

THE ROLE OF SOCIAL MEDIA MARKETING OF ESG IN WAREHOUSE LOGISTICS

Artur BŁASZCZYK^{1*}, Milena LE VIET-BŁASZCZYK²

¹ Faculty of Mechanical Engineering, Lodz University of Technology; artur.blaszczyk@p.lodz.pl,
ORCID: 0000-0001-6371-0294

² Faculty of Management, University of Lodz; milena.le.viet.blaszczyk@uni.lodz.pl,
ORCID: 0000-0003-1237-4205

* Correspondence author

Purpose: Due to the relatively low level of exploration of the topic of ESG in social media marketing communications, the authors of this text decided to diversify the purpose of the article: 1. to explore the topic of ESG activities in warehouse logistics and its communication in SM; 2. to carry out and present the results of quantitative research involving statistical analysis of the results of social media marketing publications on ESG.

Design/methodology/approach: The following research question was posed by analogy: P1. Which area of ESG activity is most attractive to customers from the perspective of engagement on LinkedIn? The research hypothesis was then stated: H1. There is a statistically significant relationship between the amount of storage space and the marketing performance of publications on LinkedIn and is positive in nature. To achieve the stated objectives and verify the hypotheses, a two-stage research process was designed. It began with a literature analysis and synthesis and was followed by a quantitative study of marketing performance.

Among other things, the first stage of the research defined the key areas of ESG activity in the real estate market. This division became the basis for the second, quantitative stage of the research. The study consisted of an analysis of online data from November 2022 - July 2023 compiled from the results of 140 posts published on the social media platform LinkedIn. This is because the pilot study, as well as the analysis of the literature, showed that this is the platform most often chosen to communicate ESG activities. Statistical analysis included: a comparison of client engagement scores in publications on key ESG areas in the real estate market, and a correlation analysis of warehouse space and social media marketing scores.

Findings: It was observed that in most cases, communication of ESG-related activities formed the majority of a company's total communication on its LinkedIn profile. It proves that the most frequently communicated ESG area on LinkedIn is environmental aspects. However, they are associated with the lowest average engagement. Subsequently, Pearson's correlation coefficient has been used to examine the severity of the relation between the different variables. Once the analysis is executed, it may be concluded that there is a statistical significant correlation between the size of the warehouse and the outcome of publications communicating ESG on LinkedIn. A stronger correlation occurred in the analysis of engagement scores.

Practical implications: It was found that there is a very high correlation between the size of the warehouse and consequently the ranking of developers in Europe and the results of publications communicating ESG on LinkedIn. Based on the results, it can be recommended

that further research should be pursued in the direction of engaging customers in ESG marketing communications.

Social implications: The presented article focused on exploring the topic of ESG activities in warehouse logistics and its communication in social media. The construction sector contributes significantly to greenhouse gas emissions. The sector therefore faces a number of challenges that it is socially expected to solve. Following in the footsteps of researchers, an increasing number of institutions at both the European and national levels are introducing laws and regulations to accelerate this process. EU directives, national laws and guidelines from independent institutes are aimed at forcing the industrial sector to respond and implement solutions. The ESG revolution is gaining momentum because of this. We are currently in a transitional phase, and there is still a lot of work to be done, but change is already inevitable. ESG activities that are being implemented by companies are being communicated in parallel on social media.

Originality/value: The results of the research evaluate the correlation between warehouse size and marketing performance, show areas of ESG, which are the most frequently communicated and the most attractive to customers from the perspective of engagement on LinkedIn. It can be a basis for future studies on the implementation of ESG activities in warehouses and can serve practitioners in selecting projects of interest and worth deploying.

Keywords: ESG, contemporary logistics, modern warehouses, social media marketing.

Category of the paper: Research paper.

1. Introduction

Environment, social and governance (ESG) topic has gained global relevance for all stakeholders in recent years - industry, consumers, investors, communities and governments. Initiatives in this area are among the most widely used indicators for assessing a company's sustainability performance (Tang et al., 2023). Companies have begun to take ESG criteria more into account when planning their future operations and strategies (Whitelock, 2019; Gillan et al., 2021; Camilleri, 2015; Velte, 2017). These practices are most often examined in the reporting of non-financial information about companies (Miralles-Quiros et al., 2018). The beneficial consequences of ESG also include improved corporate reputation and increased consumer trust in the brand (Gillan et al., 2021; Camilleri, 2015; Kim et al., 2018). Companies are placing greater importance on social, corporate governance and environmental initiatives as a result of the beneficial effects of ESG strategies on overall business success. Nevertheless, there has been a recent hypothesis that global gross domestic product (GDP) could significantly decelerate as climate change significantly accelerates (Flavelle, 2023). Given the prevailing situation, organizations have started to pay more attention to reducing their environmental impact by incorporating sustainability benchmarks (Gundogdu et al., 2023).

