



Monitoring of the Effectiveness of Public Relations to Optimize the Website of the Ministry of the Russian Federation for Affairs for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters

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ABSTRACT

Development of websites as an important component of Public relation-collaboration to achieve their audiences in today's information environment has become one of the defining criteria of perception of the effectiveness of state institutions activities. The study presents the initiation of market research to identify advantageous features, tools, and internet communication technologies in the activities of the five public institutions of Rostov region. Data analysis served as the justification for proposals of the expert group on benchmarking for the website of the Southern Regional Center of the Ministry of the Russian Federation for Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters.

Keywords: Expert Survey Method, Website Optimization, Online Communications, Public Relations

JEL Classifications: Z19, O10, A10

1. INTRODUCTION

Public relation (PR) on the internet is the newest and one of the most promising components of PRs. The formula for success consists in great possibilities of the internet as a communication tool. The level of interactivity and various methods for interaction with the PR object on the network is much more effective than on other media platforms, because the internet today is the global resource of information on which millions of people pay closer attention.

The Ministry of the Russian Federation for Affairs for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM of Russia) confidently uses this

data-aware platform for PR. At that, like any other field of activity this direction requires continuous perfection. To implement the best experience, let us analyze and compare the work in the field under investigation of other organizations. To achieve this goal let us start the market study (Chau, 1991; Skrynnikova, 2008).

The objectives of this market research report conducted by an expert survey and comparative analysis consisted in the determination of characteristics of websites of five state-run institutions of in the Rostov Region (RR), the designation of PR-tools used on these platforms, the identification and ranking of advantages of PR-technologies for the perfection of relations between the Southern Regional Center (SRC) of EMERCOM of Russia with its community groups.

2. MAIN PART

Before the study, it was necessary to make an expert group which participants were asked to fill out a questionnaire determining expert competence by the method of self-esteem on 15 investigated criteria. An assessment of competence was performed by using the results of the competence coefficient K counting which is calculated on the basis of expert judgments about the degree of awareness about the feasible issue and the designation of argument sources. The coefficient is calculated by the formula:

$$K_j = \frac{1}{2}(K_{uj} + K_{aj}) \quad (1)$$

Where, K_{uj} – The coefficient of awareness about the issue; K_{aj} – The coefficient of argument.

The Table 1 has presented the coefficient counting of expert competence where a mark of self-esteem from 1 to 10 has indicated that 1 is the complete lack of awareness and 10 is a specialist in the field of interest in the following areas of competence: Organization Website Design, Internet Technology, PRs, Innovative PR Technology, PR in Government Institutions (“Specific Experiment Planning Methods”, 2015). The obtained results were compared with values in the Table 1 of expert specialization preference (Table 1).

An assessment of preference of each field of competence (specialization) involves the following scale of preference:

- 2 - Expert specialization in the field is quite significant;
- 1 - Expert specialization in this field is useful;
- 0 - Expert specialization in this area is inconsiderable.

Then the coefficient of expert awareness was calculated for each individually by the formula:

$$K_n = \frac{\sum_{s=1}^m B_{sj} \alpha}{\sum \alpha} \quad (s = 1, 2 \dots m) \quad (2)$$

Where, K_{jn} is the coefficient of awareness of the j -expert about the n -question of the questionnaire 2 (criteria of the study); B_{sj} is a figure determined by an expert in the questionnaire 1 which characterizes the level of awareness of the j -expert in specialization with s number s ; α is a degree of specialization preference s for the n -criterion of the study, m is a number of fields of competence.

Then the adjustment of the received points into the range of values from 0 to 1 was conducted. Assuming that maximal competence of each expert is equal to 150 points ($K_{max_{uj}} = 10 * n$), the adjustment of a point assessment for transfer of points onto the range of values between 0 and 1 was made by K_{uj} divided by 150.

The results of all computations are fixed in Table 2.

The determination of the coefficient of argument was made by summing points on the reference table (Table 3).

