

UNDERSTANDING GREENWASHING AND CONSUMER TRUST IN HUNGARIAN CONTEXT

Andras Szeberenyi¹, Agnes Furesz², Imre Matyas Kovacs¹

¹Szechenyi Istvan University, Hungary;

²Hungarian University of Agriculture and Life Sciences, Hungary

szeberenyi.andras@sze.hu, furesz.agnes@phd.uni-mate.hu, kovacs.imre.matyas@sze.hu

Abstract. Greenwashing has become a growing challenge in sustainability communication, as misleading environmental claims can weaken consumer trust and influence purchasing decisions. This study examines how Hungarian consumers interpret such claims, with particular attention to awareness of greenwashing and greenhushing, recognition of selected international corporate scandals, and the role of information sources in shaping trust. The research is based on an online questionnaire survey conducted between 10 February and 15 March 2025 with 410 valid responses. The research methodology relies on quantitative descriptive statistics to map baseline awareness levels, contributing empirical evidence from a Central European market where green marketing is rapidly expanding but consumer education remains in a developing phase. The findings show that conceptual understanding remains uneven: while greenwashing is partly recognised, awareness of greenhushing is very limited. In addition, 39% of respondents reported prior exposure to greenwashing, and this experience is associated with greater sensitivity to deceptive environmental communication, stronger willingness to seek alternatives, and a higher likelihood of abandoning a brand or company after misleading claims are revealed. The results also indicate that consumers rely primarily on reputation, social media, and news coverage when evaluating sustainability-related messages, while formal verification tools play a less prominent role. The study suggests that consumer trust in sustainability communication depends not only on corporate behaviour, but also on the public's ability to interpret environmental claims critically.

Keywords: greenwashing, greenhushing, sustainability communication, consumer trust, Hungarian consumers.

Introduction

Sustainability communication has become a central element of contemporary corporate strategy. Firms increasingly present their environmental commitments through messages related to lower emissions, cleaner production, circularity, responsible packaging, and waste reduction [1; 2]. These claims are intended to signal responsibility and strengthen legitimacy among consumers and other stakeholders. At the same time, the rapid growth of environmental messaging has also increased the risk of credibility loss. When communication suggests stronger environmental performance than the underlying organisational reality, trust may weaken rather than strengthen [3; 4].

The literature generally defines greenwashing as a mismatch between symbolic environmental communication and actual environmental performance [3; 5]. This mismatch can take several forms, including vague wording, selective disclosure, overstated achievements, or the use of labels and narratives that create a green image without corresponding operational depth [4; 5]. A widely cited attempt to systematise such practices is TerraChoice's "seven sins of greenwashing", which groups the most common forms of misleading environmental communication into recognisable categories [6].

From a consumer perspective, the main issue is not only deception itself, but also the difficulty of identifying it in everyday decision-making. Consumers rarely assess supply-chain documentation, emissions reports, or lifecycle data directly. Instead, they often rely on simplified cues such as brand reputation, message tone, media coverage, and familiarity with previous scandals [7; 8].

Previous research has shown that greenwashing may reduce green trust by increasing consumer confusion and perceived risk [9]. It may also damage broader brand evaluation, especially when environmental claims are persuasive but weakly substantiated [7; 10]. At the same time, international studies suggest that many consumers are not able to distinguish consistently between credible environmental communication and misleading claims unless they are supported by clearer interpretive cues [11]. This suggests that trust in sustainability communication is shaped not only by corporate behaviour, but also by consumers' level of understanding.

A related concept, greenhushing, has also received increasing scholarly attention. Greenhushing refers to the deliberate under-communication of sustainability actions in order to avoid criticism, accusations of hypocrisy, or reputational risk [12; 13]. While greenwashing exaggerates, greenhushing withholds. Although the two strategies differ, both make public evaluation more difficult. Consumers

may therefore face uncertainty not only when environmental claims are overstated, but also when relevant sustainability information is intentionally muted.