Since the official introduction of the ESG concept in 2004, it has been vigorously pursued in America, Europe and other developed countries. A number of accomplishments have fostered the advancement and ripeness of social, environmental and governance drivers, as well as ESG

as a whole, such as the enactment of an ESG evaluation system, ESG exposure standards and an ESG indices system. These enablers are continually shaping a new paradigm for sustainable development. With the concept of ESG progressively turning into the mainstream, ESG has been extensively studied, practiced and disseminated in practice and has drawn the interest of scientists worldwide. Currently, there are few studies dedicated to ESG studies. More importantly, they mainly focus on ESG investment (Daugaard, 2020), the significance and relevance of ESG factors in financial decisiveness (Ziolo et al., 2019), the influence of ESG ratings on the measurement of corporate sustainability results (Drempetic et al., 2020), the importance of ESG indicators in SRI (socially responsible investing) (Widyawati, 2020) and the origin and significance of the ESG name in investment (Eccles, Viviers, 2011). Furthermore, there are literature surveys on the function and effects of corporate governance (G) in ESG (Yoshikawa et al., 2021) and studies discussing the relations between corporate social responsibility and corporate governance (Aluchna, Roszkowska-Menkes, 2019). It is noticeable at present that ESG research primarily focuses on one facet and there is not sufficient literature on social (S) and environmental (E) factors. On the other hand, governance, environmental and social layers have a major role to play in determining the future financial results and social influence of companies. Therefore, as an investment modality that embraces environmental, social and governance factors, ESG is an important driving factor for incentivizing corporate sustainability, and the mutual interaction between its strands is also a crucial point that deserves to be addressed.

A recent statistic indicates that ESG has become increasingly important (Broadstock, 2021). For example, 85% of companies in the S&P 500 index in the US submitted an ESG declaration and released their "sustainability reports" in 2018. (COSO & WBCSD, 2018). Since 2020, the demand for ESG-focused hedge funds has increased significantly (KPMG, 2023). It has been observed that companies with environmentally sensitive strategies and high ESG scores had good investment returns during the pandemic period (Broadstock, 2021; Albuquerque et al., 2020). As a result, companies are expected to pay more attention to ESG strategies in future years.

ESG in companies is an area avidly examined by researchers. In the literature, one can find surveys that combine the social media and ESG spheres, which include: strategies for communicating ESG-related activities on social media (Cho et al., 2017), the relationship between publishing ESG information on social media and company performance (Abbas, 2019), elements of ESG messages on social media (Saxton et al., 2019), consumer involvement in ESG communication on social media (Chu et al., 2020), or the impact of ESG messages on company reputation (Grover et al., 2019). However, few undertake qualitative research - those published to date include: rules and regulations in social media and their impact on limiting ESG messages (Stohl et al., 2017), co-creation of socially responsible activities with recipients of social media messages (Okazaki et al., 2020), branding of employers as socially

responsible in social media (Benitez et al., 2020) and elements of storytelling in ESG messages in social media (Araujo, Kollat, 2018).

ESG activities are also being promoted on social media by companies operating in the field of logistics and supply chain management. It is in this area where warehouses are vital links, with demand reaching record levels due to, among other things, the effects of Covid-19 and the increasing share of e-commerce in overall sales. Sustainability, corporate governance and social responsibility strategies are now becoming the cornerstones of investors, developers and tenants in the warehouse sector. Abundant surveys on the issue have demonstrated that environmentally benign approaches enhance the performance of logistics companies (Cosimato, Troisi, 2015; Cherrafi et al., 2018; Acciaro et al., 2014; Zavadzka et al., 2015; Green et al., 2012). On the other hand, the warehousing sector is one of the key contributors to worldwide greenhouse gas releases, the generation of waste, and energy and water usage. Crucially, the sector has addressed ESG challenges to ensure a more sustainable future, and above all, warehouse properties are one area of the industry that is likely to have a profound impact on the corporate governance society and environment (Newell, Marzuki, 2022). Hence, this article, embarking on a quantitative netnographic examination of social media communication of ESG activities by warehouse space developers, will help fill the research gap and advance current knowledge in this area.

2. Literature Review

2.1. The importance of ESG

In the wake of the change, companies have instituted a managerial approach that is responsive to "all stakeholders". The primary foundational goals of companies, which were initially deemed "profitability and value creation", have apparently evolved as a consequence of this transition to "value generation for all stakeholders". In this respect, Elkington (Elkington, 1997) suggested the "Triple Bottom Line" concept in his study. Rather than focusing purely on profitability, this approach allows companies to heed economic, social and environmental implications. The proliferation of worldwide sustainability ideas has brought CS and CSR to the forefront of company management in a continuous process. ESG principles have also been integrated into corporate policies in this respect (Whitelock, 2019; Gillan et al., 2021; Murphy et al., 2013). The idea of corporate sustainability has developed, especially with the increasing importance of this attitude in the relations between companies and their stakeholders (Perrini, Tencati, 2006). As a consequence of this approach, the need to assess companies using more criteria than their financial, economic and social impact is high-lighted (Nazari et al., 2015; Appuhami, Tashakor, 2017). In such circumstances, businesses are targeting changes that will

fulfill investor and stakeholder demands in order to bolster the trust and reputation of the brand (Gillan et al., 2021; Camilleri, 2015; Kim et al., 2018). Companies' policies for broad sustainability also incorporate many different processes, such as economic, fiscal, societal, environmental, cultural, institutional and technological drivers.

The extensive adoption of ESG practices by firms has also resulted in the enactment of CSR-specific policies (Murphy, McGrath, 2013). Depending on their sustainability goals, companies that apply the CSR concept may pursue various projects, such as engaging in activities to protect nature and the environment, and acting morally and responsibly toward society. Accordingly, companies may have the ability to benefit the environment and society beyond achieving efficiency and profitability (Berman et al., 1999; Abratt, Sacks, 1988; Steiner, G., Steiner, J.F., 2000; Moir, 2001).

