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## Miscellaneous

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**Natalia Sánchez-Arrieta**  
<https://orcid.org/0000-0002-9220-2229>  
natalia.sanchez-arrieta@upc.edu  
Universitat Politècnica de Catalunya

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**Ferran Sabate**  
<https://orcid.org/0000-0002-0718-5891>  
ferran.sabate@upc.edu  
Universitat Politècnica de Catalunya

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**Antonio Cañabate**  
<https://orcid.org/0000-0002-9417-2617>  
antonio.canabate@upc.edu  
Universitat Politècnica de Catalunya

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## Examining the Communication Shared on X-Platform by Member Companies of a Social Impact Forética Cluster

### Abstract

This paper aims to examine how companies in a cluster communicate their activities on X-platform (formerly Twitter). Three main tasks were considered in this study: 1) an analysis of Tweet (formerly tweet) level messages according to the subject matter posted; 2) an analysis of the messages at the tweet level in terms of the communication design; 3) an analysis of the affective connotation of the language used in each message. We examined a sample of tweets posted for one year by member companies of a Social Impact cluster. The results indicate that the cluster companies use X-platform (formerly Twitter) to communicate their corporate activities with a weekly frequency that ranges from 5 to 182 posts. The analysis of the messages shows that i) there is a predominance of posts referring to corporate products and services as opposed to corporate social responsibility; ii) companies post to create community; and, iii) graphic and audio-visual resources within the content of the posts are predominant. The results have both practical and academic implications, which can be used to develop strategies for companies to take advantage of the social networking site's capabilities or tools and develop plans for building strong relationships with their audience.

### Keywords

**Corporate Communication, Content Analysis, Language Connotation, Social Impact Cluster, X-platform.**

## 1. Introduction

Corporate communication is the strategic tool used by companies to obtain an added value that enhances their financial, economic, and social profitability. This is achieved by being coherent in developing a corporate culture within the company and managing its positioning in society. It is also achieved by investing in dynamic competition based on the innovation of strategic alliances. For this reason, companies invest in participating in clusters to encourage and support cooperative relationships within their competitive context, as well as to ensure that their communication actions favour the advancement of collective objectives (i.e., Lee & Hallak, 2020).

Whether it is to convey institutional, commercial, or corporate value messages, it is a reality that companies use communication as one of the factors that constantly permeate the process of managing their activities (Illia & Balmer, 2012; Ajayi & Mmutle, 2021; Sterbenk et al., 2022).

Thus, it is a growing trend for companies to invest in communicating their activities on social networking sites (SNS). This involves faster dissemination, interaction, and timely response, as well as increasing their integration into the social environment (Hoffman & Novak, 2012; Peters et al., 2013).

Institutional relations within a cluster are being managed predominantly through SNS platforms. Here, companies form networks of direct and indirect contacts, which are useful in promoting their business or social responsibility activities towards the pursuit of long-term benefits. As social actors, companies should work on strategising their multi-disciplinary publications by integrating both corporate and prosocial guidelines, which implies creating messages to targeted audiences grounded towards the achievement of specific outcomes (Eriksson, 2018; Holtzhausen et al., 2021).

The literature presents a considerable number of studies concerning why companies use SNSs (e.g., Kim et al., 2014), how the audience responds (e.g., Saxton & Waters, 2014) and what are the strategies for communicating on SNS platforms (e.g., Bonsón et al., 2014; Dijkmans et al., 2015). Proposals have even been put forward on how to work on designing strategies for business publications to reach targeted audiences, planned with prepared responses towards the achievement of various corporate goals (Eriksson, 2018; Holtzhausen et al., 2021). However, the methods used in corporate communication studies on the SNS platform vary, including surveys, interviews, and web content analysis. In this paper, the information available on the SNS platform, where companies in a cluster communicate their activities, has been considered a data source. With regard to content analysis, several attempts have been made to categorise the microblogging message (Java et al., 2007; Naaman et al., 2010). However, these previous studies obtained tweets by groups of relevant keywords, unlike the present work, which focuses on the coding and analysis of messages posted by a set of companies forming a cluster.