The counting of the coefficient of argument was conducted by comparison of the reference table with the table filled by each

Table 1: Expert specialization preference

Field of knowledge (s)	Criteria of the study (n)														
	Usability	Website design	Structure and navigation functions	Functionality	IT security	Download speed	Segments of the internet interaction	Full disclosure	Exclusive content	Variety of PR-tools	Frequency of the news and all PR-manifestations	Interactivity	Utilitarian information	Advertising for PR	Use of the moral and ethical content for PR
Organization website design	2	2	2	2	1	1	2	2	2	2	2	2	1	2	1
Internet technology	1	2	2	2	2	2	0	1	0	2	2	2	0	1	0
PRs	0	1	0	0	0	2	2	2	1	2	2	2	2	2	2
Innovative PR	0	1	1	1	1	1	1	1	0	2	2	2	2	2	2
technology PR in government institutions	0	0	0	0	1	0	2	2	2	2	2	2	2	2	2

PR: Public relations

expert. All experts have estimated each argument source on high, average and low gradation. Then the paper has conducted the counting of the number of points conducted on all argument sources. If $K_a = 1$ a degree of the impact of all sources is high, if $K_a = 0.8$ a degree of impact of all sources is average, and if $K_a = 0.5$ it is low. The computations have revealed a high degree of an assessment of impact of all proposed sources on expert opinions (the second expert has $K_a = 0.9$, all the others have 1).

Further the paper has counted common coefficients of competence for each expert and the general coefficient of competence by summing them.

Assuming that the maximal coefficient of competence of each expert is 1, maximal total competence of an expert group is 7. In practice a group is considered to be quite qualified in the problem under study if its total competence is two thirds of greatest possible for this group of general competence. As a result, experts were competent in the field under study both individually and collectively (a comprehensive analysis of competence exceeded the minimum allowed by 28.91%). That means that the group size remained the same ("Production Management", 2016).

Thus, an assessment was conducted by seven experts, who were asked to compare websites in three directions: Technical data of a data-aware platform, the website content and advantages of used by them PR-technology. Websites of such organizations as the SRC of EMERCOM of Russia, the Chief Administration (CA) of the Ministry of Internal Affairs (MIA) of the Russian Federation for RR, the Prosecution Office of the RR, the Ministry of Economic Development of the RR, the Administration of Rostov-on-Don were subjected to the study. The study outcomes were fixed in specially developed questionnaires for this purpose.

At the first stage experts were asked to estimate the importance of criteria for the following directions: Website technical characteristics, the website content and advantages of used by them PR-technology. The sum of assigned values on each direction is equal to 100%.

Then the paper has conducted an analysis of websites and advantages of used by them PR-technology by the ranking. The experts were asked to estimate each of websites on given criteria by the rank assignment from 1 to 5 (1 - A criterion is better developed than on other websites; 5 - Criteria is developed worse than all). For equivalent criteria, according to criteria of the experts there were allowed to assign the same rank. After a survey, questionnaires were collected for the further processing. All computations were conducted by using Microsoft Office Excel.

An assessment of the congruity expert opinions was made before the measurement of expert estimates.

A degree of the congruity of expert opinions in the determination of the importance of assessment criteria was determined by the formula:

$$W = 1 - \left(\frac{\sigma}{\bar{B}} \right) \tag{3}$$

Where, σ - is a mean-square deviation; \bar{B} - is an average assessment of the figure.

A mean-square deviation is calculated by the formula:

$$\sigma = \sqrt{\frac{\sum (B_j - \bar{B})^2}{m}} \tag{4}$$

It is believed that the examination can be trusted, if a degree of the congruity of expert opinions exceeds 0.5.

The consideration of the importance of study criteria was carried out for each criterion individually by calculating the concordance coefficient. Table 4 shows the outcomes of the computation of the coefficient concordance.

