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# Corporate social responsibility and its communication on Twitter: analysis of the discourse and feelings generated in society

*Responsabilidad social corporativa y su comunicación en Twitter: análisis del discurso y los sentimientos generados en la sociedad*

Tatiana Cuervo-Carabel*, Sergio Arce-García[a], Natalia Orviz-Martínez[b]

[a] *Escuela Superior de Ingeniería y Tecnología (ESIT). Universidad Internacional de La Rioja (UNIR). Avda. de la Paz, 137. 26006 La Rioja (España) – sergio.arce@unir.net - https://orcid.org/0000-0003-0578-9787*

[b] *Escuela Superior de Ingeniería y Tecnología (ESIT). Universidad Internacional de La Rioja (UNIR). Avda. de la Paz, 137. 26006 La Rioja (España) – natalia.orviz@unir.net - https://orcid.org/0000-0002-8999-6179*

* **Corresponding author:** *Escuela Superior de Ingeniería y Tecnología (ESIT). Universidad Internacional de La Rioja (UNIR). Avda. de la Paz, 137. 26006 La Rioja (España) – tatiana.cuervo@unir.net – https://orcid.org/0000-0002-9548-6212*

## ARTICLE INFO

## ABSTRACT

The purpose of this work is to analyze on a global level, without focusing on any specific company or sector, the use that is being made of the social media Twitter to address the communication processes of CSR in companies. To do this, data was captured through programming in R and using an Application Program Interface (API) in Twitter. The data were analyzed using text mining techniques and graphical network analysis with the help of R and Gephi software, respectively. The results show that there are no notable groups or movements in the corporate sphere as generators of CSR content. The importance of the social perspective of CSR in communication processes should be emphasized. Finally, CSR generates positive feelings and emotions such as trust in society. It is concluded that there is no efficient use by companies of Twitter as a CSR communication tool, they are not taking into account the interests of their stakeholders, nor are they generating the dialogue and interaction necessary for communication to be effective. The main limitation is associated with the time period in which the sample was taken, which coincides with a period of strong social concern about the pandemic. It would be interesting for future research to analyze how the discourse changes over time, and to what extent an extraordinary social situation, such as the pandemic, is reflected in CSR communication.

*Keywords:* CSR, Twitter, Communication, Corporate, Social, Responsibility.

## RESUMEN

El objetivo de este trabajo es analizar a nivel global, sin centrarse en ninguna empresa o sector concreto, el uso que se está haciendo de la red social Twitter para abordar los procesos de comunicación de la RSC en las empresas. Para ello se hizo uso de captura de datos a través de programación en R y una Interfaz de Programación de Aplicaciones (API) en Twitter. Se trataron los datos mediante técnicas de minería de texto y análisis gráfico de redes con la ayuda respectivamente de los softwares R y Gephi. Los resultados muestran que no existen grupos o movimientos notables dentro del ámbito corporativo como generadores de contenido en materia de RSC. Además, se observa la importancia de la perspectiva social de la RSC en los procesos de comunicación de la misma. Por último, se pone de manifiesto que la RSC genera sentimientos positivos y emociones como la confianza en la sociedad. Se concluye que las empresas no están realizando un uso eficiente de Twitter como herramienta de comunicación de la RSC, no están teniendo en cuenta los intereses de sus partes interesadas, ni generando el diálogo y la interacción necesaria para que la comunicación sea eficaz. La principal limitación está asociada al periodo temporal en el que se toma la muestra que coincide con un momento de fuerte preocupación social por la pandemia. Sería interesante que futuras investigaciones analizaran cómo va cambiando el discurso a lo largo del tiempo, y en qué medida una situación social extraordinaria, como es el caso de la pandemia, se ve reflejada en la comunicación de la CSR.

*Palabras clave:* CSR, Twitter, Comunicación, Corporativa, Social, Responsabilidad.

## 1. INTRODUCTION

The concept of Corporate Social Responsibility (CSR) has evolved over the years. Ros-Diego and Castelló-Martínez (2012) pointed out that it is the voluntary integration of social, labor, environmental and human concerns into the company's procedures and policies on a voluntary basis.

CSR has been integrated into global business strategies of major companies to enhance their corporate reputation, establish organizational legitimacy, brand positioning, and improve relationships with different stakeholders (Diddi & Niehm, 2017; Lizarzaburu & Del Brio, 2016; Song & Wen, 2020).

CSR must create value for stakeholders (Peloza & Shang, 2011) as well as its communication, since stakeholders seek that organizations provide transparency about their products and services but also about their social, ethical and environmental actions into their business operations (Du et al., 2010; Nielsen & Thomsen, 2018). Thus, CSR and its communication have been gaining relevance over the years as academic research has highlighted its importance in multiple business aspects, which allow for the sustainability of organizations, constituting a competitive advantage for them (Castelló-Martínez, 2010; Bhattacharya et al., 2020).

The process via which organizations communicate their commitment to social and environmental concerns is called CSR communication (Nwagbara & Reid, 2013). Companies should use appropriate communication channels to communicate to different stakeholders their CSR practice. Among all these channels, since the emergence of social media platforms have received considerable attention from both scholars (Aguirre et al., 2021; Araujo & Kollat, 2018; Chae & Park, 2018; Etter, 2013; Gómez-Carrasco et al., 2020; Zhang et al., 2020) and organizations themselves. This has been due to their ability to not only broadcast for, but also to create bilateral dialogue with consumers through, for example, generating ideas, receiving feedback, and soliciting their participation (Lee et al., 2013; Saxton et al., 2021).

Throughout the literature there are three main lines of research focused on the analysis of the incorporation of social media in business communication strategies. As reported by Zhang et al. (2020), the first of them focuses on the analysis of the content of Twitter accounts (Go & Bortree, 2017; Robinson & Eilert, 2018). The second studies the elements of the messages (hashtags, videos, images, etc.) (Cho et al., 2009; Guillory & Sundar, 2014). And finally, the third focuses on communication strategies, through analysis of the interactivity cluster, bidirectional communication and community building (Castelló et al., 2016; Saxton et al., 2019).

This work is included within the third line, but with a different approach. Although there are studies which analyze how companies from different sectors use their Twitter accounts to carry out their communication of CSR (Araujo & Kollat, 2018; Lee et al., 2013; Rodrigo & Raya-González, 2015; Zhang et al., 2020), this study intends to take a step further by adopting a global vision and analyzing, without focusing on any company or account, which leads us to propose the following questions: Are there groups within the corporate sphere that are creating trends in CSR? What is the discourse used when talking about CSR on Twitter? What emotions and sentiments does CSR information generate? Precisely, this research addresses these questions by examining who are the main groups that disseminate CSR content, on the one hand, and on the other, the content and elements of messages or communication strategies, that is, what the discourse used in their publications is (Suárez-Rico et al., 2018), as well as the emotions and sentiments they generate, in order to know whether certain types of content lead to richer messages or greater interactivity, thus being more effective in conveying CSR messages to society, filling the existing gap in the literature reflected by Zhang et al. (2020).

This paper is organized as follows. After this introduction, the next section describes the theoretical background on the existing CSR literature and its communication, followed by the empirical design to develop research. Next, in the fourth section the results obtained are presented, and in the fifth, the discussion and interpretation of them is carried out. Finally, the sixth section concludes the implications of the findings for future research and practices, to end with the bibliographic references.