Since ESG measures impose costs on companies, implementing them can have a negative impact on shareholder assets (Jha, Rangarajan, 2020; Branco, Rodrigues, 2008). The costs generated by these practices are seen as a factor that can negatively affect the value of companies due to short-term costs (Jha, Rangarajan, 2020; Branco, Rodrigues, 2008; Brammer et al., 2006; Kim, Lyon, 2015). On another hand, corporations also face the possibility of using ESG as a corporate wide cover to evade a comprehensive audit (Lokuwaduge, Heenetigala, 2017). Nonetheless, such practices are perceived as long-term investments with benefits expected to be materialized in the future (Miralles-Quiros et al., 2018). High upfront costs, especially in developing countries, may prompt companies to delay such investments, which translates into postponing the date after which the benefits will appear (Cai et al., 2016).

ESG, CSR and financial success are positively correlated, according to numerous studies in the literature (Gillan et al., 2021; De Lucia et al., 2020; Alshehhi et al., 2018; Friede et al., 2015; Ferrell et al., 2016; Margolis et al., 2009; Goll, Rasheed, 2004). Furthermore, there are instances where companies' sustainability, social responsiveness and ESG efforts have had a positive effect on financial performance (Velte, 2017; Galbreath, 2013).

Environmentally friendly initiatives can positively affect the performance of companies. Potential threats from climate change crises and global warming have increased investor demands, especially for environmentally sensitive companies (Ng et al., 2020). Despite this, multinational corporations do not have a unified ESG roadmap (Fransen, 2019), and efforts to achieve net zero emissions globally are unfortunately not at a satisfactory degree. In this context, ESG and eco-friendly initiatives are gaining popularity and importance.

In the literature, there are many studies on the virtuous impact of green policies on the performance of logistical businesses (Cosimato, Troisi, 2015; Cherrafi et al., 2018; Acciaro et al., 2014; Zavodska et al., 2015; Green et al., 2012). In addition, logistics and supply chain operations that are conceived and executed with the environment in mind have positive environmental impacts, such as reduced carbon emissions, reduced energy consumption and air pollution (Jaggernath, Khan, 2015). What's more, eco-innovative practices in processes, products and services have come into their own with the prevalent use of greener technologies

(Díaz-García et al., 2015). Consequently, the positive impact of environmental innovation practices on company performance (Fernando, Wah, 2017) has increased the number of subsequent initiatives, including ESG.

2.2. ESG in warehouse logistics

Managing the supply chain sustainably is the process of the management of raw resources and services from vendors to the manufacturer/service partner to the client and back again, with a clear emphasis on improving social and environmental impacts (Nozari, Ghahremani-Nahr, 2023). Reduced barriers to trade and improved technology (Jorgensen, Knudsen, 2006) have enabled businesses and supply chains to explore expansion across multiple regions and countries, compounding the need for sustainable end-to-end supply chain management. It is also not enough for companies to promote sustainability just inside their own organization - overall supply chains in general must be sustainably managed to continue to be competitive. Advantages of having a sustainable supply chain include enhanced brand appeal, consumer loyalty and stakeholder contentment, not to mention reduced social and environmental effects (Nozari, Ghahremani-Nahr, 2023). Possessing a sustainable supply chain would also enhance visibility and clarity in the entire chain, empowering businesses to respond quickly to changes in the market and emerging circumstances.

Warehousing is one of the crucial elements of the supply chain. In the past, most companies involved in warehousing and transportation gave limited consideration to the environmental implications of their operations and failed to understand the societal ramifications of their entrepreneurial activities. Such companies perceived such factors as cost effectiveness and client satisfaction to be key performance indicators (Linton et al., 2007; Quariguasi Frota Neto et al., 2008). However, this trend is changing and now developers, investors and tenants are paying a lot of attention to ESG measures (Gundogdu, 2023). Companies have begun to specialize in environmental, social and governance sustainability, and have experience in international logistics. In addition, companies are increasingly adjusting their future goals in accordance with a strategy focusing on ESG areas. ESG environmental categories encompass such issues as environmental cleanup, reduction of emissions, recycling, consumption of both natural resources and renewable energy while businesses are operating. Social criteria cover issues such as employee relations in terms of social working conditions and human resource practices. Corporate governance criteria refer to such matters as clear and qualitative management, diversity and attendance at board meetings (Whitelock, 2019; Galbreath, 2013; Ioannou, Serafeim, 2017; Park, Jang, 2021; SASB, 2023). The following ESG activities that are being implemented at warehouses can be mentioned (Gundogdu, 2023):

- greenhouse gas releases - managing and decreasing the amount of greenhouse gas production,
- energy and transportation management - handling energy volumes, assuring energy efficiency, using renewables, reducing carbon dioxide emissions, transportation management,
- air quality - governing and undertaking efforts against detrimental emissions to the natural environment (air pollutant emissions),
- water, sewage and hazardous materials economy - reduction of raw material and chemical wastes and management of pollution and waste levels,
- impact on biodiversity - protection of biodiversity with ecological vulnerability, limiting the use of non-renewable resources or outputs,
- people's rights and relationship with the community - applying business practices which respect and safeguard human rights, managing community relations and investments,
- availability and accessibility - providing access to and quality of products and services, deploying responsible corporate practices in the marketing,
- client well-being - delivering products and services that meet clients' satisfaction, taking into account their well-being,
- data security and confidentiality - assuring clients' privacy, data and product security,
- equitable employee practices - ensuring equitability, health and welfare of employees, effective human resource management,
- engagement of stakeholders - focuses on management participation options, like involvement of respective stakeholders in the management process and the existence of diversified, autonomous and highly experienced members,
- decision-making transparency - resolutions of the board of directors, making decisions and administrative actions available to the broader public,
- management of systemic risks - identifying and managing systemic risks related to creating long-term value,
- business ethics - firms and personnel operate in compliance with business ethics,
- supply chain management - a system of control that relies on the supply chain and supply of materials.

