three groups of experts: Internet professionals (IT specialists), Internet users (the users of the web site to be evaluated) and the target area experts (experts in the field the web site specializes in).

Let us turn to the method itself. The process of evaluating the social influence of the web site can be divided into several stages.

At the first stage the expert groups are formed and the criteria for evaluating the web site's efficiency are worked out. We suggest a number of new typical criteria that indicate the impact of the web site. They are estimated according to their role in the web site's influencing the public and according to the importance of this criterion as compared to the other criteria used for the evaluation.

The first criterion is **the web site's popularity**. This is one of the important indexes that characterize the web site's effect on the users. It is revealed through **attendance**, including the **attendance of the target region population, returns to the web site, the number and quality of the links to the web site on other sites and the number of links to other web sites on this one.** Having the relevant statistics, one can make a qualitative assessment of these data and then get the assessment made by the experts who have interpreted the qualitative results in the context of the indexes of other web sites for this target group.

We believe that the attendance of a web site and its derivatives are an integral index that includes a lot of technical, social and information aspects. High attendance presupposes a high level of information circulation and, consequently, a high probability of changes in the attitudes and behaviour that characterize the efficiency of social influence.

The fact that people return to the web site indicates their interest to its content, the change of their behaviour towards the involvement in the information sphere of the web site and, consequently, this index reveals indirectly the social influence of the web site. The number of links on and to the site shows its value for the Internet community in general. Thus, less frequently visited web sites and equally visited sites of a

similar content try to get a link on a web site that is visited more often. A link to the Internet resource, especially a link on the home page of a popular Internet resource (or on a banner, if it's a graphical link) is made only on the web sites with a similar or greater attendance. Otherwise it requires money payment, or exchange of social or some other form of capital. Thus, the quantity and quality of the links to and on the web site reveals its importance on the Internet and, consequently, its social influence.

The second criterion is the quality of the web site structure. We believe that this is one of the major criteria that determine the popularity of the Internet resource and its scope of influence. The access to the web site and the site's usability are not the main factors that determine the scope of the web site's social influence, which depends more on the information that the site contains. However, the indices listed below reveal the effectiveness of the information dissemination and the accessibility of the information, that is why they exert influence on the site's popularity.

We suggest evaluating the following indices of the web site:
- **The site's accessibility** (0- unavailable, <0,5- available with some problems <1- always available)
- **Information downloading time** (0- doesn't download, <0,5- normal downloading time <1- downloads very fast)
- **Usability** (0- inconvenient in use, <0,5- rather <1- very convenient)
- **Design of the site** (0- plain, <0,5-rather inviting <1- great and outstanding)
- **Time required to search for the site on the Internet** (0- impossible to find without knowing the right web-address, <0,5- possible, but it takes time <1- can be found quickly and without difficulties)

The third criterion is the site's content. Information is the key factor of the site's social influence. That is why if we estimate its quality, we'll be able to make judgements about its ability to exert social influence. We suggest using the following group of indices characterising this criterion:
- **Validity of the information** (0- can never trust, <0,5- can trust from time to time <1- can always trust)
- **Agree/ disagree with the information on the site** (0- always disagree, <0,5- agree from time to time <1- always agree)
- **Topicality of the information** (0- not topical, <0,5- topical <1- highly topical)
- **Interest to the information on the site** (0- no interest, <0,5- average <1- high)
- **Presentation form of the information** (0- inconvenient, <0,5- rather convenient <1- very convenient)
- **The frequency of discussing the information with friends/colleagues** (0- never discuss, <0,5- no more than once a week <1- more then once a week)

The fourth criterion is how recognizable is the site in the Internet and out of it. This criterion reveals also the popularity of the resource and shoes how well the potential clients are informed about the site. We suggest using the following indices to assess it.
- **How easily the site's address is remembered** (0- cannot remember, <0,5- can remember when its content has been mentioned <1-always remember)
- **How easily the site's name is remembered** (0- cannot remember, <0,5- can remember when its content has been mentioned <1-always remember)
- **How easily the authors of the articles are remembered** (0- cannot remember, <0,5- can remember when its content has been mentioned <1-always remember)
- **How easily the site's appearance is remembered** (0- cannot remember, <0,5- can remember only in a general way <1- remember in detail)
- **TV and other mass media references to the site** (0- have never come across, <0,5- have come across <1- come across quite often)
- **Web references to the site** (0- have never come across, <0,5- have come across <1- come across quite often)
- **Links to the site on other web-sites** (0- have never come across, <0,5- have come across <1- come across quite often).
- The fifth criterion is the involvement in the site. This criterion reveals best of all the site's influence on its users. The indices characterising it are listed below:
- **The content of the site** (0- I can't say what this site is about, <0,5- I can describe its content in a general way <1- I can describe its content in detail)
- **The forum on the site** (0- I never participate in the debate on the forum, <0,5- participate from time to time <1- always participate)
- **Ways to improve** (0- can suggest nothing, <0,5- can make some general suggestions <1- can describe the possible improvements in detail)

