Issue of Online Reputation of Electric Vehicles - Selected Views and Perspectives in the Context of Interyear Development

František Pollák,[1] Peter Markovič,[1] Róbert Világi,[1] Michal Konečný,[2] Kristián Kalamen[1]

[1] University of Economics in Bratislava, Faculty of Business Management, Dolnozemská cesta 1, 852 35 Bratislava, Slovakia
frantisek.pollak@euba.sk, peter.markovic@euba.sk, robert.vilagi@euba.sk, kristian.kalamen@euba.sk
[2] Institute of Technology and Business in České Budějovice, Faculty of Corporate Strategy, Okružní 517/10, 370 01 České Budějovice, Czechia
michal.konecny@mail.vstecb.cz

Abstract The study is to provides an analytical view to the gradual development in the issue of online reputation management of selected EV manufacturers. The research is carried out as a follow-up to the previous year, in which basic measurements were implemented in order to define the initial state of the topic. The research is also carried out with a view to new energy challenges in the period of a possible onset of recession. Active marketing communication, as well as a holistic approach to brand management, represents a proactive approach to solving global challenges. In this approach, creating and sustaining digital communities that form the backbone of brand identities in online markets is still a challenge. The results of the study represent the gradual phase of examining the issue of reputation management of entities operating in the field of low-carbon economy.

1   Introduction

The issue of the development of electromobility is more than relevant at the time of the transition to a low-carbon economy and green technologies. Despite the continuous efforts of the authorities across developed and developing markets and increasing year-on-year sales, the overall penetration of electric cars is relatively low. From the point of view of the European market, the exception is mainly the Nordic countries, where electric vehicles (EVs) prevail over vehicles with a classic internal combustion engine (ICEVs) in new car sales (Klesty, 2023, Cbsnews.com, 2023). To what extent it is accelerated by subsidy schemes is questionable.

In any case, consumer behavior is not only shaped by external stimuli. Customers' motives for purchasing an electric vehicle are diverse (Priessner, Sposato, Hampl, 2018, Tanţău, Gavrilescu, 2019, Bobeth, Kastner, 2020). Technology enthusiasts from the first decade of the twenty-first century gradually gave way to early adopters and then to the early majority. However, the electrification of mobility does not only take place through battery-powered cars, micro mobility and public transport have also contributed to green awareness (Pollák et al., 2021a). In general, it is possible to follow the continuous development of the issue as such. However, how significant this development is in relation to the overall market is questionable. It is also questionable to what extent it is possible to predict the growth parameters of the market in a time of turbulent changes from the point of view of the economic availability of selected energy carriers. Especially when it comes to a market showing signs of catching up. For the needs of the conducted study, we identify a research problem at the level of year-on-year change in the parameters of the reputation of selected representatives of the electric vehicle industry in the catching-up market. In this way, we build on previous research (Pollák et al., 2022) and create conditions for continuous investigation of the issue as such. We decompose the research problem into a research question as follows:

Has there been a year-on-year change in the level of online reputation of selected electric vehicles?

The goal of the study is thus to create a basic empirical framework for examining the issue of acceptance of electric cars and electromobility in catch-up markets without significant primary stimulation of consumption through direct subsidies.

From the point of view of the construction of the study itself, we follow the introduction by describing basic theoretical frameworks such as online reputation, electromobility and micro mobility. Subsequently, using a standardized methodology for sentiment analysis (Pollák 2015, Pollák, Dorčák, Markovič 2021b), we analyze the current status of the online reputation of selected electronic vehicles in Slovakia, designated as the best electric cars of 2021 by the Mojekektromobil.sk portal (2021). The current state will be compared with the state identified in 2021 as part of the baseline study (Pollák et al., 2022). The findings will be discussed and then evaluated in the context of the investigated issue. At this point, it is possible to proceed with the description of selected theoretical framework.

2   Current state of knowledge of the analyzed issue

At this point, we follow up the introduction by describing basic theoretical frameworks such as online reputation, electromobility and micro mobility.

2.1   Online Reputation

Jones et al. (2009) as well as Janouch (2011) and Loayza (2013) describes online reputation as the overall presence of a particular subject on the Internet. At present, from a layman's point of view, presence on the Internet is equal to presence on social media, and from a professional point of view, this view is to a large extent limited.