International studies have examined these issues across diverse sectors and from several theoretical perspectives [4; 9], including stakeholder management, legitimacy theory, advertising effects, and green brand trust [14; 15]. Recent findings indicate that greenwashing significantly hinders the transition toward sustainable consumption by limiting consumers' ability to make informed purchasing decisions [16]. Carreño [17] points out that misleading environmental claims can emerge at multiple levels, ranging from product-related eco-labels to broader corporate sustainability reports. In a similar vein, Nekmahmud et al. [18] show that consumer scepticism toward green marketing is often rooted in the absence of transparent and verifiable information. These concerns may be particularly pronounced in Central and Eastern Europe, where market evidence suggests that trust in eco-labels remains lower than in many Western European countries, partly due to weaker regulatory frameworks and inconsistent labelling standards. Taken together, the international literature provides a useful conceptual basis, but it also indicates that the credibility and interpretation of environmental claims are strongly shaped by local institutional and consumer contexts.

Against this background, empirical evidence from Hungary remains limited, especially regarding how consumers interpret greenwashing and greenhushing, which information sources they rely on, and how previous exposure to misleading environmental communication influences trust-related responses. This gap is important because Hungarian consumers are exposed to the same global sustainability narratives and corporate campaigns as other European consumers, while their awareness patterns and interpretive habits may still differ in meaningful ways. In this respect, Hungary offers a relevant empirical setting. As the market increasingly integrated into Western European consumption patterns, environmental awareness is gradually expanding. At the same time, the cultural and educational mechanisms needed for the critical evaluation of corporate sustainability claims are still developing, making the Hungarian context particularly suitable for examining the relationship between trust, information asymmetry, and deceptive green communication.

This paper examines these issues in the Hungarian context through an online survey. It addresses three related research questions: how Hungarian consumers understand the concepts of greenwashing and greenhushing, which information sources and interpretive cues they rely on when evaluating sustainability-related messages, and how prior exposure to greenwashing relates to consumer trust and behavioural responses. So, the study is guided by the following research questions.

- RQ1. How do Hungarian consumers understand the concepts of greenwashing and greenhushing?
- RQ2. Which information sources and interpretive cues do consumers rely on when evaluating corporate sustainability communication?
- RQ3. How does prior exposure to greenwashing relate to consumer trust and behavioural responses when misleading environmental claims are revealed?

Materials and methods

The empirical part of the study is based on a quantitative online survey. Data were collected between 10 February 2025 and 15 March 2025. A total of 421 responses were received, of which 410 valid responses were retained after data cleaning. The questionnaire contained 28 items and was distributed via online platforms, primarily social media channels such as Facebook, Instagram, LinkedIn, and Reddit. The measurement instrument included nominal scales for concept recognition, multiple-choice items for scandal awareness, and 5-point Likert scales to assess trust and behavioural intentions. Indicators were selected based on the TerraChoice framework and recent sustainability communication literature. While complex validated constructs with reliability statistics were not applied in this exploratory phase, the survey items were formulated to capture baseline consumer perceptions clearly. Convenience sampling was applied; therefore, the sample is not representative of the Hungarian population. The study has an exploratory aim and does not seek population-level generalisation.

The questionnaire was structured into four thematic blocks. The first block examined respondents' understanding of the concepts of greenwashing and greenhushing. The second focused on the recognition of selected international corporate scandals involving misleading environmental claims or

contested sustainability communications. The third explored the information sources respondents rely on when evaluating the sustainability of products, services, and companies. The fourth examined attitudes related to brand reputation, willingness to pay more for credible environmental claims, proof-seeking behaviour, third-party certification, packaging, and environmentally conscious purchasing.

The analysis relied primarily on descriptive statistics, including frequency distributions and percentage-based comparisons across response categories. These results were used to address the three research questions by examining patterns in conceptual awareness, scandal recognition, source preferences, and consumer attitudes. In addition, one inferential procedure was included in the analysis of TerraChoice's "seven sins of greenwashing" framework. A two-sample Z-test for proportions was used to compare male and female respondents regarding the absence of structured knowledge. This step was intended to examine whether low literacy in identifying greenwashing categories differed significantly by sex.

The empirical design has clear limitations. The online convenience sample limits generalisability, and self-reported awareness does not necessarily reflect actual ability to identify misleading sustainability communication in practice. Even so, the dataset is suitable for exploring how Hungarian consumers interpret greenwashing, greenhushing, and trust-related sustainability claims under conditions of partial knowledge and uneven scandal recognition.

Results and discussion

The first stage of the analysis examined conceptual awareness. In the case of greenwashing, the results indicate partial public familiarity but limited conceptual precision. Fig. 1 illustrates the differences in public familiarity with the definitions of greenwashing and greenhushing.

