



## EMPIRICAL STUDY OF ONLINE REPUTATION MANAGEMENT OF ENTITIES IN THE FIELD OF SUPPLY AND DEMAND CHAIN IN SLOVAKIA IN THE CONTEXT OF INTERYEAR DEVELOPMENT

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### Abstract

The aim of the study is to provide an analytical view to the gradual development in the issue of online reputation management of courier, delivery and shipping companies, or the entire logistics chain associated with the electronic commerce ecosystem. The research is carried out as a follow-up to the previous year, in which basic measurements were implemented to define the initial state of the topic. The paper deals with the issue of sustainable development of the corporate reputation of courier, delivery, and shipping companies in Slovakia, specifically their corporate reputation in the context of the online environment. The research sample consists of the selected 7 companies, belonging to the courier, delivery, and shipping companies and at the same time operating on the Slovak market. Their selection is made based on the level of online reputation from the original 23 element set compiled by the Slovak online magazine Retailmagazin in the second half of 2021. The results of the study represent the gradual phase of examining the issue of reputation management in the field of logistics chains. The findings identified from the sentiment analysis provide an up-to-date and relevant view of the issue of sustainable corporate reputation and at the same time provide a knowledge base for continuous research into the impact of the pandemic on supply chain management, as well as an empirical basis for applying knowledge to business practice.

**Keywords:** reputation, reputation management, competitiveness, supply and demand chain management, Slovakia

### 1. INTRODUCTION

The issue of managing the supply-customer chain has been the subject of intensive research since the beginning of the first entities that defined the field of electronic commerce. Developed and developing markets have undergone a significant transformation in the last two decades [1-2]. This mainly consisted in the application of procedures and tools for shortening reaction times [3]. However, increasing the quality perceived by the customer is not only the domain of objective indicators. The objectified image of the subject's quality is made up of various variables [4]. These variables show a considerable degree of dynamics over time. It is the dimension of dynamics that plays a decisive role in the value chain management process. Thus, the research problem of the study is identified in accordance with the current challenges of the issue. We formulate it in the statement that market dynamics and the development of controllable variables in the process of reputation management play a significant factor of change in brand development. At the same time, we place this research problem in the context of the resounding global pandemic of the disease COVID-19, which has contributed to the development of the field of supply-customer chains in an unprecedented way [4]. The research question is formulated as follows:



To what extent did the ongoing pandemic affect the year-on-year changes in the level of online reputation of selected entities of the supply-customer chain operating in the developing market of the Slovak Republic?

The study is divided into five parts, the introduction is followed by an overview of theoretical knowledge, which smoothly transitions into a description of the goals and methods that are used for the own empirical research. As a reference framework, we use the dataset that was developed in 2022 [5]. It is compared over time with the current empirical collection, to identify the basis for the creation of development trends. The results and discussion are subsequently supplemented by a conclusion that summarizes the most important findings in the context of the topic in a clear way.

## 2. LITERATURE REVIEW

In an ever-changing global environment, corporate reputation plays a important role for all organizations for which client trust is very important and mistakes are not tolerated [6]. The perception of reputation in the service industry is considered an interdisciplinary category, as it is based on the knowledge of marketing management, psychology, behavioral sciences, strategic management, human resource management [7], and other economic or managerial disciplines. The risk of quality reduction and, consequently, the loss of the organization's good reputation are associated with costs, which arise either in the form of a reduction in staff productivity, disruption of demand and availability of services, or ultimately damage to products as such. On the contrary, with an increase in customer satisfaction and loyalty comes a positive reputation that allows the organization to attract talented employees, penetrate global markets, tolerate adverse situations that the organization may face in the future, contribute to the improvement of the crisis management process, and thus gain a sustainable competitive advantage [6, 8-9]. To build corporate reputation, organizations can choose from different branding models, whether they want to focus on the main brand of the entity (monolithic model), prioritize the brand of divisions (endorsement model) or add equal weight to all brands (mixed model) [10-11]. Regardless of the chosen model, organizations must constantly monitor changes in customer expectations and adapt company values to new challenges in a rapidly changing market and service industry. Planning without control is only illusory, therefore it is necessary to evaluate the effectiveness of spent resources in time. In the online environment, sentiment analysis is one of the most reliable tools, furthermore, sentiment-analysis technologies are valuable tools for business intelligence tasks, including reputation management and market trend prediction [12]. With this instrument, we implement empirical data collection for their subsequent year-on-year comparison.