## 2. LITERATURE REVIEW

### 2.1. CSR as a source of competitive advantage

Throughout the literature, there are different definitions for the term CSR, becoming an unavoidable asset for any organization in any country (García-Hernández et al., 2017). All organizations should aim to invest in activities related to CSR, as it is a strategic tool (Bharadwaj & Yameen, 2021) that can help them become more competitive, innovative, effective and efficient (Bahta et al., 2021). Society requires socially responsible firms. In this sense, there are different works that directly relate CSR with the financial performance of organizations (Mackey et al., 2007; Mallin et al., 2014), their sustainability (Hsu, 2018) or with some of the main organizational variables which in turn are related to the financial performance such as reputation (Lizarzaburu & Del Brio, 2016), legitimacy (Díez-Martín et al., 2014), brand value (Abdolvand & Charsetad, 2013) or customer satisfaction (Loureiro et al., 2012). But not only are CSR practices important to generate reputation, legitimacy, brand value or customer satisfaction, so is their communication. Therefore, it is not enough just to carry out CSR activities, but rather to know how to communicate them correctly in order to achieve the principal intangible assets for organizations (Ardvinsson, 2010; Atakan-Duman & Ozdora-Aksak, 2014; Baghi et al., 2009; García & Llorente, 2009; Lock & Schukz-Knappe, 2019; Niño-Benavides & Cortés, 2018; Orozco-Toro & Ferré-Pavia, 2017). In consequence, CSR communication plays a fundamental role at a strategic level in organizations.

### 2.2. CSR communication

There are several characteristics that define the concept of CSR which must be considered: it is voluntary, includes a social commitment, affects the management of the company, includes the relationship with different interest groups and seeks to promote communication with them (Ros-Diego & Castelló-Martínez, 2012).

In this sense, it is important to highlight the crucial role that CSR communication plays in any organization, it being as impor-

tant as the CSR actions that are carried out (Tata & Prasad, 2015). Niño-Benavides and Cortés (2018) define CSR communication as: "the possibility of establishing collaborative networks, of dialoguing, of negotiating, of interacting, of managing, arranging and handling alliances so those who interact in different contexts make decisions and achieve their realization and well-being" (p. 129). As pointed out by Villagra *et al.* (2015) it is essential that the organization explain to its stakeholders what it does and why it does it, to strengthen their relationship with them.

In this current moment, we should not lose sight of the new open dialogue space with the emergence of Web 2.0; among others, social media allow organizations to interact with their stakeholders (Bonsón, 2011), increasing their visibility and strengthening their position in an increasingly competitive market (Ros-Diego & Castelló-Martínez, 2012). They have become indispensable environments to establish communication strategies for CSR (Abitbol & Lee, 2017) since they allow the values of the organization to be brought closer to their stakeholders (Castelló & Ros, 2012), to foster dialogue with them and to make their good practices known (Araujo & Kollat, 2018); not only that, but to allow them to get to know their stakeholders as well as their needs and expectations (Bonsón, 2011), since public relations influence on CSR communication (Ji *et al.*, 2020). At present, organizations cannot ignore social media when it comes to establishing their communication strategies. García (2015) collects in his work some data that allows one to make this claim: 3 out of 4 people use social media, more than 2/3 of the world's population visits social media, 93% of social media users believe that a company should have a presence among them. Organizations need to listen to the concerns of their stakeholders, to achieve this, they must make use of those channels where people express their opinion, such as social media (Castelló-Martínez, 2010).

It is important that companies analyze how and what to communicate about their CSR actions for the communication to be effective (Gómez & Vargas-Preciado, 2016); since, if there are deficiencies in the process it can be detrimental to their interests (Ju *et al.*, 2021; Orozco-Toro & Ferré-Pavia, 2013), especially if these actions are related to the so-called "greenwash" (Bajo & Villagra, 2007; Jahdi & Acikdilli, 2009). "The publication of commercial messages on digital media without a minimum quality criteria, can have a negative impact on the image and reputation of a certain organization" (Maestro *et al.*, 2018, p. 210). This is why organizations should not limit themselves to the development of marketing activities through their social media, but should go further and respond publicly to their stakeholders, as this is part of ethical business behavior (Saxton *et al.*, 2021). It is clear that social media are playing a crucial role in recent years when talking about communication, by allowing companies a direct dialogue with their stakeholders that helps them to know what their needs and expectations are (Aguirre *et al.*, 2021), becoming fundamental elements in both internal and external communication strategies of organizations (Zhang *et al.*, 2020).

*2.3. CSR communication through Twitter*

As previously discussed, social media have become a focus of attention for organizations that have had to adjust their communication strategies from a scenario in which the company communicated in a unidirectional way, to the need to create an environment of interactivity and dialogue with its stakeholders (Monfort *et al.*, 2019), in order for communication to be successful (Song & Wen, 2020).

Twitter is one of the most widely used social media worldwide. Twitter can be shown as a bubble of bubbles (Pariser, 2011), that reproduce a significant part of society. From its beginning it was studied if it is a good place to study public opinion (Murthy, 2011). It is considered like a place for citizen journalists and opinion to a global public and it is one of the leading social media platforms used by Business-to-Business (B2B) and Business-to-Consumer (B2C) marketers worldwide (Statista, 2020). Twitter has been used to research about CSR and public opinion (Rodríguez & Chalmeta, 2020) or other sectors like transport (Qi *et al.*, 2020), chemistry (Guerris *et al.*, 2020), medicine (De Las Heras-Pedrosa *et al.*, 2020) or political and executive influence on public opinion (Pérez-Serrano *et al.*, 2020).

Twitter has become a very important tool in the communication processes and therefore should be taken into account when establishing the communication strategies of CSR practices in organizations, because it is suitable for companies to disseminate information, build relationships, interact with stakeholders, and monitor public opinions (Zhang *et al.*, 2020). It not only allows for providing information to interested parties, but also to interact with them through "likes", retweets and replies (Saxton *et al.*, 2021). Etter (2013) lists three possible strategies that organizations can follow when establishing CSR communication procedures on Twitter: broadcasting strategy, when the organization simply disseminate their CSR information and do not react to questions; reactive strategy, when companies reply reactively to questions but do not proactively approach other members; engagement strategy, when companies react to questions and remarks and similarly approach other Twitter members directly.

To understand the importance of this social media when establishing the CSR communication strategy in organizations, we can observe the data provided by Rodríguez and Chalmeta (2020) in a sample of the most important companies in Europe (those listed in the Euro Stoxx 50):

— From 2009 to 2016 the percentage of companies with an official Twitter account increased from 34% to 96%.
— In 2009, only 12% of companies with official accounts posted tweets related to CSR, while in 2016, 88% of companies with official accounts posted tweets mentioning aspects of CSR.

However, despite the exponential growth in the use of Twitter as a CSR communication tool shown by these data, it does not seem clear that the communication strategies followed so far by organizations to communicate their CSR to society are effective (Gómez-Carrasco *et al.*, 2020), failing to achieve interaction and dialogue with their stakeholders (Zhang *et al.*, 2020).