Reputation is not only the domain of social platforms, but also created primarily by users sharing their attitudes and following their interactions through a wide range of tools (Weber, 2013) such as search engines, catalogues, forums, blogs, and so on. Due to the instrumental variety of marketing in the Internet environment, it is recommended that the subjects use the largest possible number of these sub-tools as part of their marketing communications. There is pressure on active marketing communication to eliminate potential threats caused by content moderation or the complete passivity of the subject. The contrast of "one" negative mention in the context of dozens of positive messages will greatly reduce the risk of a long-term damage to the reputation of the subject. Kanika (2016) notes that the concept of online reputation covers a wide range of aspects of the business presentation in the Internet environment. Online reputation is therefore a direct consequence of the

enterprise's action on the Internet. It includes the actual performance of the company, but also the interaction of the company with potential as well as actual customers. Submitting a question about the importance of online reputation for business itself has long been inappropriate. It is more than desirable for businesses to actively manage their virtual reputation without delay. Managing the online reputation of the company, respectively of specific products, is therefore a necessity rather than an option.

2.2   Micromobility as an accelerator of adopting Electromobility

At the end of the second decade of the twenty-first century, the United States was experiencing a micro-mobility revolution. In a relatively short time, US cities were fully saturated with short-term rental scooters owned and operated by start-up companies. The goal of these companies was to challenge the traditional players of urban transport to a competitive battle. These scooter-sharing services were presented as an alternative to traditionally state-funded programs. However, the assessment of the impact of these alternative forms of transport is rather unclear (McKenzie, 2019). Electric scooter sharing systems have been widely adopted in many cities around the world and are attracting an increasing number of users. Huo et al. (2021) collected data on this type of transportation from five US cities, namely Austin, Minneapolis, Kansas City, Louisville, and Portland, to examine the effects of the built environment on the number of users after controlling for socioeconomic factors. As for the number of users, it was higher in universities and town centers. In terms of the results of a multilevel negative binomial model, the authors found that ESS roads were positively correlated with population density, employment rate, intersection density, mixed land use entropy, and bus stop density in a census block group. Another finding was that the number of electric scooter riders is negatively correlated with the median age of the population and the distance from the city center. Micro-mobility is assumed to reduce many of the challenges that big cities face today and offer a path to more sustainable urban transport. Eccarius and Lu (2020) dealt with the factors that influence college students' intention to use an electric scooter sharing service. They used a theoretical framework adapting the theory of planned behavior. They collected responses from 471 university students in Taiwan. The data were subsequently analyzed using factor analysis and structural equation modeling. Respondents with different levels of intention to use the service

F. Pollák, P.Markovič, R. Világi, M. Konečný, K. Kalamen:
Issue of Online Reputation of Electric Vehicles - Selected Views and Perspectives in the Context of Interyear Development

905

and at different stages of behavior change show different patterns of reasoning. The lack of perceived compatibility with personal values, mobility needs and lifestyle result in a low intention to use the given service, which applies also to pre-contemplators who show signs of a kind of green hypocrisy. Therefore, awareness of the sharing system and environmental values indirectly influences the formation of the intention to use this form of transportation. Yang et al. (2020) reviewed a set of reported data to document crash patterns related to the use of electric scooters. Specifically, they analyzed extensive media reports to create a crash dataset. Key elements of the crash, such as rider demographics, crash type, and crash location, were summarized in an information table for the purposes of the analysis. From 2017 to 2019, 169 accidents involving electric scooters were reported in the country. Through descriptive analysis and cross-tabulation analysis, different characteristics of these reported accidents were determined. Overall, there has been an increasing trend in the number of reported accidents involving electric scooters, which are unevenly distributed across states.

Based on the analysis of the state of knowledge, it can be concluded that micro-mobility as a factor accelerating the adoption of electric mobility has rather a popularizing character. Getting into the habit of a green transition will take time. This situation is described in the context of developed markets. Developing markets create additional challenges. Regardless of the nature of the market, however, it is possible to state that, the uneven distribution of e-mobility users in the population leads to the assumption that the primary acceleration of adoption will be directed at the next generation of consumers, while the secondary acceleration will take place through the ambassadors of the trend to potential users only indirectly. The Internet and the positive online reputation of electric cars is proving to be one of the important factors supporting the adoption of green trends.