First, this research is limited to companies that are part of a cluster and seek joint benefits. For this purpose, the Forética Social Impact cluster (SI-Forética) was selected, which focuses on the exchange of experiences and increased cooperation on sustainable issues. Forética has various projects and solutions grouped into five thematic areas. In the Social thematic branch, there is the social impact cluster as a business meeting point on sustainability, which is made up of more than 50 companies from different sectors. Second, it is limited to working with publications made on the X-platform (formerly Twitter) because it i) facilitates the rapid dissemination of resources in text format, links, articles, opinions, etc.; ii) allows the flow of resources between network actors that make up a cluster; iii) allows the amplification of corporate activities using retweets, mentions, etc.; iv) among others. Third, it is limited to working with original posts and retweets with a mention.

Examining the communication of the companies in the SI-Forética cluster on the X-platform is of interest because it is considered a referent of social action as the Spanish representative of the World Business Council for Sustainable Development (WBCSD) and because its companies can use the SNS platform to promote their corporate activities (Forética, 2023, 2024).

To sum up, this paper aims to examine how companies in the SI-Forética cluster communicate their activities on the X-platform by analysing the messages at the tweet level and the affective connotation of the language used in each message. Thus, the second section of the paper presents the basics of corporate communication in SNS. The third section details the research objectives and the research questions. Section four presents the method with the criteria adopted, the analysis procedure followed, and its reliability. The fifth section develops a discussion of the results obtained. Section six presents the conclusions and brings together

the implications and future research that can contribute to the literature on corporate communication in SNSs.

## **2. Corporate communication on SNS**

For some years now, the field of corporate communication has been facing a new paradigm shift focused on how companies can improve interactions with their social groups (Inoue & Kent, 2014; Sung et al., 2021). Interactions most frequently take place on SNS platforms with the intention to promote positive perceptions of business qualities (Dijkmans et al., 2015). Thus, companies publish information about their corporate activities to show their identity and values, and to connect with many more people in less time.

The flow of corporate communication on SNSs is between a company (as a source) and an audience (as a receiver) on a virtual platform (as a channel or transmission medium). The company codes the message based on programming, design, and content factors to attract a large number of contacts and generate engagement, loyalty, cooperation, etc. Once the message reaches the audience, the decoding process takes place, which consists of capturing the content, processing the idea received, and taking a possible action towards the company or other social groups (e.g., responding to it, recommending it, sharing it, etc.), perhaps based on a previous encoding (Brucks & Levav, 2022). When the core audience sends the message to other social groups, members may proceed to decode and encode it, generating a continuous retransmission, as well as a volume of reactions that make the message popular. Possibly, at this point, there will be many contacts who interpret the original message differently (Swani et al., 2017; Holtzhausen et al., 2021).

This leads companies to select communication strategies in SNSs that enhance the corporate mission and values, thus ensuring that the message disseminated is unique even when it is rebroadcast. In the literature, there are different typologies of corporate communication strategies, which are based on the factors of content (topics), design (function, types of digital and audio-visual resources), and scheduling (frequency, date, and time) (e.g., de Vries et al., 2012; Lovejoy & Saxton, 2012; Luarn et al., 2015). Previous research has found, first, that the use of digital and audio-visual resources (i.e., photo, video, audio), as well as the placing of text elements, signs, or symbols, translate into increased levels of interaction between companies and their contacts on SNS platforms. This, in turn, increases the relevance of the message and leads to increased participation of different social groups (Lei et al., 2017).

Second, companies have been found to post on SNS platforms with random and fluctuating scheduling patterns depending on the day of the week, with more activity on workdays than non-workdays, particularly on Mondays (Rutz & Bucklin, 2011; Menon et al., 2019). Third, the type of issue-focused content as an important factor in corporate communication strategy comprises two main types: i) publishing about corporate capabilities, which emphasises the company's products, goods, and services; and ii) publishing about social responsibility initiatives (Dacin & Brown, 2002; Valentine & Fleischman, 2007; Yuan, 2019). The importance of joint planning factors in corporate communication strategy has also been demonstrated. An example of this is found in the contribution of Cvijikj and Michahelles (2013), who presented that publications reporting corporate skills increase the duration of interaction within a community with common interests.