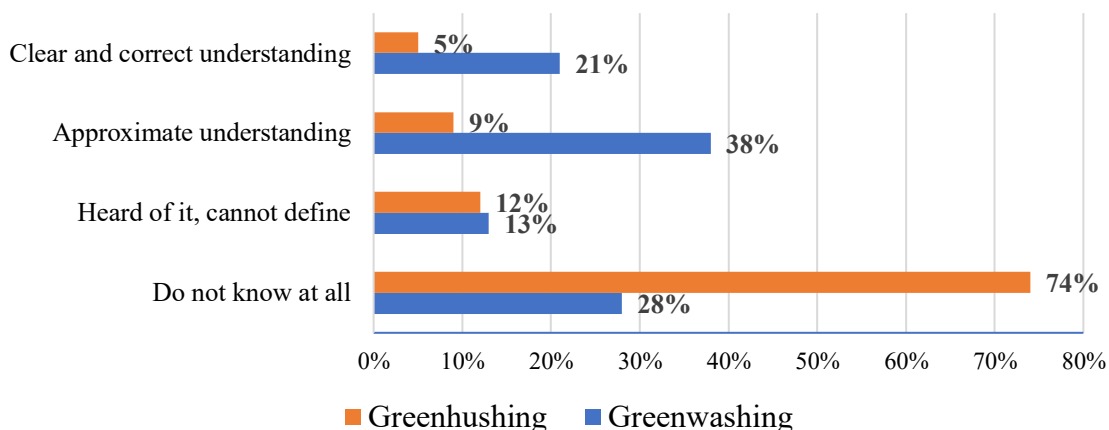


Fig. 1. Consumer awareness of greenwashing and greenhushing concepts (%)

Based on Figure 1, it is visible that a total of 28% of respondents stated that they did not know the term of greenwashing at all, 13% had heard of it but could not define it properly, 38% reported an approximate understanding, and only 21% demonstrated a clear and correct understanding. This distribution suggests that greenwashing has entered the public vocabulary, but many consumers still lack a stable interpretive framework for evaluating corporate environmental claims. Many recognise the term, yet fewer can identify its meaning with confidence.

This finding is relevant to RQ1. If a substantial share of respondents either do not know the term or know it only vaguely, then many consumers are likely to approach sustainability communication without the conceptual tools needed for critical assessment. In practice, such consumers may feel uncertainty or suspicion but may not be able to explain clearly why a claim appears misleading. This pattern is consistent with previous research showing that the identification of greenwashing depends partly on the interpretive categories available to consumers [9; 11].

The case of greenhushing is even more revealing. Here, 74% of respondents stated that they did not know the term at all. Only 9% could roughly formulate its meaning, and just 5% showed a clear understanding. This indicates that greenhushing remains largely outside Hungarian consumer discourse.

The concept appears to exist mainly within specialist or academic discussion rather than in broader public interpretation. This matters because low awareness of greenhushing narrows the way consumers read sustainability communication. They may notice exaggeration when it is obvious, but they are less prepared to identify strategically incomplete communication.

The next part of the analysis focused on the recognition of selected international corporate scandals. Respondents were asked about several prominent cases from different sectors, including fossil energy, aviation, automotive, and consumer goods. The results show highly uneven scandal awareness. Volkswagen's Dieselgate case stands out clearly: 36% of respondents knew it partially, 28% knew it rather well, and 7% had encountered it in a structured learning context, such as a case study. By contrast, the other scandals showed much lower recognition. Cases connected to BP, Chevron, KLM, Shell, and IKEA remained largely unfamiliar to most respondents.

These findings are important for two reasons. First, they show that consumer memory is highly selective and media-dependent. Large scandals remain visible mainly when they achieve broad and repeated public exposure. Second, they indicate that many consumers do not base their judgments on a broad historical understanding of sustainability-related controversies. Instead, they rely on a relatively narrow set of memorable reputational events. This is consistent with the argument that trust in sustainability communication is often formed through simplified cues rather than systematic verification [7; 10].

The source-use pattern strengthens this interpretation. When respondents were asked which sources they rely on to judge the sustainability of products, services, and companies, social media and news emerged as dominant channels. These sources were selected by 62% of respondents for products, 43% for services, and 45% for companies. Official corporate reports and other formal materials were less frequently used. This suggests that the informational environment of trust formation is shaped primarily by accessibility and visibility rather than by technical depth.