3   Materials and Methods

The main goal of the presented study is carried out a follow-up empirical research to provide an analytical view of the issues of online reputation of selected electric vehicle manufacturers at a time of impending recession. The issue is examined in the context of the developing market of the Slovak Republic. The identified research problem is based on the main goal of the study, with the baseline study considered

(Pollák et al., 2022). It is a matter of clarifying how authentic electric vehicles are presented in the online environment of an evolving market, considering interannual changes and with the ambition of describing basic development trends. The research group includes all electric cars that are available on the market of the Slovak Republic. The research sample consists of 10 electric vehicles, marked by the portal Mojelektromobil.sk (2021), as the best electric cars for 2021. The basic methodological apparatus for empirical analysis is a simple sentiment analysis (Pollák 2015, Pollák, Dorčák, Markovič 2021b), through which it is possible to quantify the level of online reputation according to the sentiment (polarity) of the first ten Google search results of a particular subject. The subject's own name, in this case the brand of the electric car, serves as the search phrase, then the search results in each of the ten positions are quantified according to the key presented by the following table:

Table 1: Sentiment analysis

Sentiment / Position of the result	1	2	3	4	5	6	7	8	9	10
Positive sentiment +	20	19	18	17	16	15	14	13	12	11
Custom web site of the organization 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

Source: Pollák (2015)

In order to minimize the customization of the results, the anonymous browsing mode is selected during the search, at the same time only the organic search results are quantified. Results marked as ads are not considered. If multiple occurrences of the test subject's own website are recorded in the search result, a neutral sentiment is attributed to the second to nth search results of this nature. The polarity of the result is determined based on data that are directly visible from the link, so it is mainly the title and perex. The same analysis is prepared for each of the evaluated entities, a partial reputation indicator is determined for each of the positions, and subsequently a total value is created by their sum. The aggregate value for each of

the test subjects is converted to percentages. We assume that each subject can achieve a maximum of 155 points, which is 100% in percentage terms. One percent is therefore proportional to 0.645 points. Based on the overall percentage of online reputation, it is possible to compile a simple ranking that will provide an overview of the mutual position of the tested entities (SA score).

For the purposes of our analysis, we extend the overall ranking by two parameters, the first is the price anchor (PA), it is a percentage expression of the price of a particular electric vehicle to the most expensive electric vehicle in the tested group. The numerical expression is as follows:

$$PA = \frac{Px}{Py} \qquad (1)$$

Where:

PA- price anchor
Px- price of a particular electric vehicle
Py- most expensive electric vehicle in the tested group

The second parameter is the Price-Reputation (PR) coefficient, which is determined by the difference between the price anchor and the level of online reputation determined based on a simple sentiment analysis. The numerical expression is as follows:

$$PR = SA - PA \qquad (2)$$

Where:

PR- Price-Reputation coefficient
SA- Sentiment Analysis score of a particular electric vehicle
PA- Price Anchor of a particular electric vehicle

We add both coefficients to the analysis in order to better interpret the context. Data for empirical analysis were processed manually, the data collection itself took place in January 2023. The results were processed by a spreadsheet processor MS Excel, selected contexts were interpreted by means of a histograms.

4   Results and discussion

The following chapter presents the results of the performed analysis in the context of year-on-year comparisons. Following the basic findings, the specifics of the topic are subsequently discussed with the aim of identifying the initial development trends.

4.1   Basic findings resulting from the analysis

Selected Electric Vehicles were subjected to a basic online reputation analysis, the following table presents the values of individual monitored indicators for each of the analyzed entities in Table 2. as follows:

Table 2: Online reputation based on sentiment analysis

No.	Subject/ Result sentiment	SA score 2022 (%)	SA score 2023 (%)	Price anchor 2022 (%)	Price anchor 2023 (%)	PR kooef. 2022 (Δ %)	PR kooef. 2023 (Δ %)
1.	Tesla Model 3	27.09	30.32	27.13	27.25	-0.04	3.07
2.	Volkswagen ID.3	42.57	28.38	18.76	18.10	23.81	10.28
3.	Porsche Taycan*	54.18	23.87	100.00	100	-45.82	-76.14
4.	Škoda Enyaq iV	62.57	47.09	19.37	22.63	43.20	24.46
5.	Fiat 500e	68.37	45.15	12.91	13.50	55.46	31.65
6.	BMW iX3	93.53	36.12	36.02	35.31	57.51	0.81
7.	Audi E-tron GT	72.89	31.61	52.60	53.32	20.29	-20.72
8.	Hyundai Ioniq 5	70.31	66.44	21.81	23.97	48.50	42.47
9.	Kia e-Niro	72.89	37.41	20.97	18.57	51.92	18.84
10.	Jaguar I-Pace	49.02	33.54	41.83	40.75	7.19	-7.21