The aforementioned ESG activities are introduced in the warehouses to varying extents and are often accompanied by social media communication.

2.3. Marketing communication in social media

We are currently in a time of dynamic development of technologies that enable two-way communication of messages between brands and customers, which is particularly important in marketing activities. These include marketing tools, methods and procedures that are tailored to the expectations of digital customers, enabling the realization of the goals of their sender in

the real market conditions of enterprises (Anthony, Govindarajan, 2007). Marketing activities are carried out using, among other things, marketing communication, such as the many different ways in which companies try to inform and convince users and remind them of the products and brands they have to offer (Kotler, Keller, 2017).

Social media are defined in different ways. A commonly cited explanation is that of Kaplan and Haenlein (Kaplan, Haenlein, 2010). According to them, social media are a set of online applications founded on the conceptual and technical principles of Web 2.0 that enable the development and sharing of content generated by users. Whereas, according to Kotler and Keller (Kotler, Keller, 2017), social media is a medium which provides users with the ability to publish, share and perceive textual, graphic, audio and video content from other people. In particular, the theories outlined at this point focus on the technological component. Conversely, social media is a form of information transmission that occurs over sites or software applications that exist on the Internet, in communities and generated by their users (Polańska, 2011).

The worldwide use of social media is expanding each year. Currently, they are used by 4.76 billion users globally - more than 3% more compared to last year. Notably, users spend an estimated average of nearly 2.5 hours a day in this manner, with the most popular platforms being (Stelzner, 2023): Facebook, Instagram, LinkedIn, YouTube, Twitter, TikTok and Snapchat. On the other hand, in terms of the most used platforms by organizations, these are Facebook and Instagram. The underlying cause of widespread prevalence can be seen in the multiple benefits that emerge for both users using private fanpages on SM and for companies using business fanpages. In the case of the aforementioned first group, these may include possibilities associated with (Digital, 2023):

- filling free time,
- maintaining contact with friends and family,
- reading the news,
- checking what is being discussed,
- finding content.

Companies that are active in social media are usually not limited to one platform, but perform activities on several (Buchnowska, 2013). Each platform has its own specifics, which are associated with the ways in which companies operate within these platforms.

In terms of the business perspective, social media brings benefits mainly related to (Kotler, Keller, 2017; Stelzner, 2023):

- increased exposure and traffic,
- redirection to online shopping,
- increased sales,
- gaining customer information,
- developing a loyal community,
- stimulating business innovation.

LinkedIn is the most popular social media platform with a business focus. It serves to create business relationships, largely bringing together professionals and executives (Albrecht, 2011). Individual users can build their own profiles detailing things like employment history or work experience. The platform allows users to share valuable user-generated content, such as posts with photos or graphics or their own articles (Paliszkiwicz, 2016). Meanwhile, enterprises have the opportunity to use company profiles, where communication of branches or specific entities can be maintained. Thus, it has naturally become an appropriate space for communicating ESG activities.

3. Research Methodology

Due to the relatively low level of exploration of the topic of ESG in social media marketing communications, the authors of this text decided to diversify the purpose of the article:

1. to explore the topic of ESG activities in warehouse logistics and its communication in SM,
2. to carry out and present the results of quantitative research involving statistical analysis of the results of social media marketing publications on ESG.

The following research question was posed by analogy:

P1. Which area of ESG activity is most attractive to customers from the perspective of engagement on LinkedIn?

The research hypothesis was then stated:

H1. There is a statistically significant relationship between the amount of storage space and the marketing performance of publications on LinkedIn and is positive in nature.

To achieve the stated objectives and verify the hypotheses, a two-stage research process was designed. It began with a literature analysis and synthesis and was followed by a quantitative study of marketing performance.

Among other things, the first stage of the research defined the key areas of ESG activity in the real estate market (Table 1). This division became the basis for the second, quantitative stage of the research.

The study consisted of an analysis of online data from November 2022 - July 2023 compiled from the results of 140 posts published on the social media platform LinkedIn. This is because the pilot study, as well as the analysis of the literature, showed that this is the platform most often chosen to communicate ESG activities. The sample was selected purpose-fully, as the most recent 20 publications communicating ESG within the profile of companies - the largest warehouse space developers according to PropertyEU magazine's Best Logistics Developers ranking - were chosen as the research unit.

Table 1.
Key ESG areas in the warehouse properties market

Environmental	Social	Corporate Governance
Environmental protection	Relations with employees, suppliers, customers and communities	Standards of corporate governance, risk control and shareholder rights
Greenhouse gas emissions. Carbon footprint of the investment. Electricity sources and consumption. Waste management. Water consumption and quality. Use of renewable energies. Natural resources and land use. Biodiversity. Sustainable mobility policy. Green real estate certificates. Types of supply chains used.	Labor standards and labor relations. Equality, diversity and inclusiveness. Employee engagement and well-being. Health and safety. Workplace standards and conditions. Equal employment opportunities and fair wages. Anti-discrimination policies toward women and minorities. Accessibility for people with limited mobility. Human capital development. Impact on the functioning of local communities. Actions for social good outside its own sphere of business.	Business ethics and organizational culture. Disclosures and reporting. Business risk control. Data protection and privacy. Employment stability. Trade unionization. Countering corruption and bribery. Diverse management. ESG clauses in existing leases. Transparency with shareholders. Standards of business partners.