## 3. METHODOLOGY

The first step in carrying out this analysis was the collection of data on Twitter. For this, the R application under RStudio was used in its version 1.2.5033 through the AcademicTwitteR library (Barrie & Chun-ting, 2021), which allowed for the creation

of an Application Programming Interface (API) 2.0 for academic and professional uses and more reliable than the free version, to download the tweets that fulfilled the following requirements: 1) include the expression "CSR OR corporate social responsibility OR social responsibility OR corporate responsibility OR business ethics responsibility", and 2) be written in English. The data was collected between January 1, 2021 at 0:00 a.m. and July 31, 2021 at 23:59 p.m. To establish the first search criterion, in addition to the main terms used to refer to corporate social responsibility, the term "business ethics responsibility" has been added because it is a term commonly associated with CSR (Fassin *et al.*, 2011) and will therefore provide a broader view of the publications.

The data collected was processed using network science and machine learning pathways: graphic analysis of networks of connections between users through the application of algorithms, analysis of text mining to observe the content and polarity analysis of feelings and emotions.

### 3.1. *Graphic analysis of networks of connections between users*

The graphic analysis of networks of connections between users was carried out using the Gephi free software program in version 0.9.2., which enables the creation of graphs that relate data to each other, facilitating their visual interpretation (Bastian *et al.*, 2009) through the modularity optimisation methodology based on the Louvain algorithm (Blondel *et al.*, 2008).

It should be taken into account that Gephi allows for a graphic visualization through network structures, considering the larger the circle is in size, the greater relevance of links to a certain element. It also allows for grouping by color the different elements in the cluster. A relationship analysis was developed, framing the users in different clusters by their modularity, representing the most retweeted users with a larger size, and separating them by modularity or cluster; together with the application of the algorithm *Open Ord* and later *Yifan Hu*, which permitted carrying out the follow-up of the retweets being ab to determine the most followed authors in their messages.

Through this analysis, a study was developed about the users who mainly publish about CSR, as well as their follow-up on the social media to answer the first question raised: Are there groups within the corporate sphere that are creating trends in CSR?

### 3.2. *Text mining analysis*

Secondly, the text mining analysis was developed with Natural Language Processing (NLP) techniques to determine in large amounts of text which are the most frequently used content words and what are the relationships between them, to determine the main framework of the texts eliminating subjective human intervention (Arce-García & Menéndez-Menéndez, 2018). This process was developed by programming in R according to Gil Pascual (2021).

For the treatment of the text under the stemming methodology, the Snowball algorithm was used, based on trimming the words to search for their morphological variants and group them. On the one hand, a correspondence analysis was performed between the most frequently used words, permitting to check for the presence of a pattern of behavior and appearance. On the other hand, a bivariate multidimensional analysis of the eight main clusters or groupings of words through the Ward's minimal variance method (1963) was carried out; for this analysis, the empty words (*stopwords*), articles, conjunctions and commonly used terms of connection between terms, which do not provide meaning, were eliminated. These words were collected from the website: https://www.ranks.nl/stopwords.

After the removal of words and symbols that do not make sense, two studies were carried out: a word cloud of the most frequent words, the larger and more central the more usual they are, and a dendrogram relating the most frequently used words to each other, grouping them into different clusters of association (using the k-means algorithm), to determine the main themes that are contributed in a large number of messages. These techniques, together with text mining and emotion and sentiment analysis, provide a measure of how discourses and possible controversies around a topic are constructed algorithmically (Garimella *et al.*, 2018).

With this analysis, we responded to the second of the questions posed in the work. What is the discourse used when talking about CSR on Twitter?

### 3.3. *Analysis of sentiments and emotions*

Currently, the assignment of emotions or polarity can be established by Bayesian or neural network techniques, among others, using learning models for algorithms. In this way, it not only detects words and expressions that have been prefixed in a certain sense, but is also capable of increasing or decreasing their level when processing previously untreated speech as a whole. The analysis of sentiments (polarity) and emotions was carried out using the attribution lexicon developed by the *National Research Council of Canada* in its version 0.92, which includes more than 14,000 terms for polarity and 25,000 for emotions in english (Mohammad & Turney, 2010, 2013) through the Syuzhet library (Jockers, 2017) in R. With this lexicon, the basic feelings —Anger, Anticipation (expression of rational thinking), Disgust, Fear, Joy, Sadness, Surprise and Trust— in people and their discourses are determined (Plutchik, 1980; Sauter *et al.*, 2010). This natural language processing technique would represent a way of determining the degree of positive or negative subjectivity and its intensity, which, although it is very advanced in English, has the disadvantage of not being as developed in other languages (around 70% certainty in Latin languages) (Mohammad, 2016).

With the application of this method, we seek to respond to the last question raised: What emotions and sentiments does CSR information generate in society?

### 4. RESULTS

The data collection yielded a total of 740 966 tweets, 264 607 direct and 476 389 indirect or retweets, which means that 64.3% are forwarded messages, compared to 35.7% which are original comments.

The most common hashtags during those days were: #CSR (46 552), #sustainability (13 900), #covid19 (5 713), #green

(3 837), #corporatessocialresponsibility (2 489), #healthcare (514), #health (308), #mindfullness (38). In this way, CSR is mainly related to sustainability, health care (especially linked at this time to the global pandemic of Covid-19) and the environment.

### 4.1. Graphic analysis of network connections between users

The results of the analysis of indirect comments or retweets show a high modularity (0.931), there being groups with a very clear message, which means that the tweets can be conceived as being linked to certain accounts that set trends or are *influencers*. There are 14 748 communities, where the 12 largest groups represent 47% of retweets. There are 326 527 nodes (users) and 396 790 edges, which means an average of approximately 1.215 retweets per user.
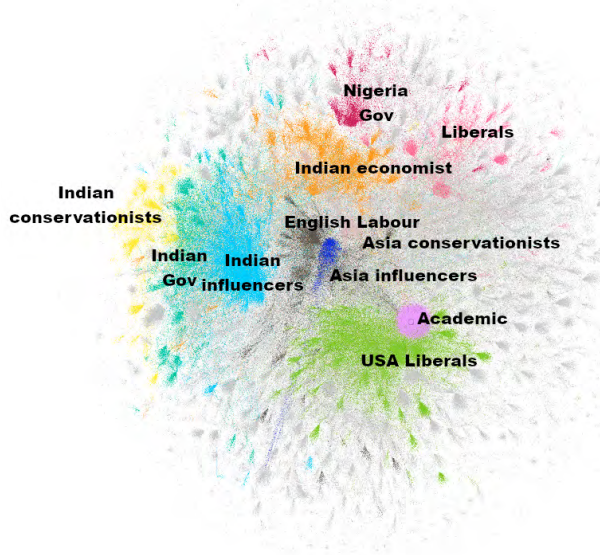


Figure 1
**Analysis of the relationship of retweets**
*Source:* Own elaboration.