* Turbo S version

Source: own processing based on (Pollák et al. 2022)

F. Pollák, P.Markovič, R. Világi, M. Konečný, K. Kalamen:
Issue of Online Reputation of Electric Vehicles - Selected Views and Perspectives in the Context of Interyear Development

909

For the purpose of presenting the basic findings, the relevant indicator is the SA score for the year 2023, which represents the level of online reputation based on the initial reputation parameter, namely the polarity of the first ten results in Google search for each analyzed subject. The results thus provide a comprehensive overview of the online reputation of selected electric vehicles and, at the same time, a basic qualitative empirical basis for research as such. The nature of the results for individual subjects is as follows:

Tesla Model 3 - the company's own page is in the first position. The second position is occupied by a link to the used car dealer's website. The message is of a neutral sentiment nature. In the third position there is a link to a portal promoting electric cars, the mention refers to a price change towards a slight year-on-year increase. Without additional value-added compensation, this mention is quantified as negative sentiment. The fourth reference is a mention of Alza.sk portal, which has the nature of positive sentiment. The fifth link is to the Teslamagazin.sk portal, which discusses the high sales of a specific model in Scandinavia, we evaluate this as a positive sentiment. The sixth and seventh search results are links to the used car dealer portals, like the second link they have a dominantly technical nature of neutral sentiment. The eighth position is occupied by a link to a portal promoting electric cars with content at the level of neutral sentiment. The ninth position is represented by a link to an automotive portal localized in the Czech language, the link has the nature of neutral sentiment. The ranking closes with a neutral link to the used car dealer's page. Overall, it can be concluded that the reputation of the product determined through its image formed by the first ten search results in Google is dominantly unmanaged and has a distinctly generic/developmental nature.

Volkswagen ID.3- The first position is occupied by a link to the own producer page. In the second position is a link to a page promoting electric cars, the link is, in any case, highly technical and therefore neutral in nature. In the third position is a link to a page that offers a product evaluation, an appropriately chosen title ensures a positive sentiment for the link. The fourth and fifth positions are represented by neutral references of used car dealers. The sixth position refers to the neutral sentiment of the seller of new cars. At the same time, according to the chosen methodology, we do not consider the link to be product own page in nature. Seventh in order is a link to the YouTube platform. By default, this type of link is assigned a

positive sentiment, anyhow with an inappropriate choice of keywords in the title, we quantify the link at the level of neutral sentiment. The eighth link represents the manufacturer's blog, we quantify the sentiment as neutral. The ninth place is occupied by a link to a website promoting electric cars. The mention on the site is about car sales in China. With the fact that it refers to a significant price difference between the basic pricing in Asia and Europe, in favor of Asian markets, we assign a neutral sentiment to the link. The ranking closes with a link to an online magazine with a relatively neutral sentiment.

Porsche Taycan - In the first place in the Google search, we find the manufacturer's own page. At the same time, however, we find the manufacturer's own page also in second place, while such a repeated occurrence is quantified as a neutral sentiment. The third occurrence is of a neutral sentiment nature with a link to a used car dealer site. The fourth link is linked to the manufacturer's own global page. The fifth in the order is a link to a dealer of used cars. The sixth is a link to the site of a car rental company. Seventh in order is a link to a site promoting electric cars. Similarly, as in the case of previous electric cars, also in this case the appearance on the website has a dominantly technical nature. Eighth in order is a link to the manufacturer's own website. The ninth place is occupied by a reference to a dealer of used cars. The tenth rank and at the same time the last evaluated link is represented by the mention of Wikipedia portal. We evaluate such a sentiment as positive. However, from the point of view of the local customer, it should be noted that this is a link to the English version of the portal, i.e. to the global product profile.

Škoda Enyaq iV- In the first place is the link to the manufacturer's own webpage, while the own page is also in the second place in the search results. In the third to fifth places there are links to the pages of used car dealers of a neutral nature. In sixth and seventh place are websites containing product reviews, both of which have a predominantly positive sentiment. In the eighth position is a link to the YouTube platform, from the nature of the link we derive a positive sentiment. In the ninth position, there is again a link to the manufacturer's website. The tenth position is occupied by a link to the YouTube platform of a positive nature.