Source: own elaboration based on thinkco, 2022.

Statistical analysis included: a comparison of client engagement scores in publications on key ESG areas in the real estate market, and a correlation analysis of warehouse space and social media marketing scores. The survey included companies with the largest warehouse area in Europe based on projects completed in the 2020s: from 1,394,263 to 8,043,495 sqm. These were: Panattoni, CTP, VGP Group, Segro, Prologis, GLP Europe, WDP.

Measurement of social media marketing activities is possible using internal and external tools dedicated to this. Basic monitoring of activities usually takes place within the selected site. Typically, the key results relate to company awareness, such as the number of observers and the reach and views of content and also customer engagement within the profile. In the case of this analysis, the number of observers was selected as the awareness score and engagement, which is the sum of reactions, comments and shares. Today, engagement scores are considered crucial in the world of social media marketing.

4. Results and discussion

A statistical analysis of posts communicating ESG within LinkedIn for selected companies is presented in Table 2. It was observed that in most cases, communication of ESG-related activities formed the majority of a company's total communication on its LinkedIn profile.

Table 2.*Engagement on LinkedIn within key ESG areas*

Communicated ESG area	Number of entries	Average commitment
Environmental	74	93,202
Social	30	107,67
Corporate Governance	12	193,58
ESG in general	23	112,26

Source: own elaboration.

It proves that the most frequently communicated ESG area on LinkedIn is environmental aspects. However, they are associated with the lowest average engagement. This may be due precisely to the increasing popularity and inclusion of environmental aspects in the standards of companies in the development industry. The fewest posts on LinkedIn, on the other hand, were related to governance. This aspect, on the contrary, gained the highest average engagement from customers. Thus, the use of management area communications in social media marketing communications on LinkedIn is recommend-ed. The information gathered so far from the previous chapters and the above part of the quantitative research thereby answers the first research question.

Subsequently, Pearson's correlation coefficient has been used to examine the severity of the relation between the different variables. Once the analysis is executed, it may be concluded that there is a statistical significant correlation between the size of the warehouse and the outcome of publications communicating ESG on LinkedIn (Table 3).

Table 3.*Evaluating the correlation between warehouse size and marketing performance on LinkedIn*

		Engagement	Followers
Size of the warehouse	Pearson's correlation coefficient	0,805**	0,760**
	Correlation strength*	Very high	Very high

P - Pearson correlation coefficient; o - correlation score.

** correlation statistically significant at $\alpha = 0.01$.* $0.7 \leq \text{correlation very high} \leq 0.9$.

Source: own elaboration.

Expressed another way, the higher a company's ranking in the Best Logistics Developers, the higher its marketing results of ESG-related entries were also. Thus, among the most engaging communications can be listed those belonging to: Panattoni, CTP and VGP Group.

A stronger correlation occurred in the analysis of engagement scores. This agrees with current trends seen in digital marketing reports. According to them, social marketing activities should first and foremost engage the audience. Therefore, it is worth creating enough valuable content that customers have a reason to interact, recommend, comment and share. The very high strength of the correlation carries a practical implication for marketing departments of warehouse logistics companies to implement continuous ESG communication within LinkedIn. Based on the literature analysis and the pilot study, it is also suggested to implement such marketing communication within other social media platforms as well. The correlation study conducted does not provide grounds to reject hypothesis H1.

5. Conclusions

The presented article focused on exploring the topic of ESG activities in warehouse logistics and its communication in social media. The construction sector contributes significantly to greenhouse gas emissions. This includes both the building materials used to construct buildings, as well as the operational activities of existing warehouses. The sector therefore faces a number of challenges that it is socially expected to solve. Following in the footsteps of researchers, an increasing number of institutions at both the European and national levels are introducing laws and regulations to accelerate this process. EU directives, national laws and guidelines from independent institutes are aimed at forcing the industrial sector to respond and implement solutions. The ESG revolution is gaining momentum because of this. We are currently in a transitional phase, and there is still a lot of work to be done, but change is already inevitable. ESG activities that are being implemented by companies are being communicated in parallel on social media.

The authors' research showed that the most frequently communicated ESG area on LinkedIn was environmental aspects, although it was the one associated with the lowest average engagement. The fewest posts on LinkedIn, on the contrary, were about governance. This aspect, on the other hand, gained the highest average engagement from customers. The authors thus recognize that the areas of environment and management are the most interesting from a research perspective for further exploration. This can be both quantitative and qualitative in nature.

The article also presents the results of a quantitative study involving statistical analysis of the social media marketing results of ESG-related publications. It was found that there is a very high correlation between the size of the warehouse and consequently the ranking of developers in Europe and the results of publications communicating ESG on LinkedIn (Table 3). Based on the results, it can be recommended that further research should be pursued in the direction of engaging customers in ESG marketing communications.

Every study comes with limitations. In the case of this article, attention is drawn to the choice of the number of followers as the only awareness result. Although it is one of the most commonly measured outcomes, discussions among marketers are currently taking place around the validity of including this element in the context of marketing effectiveness. Another outcome measured in this case could be reach or displays, but these are confidential data and cannot be checked without access to a company's profile statistics. However, one can try to obtain such data from companies in the future. In the context of measuring engagement, there are other directions for research as well, such as measuring only qualitative engagement or comments with positive sentiment. In this case, it is suggested to use external social media monitoring tools.