When judging the sustainability of physical products, 41% of respondents mainly looked at labels and certificates, while 35% relied mostly on customer reviews. In the case of services, news and media were the main sources of information for 31% of respondents. When assessing companies as a whole, 28% preferred corporate reports, and 20% checked official standards. These findings are relevant to RQ2. They show that consumers often depend more on public image, media coverage, and visible signals than on detailed verification. As a result, incomplete or misleading sustainability communication may pass unnoticed more easily. This pattern is especially important in the case of greenhushing. If consumers have limited awareness of strategically incomplete sustainability communication, and if their judgments rely mainly on media narratives and brand reputation, then missing details may not be interpreted as a warning sign. Instead, consumers may rely on the brand's overall image or on the dominant tone of online discourse. In this sense, low awareness of greenhushing appears alongside an interpretive pattern in which reputation and media cues play a stronger role than formal verification.

The attitude items measured on a Likert scale (where 1 meant "very low importance", 5 meant "very high importance") provide further context. Respondents placed high importance on brand reputation and on the expectation that firms should not mislead consumers with environmental claims. This indicates that sustainability communication is treated as a trust issue before it becomes a technical evaluation issue. The results are also relevant to RQ3 and show that misleading sustainability marketing may have substantial behavioural consequences. A total of 39% of respondents reported that they had already encountered greenwashing in advertising. When such practices are revealed, consumer reactions often become immediate. If a product is associated with greenwashing, 36% said they would look for other options, while 33% would stop buying from the brand entirely. The reaction is even stronger at the company level: 38% said they would abandon the company entirely, while only 24% would continue supporting it despite the deception. In addition, 26% of respondents reported that greenwashing has a significant or very strong effect on their final purchase decisions. These results suggest that prior exposure to greenwashing is associated with greater sensitivity to misleading environmental communication and may directly weaken brand loyalty.

Many respondents (28%) also expressed willingness to pay a higher price if they could be sure that environmental claims were genuine. At the same time, items related to certificates and packaging did not receive the same level of importance. This reveals a notable tension in consumer judgment.

Respondents value credibility and truthfulness, but do not place the same emphasis on the formal mechanisms that could help them verify such credibility.

This tension may be described as a gap between trust aspiration and verification practice. Consumers want environmental claims to be honest, yet many do not evaluate them primarily through documentary evidence or third-party validation. Instead, they prefer fast and accessible signals. This is not unusual in consumer decision-making, but in the field of sustainability communication, it creates structural vulnerability. Symbolic claims, emotional language, and reputation effects may become more influential than verifiable environmental performance.

A final part of the analysis examined knowledge of TerraChoice's "seven sins of greenwashing". Respondents were asked how many of these categories they could identify. The largest group in both sex groups could not name a single one: 34% of men and 36% of women. In addition, 22% of men and 26% of women could name only one category, and 19% of men and 18% of women could name at least two categories. It is interesting to note that 6% of men and 3% of women could name at least six categories, which are considered hard to remember. These findings suggest that consumer understanding of greenwashing is often intuitive rather than organised into a usable framework. Many respondents appear able to detect the existence of misleading practices, but not to classify them systematically.

To examine whether this lack of structured knowledge differs by sex, a two-sample Z-test was conducted. Table 1 summarizes these findings to provide a clear statistical overview of the demographic comparison.

Table 1

Two-sample Z-test results for sex differences in greenwashing knowledge

Knowledge category	Z-value	p-value	Significance (5% level)
Cannot name any category	-0.337	0.736	Not significant
Can name two categories	-0.433	0.665	Not significant
Can name six categories	1.039	0.298	Not significant
Can name all seven categories	1.450	0.147	Not significant

Based on the results presented in Table 1, there is no statistically significant sex difference at the 5% level across any of the examined knowledge categories. These results indicate that conceptual literacy regarding the "seven sins of greenwashing" is not concentrated in one sex group but is better understood as a broader consumer education problem.

Taken together, the findings address all three research questions. First, they show that awareness of greenwashing is partial, while awareness of greenhushing is very limited. Second, they indicate that consumer judgments are primarily shaped by media exposure, reputation, and other visible cues rather than by formal verification. Third, they suggest that prior exposure to greenwashing is associated with stronger negative behavioural reactions when deceptive claims are revealed. From an international perspective, the Hungarian results align with broader research linking greenwashing to trust erosion, confusion, and reputational risk [11; 14]. The local contribution of the paper lies in showing how these processes appear in Central and Eastern European context where conceptual awareness remains limited, and scandal recognition is selective.