Table 2: Coefficients of expert awareness

Expert No.	K_{uj}	
	In points	In view of the adjustment
1	113.04	0.75
2	106.77	0.71
3	116.80	0.78
4	102.23	0.68
5	115.42	0.77
6	106.11	0.71
7	109.73	0.73

Table 3: Reference table

Argument sources	Impact intensity		
	High	Average	Low
Theoretical framework of the issue under study	0.3	0.2	0.1
Personal real-life experience	0.45	0.35	0.15
Other practical expert opinions whose activity is connected with the field under study	0.2	0.2	0.1
Feeling	0.05	0.05	0.05

Table 4: Concordance coefficients on an assessment of the importance of criteria

Criteria of the study	W
Usability	0.71
Website design	0.74
Structure and navigation functions	0.78
Functionality	0.84
IT security	0.81
Download speed	0.79
Segments of the internet interaction	0.72
Full disclosure	0.89
Exclusive content	0.73
Variety of PR-tools	0.68
Frequency of the news feed turnover and all PR-manifestations	0.80
Interactivity	0.74
Utilitarian information	0.64
Advertising for PR	0.54
Use of the moral and ethical content for PR	0.65

PR: Public relations

Analyzing the data presented in Table 4, it can be concluded that a degree of the congruity of expert opinions on all criteria is above 0.5. That means that the examination outcomes in the field under study can be trusted.

An assessment of the congruity of expert opinions in the determination of the rank of website characteristics was made with the use of the variance concordance coefficient which is calculated by the formula:

$$W = \frac{12S}{m^2(n^3 - n) - m \left(\sum_{i=1}^m T_j \right)} \quad (5)$$

Where, m – is the number of experts; n – is the number of assessment criteria; T_j – is the indicator of connected ranks in the ranking of the j -expert.

S is determined by the formula:

$$S = \sum_{i=1}^n \left(\sum_{j=1}^m r_{ij} - \bar{r} \right)^2 \quad (6)$$

Where, \bar{r} is the average rank calculated by the formula:

$$\bar{r} = \frac{1}{n} \sum_{i=1}^m \sum_{j=1}^m r_{ij} \quad (7)$$

T_j is determined by the formula:

$$T_j = \sum_{k=1}^{H_j} (h_k^3 - h_k) \quad (8)$$

Where, H_j – is the number of groups of equal ranks in the ranking of the j -expert; h_k – is the number of equal ranks in a group of connected ranks in the ranking of the j -expert.

It is necessary that the obtained value W is greater than the predetermined value W_3 ($W > W_3$). It is usually accepted $W_3 = 0.5$, namely, if $W_3 > 0.5$ expert conclusions are agreed to a greater extent (similar in an assessment of events) than not agreed. If $W_3 < 0.5$ their estimates cannot be considered enough agreed.

An assessment of the importance of the concordance coefficient was produced by the criterion χ^2 :

$$\chi^2 = \frac{12S}{mn(n+1) - \frac{1}{n-1} \sum_{j=1}^m T_j} \quad (9)$$

The distribution χ^2 coincides with the known in the statistics Pearson distribution of χ^2 with degrees of freedom $\nu = m-1$. If the calculated value χ^2 is greater than the table one, it can be said that the significance of the obtained value W . The level of significance was accepted to be equal to 5%.

Table 5 shows the outcomes of computations of the variance concordance coefficient and calculated values.

Table 5: Values χ^2 for each criterion of the study

Objects of the study	W	χ^2
Ergonomics	0.581	16.26
Site design	0.558	15.62
Structure and navigation functions	0.589	16.48
Functionality	0.597	16.72
Information security	0.532	14.89
Download speed	0.665	18.62
Business environment interaction segment	0.538	15.06
Segment interaction citizens	0.560	15.69
Government interaction segment	0.742	20.76
Completeness of reporting	0.658	18.43
Exclusivity content	0.555	15.55
The diversity of PR-tools	0.520	14.57
The frequency of turnover of all the latest news and PR-manifestations	0.555	15.53
Interactivity	0.538	15.06
Availability utilitarian information	0.504	14.11
The presence of advertising for PR	0.730	20.44
Using the moral and ethical content to PR	0.569	15.94

PR: Public relations

The values of Table 5 show that expert opinions about the website ranking can be considered enough agreed (all $W_j > 0.5$).

Considering that the table value χ^2 at the level of the significance of 5% is 12.592, it can be said about the significance of the obtained value W because the calculated value is greater than the table one.