F. Pollák, P.Markovič, R. Világi, M. Konečný, K. Kalamen:
Issue of Online Reputation of Electric Vehicles - Selected Views and Perspectives in the Context of
Interyear Development

911

Fiat 500e- On the first place in the Google search results is the manufacturer's own website. The second and third positions in the search results are represented by links to the sites of authorized dealers. At the same time, the results show a dominantly neutral nature. In the fourth position is a link to a page with the automotive content, the optimal choice of words ensures a positive sentiment for the result. The fifth position refers to the YouTube platform, and it is quantified as a positive sentiment. The sixth position refers to the car tests website and the search result has a positive nature. The seventh occurrence is a link to the manufacturer's own site, the eighth is a link to a site promoting electric cars. Both have a neutral sentiment. It is the same for the last two positions in firs 10 Google search results.

BMW iX3- In the first position is the manufacturer's own page. In the second position is a link to the rating page. Despite its positive nature, this has a largely neutral undertone. Thus, the second occurrence can be quantified as neutral. The third row in the search results position is a link to a site promoting electric cars. The optimal choice of words ensures the appearance of a positive sentiment. The fourth section contains a link to a used car seller's page, we rate it with a neutral sentiment. In the fifth position is the page presenting the car test, again we find a non-optimal choice of words for the title and descriptions, and we quantify it at the level of neutral sentiment. The sixth position is occupied by a link to a used car dealer's page. We rate it as a neutral sentiment. The seventh position refers to a car test with an optimal choice of words and a positive sentiment. The eighth position is a reference to the car test, while again we observe a weak optimization of the choice of words and thus a neutral sentiment. On the ninth position is the manufacturer's own page of a neutral nature. The ranking is closed by the page with an assessment of the non-specific nature, quantified as a neutral sentiment.

Audi E-tron GT- In the first to fifth positions there are links to the manufacturer's own website. While the second to fifth positions are quantified based on the methodology at the level of neutral sentiment. The sixth position refers to the site of a used car dealer. The seventh link refers to a page promoting electric cars, the optimal choice of words ensures the occurrence of a positive sentiment. The eighth position refers to a used car dealer of a neutral nature. The ninth position refers to the page presenting the technical parameters of the product, we quantify the occurrence as a result of a neutral nature. The tenth rank and at the same time

the overall ranking of the search results for this product is closed by a link to the YouTube platform of a positive sentiment nature.

Hyundai Ioniq 5- The first place in the search results is occupied by the manufacturer's own page, while in the second and third positions we find results of a similar nature of neutral sentiment. In the fourth to ninth positions, we find references to evaluations of the car with the character of positive sentiment. The ranking is closing with a reference of a neutral nature, based the fact that the result is considerably outside the geographical location of the analyzed market.

Kia e-Niro - For the first time in the tested sample, we find on the first position a link to a page that is not the manufacturer's own page. In this case, however, the first link has a neutral sentiment. The second occurrence is the manufacturer's own page. The third and fourth positions are occupied by the results of positive sentiment, represented by links to pages containing car reviews. They show an optimal choice of words both in the title and in the description of the results. The fifth link is content-irrelevant from the point of view of the established methodology, as it deals with a new model range. We rate it at the level of neutral sentiment. The sixth place contains a reference to a seller of used cars, we rate it at the level of neutral sentiment. The seventh place is a link to a long-term car test. Both in the title and in the description, we do not find significant signs of positive or negative sentiment. The eighth to tenth occurrences have the nature of dominantly neutral references.

Jaguar I-Pace- In the first position is the manufacturer's own page. It is followed by two pages of used car dealers with neutral sentiment. On the fourth place we find a link of positive sentiment represented by a page dealing with the evaluation of cars. In the fifth to seventh position, we find links to the websites of authorized dealers. We quantify them at the level of neutral sentiments. In the eighth and ninth positions we find references of a neutral nature, while the first has a distinctly technical form. The second of the links does not contain an optimal choice of words. We conclude the ranking of quantified references with positive sentiment on the tenth place. This is ensured by a page containing a significantly positive evaluation of the product.

Based on the examination of basic qualitative parameters, it can be concluded that the market as such is still significantly developing in nature. While the links in the search generally have an unmanaged organic nature. It is necessary to discuss the findings in the context of reference research and in the context of the topic itself, so it will move on to the presentation of specific findings within the framework of the performed analyses.