Figure 1 also shows how users are framed in different clusters because of their modularity. As can be seen, there are a number of groups formed where the topic is brought to the forefront. Thus, the largest group talking about CSR is the academic community, with 10.26% of RT traffic. The remaining groups come more from political or government movements, followed by environmental conservation and human rights groups. Thus, US liberal groups have 7.57% of the number of messages, Indian family and nationalist influencer groups 4.43%, followers of British Labour politician Jeremy Corbyn 4.38%, Indian economists 4.22%, US liberals close to former president Trump 3.17%, Indian government 3.14%, Southeast Asian environmental and human rights conservationists 2.62%, Indian conservationists 2.07%, Southeast Asian influencers 1.81% and Nigerian government 1.71%. It can thus be seen that the scope of CSR is mainly confined to academia, government (in Asia, with a strong focus on India,

and in Africa) and in liberal circles in the USA and left-wing Labour in the UK. There are no notable groups or movements on the corporate side. Although they are well defined, they are related and there are no opposing groups. The rest of the groups fall below 1.62% of movement each, so they have little impact.

All the groups have mainly geographical relationships with each other, with groups in Africa, India and the rest of Asia on the one hand, and the Anglo-Saxon world and the United States on the other. The core of the network is around English Labour and Asian climate conservationists, while the academic sphere is mainly related to US liberals. The CSR debate is therefore political rather than business-related.

### 4.2. Analysis by text mining

Figure 2 shows, by a word cloud of the most frequently used concepts, the strongest relationships expressed. Thus, around the terms "social" and "responsibility", the fear of covid disease and the request for protection that should be given by corporations to their employees, a fundamental aspect at the time the sample was taken, can be seen. Thus, the words "right", "vaccine", "world", "public", "funds" or "employees" appear around "companies", "work", "company", "job", "personal" and "government". It is therefore a petition around companies, with a strong focus especially in India, for the care of their workers and compliance with pandemic security measures.



Figure 2
**Cloud of words on CSR**
*Source:* Own elaboration.

To carry out a deeper analysis of the discourses, a multidimensional analysis grouped by cluster was developed in a dendrogram, as shown in Figure 3. The dendrogram is a graphical representation of the most frequently used words that provide meaning in a related way by statistical and cluster grouping. Through this representation, it is possible to appreciate how each word is related to others and to identify the main topics in large amounts of text without having to read each message.
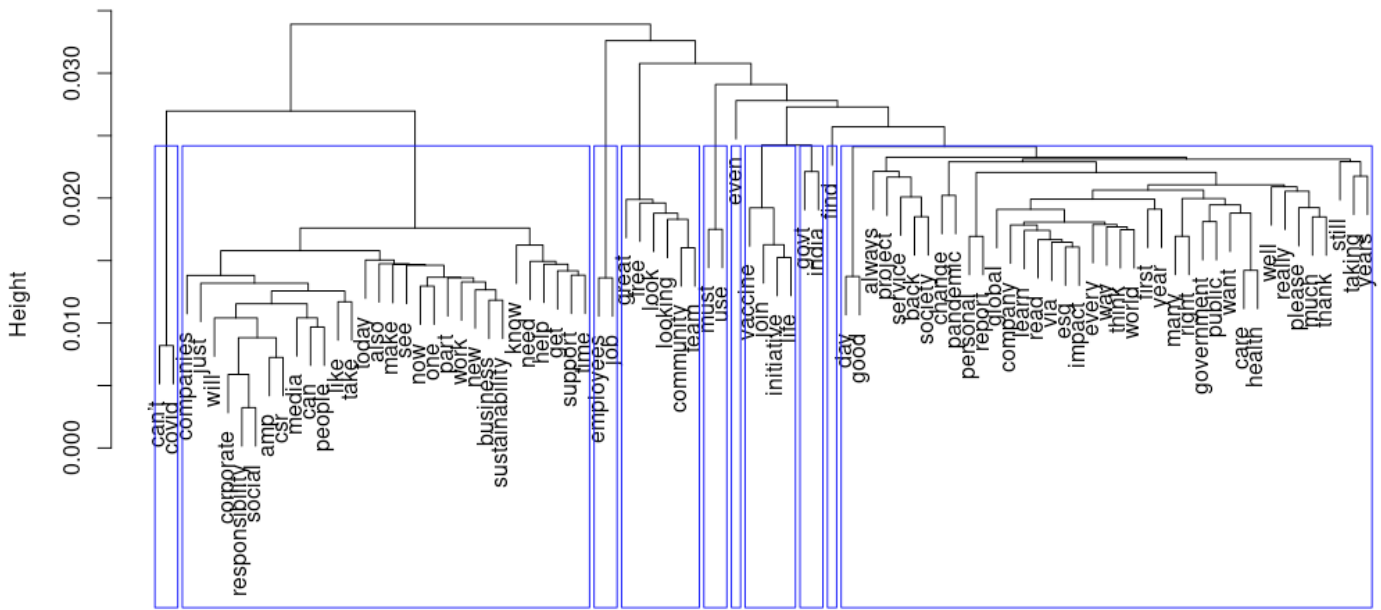
Figure 3
**Dendrogram analysis on CSR**
*Source:* Own elaboration.

In dendrogram analysis carried out through text mining between the most used meaning contributing words 10 main groups of association, the main themes can be identified, marked in blue boxes. In this way, the concern for covid can be seen, but also how companies are requested, through corporate social responsibility, whereby they should, on the one hand, understand the needs of society over time regarding CSR and how it must become a necessity for business sustainability. On the other hand, it is emphasized how business projects offer a service to society and that it affects globally, although especially in the third world and with respect to the issue of health. The other groups of words focus on the participation of governments (mainly India) and companies in the vaccination of workers, all of which has an impact on the community.

### 4.3. Analysis of sentiments and emotions

The results of the analysis of sentiments, or polarity, and their level of intensity (Figure 4) show that the number of positive tweets (395 236) is much higher than the number of negative tweets (143 835), with 198 925 neutrals, making clear that CSR generates a positive feeling in society. Not only are there more positives, but they are also more intense.

The results of the analysis of the emotions (Figure 5) show that tweets generate trust or confidence (24.31%), followed by anticipation (related to rational thinking) and joy. Trust becomes fundamental when talking about reputation, legitimacy, brand value or customer satisfaction, which indicates that through a good communication strategy of CSR organizations can increase the confidence of their stakeholders, improving in this way the

intangible assets mentioned. Fear appears in third position, ahead of joy, due to the influence of the pandemic on workers' health and contagion. The presence of this adverse emotion is therefore due to a specific situation at the time analyzed, with the presence of a global pandemic.
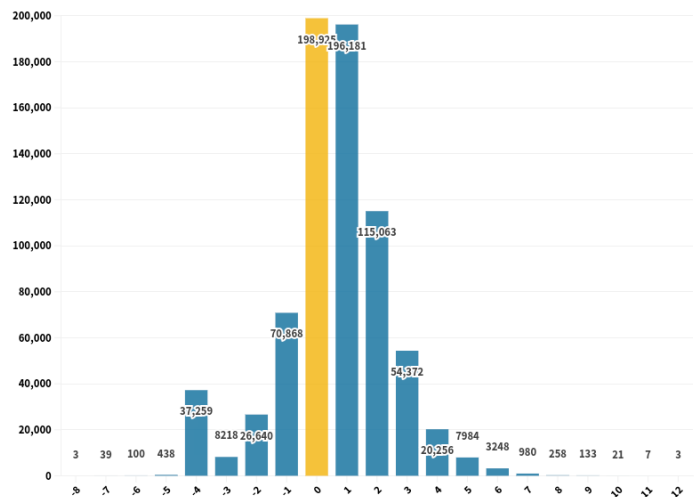