Conclusions

This study examined how Hungarian consumers interpret greenwashing and greenhushing, which information sources they rely on when evaluating sustainability-related claims, and how prior exposure to misleading environmental communication relates to trust and behavioural responses. Based on the survey results, several conclusions can be drawn.

First, Hungarian consumers show only partial conceptual awareness of greenwashing, while awareness of greenhushing remains particularly limited. Although the term greenwashing has entered public discourse to some extent, only a small proportion of respondents could define it clearly and accurately. In the case of greenhushing, the level of understanding was even lower, suggesting that strategically incomplete sustainability communication is still rarely recognised by the broader public. This finding is important because consumer trust is shaped not only by corporate behaviour, but also by the concepts and interpretive tools consumers have available when assessing environmental claims.

Second, the findings indicate that sustainability-related judgments are influenced mainly by accessible and visible cues rather than by systematic verification. Social media, news coverage, labels, and customer reviews play a major role in interpreting environmental communication, whereas official reports and formal standards are less central in everyday consumer evaluation. This suggests that trust formation often depends on reputation, media exposure, and message visibility, rather than on deeper scrutiny of environmental performance. In such a setting, both exaggerated and strategically incomplete claims may remain insufficiently questioned.

Third, the results show that awareness of sustainability-related corporate scandals is selective and uneven. Respondents were much more familiar with highly visible international cases such as Dieselgate, while other major controversies remained largely outside consumer awareness. This implies that reputational memory is fragmented and driven by the media. Consumers do not necessarily evaluate sustainability communication through a broad historical understanding of misleading corporate practices, but rather through a narrower set of salient cases that have received repeated exposure.

Fourth, prior exposure to greenwashing appears to be associated with stronger negative behavioural reactions when misleading claims are revealed. A notable proportion of respondents reported previous encounters with greenwashing, and many indicated that in such situations, they would seek alternatives or stop purchasing from the brand or company concerned. This finding points to the practical relevance of trust erosion in sustainability communication. Once consumers perceive deception, the consequence may extend beyond temporary scepticism and affect loyalty, purchase intention, and broader corporate credibility.

The analysis of TerraChoice's "seven sins of greenwashing" adds a further layer to these conclusions. The results suggest that consumer recognition of misleading environmental communication is often intuitive rather than structured. Many respondents appeared able to sense that a claim may be problematic but were less able to classify such practices within a clearer conceptual framework. The absence of significant sex differences indicates that this limitation is not concentrated in one group but reflects a broader issue of consumer literacy. Taken together, the findings suggest that consumer trust in sustainability communication in Hungary is shaped by a combination of limited conceptual knowledge, selective scandal awareness, and reliance on rapid interpretive cues. This makes consumers vulnerable not only to overstated environmental claims, but also to omissions and incomplete communication strategies that are harder to identify. The study therefore contributes to the literature by showing that the credibility of sustainability communication is not solely a matter of corporate truthfulness. It is also connected to the public's capacity to interpret environmental messages critically and consistently.

From a practical perspective, the findings imply that firms should communicate sustainability claims more clearly, precisely, and verifiably. Broad symbolic messages and loosely framed environmental promises may be insufficient in contexts where trust is fragile, and consumers often rely on simplified signals. Communication that is specific, understandable, and supported by accessible evidence is more likely to reduce scepticism and maintain credibility.

The study has some limitations as well. The sample was convenience-sampled and does not represent the Hungarian population. In addition, the findings rely on self-reported awareness and attitudes, which do not always correspond fully to actual consumer behaviour or interpretive ability in real market situations. These limits should be taken into account when interpreting the results.

To address the methodological limitations of the current exploratory approach, future studies must build on these descriptive foundations by applying multivariate analyses, such as regression models or cluster analysis. These methods will be necessary to systematically test the relationships between sustainability knowledge, brand attitudes, and specific behavioural outcomes. It would also be valuable to examine whether consumer education, clearer regulatory guidance, or more standardised sustainability disclosures improve the ability to distinguish between verified environmental performance, exaggerated claims, and strategic silence.

Author contributions

All authors have contributed to the present study equally. All authors have read and agreed to the published version of the manuscript.