However, to date, few empirical contributions have explored communication strategies based on the content, design, and scheduling of posts made by a business cluster on the X-platform.

### 3. Research aims

Increasingly, any initiative or effort made by companies to increase interaction and integration in the social environment is reflected in their behaviour on SNS platforms. It is therefore necessary that their communication strategies on these platforms follow both corporate guidelines and honest, positive, and prosocial guidelines.

Thus, this paper aims to examine how companies in the SI-Forética cluster communicate their activities on the X-platform; as well as to identify the communication characteristics the companies use in their publications on the X-platform. For this purpose, the following set of research questions (RQ) has been posed,

RQ1: What is the level of activity that companies in the cluster have on the X- platform?

RQ2: What are the topics that companies in the cluster disseminate?

RQ2 (a): To which of the CSR dimensions do the topics of the publications belong?

RQ3: What is the intention of the messages published by the cluster companies?

RQ4: What kind of communication resources do the cluster companies use to spread their activities?

RQ5: What is the connotation of the language of the messages published by the cluster companies?

Among the strengths of this study are: i) unlike other research that has evaluated corporate communication, it does not work with a database from surveys, but considers as a source of data the information available on the SNS platform; ii) it focuses on a set of companies that make up a cluster that works for the common good, rather than obtaining tweet from a group of relevant keywords; iii) it classifies the messages published by cluster companies.

### 4. Method

#### 4.1. Data collection

In this study, it was decided to work with the X-platform as a source for obtaining the publications. This is mainly because: a) it is a platform that allows dialogue and communication in real-time; b) it allows citing business profiles to increase their visibility; c) it contains an abundance of information in the form of metadata of great interest; d) it plays a crucial role in the social and commercial activities of companies; e) it allows two-way information exchange due to its public and open dialogic nature (Lovejoy & Saxton, 2012); f) it is a credible source of information for an organisation's business and social operations (Westerman et al., 2014); and g) it is considered a beneficial tool for communicating social initiatives when used in crises (Etter, 2014; Zeler et al., 2022). This study was conducted when the platform was called Twitter and represented communication and relationships between users. We believe that the transition to X will affect the communication strategies of companies that rely on social networks such as Twitter (now X-platform) because content moderation is mainly done through artificial intelligence.

The unit of analysis is the tweet that the companies in the SI-Forética cluster posted (original and retweet) between March 2021 and March 2022. In order to collect data on these organisations, the first step was to determine which had X-platform profiles and which were active. Each company's website was searched and found to have a prominent link on the homepage to their X-platform account. Once the X-platform profiles were identified, an X-platform list was created to include the profiles of the leading companies and participants of the SI-Forética cluster. It was observed that almost 57.1% of the companies operate in the services, consumer discretionary, and commodities sectors, 32.1% are companies in the

industrial sector (energy, automotive, construction, aeronautics) and 10.8% are companies in the financial sector.

The names of the companies studied can be found at Forética (2024). It should be noted that there were companies that had no profile on the platform and some companies had two depending on their regions or business units (e.g., Mapfre, L'Oreal) and/or with profiles of their foundations (e.g., Lily, ICO, Maragall). However, we mainly considered profiles in Spain, those that appeared on the companies' websites, and those that are considered multipurpose. In total for the period 2021–2022, this study analysed 79 profiles of companies in the cluster forming the list on the X-platform.

Once the list was created, software created with algorithms was used to connect to X-platform's Application Programming Interfaces (APIs) and extract the complete tweet information (e.g., identifier, date and time, text of the post, whether it is original or a retweet, the number of favourites, retweets and mentions the post received, etc.). After extraction, the data were processed using Python scripts to eliminate duplicates, among others. As a result, a total of 75,010 tweets were obtained, which were stored in a previously selected path in a .csv file.