Figure 4
**Sentiment analysis**
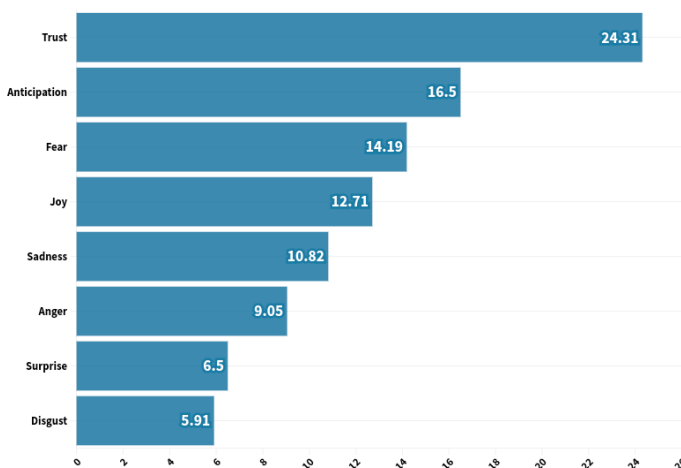*Source:* Own elaboration.

Figure 5
**Presence of emotions in %**
*Source:* Own elaboration.

## 5. DISCUSSION

The objective of this work was to analyze on a global level, without focusing on any specific company or sector, the use that is being made of the social media Twitter to address the communication processes of CSR in companies. Firstly, it was looked into who the main trend creators were to determine the existence of CSR trend-setting groups within the corporate environment. Secondly, the discourse used in social media when talking about CSR was analyzed. And finally, the emotions and sentiments generated by CSR information in society were studied, to demonstrate its importance.

The analysis yielded a total of 740 996 tweets, 264 607 direct and 476 389 indirect tweets or retweets which were used to carry out the study. 64.3% of the messages are forwarded, compared to 35.7% which are original comments. A high degree of dissemination (retweets) of CSR messages is observed, something already highlighted by Araujo and Kollat (2018). There are no notable groups or movements on the corporate side, which shows that they are not developing adequate communication strategies for communicating CSR on Twitter, their message is not setting a trend or reaching the community. These results would be well in line with what was established by Zhang *et al.* (2020), who points out that the tweets focused more on providing information than on facilitating an interactive dialogue. Although the use of Twitter as a communication tool by organizations has undergone exponential growth in recent years, companies have so far not adopted a strategy focused on enhancing such interaction (Rodríguez & Chalmeta, 2020), something that is essential to ensure the effectiveness of communication (Zhang *et al.,* 2020). This does not imply that companies are not developing CSR activities, but do not use Twitter's potential to convey to their stakeholders what they are doing in this area. It should be noted that even if they post information about specific activities carried out on Twitter, they are not linking it to the CSR. It can be said that the scope of discussion is mainly fostered by politi-

cal, activist and academic institutions, but is not followed by the business sector. It is clear that the significance and importance of CSR has been increasing in recent years, receiving growing attention from academia, society and politics, as highlighted by Gatti *et al.* (2019).

It is worth highlighting the presence of some groups or movements from a developing country like India among the "*influencers*" in the matter. This result could be associated with the fact that since 2014 there is a law in India (Corporate India) which establishes certain CSR actions as mandatory to remedy poverty and social problems. This point brings up the ever-present debate about whether CSR practices should be mandatory by law. Without getting into debating this point, because it is not the objective of this work, it seems clear that there are two key factors for a developing country like India to have four clusters setting a trend in the CSR issue worldwide. India is betting on technological development, as well as CSR as tools for change and the sustainable development of the country. This fact confirms the importance of social media, in this case, Twitter, as a tool for the communication of CSR (Rodríguez & Chalmeta, 2020; Zhang *et al.,* 2020; Aguirre *et al.,* 2021). As authors such as Rodríguez and Chalmeta (2020) had claimed, our work has shown how the establishment of CSR communication strategies through social media and being constant in maintaining a daily dialogue with interested groups, can make the message, reaches the entire world, making the organization an *influencer* in the matter of CSR, which will give it credibility and trust.

Another issue that has been emphasized in this work is the discourse used when we talk about CSR. Concern for Covid is reflected and makes health and pandemic management one of the central themes in the messages analyzed. These results highlight the importance of the social perspective of CSR, in line with Barauskaite and Streimikiene (2020) who point out that there is a social demand towards companies and their participation and contribution to the welfare of society. In this sense, it can be stated that it is essential for companies to understand the needs of society over time so that their discourses are in line with their interests (Aguirre *et al.,* 2021) and thus achieve the interactivity and dialogue necessary to ensure effective communication (Rodríguez & Chalmeta, 2020; Zhang *et al.,* 2020).

Finally, it has been shown that the emotions generated by the concept of CSR are mainly: trust, anticipation or rational thinking and joy. Taking into account that there are several studies which point to trust as essential to improve intangible assets such as, reputation, legitimacy, brand value and customer satisfaction (Ardvinsson, 2010; Baghi *et al.,* 2009; Dutot *et al.,* 2016). It is amply clear that by establishing an adequate communication strategy for CSR (Aguirre *et al.,* 2021), congruent with the company's core business (Abitbol & Lee, 2017) and that considers the different interest groups (Gómez & Vargas-Preciado, 2016), organizations can improve these intangible assets and with it their strength in an increasingly competitive market. It has become essential for companies to know how stakeholders perceive and subsequently react to CSR initiatives (El Akremi *et al.,* 2018).

To this end, it is important to select the topics to be addressed in a way that allows stakeholders to interact and generate a dialogue with them (Abitbol & Lee, 2017; Song & Wen, 2020). In this sense, one should not lose sight of the fact that if

the strategy is not the right one, the impacts can be detrimental to the image and reputation of the organization (Chae & Park, 2018), in case the message can be perceived as a commercial message (Maestro *et al.*, 2018) and relates to greenwash (Jahdi & Acikdilli, 2009), transforming those positive emotions we are talking about into negative such as distrust and skepticism (Song & Wen, 2020).

## 6. CONCLUSIONS

The aim of this paper was to present an overview of the use of Twitter as a CSR communication tool. The results obtained allow the following conclusions to be drawn:

—There is no efficient use by companies of Twitter as a CSR communication tool, as they are not achieving the interaction and dialogue with stakeholders that has been identified in previous research as key. It can be argued that at the business level, organizations are currently not exploiting the potential of this social network to carry out CSR communication and are therefore not taking advantage of the competitive advantage it provides.
—When establishing CSR communication strategies through social media, the companies should focused their attention on the social perspective, seeking the link between the message and the needs of stakeholders, as this is what will allow for greater interactivity and dialogue, and therefore make communication more effective, as previously mentioned.
—A successful CSR communication strategy will allow organizations to generate a positive feeling in their stakeholders. This positive sentiment is associated, as previously shown, with an increase in trust and confidence in the company, which in turn can have a positive impact on some of the main intangible assets of the company. It can be concluded that CSR communication is a business management tool that should be integrated at a strategic level in organizations.

From an academic point of view, this work has allowed further investigation into one of the three main lines of research established by Zhang *et al.* (2020) and focused on the analysis of the incorporation of social media into business communication strategies, through the analysis of the interactivity cluster, bidirectional communication and community building. In practical terms, at a company level, the results highlight the importance of establishing appropriate CSR communication strategies by companies to create value, generating a positive feeling towards the company and trust in its stakeholders, so that this positively influences the main intangible assets of the organization. Achieving interactivity and dialogue with messages that take into account the needs of stakeholders becomes essential.