Then the paper has conducted a direct analysis of the outcomes of an expert survey.

As a first step generalized values of the importance were calculated by the formula:

$$\bar{B} = \frac{\sum_{j=1}^m B_{nj}}{m} \quad (j = 1, 2, \dots, m) \quad (10)$$

Where, B_{nj} – is the value of the importance of the n -criterion of the study given by the j -expert; m – is the number of experts.

Further objects are ordered in continued inequalities $B_1 < B_2 < \dots < B_n$.

The outcomes of computations are fixed in Table 6.

Thus, criteria of the study on “An assessment of website technical characteristics” determined according the ranking of the importance are as follows: IT Security < Usability < Website design < Download speed < Structure and navigation functions < Functionality.

The ranking of criteria of the importance of the study on “An assessment of website content” is as follows: Segments of the internet interaction < Exclusive content < Full disclosure.

The ranking of criteria of the importance of the study on “An assessment of advantages of used PR-technology on websites” is as follows: Advertising for PR < Variety of PR-tools < Use of the moral and ethical content for PR < Utilitarian information <

Interactivity < Frequency of the news feed turnover and all PR-manifestations.

Further the paper has evaluated website ranks. First, it has calculated the generalized ranking with consideration for a generalized degree of the importance ($\overline{B_{nj}}$) and the calculated amount of ranks assigned by all experts in all parameters:

$$\overline{r} = \sum_{j=1}^n r_{nj} * \overline{B_{nj}} \quad (j = 1, 2, \dots, n) \quad (11)$$

Where, r_{nj} – is the value of the importance of the i -criterion given by the j -expert; n – is the number of assessment criteria (“Forensic Method”, 2016).

It should be noted that $\overline{B_{nj}}$ was subjected to the adjustment to fall within the range from 0 to 1 being divided by 100.

Table 7 presents the final outcome of the website ranking of state-run institutions:

It is obvious that in the final rating the website of SRC of EMERCOM of Russia ranks first. Experts think that on this data-

Table 6: Values of the importance of each criterion of the study

Criteria of the study	Generalized values of the importance	
Website technical characteristics		
Usability	14.43	100%
Website design	15.57	
Structure and navigation functions	18.57	
Functionality	21.43	
IT security	12.86	
Download speed	17.14	
Website content		
Segments of the internet interaction	25.71	100%
Full disclosure	42.86	
Exclusive content	31.43	
Advantages of PR-technology on websites		
Variety of PR-tools	13.57	100%
Frequency of the news feed turnover and all PR-manifestations	30,00	
Interactivity	16.57	
Utilitarian information	15.71	
Advertising for PR	9.86	
Use of the moral and ethical content for PR	14.29	

PR: Public relations

Table 7: Final website ranking

Websites of state-run institutions	Common website rank	Website ranking
SRC of EMERCOM of Russia	47.94	1
CA of the MIA of the Russian Federation for the RR	64.80	3
Prosecution Office of the RR	69.48	4
Ministry of Economic Development of the RR	48.09	2
Administration of Rostov-on-Don	71.88	5

SRC: Southern Regional Center, EMERCOM: Emergencies and Elimination of Consequences of Natural Disasters, CA: Chief Administration, MIA: Ministry of Internal Affairs, RR: Rostov region

aware platform such parameters as “IT Security,” the sophistication of the internet interaction with a segment “Citizens” (G2C), “Exclusive Content,” “Variety of PR-tools,” “Frequency of the news feed turnover and all PR-manifestations,” “interactive,” “Use of the moral and ethical content for the purpose of PR” were best developed. But, nevertheless, the website can be improved on some characteristics based on the experience of data-aware platforms of other state-run institutions.

Almost all criteria under study are subjected to improvement in a group of website technical characteristics. The only exception is “IT Security” which is based on the expert review outcomes is the least important criterion in this group. The characteristic of “Usability” was better developed on websites of the CA of the MIA of the Russian Federation for the RR and the Prosecution Office of RR that means that the SRC of EMERCOM of Russia can adopt practices of these institutions.