At the second stage, the assessment of the site takes place.

First of all, every criterion that was defined on the first stage is assessed by each expert group according to its value in the social influence (A). The analysis is made by the expert method. The indices of the criterion are used as factors. Hereby the quantity (X) and the value (importance) of each index in respect to the other indices are estimated (in a group of indices of a certain criterion). This is coefficient k which can have value ranging from 0 to 1.

$$A_n = \frac{\sum_{i=1}^{X} k_i}{X * k_{max}},$$ (1)

where: n – criterion of influence; k_{max} – maximum value of the index; k – the current value of the index; X – the number of indices for this criterion. Thereafter A_n value will range from 0 till 1, where 0 is the worst case and 1 is the best case. The following intervals for characterising the value of the factor groups can be used as an example: $A_n = [0.51 - 1]$ – the most value in the social influence, $A_n = [0.26 - 0.50]$ – the average value in the social influence, $A_n = [0 - 0.25]$ – the least value in the social influence.

Second, every criterion is analyzed according to its role in the Internet project (B_n). The analysis is also made by the expert method. The indices of the criterion are used as factors. Thereby the quantity (Y) and the value (importance) of each index in the Internet project (m) are estimated. The value of the coefficient m ranges from 0 to 1.

$$B_n = \frac{\sum_{i=1}^{Y} m_i}{Y * m_{max}},$$ (2)

where: n –criterion of influence; m_{max} – maximum value of the index; m_i – the current value of the index; Y – the number of indices for this criterion B_n will have the value ranging from 0 to 1, where 0 is the level of the least influence, 1 is the level of the most influence. Thereafter: $B_n = [0.51 - 1]$ – the most importance for the project's influence, $B_n = [0.26 - 0.50]$ – the average importance for the project's influence, $B_n = [0 - 0.25]$ – the least importance for the project's influence.

At the third stage we combine A_n – the value of the criterion in respect to the others and B_n – the role in the Iinternet project into C_n - the integrate index, which will be the basis for the graphic model of the effectiveness of the Internet project's influence.

$$C_n = A_n * B_n,$$ (3)

where n is the criterion number.

After that we build the graphic model of the effectiveness of the Internet project's influence based on the received values of the integrate index C_n. Its area S referred to the area of the graphic model S_{max} with the maximum possible influence ($C_n = 1$) shows the general situation with the Internet project's influence (R).

R can be evaluated in the following way: $R_{max} = 1$, a project with the absolute influence; $R = [0.51 - 1]$ – a project with a high degree of influence; $R = [0.26 - 0.50]$, a project with an average degree of influence; $R = (0 - 0.25)$, a project with a low degree of influence; $R_{min} = 0$, a project with no influence.

At the fourth stage, the three expert groups join into one and assess values for their own decision packs. Then, based on the stages 2 and 3 calculation principles, a general vision of the Internet project's effectiveness is formed.

At the fifth stage, based on the stage 4 results, conclusions are made and recommendations are developed about how to raise the Internet project's effectiveness.

In the case of quick express assessments one can miss stages 4 and 5 and work with separate group decision packs.

So, this method enables one to systematize and evaluate the social influence of web sites. The main difficulty in using this method is getting reliable initial information about the criteria and working out the measures to increase the site's influence. This function is performed by an expert, so his qualification and subjectivity should be taken into account.

However, this problem can be solved in one of the following ways: 1) The assessment can be made by a group of experts from different regions; 2) One can use the element of the fuzzy set theory – a triangular number – as a mark. Such a mark will consist of three parts that will refer to the most pessimistic, the most optimistic and the most probable (from the expert's point of view) evaluation of the risk and its meaning for the project.

In the future this method envisages its implementation in the form of a specialized information pack aimed at the enhancing of its accessibility and practical mass use.

References

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