References

1. Abbas, J., Mahmood, S., Ali, H., Ali Raza, M., Ali, G., Aman, J., Bano, S., Nurunnabi, M. (2019). The Effects of Corporate Social Responsibility Practices and Environmental Factors through a Moderating Role of Social Media Marketing on Sustainable Performance of Firms' Operating in Multan, Pakistan. *Sustainability*, Vol. 11, pp. 1-33.
2. Abratt, R., Sacks, D. (1988). The marketing challenge: Towards being profitable and socially responsible. *Journal of Business Ethics*, Vol. 7, pp. 497-507.
3. Acciaro, M., Ghiara, H. (2014). Cusano, M. Energy management in sea ports: A new role for port authorities. *Energy Policy*, Vol. 7, pp. 4-12.
4. Albrecht, G. (2011). *Chronic Environmental Change: Emerging 'Psychoterratic' Syndromes*.
5. Albuquerque, R., Koskinen, Y., Yang, S., Zhang, C. (2020), Resiliency of environmental and social stocks: An analysis of the exogenous COVID-19 market crash. *Review of Corporate Finance Studies*, Vol. 9(3), pp. 593-621.
6. Alshehhi, A., Nobanee, H., Khare, N. (2018). The impact of sustainability practices on corporate financial performance: Literature trends and future research potential. *Sustainability*, Vol. 10(2), p. 494.
7. Aluchna, M., Roszkowska-Menkes, M. (2019). Integrating corporate social responsibility and corporate governance at the company level. Towards a conceptual model. *Engineering Economics*, Vol. 30, pp. 349-361.
8. Anthony, R.N., Govindarajan, V. (2007). *Management control systems*. Boston: McGraw-Hill.
9. Appuhami, R., Tashakor, S. (2017). The impact of audit committee characteristics on CSR disclosure: An analysis of Australian firms. *Australian Accounting Review*, Vol. 27(4), pp. 400-420.
10. Araujo, T., Kollat, J. (2018). Communicating effectively about CSR on Twitter: The power of engaging strategies and storytelling elements. *Internet Research*, Vol. 28, pp. 419-431.
11. Benitez, J., Ruiz, L., Castillo, A., Llorens, J. (2020). How corporate social responsibility activities influence employer reputation: The role of social media capability. *Decision Support Systems*, Vol. 129.
12. Berman, S.L., Wicks, A.C., Kotha, S., Jones, T.M. (1999). Does stakeholder orientation matter? The relationship between stakeholder management models and firm financial performance. *Academy of Management Journal*, Vol. 42(5), pp. 488-506.
13. Brammer, S., Brooks, C., Pavelin, S. (2006). Corporate social performance and stock returns: UK evidence from disaggregate measures. *Financial Management*, Vol. 35(3), pp. 97-116.

14. Branco, M.C., Rodrigues, L.L. (2008). Factors influencing social responsibility disclosure by Portuguese companies. *Journal of Business Ethics*, Vol. 83(4), pp. 685-701.
15. Broadstock, D.C., Chan, K., Cheng, L.T.W., Wang, X. (2021). The role of ESG performance during times of financial crisis: Evidence from COVID-19 in China. *Finance Research Letters*, Vol. 38, p. 101716.
16. Buchnowska, D. (2013). Analiza i ocena poziomu wykorzystania mediów społecznościowych przez największe polskie przedsiębiorstwa. *Informatyka Ekonomiczna*, Vol. 4 (30). Uniwersytet Ekonomiczny we Wrocławiu, pp. 55-69.
17. Cai, L., Cui, J., Jo, H. (2016). Corporate environmental responsibility and firm risk. *Journal of Business Ethics*, Vol. 139(3), pp. 563-594.
18. Camilleri, M.A. (2015). Environmental, social and governance disclosures in Europe. *Sustainability Accounting, Management and Policy Journal*, Vol. 6(2), pp. 224-242.
19. Cherrafi, A., Garza-Reyes, J.A., Kumar, V., Mishra, N., Ghobadian, A., Elfezazi, S. (2018). Lean, green practices and process innovation: A model for green supply chain performance. *International Journal of Production Economics*, Vol. 206, pp.79-92.
20. Cho, M., Furey, L.D., Mohr, T. (2017) Communicating Corporate Social Responsibility on Social Media: Strategies, Stakeholders, and Public Engagement on Corporate Facebook. *Business and Professional Communication Quarterly*, Vol. 80, pp. 52-69.
21. Chu, S.C., Chen, H.T., Gan, C. (2020). Consumers' engagement with corporate social responsibility (CSR) communication in social media: Evidence from China and the United States. *Journal of Business Research*, Vol. 110, pp. 260-271.
22. Cosimato, S., Troisi, O. (2015). Green supply chain management: Practices and tools for logistics competitiveness and sustainability. The DHL case study. *The TQM Journal*, Vol. 27(2), pp. 256-276.
23. COSO & WBCSD (2018). Enterprise risk management: Applying enterprise risk management to environmental, social and governance-related risks. *Committee of Sponsoring Organizations of the Treadway Commission*.
24. Daugaard, D. (2020). Emerging new themes in environmental, social and governance investing: A systematic literature review. *Accounting & Finance*, Vol. 60, pp. 1501-1530.
25. De Lucia, C., Paziienza, P., Bartlett, M. (2020). Does good ESG lead to better financial performances by firms? Machine learning and logistic regression models of public enterprises in Europe. *Sustainability*, Vol. 12, p. 5317.
26. Díaz-García, C., González-Moreno, A., Sáez-Martínez, F.J. (2015). Ecoinnovation: Insights from a literature review. *Innovation: Management, Policy and Practice*, Vol. 17(1), pp. 6-23.
27. *Digital 2023: Global Overview Report*. Retrieved from: <https://datareportal.com/reports/digital-2023-global-overview-report>, 14.06.2023.

