



SELECTED APPROACHES TO SUSTAINABLE DEVELOPMENT OF CORPORATE REPUTATION - EMPIRICAL STUDY OF ONLINE REPUTATION MANAGEMENT OF SUBJECTS FROM THE FIELD OF SUPPLY CHAIN MANAGEMENT

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Abstract

The paper discusses the issue of sustainable development of corporate reputation, specifically the issue of traditional and innovative approaches to reputation management. The main objective is to present the accessible ways and approaches of measuring the reputation, especially online reputation, as the current challenge for responsible and sustainable development of perceived image of subjects, as their very fragile intangible assets. The research sample was represented by the top 15 Largest transport and logistics companies in the Slovak market, selected on the basis of TREND ranking and sorted according to the revenues for the last completed financial year. Primary analysis was carried out by our own methodology. The control measurements were performed within the analysis with an aim to identify and describe relevant connections and variables for a subsequent proposal and presentation of an affordable and useful tool to measure online reputation in a turbulent environment of the Internet. The connections identified on this significant sample form the basis for formulating accurate and relevant findings and thus providing an overall and full glance on the matter of the sustainable development of corporate reputation primary in the field of supply chain management, secondary, in all relevant fields of business.

Keywords: Development, corporate reputation, reputation management, competitiveness, supply chain management, Slovakia

1. INTRODUCTION

Internet has radically affected the dynamics of corporate reputation management. With the growing consumer and media focus, businesses are finding it increasingly difficult to reach target markets in a way that generates the desired interactions. In a decentralized Internet environment, the voice of an individual can be the power of a large organization, the user is given the opportunity to present his/her opinions or attitudes. At any time, they can present their attitudes in the form of reviews, blogs, discussion posts, and so on, from the position of a journalist of their own media. They thus have the ability to judge the brand or the company itself. New communication channels have greatly affected the balance of power. As a result, the reputation of businesses is often no longer defined by their behavior and performance, but by how they are perceived by the Internet community and its reactions and interactions towards the organization. Classical approaches to public relations are far too inefficient in the Internet environment as well as top-down communication [1]. The paper discusses the issue of sustainable development of corporate reputation, specifically the issue of traditional and innovative approaches to reputation management. The main objective is to present the accessible ways and approaches of measuring the reputation, especially online reputation, as the current challenge for responsible and sustainable development of perceived image of subjects, as their very fragile intangible assets.

2. LITERATURE REVIEW

The increasing number of Internet users and the related increase in users of social networks, blogs and websites where the content is generated by the users themselves now justifies the growing importance of Internet monitoring. For this purpose, entities can use a variety of tools that continuously index new pages on the Internet and compare them with the monitored phrases such as product name, company, competitors, or any other keyword. Domestic literature discusses the issue only marginally, but from the point of view of corporate practice, we encounter a relevant and highly current level of development as such. Practitioners [2] define the term Online Reputation Management simply as ORM as a process of managing user perception on the Internet, or as a systematic monitoring of corporate reputation in as wide a range of online media as possible, and potentially influencing this reputation in the positive direction [3]. The goal of ORM is therefore to actively prevent damage to the image of an enterprise in the Internet environment. In the literature, one can also meet the term Reputation Management in the Search Engine Environment, which includes active Internet monitoring through dominant search engines such as Google, communication with target audiences, evaluation and interpretation of monitoring results, crisis management, reputation management and crisis communication. Many enterprises still do not know how to effectively build their online reputation. Online reputation management offers an effective tool to deal with a number of business-related activities in a turbulent, often unclear, social networking environment, portals, search engines, and opinion-forming media. The ever increasing number of Internet users is logically reflected in the continuous year-on-year growth of social network users, discussion forums, website and portal visitors, blog readers, bloggers themselves, and audio-visual content contributors. With the growth of these user groups, the need, importance and justification of monitoring this virtual mass media are growing. Internet monitoring does not necessarily mean hours spent in front of the monitor, there is a wide variety of automated tools to index sites, their comparison with monitored phrases in the form of product names, companies, or any relevant context in the form of keywords [2].

At the conclusion of theoretical discourse, it is necessary to be aware of the key facts based on empiricism and the continuous study of online reputation management by domestic and foreign authors [2,3,4]:

- ORM is not a one-time activity that needs to be done from time to time, it is a continuous and never-ending process.
- Since an honest attitude is the best approach, justification is the best response to legitimate customer reservations about the products offered by the company.
- The processes of the brick&mortar world, although in the virtual world, may not produce the desired results, of course that does not mean that the brick&mortar world can be neglected in the virtual reputation management process.
- Recognition of errors is appropriate as it is impossible to hide them in a virtual environment. Concealing or denying reality is a direct way to inevitably damage reputation.
- Ignoring negative reactions is dangerous, deleting reactions is unacceptable.