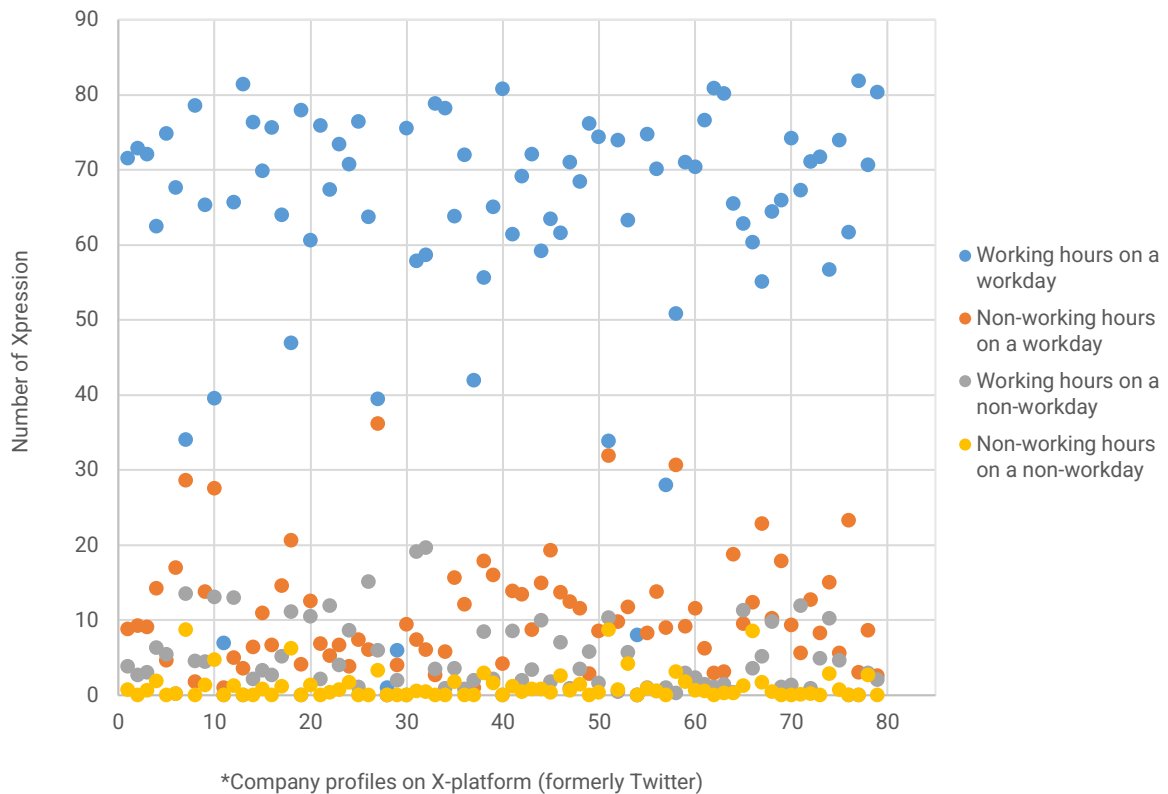
#### 4.2. Data distribution

In the study period, the total set of messages (original and retweets with a mention) published by companies in the SI-Forética cluster on the X-platform was 75,010 tweets. From this set of messages, we have taken a sample to ensure an adequate treatment of the data from a qualitative research point of view allowing us meaningful interpretations from the data analysis. Following the sampling techniques, the theoretical sample size was calculated on approximately 6,715 tweets for the 79 business profiles of the cluster analysed (Mittal et al., 2021). However, in some company profiles (e.g., estrelladamm, ikeaspain, etc.) fewer tweets were posted thus the sample of tweets analysed was 6,314 (original and retweets with a mention).

Once the sample was estimated and following the stratified random sampling technique, the tweets were distributed proportionally into four categories: i) number of tweets published on working days during working hours (category one); ii) number of tweets published on working days outside working hours (category two); iii) number of tweets published on non-working days during working hours (category three); and iv) number of tweets published on non-working days outside working hours (category four). In this study, working hours were considered to be between 8:00 and 18:00 hours (Spanish extraction schedule). To ensure that only random tweets are assigned to each proportionally represented category, the formula "generate a random number" was used in MS Excel. Thus, tweets corresponding to the random number assigned were taken and organised by company and by category in an Excel file for analysis.