## 3. MATERIALS AND METHODS

The main goal of the presented study is to provide an analytical view of the online reputation of courier, delivery, and shipping companies operating in the Slovak market, which is the basis of the initial research problem, and thus clarify how courier, delivery, and shipping companies are presented in the online environment. The research sample will consist of 7 courier, delivery, and shipping companies operating on the Slovak market selected. Their selection is made based on the level of online reputation from the original 23 element set compiled by the Slovak online magazine Retailmagazin in the second half of 2021 [13]. A simple sentiment analysis [14] will be chosen as the basic methodological tool for empirical analysis, which can be quantified according to sentiment, respectively, the polarity of the top ten search results of a particular entity in a Google search, the level of its online reputation. Sentiment analysis [15] is a valuable tool for reputation management across various sectors and organizations utilize sentiment analysis to monitor online media effectively and extract user opinions. The subject's own name will be used as a search phrase, respectively, company name. Subsequently, the search results in each of the ten positions will be quantified based on the following key:



**Table 1** Sentiment rating point scale

Sentiment/Position result	1	2	3	4	5	6	7	8	9	10
Positive sentiment (+)	20	19	18	17	16	15	14	13	12	11
Company owned website (x)	10	9	8	7	6	5	4	3	2	1
Neutral sentiment (±)	2	2	2	2	2	2	2	2	2	2
Negative sentiment (-)	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11

Therefore, to minimize the adaptation, respectively, personalization of results, the mode of anonymous browsing during the search will be chosen, while only the results of the organic search will be quantified. Results marked as ads will not be considered. If there are more links to the test subject's own website within the search results, the second to n-th search results of this type will be attributed to neutral sentiment. The polarity of the result will be determined based on the data available from the search result link. The same procedure will be followed in the analysis of each of the evaluated entities, where a partial reputation indicator will be determined for each of the positions and in the next step the total value will be created from their sum. The aggregate value for each test subject will then be converted to a percentage. Each of the examined subjects will be able to reach the max. 155 points, which will be 100% in percentage terms, with one percent being 0.645 points. The ranking providing an overview of the mutual position of the tested subjects (SA score) will be compiled based on the total percentage of online reputation.

#### 4. RESULTS AND DISCUSSION

Subjects were subjected to a simple sentiment analysis of the first ten Google search results. At the same time, the results were compared year-on-year. The table of results is as follows:

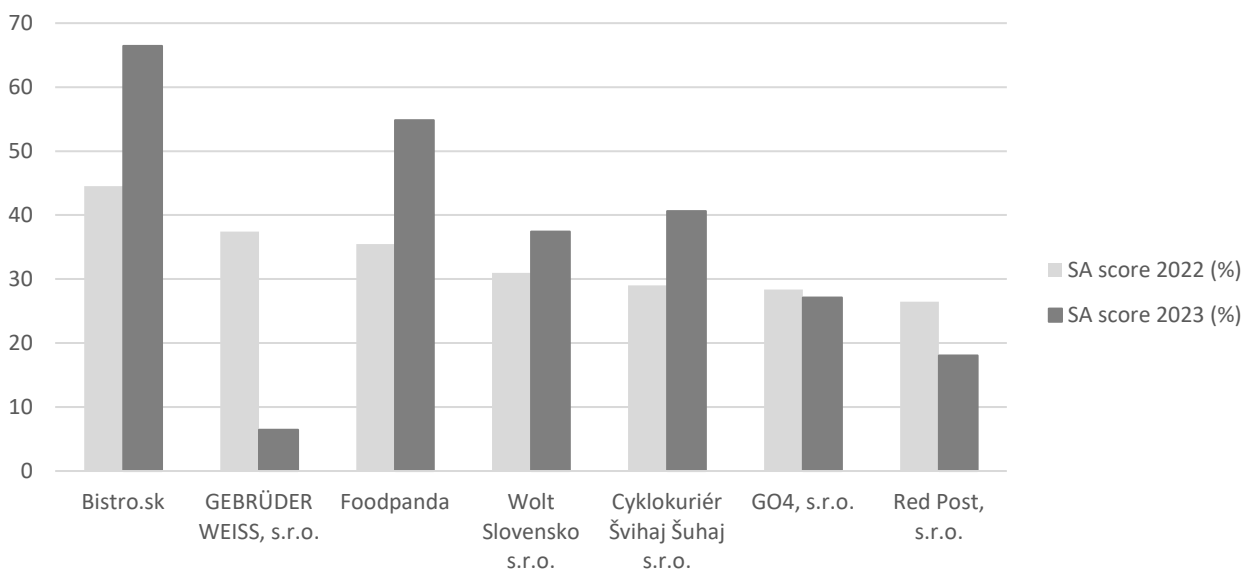
**Table 2** Sentiment analysis over time