Other characteristics can be also improved. In particular, a criterion of “Website Design” was better developed on websites of the Ministry of Economic Development of the RR and the Prosecution Office of the RR, and “Structure and Navigation Functions” - on the website of the Ministry of Economic Development of the RR.

The SRC of EMERCOM of Russia should also pay attention to such characteristics as “Functionality” and “Download Speed.” Having analyzed the way these criteria are implemented on the website and having revealed disadvantages, their removing can be done.

The study has showed that the majority of posted information on the website of the SRC of EMERCOM of Russia is addressed to the public (G2C) and poorly accommodate the interest of other community groups. It has also offered to improve this criterion by adding information that focuses on the business environment (G2B) and the government (G2G). In the opinion of experts, websites of the best of the studied sites in the area of interaction with the business environment, and, consequently, provide useful experience, are the sites of the Ministry of Economic Development of the RR and the Administration of Rostov-on-Don. The CA of the MIA of the Russian Federation for the RR, the Prosecution Office of the RR and the Ministry of Economic Development of RR should adopt the experience of the internet interaction with the Government.

In the opinion of experts in a group of criteria “An assessment of advantages of used PR-technology on websites” of the SRC of EMERCOM of Russian such characteristics as “Utilitarian Information” and “Advertising for the PR” should be improved.

The first characteristic was best implemented on the site of the Ministry of Economic Development of the RR. Any user here can find useful information without the time expenditure with the use of easy navigation and meeting needs with the information contained on the website to the needs of target audience.

The second criterion should be improved in view of the experience of a media platform (Ross, 2012) of the CA of the MIA of the

Russian Federation for the RR. First of all, we should pay attention to regularly updated banner messages to the public and written advertising often appearing when you come to interior pages of the website.

Experts were also asked to express specific, more detailed comments on the issue under study, to make their own suggestions for the improvement of the website of the SRC of EMERCOM of Russia in the field of used PR-technology or implementation of innovative PR-technology. Among the most important suggestions of experts are:

1. To create the possibility for easy browsing of the website of the SRC of EMERCOM of Russia on mobile devices, tablets and smartphones
2. To implement to the Internet platform of the SRC of EMERCOM of Russia high-tech software solutions on the example of the website of the CA of the MIA of the Russian Federation for the RR for functionality improvement
3. To output a navigation button to the visually version to more functional place for being an organization which forms the accessible environment for incapacitated people
4. To make news at the weekend (play-days for ordinary citizens). Only websites of the CA of the MIA of the Russian Federation for the RR and the Administration of Rostov-on-Don use this criterion.

As innovative PR-technology and PR-tools which can be implemented on the website of the SRC of EMERCOM of Russia experts have offered the arrangement of training video clips, online services for access to open information databases, accessibility of interactive (step-by-step) forms of making out affirmations (requests, applications), the presence of samples and examples of making out documents and applications, the website mutual transition to social networks, the input of training webinars, adding online encyclopedias, the presence of foreign language sections of the website which are filled with the most important information which is addressed to foreigners, making out a section of "Statistics" which is always interesting and confirms the motto (slogan) of EMERCOM that is "Prevention, Rescue, Help," the allocating of scratch and final data on activity

of the SRC of EMERCOM as Information graphics with direct links to them, the publication of reviews of applications to the Head of the SRC of EMERCOM with summary reports on the outcomes of consideration, a page banner with the certain content with a point "Save on your mobile phone 112. A valid number for emergency services," the adding to the website forms of the feedback "question-answer" and message board (chat forums, hot lines, advisory boards) in the online mode, the placement of information about update installations, accessibility of RSS news feeds, the opportunity for subscribing (postings) to news (update installations, announcements).

3. CONCLUSION

A comparative analysis of website characteristics of state-run institutions as the main PR-tools and techniques and revealing of advantages of PR-technology used by the SRC of EMERCOM of Russia to meet its audience needs can be considered useful. All objectives of an expert survey were completed. Considering remarks and recommendations in the field under study, PR-specialists of the SRC of EMERCOM of Russia will be able to optimize websites for the most effective interaction with different types of the public.

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