Figure 1 shows the distribution of the sample of tweets from the 79 X-platform profiles by category: 5,011 tweets in category one; 850 in category two; 360 in category three and 93 in category four. On average the set of X-platform profiles analysed publish their activities more frequently on workdays during working hours ( $M = 63.43$ ;  $SD = 17.70$ ) than in the other categories (category two,  $M = 10.76$  and  $SD = 7.54$ ; category three,  $M = 4.55$  and  $SD = 4.67$ ; category four,  $M = 1.177$  and  $SD = 1.93$ ). That is, the companies in the SI-Forética cluster publish more frequently on weekdays between 8:00 and 18:00 hours.

**Figure 1.** Distribution of Tweet by Category



Source: Own elaboration.

### 4.3. Analysis method and code scheme development

The sample of tweets published by the companies of the SI-Forética cluster, in the period from March 2021 to March 2022, is examined using a content analysis. This is to explore the intention of the message, the topics posted by the companies on X-platform, whether they refer to CSR dimensions, as well as to establish the frequency of the set of tweets. In addition, the sentiment analysis technique is employed to obtain information based on the positive, negative, or neutral connotation of the language used in each message (Liu, 2011). The steps followed in these analyses are detailed below.

#### 4.3.1. Content type

One of the tasks in this article is to analyse the content of the tweets (original and retweet) to find out which topics the cluster companies discuss on X-platform and to identify the CSR dimensions to which the topics of the posts belong. In this way, answers to RQ2 and RQ2(a) would be provided.

*Published topics.* To identify the topics that companies in the SI-Forética cluster have tweeted about, categories were established according to the types of corporate associations. In this study, these associations constitute the communication strategies that companies use according to the information they want their audience to have (Dutot et al., 2016). To this end, the strategies proposed by Brown and Dacin (1997), have been adopted, which highlights i) corporate skill as the know-how of the company in terms of production and distribution of goods and services. Publishing about corporate products and services possibly promotes an association between the user and the brand value; and, ii) corporate social responsibility as the

social impact of companies that strengthens their mission, culture, and values. Posting about social responsibility actions possibly promotes the user's association with the company's willingness to serve and its social commitment.

Thus, the messages published by the companies in the SI-Forética cluster were classified into two general themes, which are presented in Table 1 along with their coding. Where messages could refer to either of the two thematic categories, they were assigned according to what is considered the corporate mission.

**Table 1.** Topics and CSR Categorisation Route

<b>Topics</b>	<b>Code Used</b>
Corporate Ability	Information about the specific expertise, products, goods and services of the company
Corporate Social Responsibility	Information about social activities, community engagement, environmental activities, sustainability, etc.
<b>CSR Dimensions</b>	<b>Information Used</b>
Social	Information about sponsorship of social activities, volunteering, educational commitments, participation, solidarity, agreements, equality, culture, sport, diversity
Environmental	Message about sponsorship of environmental activities, sustainability, earth, planet, green activities, protection
Ethics & Legal	Message about regulations, laws, manifests, ethical behaviours
Economic	Information about investment, fundraising, revenues

Source: Own elaboration supported by Carroll (1991); Brown and Dacin (1997); Dacin & Brown (2002); S. S. Y. Kim et al. (2014)

*CSR dimensions.* The categories used to identify to which of the CSR dimensions the topics of the posts made by the companies in the SI-Forética cluster belong were adopted from previous research (i.e., S. S. Y. Kim et al., 2014). Table 1 presents the information used to classify the tweets posted by the companies in the SI-Forética cluster according to the CSR dimensions.

#### 4.3.2. Design of communication

The second task in this article is to identify, in the content of each tweet published, the communicative intention or function of the message, and the communication resources used by the companies in the SI-Forética cluster.

*Communicative purpose.* In this study, the categories, proposed by Lovejoy and Saxton (2012), were adopted to determine the intention of the message published by the companies, highlighting that the purpose of the publications is to: i) inform the commercial, social, and productive initiatives of an organisation; ii) create community through networks of relationships; and iii) promote an action of individual or mutual benefit for the organisation and society. Table 2 presents the codes used to classify the tweets published by the companies in the SI-Forética cluster according to the purpose of the message.