Another important question is the issue of measuring the online reputation. Literature offers us many points of view and approaches like Systems based on summing up and averaging [5], Recommendation systems [6], Sentiment analysis [2,7,8,9]. For the purpose of our research, we will use the Multifactor sentiment analysis. According to Sasko [2] and Pollák et al. [9], multi-factor sentiment analysis is designed to accurately measure the overall online reputation of entities [10]. On the basis of the last-mentioned methodologies, we developed our own TOR methodology that we present in the research as default option form measuring overall online reputation on selected subjects.

3. MATERIALS AND METHODS

The primary aim of our research, presented in the given paper is the form of empirical study, is to point out to accessible ways and approaches of measuring the reputation, especially online reputation, as the current



challenge for responsible and sustainable development of perceived image of subjects, as their very fragile intangible assets. The research sample was represented by the top 15 Largest transport and logistics companies in the Slovak market, selected on the basis of TREND [11] ranking and sorted according to the revenues for the last completed financial year. Primary analysis was carried out by our own methodology, for the purpose of this research we used methodology of modified multi-factor sentiment analysis on which we would like to demonstrate model option for measuring total online reputation (TOR) of selected entities. Methodology used in the TOR index uses n-factors. The first step analyses the sentiment of the first 10 results on Google (ASA) by the methodology of nonautomated sentiment analysis [2,9]. Quantification is then ensured by unifying the scores into the percentage form. This is based on the assumption that entity may receive a maximum score of 155 points - the ratio 1 point = 0.645 %. Second step identifies the determinants of online reputation, the reputators. Reputator can be any determinant that can objectively affect the perceived online reputation of the entity, while its value can be quantified as a percentage. Normally these are important web pages, catalogs or social networks that can significantly affect the reputation of the entity. Given the various business fields entities operate in, reputation determinants cannot be clearly defined in advance. In terms of advantage quantification, it is possible to approach individual reputation determinants by its direct quantification or calculation of reputators' competitive score - the size ratio of its own tribe indicated as the total number of subject followers/fans/subscribers/to the total amount of tribes of all tested subjects. In our analysis we used both perceptions, direct and indirect. Direct perception was calculated from subjects' Google rating by unified this rating into percentage, indirect perception was represented by Facebook competitive score (FCS) based on tribes of each subjects [12]. In the third step we can calculate the total advantage of the entity's online reputation with regard to its pre-defined competitors. Standard equation [9] features specific determinants of online reputation and their weight. The basic reputation determinant is the ASA percentage score. The equation allows us to take into account any number of other reputation determinants. For the calculation itself it is necessary to determine the weights of individual reputation determinants which are normally determined depending on the subject and target market. If the weight of individual reputation determinants is not known in advance, the simplified formula for calculating the overall online reputation is as follows (1):

$$TOR = \frac{R_{ASA} + \sum_{i=1}^n R_i}{n + 1} \quad (1)$$

where:

- TOR - total online reputation in %,
- R_i - reputator (% score based on a given i -th determinant of online reputation),
- R_{ASA} - reputator ASA (% score based on the advanced sentiment analysis)
- n - number of indicators.

In this case, the value of the overall online reputation of an entity (TOR) is the arithmetic mean of individual indicators. Relations among factors (online reputation score based on the sentiment analysis compared to the indices of reputation offered by the main internet players, such as Facebook and Google provide as a part of their ratings) were then examined in thorough statistical testing using non-parametrical methods, such as Kendall rank coefficient, in order to identify and describe basic facts affecting online reputation of selected entities in the hypercompetitive market environment of the internet.

4. RESULTS AND DISCUSSION

Using the sentiment analysis, we calculated partial score (ASA) presenting the power of online reputation of entities based on the nature of the first 10 google search results. Google and its search results are, however, only one of many ways in which potential customers can access relevant information. Considering the previous



researches [9,10], we identified the following other determinants of online reputation (reputators) of our entities, in particular:

- Facebook Competitive Score (number of fans);
- Google rating (users/customers review in stars).

The **Table 1** presents partial results - measured values of individual determinants/score of partial reputators of online reputation/as well as score of total (overall) online reputation.