References

- [1] Singh A. P., Rahman Z. Integrating corporate sustainability and sustainable development goals: towards a multi-stakeholder framework. *Cogent Business & Management*, 8(1), 2021. DOI: 10.1080/23311975.2021.1985686
- [2] Agarwal S., Kweh L. Q., Goh W. K., Wider W. Redefining marketing strategies through sustainability: Influencing consumer behavior in the circular economy: A systematic review and future research roadmap. *Cleaner and Responsible Consumption*, 18, 2025, 100298. DOI: 10.1016/j.clrc.2025.100298
- [3] Delmas M. A., Burbano V. C. The drivers of greenwashing. *California Management Review*, 54(1), 2011, 64-87. DOI: 10.1525/cm.2011.54.1.64
- [4] Lyon T. P., Montgomery A. W. The means and end of greenwash. *Organization and Environment*, 28(2), 2015, 223–249. DOI: 10.1177/1086026615575332
- [5] Zych G., Budka B., Czamecka M., Kinelski G., Wojcik-Jurkiewicz M. Concept, developments, and consequences of greenwashing. *European Research Studies Journal*, 24(4): Part 2, 2021, pp. 914-922. DOI: 10.35808/ersj/2779
- [6] UL Solutions. Sins of Greenwashing. [online] [11.02.2026]. Available at: <https://www.ul.com/insights/sins-greenwashing>
- [7] Szabo S., Webster J. Perceived greenwashing: the effects of green marketing on environmental and product perceptions. *Journal of Business Ethics*, 171(4), 2021, pp. 719-739. DOI: 10.1007/s10551-020-04461-0
- [8] Camilleri M. A., Cricelli L., Mauriello R., Strazzullo S. Consumer Perceptions of Sustainable Products: A Systematic Literature Review. *Sustainability*, 15(11), 2023, 8923. DOI: 10.3390/su15118923
- [9] Chen Y.-S., Chang C.-H. Greenwash and green trust: The mediation effects of green consumer confusion and green perceived risk. *Journal of Business Ethics*, 114, 2013, pp. 489-500. DOI: 10.1007/s10551-012-1360-0
- [10] Ha M.-T., Ngan V. T. K., Nguyen P. N. D. Greenwash and green brand equity: The mediating role of green brand image, green satisfaction and green trust and the moderating role of information and knowledge. *Business Ethics, the Environment & Responsibility*, 31, 2022, pp. 904-922. DOI: 10.1111/beer.12462
- [11] Fella S., Bausa E. Green or greenwashed? Examining consumers' ability to identify greenwashing. *Journal of Environmental Psychology*, 95, 2024, 102281. DOI: 10.1016/j.jenvp.2024.102281
- [12] Font X., Elgammal I., Lamond I. Greenhushing: the deliberate under communicating of sustainability practices by tourism businesses. *Journal of Sustainable Tourism*, 25(7), 2017, pp. 1007-1023. DOI: 10.1080/09669582.2016.1158829
- [13] Carlos W. C., Lewis B. W. Strategic silence: Withholding certification status as a hypocrisy avoidance tactic. *Administrative Science Quarterly*, 63(1), 2018, pp. 130-169. DOI: 10.1177/0001839217695089
- [14] Daou L., Sayegh E., Atallah E., Al Maalouf N. J., Sarkis N. Greenwashing as a Barrier to Sustainable Marketing: Expectation Disconfirmation, Confusion, and Brand-Consumer Relationships. *Sustainability*, 17(22), 2025, 9979. DOI: 10.3390/su17229979
- [15] Rahman S. U., Nguyen-Viet B. Towards sustainable development: Coupling green marketing strategies and consumer perceptions in addressing greenwashing. *Business Strategy and the Environment*, 32(4), 2023, pp. 2420-2433. DOI: 10.1002/bse.3256
- [16] Szaban M., Szymkowiak A., Chwialkowska A. Breaking barriers: Navigating the stages of the green consumer journey. *Environment, Development and Sustainability*, 2025. DOI: 10.1007/s10668-025-06795-z
- [17] Carreño I. To Address “Greenwashing” and Misleading Environmental Claims, the European Commission Publishes a Proposal on “Green Claims” and Their Substantiation. *European Journal of Risk Regulation*, 14(3), 2023, pp. 607-611. DOI: 10.1017/err.2023.36
- [18] Nekmahmud M., Naz F., Ramkissoon H., Fekete-Farkas M. Transforming consumers' intention to purchase green products: Role of social media. *Technological Forecasting and Social Change*, 185, 2022, 122067. DOI: 10.1016/j.techfore.2022.122067