No.	Subject/ Result sentiment	SA score	SA score	Year-to-year
1.	Bistro.sk	45	66	↑
2.	GEBRÜDER WEISS, s.r.o.	37	6	↓
3.	Foodpanda	35	55	↑
4.	Wolt Slovensko s.r.o.	31	37	↑
5.	Cyklokuriér Švihaj Šuhaj s.r.o.	29	41	↑
6.	GO4, s.r.o.	28	27	↓
7.	Red Post, s.r.o.	26	18	↓

Regarding the qualitative evaluation of the results of the empirical analysis of the level of online reputation of selected subjects based on sentiment analysis in 2023, the individual subjects show the following values: Bistro.sk - The subject's own page is in first place, followed by links to Google play, Facebook profile, Instagram profile, Wikipedia, and Apple App store. All links are assigned positive sentiment levels on positions. In the



seventh to tenth positions, we find links to catalog portals and registers of financial indicators, we assign a neutral sentiment to these links. GEBRÜDER WEISS, s.r.o.- The company's own website is in the first place. It is followed by mostly neutral references. In fifth place, however, we find a low rating of the subject on one of the catalog pages. The order is closed by occurrences with a dominantly neutral sentiment. Foodpanda- The first place in the search results is the company's own page, it is followed by two variants of the own page in the second and third positions, we attribute a neutral sentiment to such results. The following is a link to Google play with a high rating. The following are two links linking to news about the rebranding of the entity under the global brand. Due to the indefinite choice of words, we classify both occurrences as neutral. This is followed by a positive rating on the Apple app store, this is followed by a mention of connecting companies with an optimal choice of words. The evaluation is completed by two positive links, while the link in the tenth position links to the subject's Instagram profile. Wolt Slovensko s.r.o. - On the first page there is a link to the register of financial indicators, the subject's own page is only the second occurrence in the order. The following three links link mostly to accounting information. In the sixth position, we find a link to the platform for job offers. We find the first occurrence of positive sentiment only in the seventh position. The eighth position is again neutral, while the rating is closed by two links of positive sentiment. Cycle courier Švihaj Šuhaj s.r.o. - The entity's own website is on the first position. This is followed by a link to the register of financial indicators. This is followed again by the subject's own side, while we again attribute to such an occurrence a neutral sentiment of the result. In the fourth position, there is again a link to the register of financial indicators. The first positive sentiment is found on the fifth row of the search results. This is a link to a Facebook profile additionally containing a positive rating. A neutral reference follows, followed by a reference of a positive nature. It is a link to the subject's profile on LinkedIn. Two neutral messages in the eighth and ninth positions precede the positive sentiment message on the job posting platform. GO4, s.r.o. - The subject's own page is followed by links of dominantly neutral sentiments. We find positive sentiment in the fifth position. In the sixth to tenth positions, we find links of neutral sentiment. Red Post, s.r.o. - The first in the order is the subject's own page, it is followed by links that we classify as neutral, these are mostly links to financial indicators or formal information about the company. From the point of view of year-on-year comparisons, the situation is presented through the following figure:



**Figure 1** Evolution of the level of online reputation over time

Regarding the development of the indicators over time, four out of seven entities record an increase in the level of their online reputation across the measurements. Two subjects recorded a slight decline, while one of the subjects, namely GEBRÜDER WEISS, s.r.o., the second in order of online reputation level in 2022, saw a



massive drop in reputation from 37% to 6%. We can proceed to answer the research question, i.e.: To what extent did the reverberating pandemic affect year-on-year changes in the level of online reputation of selected entities of the supply-customer chain operating in the developing market of the Slovak Republic? The fading pandemic had a positive impact on the level of reputation of most evaluated entities in the sample. Subjects across measurements were able to stabilize their reputation level, recording gradual growth in 4 out of 7 cases. However, in the level of reputation, based on a simple sentiment analysis, we find signs characteristic of emerging markets [15]. With this statement, we can proceed to drawing conclusions.