Table 1 Overall (Total) online reputation [own study]

No.	Subject/ Result sentiment	ASA score (%)	FCS score (%)	Google rating (%)	Number of pages indexed by Google	Revenues 2017 (EUR)	TOR score (%)
1.	Slovenská pošta	24.51	0.35	62.00	7,240,000	301,559,000	28.95
2.	Železničná spoločnosť Cargo Slovakia	28.38	0.08	74.00	227,000	269,359,000	34.15
3.	Budamar Logistics	10.32	0.00	84.00	17,700	175,510,074	47.16
4.	Gefco Slovakia	11.61	0.64	80.00	354,000	150,314,558	30.75
5.	Metrans /Danubia/	18.06	0.00	68.00	15,000	149,435,447	43.03
6.	Samsung SDS Global SCL Slovakia	13.55	0.00	60.00	13,400	137,864,614	36.77
7.	Železničná spoločnosť Slovensko	26.45	5.67	46.00	572,000	102,446,000	26.04
8.	STD Donivo	28.38	0.27	72.00	63,400	87,530,131	33.55
9.	Šped-Trans Levice	8.39	0.00	88.00	17,300	78,211,787	48.19
10.	Dalitrans	33.54	0.00	86.00	12,000	76,353,762	59.77
11.	DHL Express (Slovakia)	18.06	15.84	84.00	7,830,000	86,778,409	39.30
12.	DHL Logistics (Slovakia)	18.06	77.12	90.00	600,000	74,355,342	61.73
13.	Toptrans EU	8.39	0.02	52.00	300,000	66,517,985	20.14
14.	DHL Exel Slovakia	15.48	0.00	100.00	38,800	61,237,249	57.74
15.	Travel Service Slovensko	30.32	0.00	0.00	116,000,000	58,927,081	30.32

The first groups of measurements under the sentiment analysis takes into account the first 10 Google search results. As a keyword we used the well-known and well-established name of the entity. The final score for each of the entities has been thoroughly recorded. Based on the analysis we found that in terms of the online identity of the research subjects, the first places in the search results are dominated by websites owned or managed by particular subjects. The dominant sentiment group consisted of search results with neutral sentiment. In the second step of the analysis we identified dominant reputation determinants based on the reference researches. Reputators include the social networking site Facebook and main player in the field, Google in the form of it reviews. With regard to the number of fans on Facebook, the highest numbers scored DHL Logistics (global profile) with more than 600,000 fans followed by DHL Express (global site) with more than 100,000 fans. On the 3rd place we can find first local profile/company, namely Railway Company Slovakia with almost 50,000 fans. When it comes to Google, the clear winner is DHL Exel Slovakia followed by DHL Logistics. With regard to the overall strength of online reputation, DHL Logistics is a clear winner, especially given the complexity with which the global brand approaches modern marketing communication tools.

We consider necessary to examine the correlation between reputation determinants. Partial scores of entities from individual reputators were statistically tested in order to determine whether on the chosen significance



level there is a statistically significant correlation between scores of entities achieved with various reputators and score achieved through sentiment analysis. Last but not least variables such as the score achieved through the sentiment analysis and the number of pages indexed by Google, containing a generally used the name of an entity as the key word, were statistically tested. The **Table 2** presents partial results:

Table 2 Dependencies between variables [own study]

Variables	Valid N	Kendall Tau	P-level
ASA & FCS	15	0.0981	0.6098
ASA & Goolge rating	15	0.2843	0.1395
ASA & No. of Google pages	15	0.2732	0.1556
TOR & Revenues	15	0.6761	0.0004

As is apparent from the table, at the selected level of significance for all tested individual variables the p-value is significantly larger than the selected α -value at the level of 0.05. Therefore, we can say that at the chosen level of significance we cannot confirm the statistically significant relationship between the individual variables tested by us. This leads us to assume the independence of individual reputators. From the point of view of reputation management, it is therefore necessary to devote individual attention in terms of time, finance or overall effort to each of the reputators. From the point of view of the statistically significant relationship between the Revenues and Total Online Reputation, we cannot reject the statistically significant relationship between the variables at the selected level of significance. This finding is considered particularly interesting and suitable for deeper research.

5. CONCLUSION

Based on the findings, we can conclude that sustainable development of corporate reputation combines offline and online techniques, as the both worlds are connected. Even though different environments require specific approaches, recorded different dynamics, and required specific tools, the network between them is very strong. It is almost impossible to be a star only in one world. However, by its nature, online reputation is more fragile. From the point of view of the sustainable reputation management of the examined subjects, the transport and logistics companies from the top places of the ranking have undoubtedly a notable advantage from the point of view of online reputation for general public from the ranks of the Internet users. If a user is searching for relevant information and at the same time does not have his/her own experience with a particular subject, in the absence of positive reputators, his/her perceptions of the particular subject can be significantly deformed despite the enormous endeavor and physical demonstration of the perfection of the subject in the traditional world. By eliminating negative publicity while maximizing positive media outputs in opinion-forming Internet media and displacement of neutral or negative search results to irrelevant positions, presented by the second to n-th side of Google search results, entities will positively contributes to the development of their corporate reputation and maximize their market advantages against their competitors.

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