*Vividness.* To determine the communication resources used by the cluster companies to disseminate their activities on the X-platform, this study will work with the concept of vividness. This refers to how the content of a message stimulates the sensory dimensions of a receiver, thereby increasing the visibility of corporate messages (de Vries et al., 2012). Table 2 presents the information used to classify the tweets published by the companies in the SI-

Forética cluster according to the communication resource used. A publication with adequate communication resources that are of higher intensity, achieves good audience participation and engagement with the actions of an organisation (Menon et al., 2019).

**Table 2.** Message Design Categorisation Route (Purpose & Vividness)

<b>Purpose</b>	<b>Code Used</b>	<b>Characteristics</b>
Inform	Text with the specific object or if it includes the retweet "more information", or "read more" next to a link	Refers to publications with content about events, reports, and/or relevant news. It does not cause interaction between the organisation and its target groups. Valuable, e.g. in situations of risk, social initiatives, etc.
Create Community	Text includes a question (i.e., question marks), hashtag (#), @ symbol	Refers to publications that generate conversation and strengthen ties publications that encourage the audience to share their opinions, those that recognise another organisation for its work, and those that either give or ask for feedback.
Promote Action	Text includes a link, URL, and/or retweets such as "click here", "join", "to help", "discover", "download", "follow us", "subscribe (sign up)", "participate", "share", "donate", "take an action".	Refers to publications that aim to attract the attention of the target audience, encouraging them to take action on behalf of the organisation. The goal is to mobilise resources and supporters to achieve both financial and strategic objectives.
<b>Vividness</b>	<b>Information Used</b>	
Low	Message contains text or links	
Medium	Message includes an image or GIF	
High	Message includes a video or audio	

Source: Own elaboration supported by Jansen et al. (2009), Lovejoy and Saxton (2012), Cvijikj and Michahelles (2013), De Vries et al. (2012); Luarn et al. (2015); Ji et al. (2019).

#### 4.4. Coding reliability

This study measures the reliability of content analysis coding with Cohen's kappa statistic at two different time points (intra-observer type). Thus, the internal concordance in the sample of tweets that the companies of the SI-Forética cluster published during the study period was carried out at two points in time. First, one of the authors manually coded a subsample of 625 tweets (approximately 10% of the total sample) using the coding schemes presented in Tables 1 and 2 to assign each tweet a unique code. One month later, the same author coded the subsample again. Reproducibility for each content-related feature is confirmed by determining Cohen's kappa index with the information from each coding time.

As a result, Cohen's kappa scores were obtained. On the one hand, they indicate a high level of intra-observer reliability and absence of significant differences when coding the characteristics: i) communicative purpose (Cohen's kappa scores = 0.84), ii) CSR dimensions (Cohen's kappa scores = 0.94) and iii) vividness (Cohen's kappa scores = 0.88). On the other, there is a substantial degree of intra-observer agreement on the characteristic "topics" (Cohen's kappa scores = 0.72) (Landis & Koch, 1977; Swani & Milne, 2017).

#### 4.5. Sentiment analysis

The third task in this paper is to determine the sentiment of each tweet posted by the companies in the SI-Forética cluster during the study period. For this purpose, the Orange Data-Mining software, which has several modules for sentiment analysis, is used in this work. For this study, the rule-based algorithm called Valence Aware Dictionary for Sentiment Reasoning (VADER) was used. VADER has been widely used in studies on social networking sites because it measures lexical features of text and emotion intensity according to word order and sentiment relations between terms. In short, VADER has a specialised dictionary of phrases, words, emoticons, grammar, and syntax rules that allows for determining the polarity of tweets and classifies them according to multiclass sentiment analysis (Hutto & Gilbert, 2014; Elbagir & Yang, 2020; Nair et al., 2021; Zhou et al., 2024).