4.2 Specific findings resulting from the analysis

Basic qualitative data approximated the overall situation from the point of view of the real presentation of the analyzed entities on the Internet. As we move from the description and discussion of the Basic findings, we consider it necessary to interpret the selected specifics through the following figure.
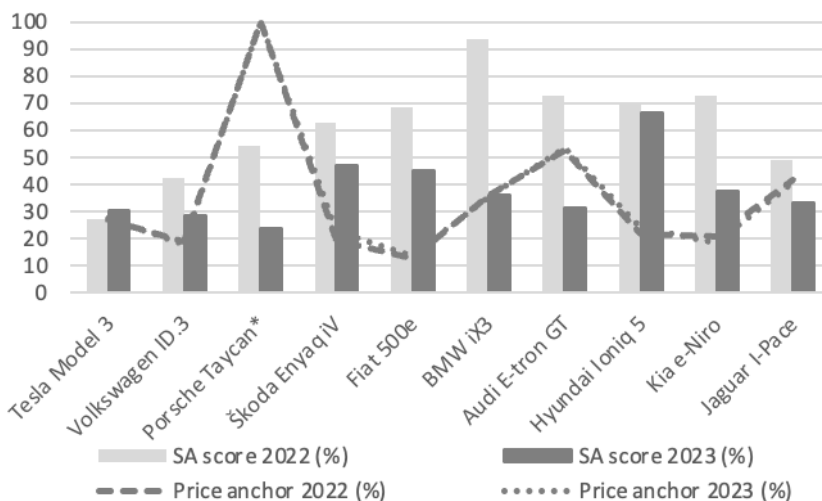

Figure 1: Interpretation of selected relationships- Interannual perspective
Source: own processing

As can be seen in Figure 1, only one entity, namely the Tesla Model 3, saw an increase in its online reputation level year-on-year. While the increase itself is quantifiable at the level of 3.23%. All other electric vehicles are experiencing year-on-year declines in their reputation. The lowest year-on-year decrease is recorded for the Hyundai

Ioniq 5, while the difference is at the level of 3.97%. Thus, in eight out of ten cases, we note a significant change in the level of online reputation, thereby creating a prerequisite for answering the established research question. This can be answered dichotomously, and thus we can make the following statement:

There is a significant year-on-year change in the level of online reputation of selected electric vehicles.

Regarding changes in the level of the price anchor, we do not record a significant change in the level, as we record an increase in price for almost all analyzed entities. The price drop is recorded only in the case of the Kia e-Niro car. This is probably caused by the arrival of a new model with a modified label. The specifics of individual year-on-year changes are more closely interpreted in the following table:

Table 3: Selected Indicators- Interannual perspective of SAs and PAs

Subject/ Indicator	Tesla	Volkswagen	Porsche	Škoda	Fiat	BMW	Audi	Hyundai	Kia	Jaguar
SA score	⇑	⇓	⇓	⇓	⇓	⇓	⇓	⇓	⇓	⇓
Price anchor	⇑	⇓	-	⇑	⇑	⇓	⇑	⇑	⇓	⇓

Source: own processing based on Pollák et al. (2022)

As can be seen from Table 3, the price of individual electric vehicles oscillates around the anchor set by the price of the most expensive vehicle in the analyzed selection. In five cases, a percentage increase in the PA parameter can be noted. It means that the five electric vehicles in the analyzed sample increased their nominal price in proportion to the increased price of the most expensive of the analyzed vehicles. In a catching-up market, without additional stimulation to purchase in the form of a subsidy, the vehicles in question essentially reduced their economic availability towards the market. In other words, vehicles as products have increased their economic unaffordability. In a situation where we see a year-on-year decrease in the level of online reputation for most of the analyzed vehicles, this is a phenomenon that definitely does not help the development of the market. So, let's look at specific numbers regarding the level of change of the PR parameter, which expresses the difference between the price anchor and the level of online reputation based on the SA parameter. The values are shown in more detail in the following table.