## 5. CONCLUSION

Entities operating in the field of consumer-customer chains were exposed to an unprecedented situation during the pandemic. Demand for their services under the pressure of a collapsing brick and mortar market facing controlled closures has created extreme pressure on their offline and online infrastructure. The situation stabilized with the gradual retreat of the pandemic. However, the consequences of the long Covid are visible in almost all industries. By analyzing the data over time, a trend of a gradual return to normal was identified, with subjects in the sample gradually increasing their reputation level. In any case, both the subjects and the market are showing significant signs of catching up. In principle, the unmanaged nature of search results within the Google ecosystem creates room for significant reputational threats in the future. Only with a systematic approach to reputation management, both offline and online, will it be possible to prevent the risk of reputational losses in the future. Further investigation will be necessary to identify more complex development trends. The need for such research is also a great perspective for the development of the issue as we identify it in our study. As for the limitations of the research, we see them mainly in the qualitative dimension of the datasets, at the same time in the significantly localized nature of the evaluated subjects. Limitations can be removed, until the time of their removal the results have a dominantly qualitative and geographically specific character.

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## REFERENCES

- [1] GUSEVA, N. Cultural Aspects of Decision-Making in Online Purchases. *Market- Tržište*. 2013, 25, pp. 8–21.
- [2] AL-ADWAN, A.S., KOKASH, H. The Driving Forces of Facebook Social Commerce. *Journal of Theoretical and Applied Electronic Commerce*. 2019, 14, pp. 15–32.
- [3] ZHANG, D., ZHANG, F., Liang, I. An evolutionary model of the international logistics network based on the Belt and Road perspective. *Physica A: Statistical Mechanics and its Applications*. 2021. Vol. 572. 125867.
- [4] GARCIA-FERNANDEZ, M., CLAVER-CORTES, E., RARI, J.J. Relationships between quality management, innovation and performance: A literature systematic review. *European Research on Management and Business Economics*. 2022. 28(1). 100172.
- [5] KONEČNÝ, M., VILÁGI, R., KOSTIUK, Y., POLLÁK, F. Empirical study of Online Reputation Management of entities in the field of supply and demand chain in Slovakia. *CLC 2022- 10th Carpathian Logistics Congress*. 2022. Vol. 10. pp. 20-24.
- [6] DENIZ, S. The Relationship Between Perception of Corporate Reputation and Turnover Intention: Results from Turkey. *Journal of Health Management*. 2020. 22(1), 103–113
- [7] MICHALOVÁ, V. *Manažment a marketing služieb*. Bratislava: Ekonomická univerzita v Bratislave. 2006.
- [8] ARIKAN, E., KANTUR, D., MADEN, C., TELCI, E.E. Investigating the mediating role of corporate reputation on the relationship between corporate social responsibility and multiple stakeholder outcomes. *Quality & Quantity*. 2014. 50(1), pp. 129–149.



- [9] KARATEPE, S. OZAN, M. S. Kurumsal Sosyal Sorumluluk ve Kurumsal İtibar İlişkisi Üzerine Bir Değerlendirme. *Akademik Yaklaşımlar Dergisi*. 2017. 8(2). pp.80-101.
- [10] MEDINA AQUERREBERE, P. The impact of social media in branding communication of Spanish hospitals. *AdComunica. Revista Científica de Estrategias, Tendencias e Innovación En Comunicación*. 2018. 15, pp. 215–233.
- [11] BUCKLEY, P. *The complete guide to hospital marketing*. (2nd ed.). 2009. Marblehead: HCPro Inc.
- [12] XIANG, Z., SCHWARTZ, Z., GERDES, J., & UYSAL, M. 2015. What can big data and text analytics tell us about hotel guest experience and satisfaction?. *International Journal of Hospitality Management*, 44, 120-130.  
<https://doi.org/10.1016/j.ijhm.2014.10.013>
- [13] TURZO, J. *Aké kuriérske spoločnosti pôsobia na Slovensku?* [online]. 2021 [viewed: 2021-10-07]. Available from: <https://www.retailmagazin.sk/logistika/preprava/5797-ake-kurierske-spolocnosti-posobia-na-slovensku>.
- [14] EIMURNGI, E. I., GHERBI, A. 2018. Unfair reviews detection on amazon reviews using sentiment analysis with supervised learning techniques. *Journal of Computer Science*, 14(5), 714-726.  
<https://doi.org/10.3844/jcssp.2018.714.726>
- [15] TERBLANCHE, M., MARIVATE, V. 2021. Towards financial sentiment analysis in a south african landscape..  
<https://doi.org/10.48550/arxiv.2106.10004>