28. Drempetic, S., Klein, C., Zwergel, B. (2020). The influence of firm size on the ESG score: Corporate sustainability ratings under review. *Journal of Business Ethics*, Vol. 167, pp. 333-360.
29. Eccles, N.S., Viviers, S. (2011). The origins and meanings of names describing investment practices that integrate a consideration of ESG issues in the academic literature. *Journal of Business Ethics*, Vol. 104, pp. 389-402.
30. Elkington, J. (1997). Cannibals with forks: The triple bottom line of 21st century business. *Capstone*.
31. Fernando, Y., Wah, W.X. (2017). The impact of eco-innovation drivers on environmental performance: Empirical results from the green technology sector in Malaysia. *Sustainable Production and Consumption*, Vol. 12, pp. 27-43.
32. Ferrell, A., Liang, H., Renneboog, L. (2016). Socially responsible firms. *Journal of Financial Economics*, Vol. 122(3), pp. 585-606.
33. Flavelle, C. (2023). *Climate change could cut world economy by \$23 trillion in 2050, insurance giant warns. The New York Times*. Retrieved from: <https://www.nytimes.com/2021/04/22/climate/climate-changeeconomy.html>, 4.06.2023.
34. Fransen, L., Kolk, A. (2019). Rivera-Santos, M. The multiplicity of international corporate social responsibility standards: Implications for global value chain governance. *Multinational Business Review*, Vol. 27(4), pp. 397-426.
35. Friede, G., Busch, T., Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, Vol. 5(4), pp. 210-233.
36. Galbreath, J. (2013). ESG in focus: The Australian evidence. *Journal of Business Ethics*, Vol. 118(3), pp. 529-541.
37. Gillan, S.L., Koch, A., Starks, L.T. (2021). Firms and social responsibility: A review of ESG and CSR research in corporate finance. *Journal of Corporate Finance*, Vol. 66.
38. Goll, I., Rasheed, A.A. (2004). The moderating effect of environmental munificence and dynamism on the relationship between discretionary social responsibility and firm performance. *Journal of Business Ethics*, Vol. 49, pp. 41-54.
39. Green, K.W. Jr, Zelbst, P.J., Meacham, J., Bhadauria, V.S. (2012). Green supply chain management practices: Impact on performance. *Supply Chain Management: An International Journal*, Vol. 17(3), pp. 290-305.
40. Grover, P., Kar, A.K., Janssen, M., Ilavarasan, P.V. (2019). Perceived usefulness, ease of use and user acceptance of blockchain technology for digital transactions—insights from user-generated content on Twitter. *Enterprise Information Systems*, Vol. 13, pp. 771-800.
41. Gundogdu, H., Aytekin, A., Toptancı, Ş., Korucuk, S., Karamaşa, Ç. (2023). Environmental, social, and governance risks and environmentally sensitive competitive strategies: A case study of a multinational logistics company. *Business Strategy and the Environment*.

42. Ioannou, I., Serafeim, G. (2017). The consequences of mandatory corporate sustainability reporting. *Harvard Business School Research Working Paper*, pp. 11-100.
43. Jaggernath, R., Khan, Z. (2015). Green supply chain management. *World Journal of Entrepreneurship, Management and Sustainable Development*, Vol. 11(1), pp. 37-47.
44. Jha, M.K., Rangarajan, K. (2020). Analysis of corporate sustainability performance and corporate financial performance causal linkage in the Indian context. *Asian Journal of Sustainability and Social Responsibility*, Vol. 5(1), p. 10.
45. Jorgensen, A.L., Knudsen, J.S. (2006). Sustainable competitiveness in global value chains: how do small Danish firms behave? *Corporate Governance*, Vol. 6(4).
46. Kaplan, A.M., Haenlein, M. (2010). Users Of the World, Unite! The Challenges And Opportunities Of Social Media. *Business Horizons*, Vol. 53, pp. 59-68.
47. Kim, E.H., Lyon, T.P. (2015). Greenwash vs. brownwash: Exaggeration and undue modesty in corporate sustainability disclosure. *Organization Science*, Vol. 26(3), pp. 705-723.
48. Kim, K.H., Kim, M., Qian, C. (2018). Effects of corporate social responsibility on corporate financial performance: A competitive-action perspective. *Journal of Management*, Vol. 44(3), pp. 1097-1118.
49. Kotler, P., Keller, K.L. (2017). *Marketing management* (Fifteenth edition global edition Philippine). Pearson Education South Asia Pte.
50. KPMG (2023). *Sustainable investing: Fast-forwarding its evolution*. Retrieved from: <https://assets.kpmg/content/dam/kpmg/xx/pdf/2020/02/sustainable-investing.pdf>, 5.06.2023.
51. Linton, J.D., Klassen, R., Jayaraman, V. (2007). Sustainable Supply Chains: An Introduction. *Journal of Operations Management*, Vol. 25(6), No. 8.
52. Lokuwaduge, C.S.D.S., Heenetigala, K. (2017). Integrating environmental, social and governance (ESG) disclosure for a sustainable development: An Australian study. *Business Strategy and the Environment*, Vol. 26(4), pp. 438-450.
53. Margolis, J.D., Elfenbein, H.A., Walsh, J.P. (2009). Does it pay to be good? A meta-analysis and redirection of the research on the relationship between corporate social and financial performance. *Working paper*, 1-57.
54. Miralles-Quiros, M.M., Miralles-Quiros, J.L., Valente Gonçalves, L.M. (2018). The value relevance of environmental, social, and governance performance: The Brazilian case. *Sustainability*, Vol. 10(3), pp. 574-589.
55. Moir, L. (2001). What do we mean by corporate social responsibility. *Corporate Governance*, Vol. 1(2), pp. 16-22.
56. Murphy, D., McGrath, D. (2013). ESG reporting—Class actions, deterrence, and avoidance. *Sustainability Accounting, Management and Policy Journal*, Vol. 4(2), pp. 216-235.
57. Nazari, J.A., Herremans, I.M., Warsame, H.A. (2015). Sustainability reporting: External motivators and internal facilitators. *Corporate Governance: The International Journal of Business in Society*, Vol. 15(3), pp. 375-390.