F. Pollák, P.Markovič, R. Világi, M. Konečný, K. Kalamen:
Issue of Online Reputation of Electric Vehicles - Selected Views and Perspectives in the Context of
Interyear Development

915

Table 4: Selected Indicators- Interannual perspective of SAs and PRs

Subject/ Indicator	Tesla	Volkswagen	Porsche	Škoda	Fiat	BMW	Audi	Hyundai	Kia	Jaguar
SA score	⇑	⇓	⇓	⇓	⇓	⇓	⇓	⇓	⇓	⇓
PR kooef.	⇑(+)	⇓	⇓	⇓	⇓	⇓	⇓(-)	⇓	⇓	⇓(-)

Source: own processing based on Pollák et al. (2022)

As can be seen from the Table 4, in nine out of ten cases we see a real year-on-year decrease in the PR coefficient. Only in one case, specifically with the Tesla Model 3 vehicle, do we see its increase. This is an increase of 3.11 percentage points. However, even such a small increase in this specific case is enough to change the polarity of the coefficient from negative to positive. In two cases within the sample, we observe a change in polarity, but this time it is a change from positive polarity of the coefficient to negative polarity. In the case of Audi and Jaguar electric vehicles, the second and third most expensive vehicles in the sample, this is a situation where these vehicles almost perfectly mirror their coefficient from last year. However, the values reflect in the negative spectrum. Their nominal price, expressed as a ratio to the most expensive vehicle in the sample, thus significantly exceeds the real level of their reputation in the online environment. It is not possible to clearly state that this condition should be caused by the physical parameters of the products. Rather, it is a combination of the high face value of a new premium brand product and the unmanaged nature of the product's online reputation in a local emerging market. So let's proceed to the conclusion, in which we evaluate the findings and formulate basic recommendations.

5   Conclusion

The combination of a new product and a developed market is generally an acceptable challenge for marketing managers. The combination of a new product and a developing market is usually a problem. The online market for electric vehicles shows signs of an absence of targeted content management. This state is characterized mainly by a high percentage of links with neutral sentiment, non-optimized press releases, a weak offer of relevant content, or almost zero work with

local customer groups on social networks. This might seem rational for the trailing sales of the analyzed vehicles, as the available resources are allocated to the promotion of sales drivers from the range of vehicles powered by an internal combustion engine. Year-on-year declines in the level of online reputation combined with year-on-year increases in nominal prices in almost the entire sample of analyzed vehicles represent a significant threat to the entire segment of electric vehicles from renowned manufacturers. In a situation where the economic availability of electric vehicles from renowned manufacturers is shrinking, there is a risk that the needs of the market will be saturated by producers from the ranks of fast-growing car companies in East Asia. Especially if, at the time of making a purchase decision, potential customers will have a relatively poorly optimized information base in terms of the variety and authenticity of individual marketing messages. Decision making other than that based on price will be objectively irrational. If the future of vehicles is to be electric, this situation represents an existential threat to renowned manufacturers represented on the market. From the point of view of business practice, it is therefore possible to formulate a simple recommendation. It is necessary to optimize all marketing communication tools towards the maximum strengthening of the online identity of electric vehicles, considering the specific language localization of the market. With a certain degree of certainty, it can be assumed that without additional activity on the part of producers and sellers, it is impossible to expect sales beyond the range of the standard deviation. The spectrum that mostly affects customers from the ranks of innovators or the lower edge of early adopters. We would like to point out the fact that electric vehicles are exclusive products from the point of view of manufacturers' pricing. And basically, it doesn't matter if a particular manufacturer's brand is considered premium. The entire segment of electric cars is characterized by a certain degree of exclusivity. One of the basic lessons of marketing is that exclusive products require exclusive access. This fact must be kept in mind when creating a communication portfolio. Year-to-year, this approach is recorded only in hints on the monitored market. From the point of view of science, we find the basic foundations of marketing communication in all areas of the researched topic. However, the application of offline procedures in an online environment only works partially. It is therefore necessary to continuously push the boundaries of knowledge. With this shift, approximate the topic towards the knowledge base of developed markets.

F. Pollák, P.Markovič, R. Világi, M. Konečný, K. Kalamen:
Issue of Online Reputation of Electric Vehicles - Selected Views and Perspectives in the Context of
Interyear Development

917

5.1   Limitations and future directions of the research

From the point of view of research limitations, it is necessary to point out the locations of the analyzed subjects and the chosen language for sentiment analysis. The nature of the market creates a unique space for the study of the issue in its beginnings, even though the level of knowledge within the topic is strongly developed on a global scale. The issue's paradigms generate a broad portfolio of opportunities for further empirical research. Local specifics, in turn, largely create a demand for specific knowledge that arises from the synthesis of global knowledge and local data. The results of the study represent the gradual phase of examining the issue of reputation management of entities operating in the field of low-carbon economy.