One of the main limitations of this work is associated with the time period in which the sample was taken, which coincides with a period of strong social concern about the pandemic. While it is true that this fact has made it possible to highlight the importance of adapting the message to the needs of the stakeholders at each moment to achieve messages that have a high impact, it would be interesting for future research

to analyze how the discourse changes over time, and to what extent an extraordinary social situation, as is the case of the pandemic, is reflected in the communication of the CSR. Another limitation that could be mentioned would be related to the research method used since although mass analysis techniques allow the analysis of large amounts of data, they are evolving tools that pose problems in the presence of double language, irony or the use of jargon, not contemplated when it comes to establishing sentiment or polarity. However, as these are studies that do not focus on a few messages, but on a fairly large overall, these limitations are fairly diluted between the totality and the average.

## 7. ACKNOWLEDGEMENTS

## 8. REFERENCES

Abdolvand, M., & Charsetad, P. (2013). Corporate social responsibility and brand equity in industrial marketing. *International Journal of Academic Research in Business and Social Sciences, 3*(9), 273-284. https://doi.org/10.6007/IJARBSS/v3-i9/208

Abitbol, A., & Lee, S. Y. (2017). Messages on CSR-dedicated Facebook pages: What works and what doesn't. *Public Relations Review, 43*(4), 796-808. https://doi.org/10.1016/j.pubrev.2017.05.002

Aguirre, C., Ruiz, S., Palazón, M., & Rodríguez, A. (2021). El rol del eWOM en la comunicación de RSC en redes sociales. *Anagramas-Rumbos y Sentidos de la Comunicación, 19*(38), 11-33. https://doi.org/10.22395/angr.v19n38a2

Araujo, T., & Kollat, J. (2018). Communicating effectively about CSR on Twitter: The power of engaging strategies and storytelling elements. *Internet Research, 28*(2), 419-431. https://doi.org/10.1108/IntR-04-2017-0172

Arce-García, S., & Menéndez-Menéndez, M. I. (2018). Aplicaciones de la estadística al framing y la minería de texto en estudios de comunicación. *Información, Cultura y Sociedad, 39*, 61-70. https://doi.org/10.34096/ics.i39.4260

Ardvinsson, S. (2010). Communication of Corporate Social Responsibility: A Study of the Views of Management Teams in Large Companies. *Journal of Business Ethics, 96*(3), 339–354. https://doi.org/10.1007/s10551-010-0469-2

Atakan-Duman, S., & Ozdora-Aksak, E., 2014. The role of corporate social responsibility in online identity construction: An analysis of Turkey's banking sector. *Public Relations Review, 40*(5), 862–864. https://doi.org/10.1016/j.pubrev.2014.07.004

Baghi, I., Rubaltelli, E., & Tedeschi, M. (2009). A Strategy to Communicate Corporate Social Responsibility: Cause Related Marketing and its Dark Side. *Corporate Social Responsibility and Environmental Management, 16*(1), 15-26. https://doi.org/10.1002/csr.174

Bajo, A., & Villagra, N. (2007). *Evolución conceptual y práctica de una gestión responsable.* Madrid: Universidad Pontificia Comillas.

Bahta, D., Yun, J., Islam, M. R., & Ashfaq, M. (2021). Corporate social responsibility, innovation capability and firm performance: evidence from SME. *Social Responsibility Journal, 17*(6), 840-860. https://doi.org/10.1108/SRJ-12-2019-0401

Barauskaite, G., & Streimikiene, D. (2020). Corporate social responsibility and financial performance of companies: The puzzle of concepts, definitions and assessment methods. *Corporate Social Responsibility and Environmental Management*, 28(1), 278-287. https://doi.org/10.1002/csr.2048

Barrie, C., & Chun-ting, H. J. (2021). AcademictwitteR: an R package to access the Twitter Academic Research Product Track v2 API endpoint. *Journal of Open Source Software*, 6(62), 3272. https://doi.org/10.21105/joss.03272

Bastian, M., Heymann, S., & Jacomy, M. (2009). Gephi: An Open Source Software for Exploring and Manipulating Networks. In: *Proceedings of the Third International ICWSM Conference*, 17-20 de mayo, San Jose, California.

Bharadwaj, S., & Yameen, M. (2021). Analyzing the mediating effect of organizational identification on the relationship between CSR employer branding and employee retention. *Management Research Review*, 44(5), 718-737. https://doi.org/10.1108/MRR-05-2020-0298

Bhattacharya, A., Good, V., Sardashti, H., & Peloza, J. (2020). Beyond Warm Glow: The Risk-Mitigating Effect of Corporate Social Responsibility (CSR). *Journal of Business Ethics*, 171, 317–336. https://doi.org/10.1007/s10551-020-04445-0

Blondel, V., Guillaume, J., Lambiotte, R., & Lefebvre E. (2008). Fast unfolding of communities in large networks. *Journal of Statistical Mechanics: Theory and Experiment*, 10, 1-12. https://doi.org/10.1088/1742-5468/2008/10/P10008

Bonsón, E. (2011). Responsabilidad social corporativa y redes sociales de comunicación: RSC2. *AECA: Revista de la Asociación Española de Contabilidad y Administración de Empresas*, 93, 12-13.

Castelló-Martínez, A. (2010). La sensibilización medioambiental en redes sociales online. *Fisec-Estrategias*, 13, 23-46.

Castelló, A., & Ros, V. (2012). CRS Communication through online Social Media. *Revista Latina de Comunicación Social*, 67, 47-67. https://doi.org/10.4185/RLCS-067-947-047-067

Castelló, I., Etter, M., & Årup Nielsen, F. (2016). Strategies of legitimacy through social media: The networked strategy. *Journal of Management Studies*, 53, 402-432. https://doi.org/10.1111/joms.12145

Chae, B. K., & Park, E. O. (2018). Corporate social responsibility (CSR): A survey of topics and trends using Twitter data and topic modeling. *Sustainability*, 10(7), 2231. https://doi.org/10.3390/su10072231

Cho, C. H., Phillips, J. R., Hageman, A. M., & Patten, D. M. (2009). Media richness, user trust, and perceptions of corporate social responsibility. *Accounting, Auditing & Accountability Journal*, 22(6), 933-952. https://doi.org/10.1108/09513570910980481

De Las Heras-Pedrosa, C., Rando-Cueto, D., Jambrino Maldonado, C., & Paniagua-Rojano, F.J. (2020). Analysis and study of hospital communication via social media from the patient perspective. *Cogent Social Sciences*, 6(1), 1718578. https://doi.org/10.1080/23311886.2020.1718578

Díez-Martín, F., Blanco-González, A., Cruz-Suárez, A., & Prado-Román, C. (2014). Efecto de la responsabilidad social empresarial sobre la legitimidad de las empresas. *Anuario Jurídico y Económico Escurialense*, 47, 325-348.