58. Newell, G., Marzuki, J. (2022). The increasing importance of environmental sustainability in global real estate investment markets. *Journal of Property Investment and Finance*, Vol. 40(4), pp. 411-429.
59. Ng, T.H., Lye, C.T., Chan, K.H., Lim, Y.Z., Lim, Y.S. (2020). Sustainability in Asia: The roles of financial development in environmental, social and governance (ESG) performance. *Social Indicators Research*, Vol. 150(1), pp. 17-44.
60. Nozari, H., Ghahremani-Nahr, J. (2023) *Smart and Sustainable Supply Chain Management*.
61. Okazaki, S., Plangger, K., West, D., Menéndez, H.D. (2020). Exploring digital corporate social responsibility communications on Twitter. *Journal of Business Research*, Vol. 117, pp. 675-682.
62. Paliszkiwicz, J. (2016). Rola mediów społecznościowych w innowacyjnym kształceniu. In: *Innowacje w zarządzaniu i inżynierii produkcji, t. II* (pp. 914-915). Opole: Oficyna Wydawnicza Polskiego Towarzystwa Zarządzania Produkcją.
63. Park, S.R., Jang, J.Y. (2021). The impact of ESG management on investment decision: Institutional investors' perceptions of country-specific ESG criteria. *International Journal of Financial Studies*, Vol. 9(3), No. 48.
64. Perrini, F., Tencati, A. (2006). Sustainability and stakeholder management: The need for new corporate performance evaluation and reporting systems. *Business Strategy and the Environment*, Vol. 15(5), pp. 296-308.
65. Polańska, K. (2011). Biznesowy charakter mediów społecznościowych. *Zeszyty Naukowe Uniwersytetu Szczecińskiego*, Vol. 656, pp. 73-87.
66. Quariguasi Frota Neto, J., Bloemhof-Ruwaard, J.M., Nunen, J.A.E.E. van, Heck, H.W.G.M. van. (2008). Designing and evaluating sustainable logistics networks. *International Journal of Production Economics*, Vol. 111(2), No. 13.
67. SASB (2023). *SASB conceptual framework: Sustainability Accounting Standards Board*. San Francisco. Retrieved from: http://www.sasb.org/wpcontent/uploads/2019/05/SASB-Conceptual-Framework.pdf?source=post_page, 10.06.2023.
68. Saxton, G.D., Gomez, L.M., Ngoh, Z, Lin, Y., Dietrich, S. (2019). Do CSR Messages Resonate? Examining Public Reactions to Firms' CSR Efforts on Social Media. *Journal of Business Ethics*, Vol. 155, pp. 359-377.
69. Steiner, G., Steiner, J.F. (200). *Business, government, and society: A managerial perspective*. McGraw-Hill.
70. Stelzner, M. (2023). *Social Media Marketing Industry Report. How Marketers Are Using Social Media to Grow Their Businesses*. Retrieved from: <https://static1.squarespace.com/static/525c34f6e4b09199c2c2a427/t/6283774405877a23dd6f6be49/1652782925631/Industry-Report-2022-final.pdf>, 14.06.2023.
71. Stohl, C., Etter, M., Banghart, S., Woo, D. (2017). Social Media Policies: Implications for Contemporary Notions of Corporate Social Responsibility. *Journal of Business Ethics*, Vol. 142, pp. 413-436.

72. Tang, D.Y., Yan, J., Yao, Y. *The determinants of ESG ratings: Rater ownership matters*. Retrieved from: <https://ssrn.com/abstract=3889395>, 2.06.2023.
73. Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility*, Vol. 80(2), pp. 169-178.
74. Whitelock, V.G. (2019). Multidimensional environmental social governance sustainability framework: Integration, using a purchasing, operations, and supply chain management context. *Sustainable Development*, Vol. 27(5), pp. 923-931.
75. Widyawati, L. (2020). A systematic literature review of socially responsible investment and environmental social governance metrics. *Business Strategy and the Environment*, Vol. 29, pp. 619-637.
76. Yoshikawa, T., Nippa, M., Chua, G. (2021). Global shift towards stakeholder-oriented corporate governance? Evidence from the scholarly literature and future research opportunities. *Multinational Business Review*, Vol. 29, pp. 321-347.
77. Zavodska, M., Rakyta, M., Binasova, V. (2015). Sustainable concept for green logistics and energy efficiency in manufacturing. *DAAAM International Scientific Book*.
78. Ziolo, M., Filipiak, B.Z., Bak, I., Cheba, K. (2019). How to design more sustainable financial systems: The roles of environmental, social, and governance factors in the decision-making process. *Sustainability*, Vol. 11, p. 5604.