Acknowledgements

References

Bobeth, S., Kastner, I. (2020). Buying an electric car: A rational choice or a norm-directed behavior? Transportation Research Part F: Traffic Psychology and Behaviour, 73, 236-258.

Cbsnews.com. 80% of new cars sold in Norway are now electric vehicles. [Internet]. 2023. Available from: https://www.cbsnews.com/news/electric-vehicle-europe-norway-tesla-sales/ [Accessed: 2023-01-3].

Eccarius, T., Lu, C.C. (2020). Adoption intentions for micro-mobility - Insights from electric scooter sharing in Taiwan. Transportation Research Part D: Transport and Environment, 84, 102327.

Huo, J.H., Yang, H.T., Li, C.J., Zheng, R., Yang, L.C.A., Wen, Y. (2021). Influence of the built environment on E-scooter sharing ridership: A tale of five cities. Journal of Transport Geography, 93, 103084.

Janouch V. (2011). 333 tipů a triků pro internetový marketing. Computer Press, Brno, Czech Republic.

Jones, B., Temperley, Y.J., Lima, A. (2009). Corporate reputation in the era of Web 2.0: The case of Primark. Journal of Marketing Management, 25, 927-939.

Kanika D. Prečo je online reputácia dôležitá? [Internet]. 2016. Available from: http://www.pranswer.com/sk/manazment-povesti-referencie-a-recenzie/preco-je-online-reputacia-dolezita/ [Accessed: 2016-04-07].

Klesty, V. Tesla in pole position in Norway's race to EV goal. [Internet]. 2023. Available from: https://www.reuters.com/business/autos-transportation/hitting-record-electric-cars-sales-norway-near-80-2022-2023-01-02/ [Accessed: 2023-01-3].

Loayza, J. The Beginner's Guide to Reputation Management: 8 Core Principles of Reputation Management [Internet]. 2013. Available from: http://reputationhacks.com/guide-to-reputation-management-3-8-core-principles [Accessed: 2018-03-23].

McKenzie, G. (2019). Spatiotemporal comparative analysis of scooter-share and bike-share usage patterns in Washington, DC. Journal of Transport Geography, 78, 19-28.

Mojelektromobil.sk. Najlepší elektromobil pre rok 2021. [Internet]. 2012. Available from: https://www.mojelektromobil.sk/najlacnejsie-elektromobily-slovensko-cena-pod-10000-eur/ [Accessed: 2022-01-02].

Pollák, F. (2015). On-line reputačný manažment v podmienkach stredoeurópskeho virtuálneho trhu. Bookman, Prešov, Slovakia.

Pollák, F., Dorčák, P., Markovič, P. (2021b). Corporate Reputation of Family-Owned Businesses: Parent Companies vs. Their Brands. Information, 12, 89.

Pollak, F., Markovič, P., Vilagi, R. Konečný, M. (2022). Issue of Online Reputation of Electric Vehicles - Selected Views and Perspectives. 41st International Conference on Organizational Science Development: Society's Challenges for Organizational Opportunities. University of Maribor Press, Kranj, Slovenija.

Pollák, F., Vodák, J., Soviar, J., Markovič, P., Lentini, G., Mazzeschi, V., Luè, A. (2021a). Promotion of Electric Mobility in the European Union—Overview of Project PROMETEUS from the Perspective of Cohesion through Synergistic Cooperation on the Example of the Catching-Up Region. Sustainability, 13, 1545.

Priessner, A., Sposato, R., Hampl, N. (2018). Predictors of electric vehicle adoption: An analysis of potential electric vehicle drivers in Austria. Energy Policy, 122, 701-714.

Tanţău, A., Gavrilescu, I. (2019). Key anxiety factors for buying an electric vehicle. Management & Marketing, 14, 240-248.

Weber, L. (2007). Marketing to the social web: how digital customer communities build your business. John Wiley &. Sons, Hoboken, New Jersey.

Yang, H., Ma, Q., Wang, Z., Cai, Q., Xie, K., Yang, D. (2020). Safety of micro-mobility: Analysis of E-Scooter crashes by mining news reports. Accident analysis and prevention, 143, 105608.