Diddi, S., & Niehm, L. S. (2017). Exploring the role of values and norms towards consumers' intentions to patronize retail apparel brands engaged in corporate social responsibility (CSR). *Fashion and Textiles*, 4(1). https://doi.org/10.1186/s40691-017-0086-0

Du, S., Bhattacharya, C. B., & Sen, S. (2010). Maximizing business returns to corporate social responsibility (CSR): The role of CSR communication. *International Journal of Management Reviews*, 12(1), 8–19. https://doi.org/10.1111/j.1468-2370.2009.00276.x

Dutot, V., Lacalle Galvez, E., & Versailles, D. W. (2016). CSR communications strategies through social media and influence on e-reputation: An exploratory study. *Management Decision*, 54(2), 363-389. https://doi.org/10.1108/MD-01-2015-0015

El Akremi, A., Gond, J. P., Swaen, V., De Roeck, K., & Igalens, J. (2018). How do employees perceive corporate responsibility? Development and validation of a multidimensional corporate stakeholder responsibility scale. *Journal of Management*, 44(2), 619-657. https://doi.org/10.1177%2F0149206315569311

Etter, M. (2013). Reasons for low levels of interactivity: (Non-) interactive CSR communication in Twitter. *Public Relations Review*, 39(5), 606-608. https://doi.org/10.1016/j.pubrev.2013.06.003

Fassin, Y., Van Rossem, A., & Buelens, M. (2011). Small-business owner-managers´perceptions of business ethics and CSR-related concepts. *Journal of Business Ethics*, 98, 425-453. https://doi.org/10.1007/s10551-010-0586-y

García, J. S. (2015). Desarrollo de las redes sociales como herramienta de marketing. Estado de la cuestión hasta 2015. *Anagramas: Rumbos y Sentidos de la Comunicación, 14*(26), 179-196.

García-Hernández, M., Martínez-Rodrigo, E., & Victoria-Mas, J. (2017). Responsabilidad Social Corporativa, divulgación científica y pymes biotecnológicas. Una propuesta de punto de partida. *Universia Business Review*, 53, 108-149. https://doi.org/10.3232/UBR.2017.V14.N1.03

García, M. L., & Llorente, C. (2009). La Responsabilidad Social Corporativa: Una Estrategia Para Conseguir Imagen y Reputación. *Revista ICONO14 Revista Científica de Comunicación y Tecnologías Emergentes*, 7(2), 95-124. https://doi.org/10.7195/ri14.v7i2.319

Garimella, K., de Francisci Morales, G., Gionis, A., & Mathiaouakis, M. (2018). Quantifying Controversy on Social Media. *ACM Transactions on Social Computing*, 1(1), 3. https://doi.org/10.1145/3140565

Gatti, L., Vishwanath, B., Seele, P., & Cottier, B. (2019). Are we moving beyond voluntary CSR? Exploring theoretical and managerial implications of mandatory CSR resulting from the New Indian Companies Act. *Journal of Business Ethics*, 160(4), 961-972. https://doi.org/10.1007/s10551-018-3783-8

Gil Pascual, J. A. (2021). *Minería de textos con R. Aplicaciones y técnicas estadísticas de apoyo*. Universidad Nacional de Educación a Distancia (UNED).

Go, E., & Bortree, D. S. (2017). What and how to communicate CSR? The role of CSR fit, modality interactivity, and message interactivity on social networking sites. *Journal of Promotion Management*, 23(5), 727–747. https://doi.org/10.1080/10496491.2017.1297983

Gómez-Carrasco, P., Guillamón-Saorín, E., & García-Osma, B. (2020). Stakeholders versus Firm Communication in Social Media: The Case of Twitter and Corporate Social Responsibility Information. *European Accounting Review*, 30(1), 31-62. https://doi.org/10.1080/09638180.2019.1708428

Gómez, L. M., & Vargas-Preciado, L. (2016). 140 Characters for CSR Communication: An Exploration of Twitter Engagement of Fortune Companies. In Crowther, D. & Lauesen, L.M. (Eds), *Accountability and Social Responsibility: International Perspectives* (Developments in Corporate Governance and Responsibility, Vol. 9, pp. 205-221). Emerald Group Publishing Limited. DOI: https://doi.org/10.1108/S2043-052320160000009009

Guerris, M., Cuadros, J., Gonzalez, L., & Serrano, V. (2020). Describing the Public Perception of Chemistry on Twitter. *Chemistry Education Research and Practice*, 3. https://doi.org/10.1039/C9RP00282K

Guillory, J. E., & Sundar, S. S. (2014). How does Web site interactivity affect our perceptions of an organization? *Journal of Public Relations Research*, 26(1), 44-61. https://doi.org/10.1080/1062726X.2013.795866

Hsu, F. J. (2018). Does corporate social responsibility extend firm life-cycles? *Management Decision*, 56(11), 2408-2436. https://doi.org/10.1108/MD-09-2017-0865

Jahdi, K. S., & Acikdilli, G. (2009). Marketing communications and corporate social responsibility (CSR): Marriage of convenience or shotgun wedding? *Journal of Business Ethics*, *88*(1), 103-113. https://doi.org/10.1007/s10551-009-0113-1

Ji, Y. G., Tao, W., & Rim, H. (2020). Mapping corporate social responsibility research in communication: A network and bibliometric analysis. *Public Relations Review, 46*(5), 101963. https://doi.org/10.1016/j.pubrev.2020.101963

Jockers, M. (2017). *Syuzhet, extracts sentiment and sentiment-derived plot arcs from text*. https://www.rdocumentation.org/packages/syuzhet/versions/1.0.4

Ju, R., Dong, C., & Zhang, Y. (2021). How controversial businesses communicate CSR on Facebook: Insights from the Canadian cannabis industry. *Public Relations Review, 47*(4), 102059. https://doi.org/10.1016/j.pubrev.2021.102059

Lee, K., Oh, W. Y., & Kim, N. (2013). Social media for socially responsible firms: Analysis of Fortune 500's Twitter profiles and their CSR/CSIR ratings. *Journal of Business Ethics*, *118*(4), 791-806. https://doi.org/10.1007/s10551-013-1961-2

Lizarzaburu, E. R., & Del Brio, J. (2016). Responsabilidad Social Corporativa y Reputación Corporativa en el sector financiero de países en desarrollo. *Globalización, Competitividad y Gobernabilidad de Georgetown/Universia*, *10*(1), 42-65. https://doi.org/10.3232/GCG.2016.V10.N1.02

Lock, I., & Schulz-Knappe, C. (2019). Credible corporate social responsibility (CSR) communication predicts legitimacy. *Corporate Communications, 24*(1), 2-20. https://doi.org/10.1108/CCIJ-07-2018-0071

Loureiro, S. M., Sardinha, I. M.D., & Reijnders, L. (2012). The effect of corporate social responsibility on consumer satisfaction and perceived value: the case of the automobile industry sector in Portugal. *Journal of Cleaner Production*, *37*, 172-178. https://doi.org/10.1016/j.jclepro.2012.07.003

Mackey, A., Mackey, T. B., & Barney, J. (2007). Corporate social responsibility and firm performance: investor preferences and corporate strategies. *Academy of Management Review*, *32*(3), 817–835. https://doi.org/10.5465/amr.2007.25275676

Maestro, L., Cordón, D., & Abuín, N. (2018). La comunicación publicitaria en entornos digitales: herramientas para garantizar la reputación corporativa. *Revista Prisma Social*, *22*, 209-228.

Mallin, C., Farag, H., & Ow-Yong, K. (2014). Corporate social responsibility and financial performance in Islamic Banks. *Journal of Economic Behavior & Organization*, *103*, S21-S38. https://doi.org/10.1016/j.jebo.2014.03.001

Mohammad, S. (2016). Sentiment Analysis: Detecting Valence, Emotions, and Other Affectual States from Text. *Emotion Measurement*, 201-237. https://doi.org/10.1016/B978-0-08-100508-8.00009-6

Mohammad, S., & Turney, P. (2010). Emotions Evoked by Common Words and Phrases: Using Mechanical Turk to Create an Emotion Lexicon, in *Proceedings of the NAACL-HLT 2010 Workshop on Computational Approaches to Analysis and Generation of Emotion in Text*, June 2010, LA, California.

Mohammad, S., & Turney, P. (2013). Crowdsourcing a Word-Emotion Association Lexicon. *Computational Intelligence*, *29*(3), 436-465. https://doi.org/10.1111/j.1467-8640.2012.00460.x

Murthy, D. (2011). Twitter: Microphone for the masses? *Media, Culture & Society*, *33*(5), 779-789. https://doi.org/10.1177/0163443711404744

Monfort, A., Villagra, N., & López-Vázquez, B. (2019). Exploring stakeholders' dialogue and corporate social responsibility (CSR) on Twitter. *Profesional de la Información*, *28*(5), 1-15. https://doi.org/10.3145/epi.2019.sep.13

Nielsen, A. E., & Thomsen, C. (2018). Reviewing corporate social responsibility communication: a legitimacy perspective. *Corporate Communications: An International Journal*, *23*(4), 492-511. https://doi.org/10.1108/CCIJ-04-2018-0042

Niño-Benavides, M. P., & Cortés, M. I. (2018). Comunicación estratégica y responsabilidad social empresarial, escenarios y potencialidades en creación de capital social: una revisión de la literatura. *Revista Prisma Social*, *22*, 127-158.

Nwagbara, U., & Reid, P. (2013). Corporate social responsibility communication in the age of new media: towards the logic of sustainability communication. *Review of International Comparative Management*, *14*(3), 400-414.

Orozco-Toro, J. A., & Ferré-Pavia, C. (2013). La comunicación estratégica de la Responsabilidad Social Corporativa. *Razón y Palabra*, *83*, 706-726

Orozco-Toro, J. A., & Ferré-Pavia, C. (2017). La percepción de la reputación corporativa de los stakeholders de una empresa de comunicación: cómo afecta a Televisió de Catalunya comunicar una acción de responsabilidad social corporativa. *Palabra Clave, 20*(2), 473-505. https://doi.org/10.5294/pacla.2017.20.2.8

Pariser, E. (2011). *The Filter Bubble*. Penguin Books.

Pérez-Serrano, M. J., García-Santamaría, J. V., & Rodríguez-Pallares, M. (2020). The social media presence of Ibex 35 top executives and their role as influencers. *Communication & Society*, *33*(2), 313-328. https://doi.org/10.15581/003.33.2.313-328

Peloza, J., & Shang, J. (2011). How can corporate social responsibility activities create value for stakeholders? *Journal of the Academy of Marketing Science*, *39*(1), 117-135. https://doi.org/10.1007/s11747-010-0213-6

Plutchik, R. (1980). A general psychoevolutionary theory of emotion. *Emotion: Theory, Research, and Experience*, *1*(3), 3–33. https://doi.org/10.1016/B978-0-12-558701-3.50007-7

Qi, B., Costin, A., & Jia, M. (2020). A framework with efficient extraction and analysis of Twitter data for evaluating public opinions on transportation services. *Travel Behaviour and Society*, *21*, 10-23. https://doi.org/10.1016/j.tbs.2020.05.005

Robinson, S., & Eilert, M. (2018). The role of message specificity in corporate social responsibility communication. *Journal of Business Research*, *90*, 260–268.

Rodrigo, E. M., & Raya-González, P. (2015). La Responsabilidad Social Corporativa de Campofrío a través de su perfil de Twitter. *Prisma Social: Revista de Investigación Social*, *14*, 274-301.

Rodríguez, P., & Chalmeta, R. (2020). Analysis of the use of Twitter as a tool for the management and communication of the CSR of leading European firms. *International Journal of Web Based Communities (IJWBC)*, *16*(2). https://doi.org/10.1504/IJWBC.2020.107157

Ros-Diego, V. J., & Castelló-Martínez, A. (2012). CSR communication through online social media. *Revista Latina de Comunicación Social*, *67*, 47-67. https://doi.org/10.4185/RLCS-067-947-047-067-EN

Sauter, D. A., Eisner, F., Ekman, P., & Scott S. K. (2010). Cross-cultural recognition of basic emotions through nonverbal emotional vocalizations. *Proceedings of the National Academy of Sciences*, *107*(6), 2408–2412. https://doi.org/10.1073/pnas.0908239106

Saxton, G. D., Gomez, L. M., Ngoh, Z., Lin, C., & Dietrich, S. (2019). Do CSR messages resonate? Examining public reactions to firms' CSR efforts on social media. *Journal of Business Ethics*, *155*, 359–377. https://doi.org/10.1007/s10551-017-3464-z

Saxton, G. D., Ren, C., & Guo, C. (2021). Responding to Diffused Stakeholders on Social Media: Connective Power and Firm Reactions to CSR-Related Twitter Messages. *Journal of Business Ethics, 172*, 229–252. https://doi.org/10.1007/s10551-020-04472-x

Statista (2020). Leading social media platforms used by B2B and B2C marketers worldwide as of January 2020. https://www.statista.com/statistics/259382/social-media-platforms-used-by-b2b-and-b2c-marketers-worldwide/

Song, B., & Wen, J. (2020). Online corporate social responsibility communication strategies and stakeholder engagements: A comparison of controversial versus noncontroversial industries. *Corporate Social Responsibility and Environmental Management*, *27*(2), 881-896. https://doi.org/10.1002/csr.1852

Suárez-Rico, Y. M., Gómez-Villegas, M., & García-Benau, M. A. (2018). Exploring Twitter for CSR disclosure: Influence of CEO and firm characteristics in Latin American companies. *Sustainability*, *10*(8), 2617. https://doi.org/10.3390/su10082617

Tata, J., & Prasad, S. (2015). CSR communication: An impression management perspective. *Journal of Business Ethics*, *132*(4), 765-778. https://doi.org/10.1007/s10551-014-2328-z

Villagra, N., López, B., & Monfort, A. (2015). La gestión de intangibles y la marca corporativa: ¿ha cambiado algo en la relación entre las empresas y la sociedad? *Revista Latina de Comunicación Social*, *70*, 793-812. https://doi.org/10.4185/RLCS-2015-1072

Ward, J-H. (1963). Hierarchical grouping to optimize an objective function. *Journal of the American Statistical Association*, *58*, 236-244. https://doi.org/10.1080/01621459.1963.10500845

Zhang, S., Gosselt, J. F., & de Jong, M. D. (2020). How large information technology companies use Twitter: Arrangement of corporate accounts and characteristics of tweets. *Journal of business and technical communication*, *34*(4), 364-392. https://doi.org/10.1177/1050651920932191