To avoid formulation problems due to coding in the tweets, in the first step, incorrect coding such as "&", "quot;", "apos;", "@", etc. were replaced by correct characters in the dataset. After this step, we went on to perform the sentiment analysis using the VADER algorithm of the Orange software to obtain the tweets classified as positive, negative, neutral, or composite. As the composite value is a useful metric to measure the sentiment of a given tweet, in this paper we will use the composite value scoring rule proposed by Elbagir and Yang (2020). In doing so, the polarity of tweets was determined by rating them into five sentiment classes: +2 (very positive); +1 (positive); 0 (neutral); -1 (negative); and -2 (very negative).

### 5. Results and discussion

#### 5.1. Activity of the SI-Forética cluster companies on X-platform

On average, companies in the SI-Forética cluster on X-platform posted 119 tweets during the 365 days ( $SD = 29.25$ ), with a weekly frequency ranging from 5 to 182. Also, on average, during the 53 weeks of study, 58% of companies had a low frequency of posting at least one tweet per week (e.g., capitalenergy, bayerespana); 40% of companies had a medium frequency of posting more than one to five tweets per week (e.g., ferrovial\_es, foretica); and 1% of companies had a high frequency posting more than five tweets per week (i.e., @lorealpain, @ Kyndryl). This might suggest that the activity of the SI-Forética cluster on the X-platform has been moderately low.

An average performance indicates low interactions with the business audience. The challenge for companies in social networks is to increase the connections and loyalty of their audience through meaningful interactions, to manage their relationships to strengthen brand recognition and design communication strategies to attract a larger audience through segmented publications with attractive content.

#### 5.2. Message analysis

Table 3 summarises the information for each communication factor assessed in this study. With regard to the topics that the cluster companies disseminate on X-platform (RQ2 and RQ2a), the content analysis reveals that the majority of the publications refer to corporate skill topics. That is, 60% of the tweets published in the study period refer to corporate products and services. This is similar to the findings of Zeler & Capriotti (2018), who confirm that information about corporate, commercial, and business activities prevails in the posts of the companies they analysed.

In terms of the message intent characteristic (RQ3), the content analysis shows that around 74% of the tweets have been published by cluster companies to create a community. This indicates that there are companies that are using symbols (e.g., #, @, among others) to motivate interaction, and dialogue with, and among, their audiences. The remaining percentage constitutes 22% of tweets posted to inform their audience about their activities and 4% of tweets

with the intention of mobilising the audience for business or community benefit. This is contrary to the findings of Lovejoy and Saxton (2012), who showed that in the organisations studied, the intention to disseminate corporate activities on the X-platform is predominant.

**Table 3.** Message Analysis of Tweets Posted by SI-Forética Cluster Companies

<b>Content Characteristics</b>	<b>Count</b>	<b>M*</b>	<b>SD*</b>
<b>Topics</b>			
Corporate ability	3,818	48.33	19.26
Corporate social responsibility	2,496	31.59	16.92
<b>CSR Dimensions</b>			
Social	1,450	18.35	12.32
Environmental	772	9.77	9.78
Ethics & Legal	39	0.49	2.04
Economics	235	2.97	4.53
<b>Purpose</b>			
Inform	1,388	17.57	12.72
Create community	4,657	58.95	18.68
Promote action	269	3.41	2.87
<b>Vividness</b>			
Low	1,076	13.62	11.68
Medium	3,942	49.90	17.11
High	1,296	16.41	12.12

M: Mean; SD: Standard Deviation.

\*Calculated from the set of tweets processed per analysed characteristic

Source: Own elaboration.

Furthermore, Table 3 shows that 39.5% of the total tweets analysed refer to CSR and that around 35.2% of the total posts analysed are about the social (23%) and environmental (12.2%) dimensions of CSR. The presence of publications linked to topics of the economic dimension is 3.7%, while the ethical and legal dimensions of CSR account for less than 1% of the total number of tweets.

Regarding the vividness included in the tweets disseminated (RQ4), it was found that 62.4% of the publications contain an image or a GIF, 20.5% have a video or audio, while a smaller volume is only text or includes a link (Table 3). This indicates that companies mostly use graphic and audio-visual resources within the content of their publications to promote corporate partnerships among their contacts, either with their business activities or with their CSR activities.

In this study, it was possible to identify the five profiles of the companies associated with the SI-Forética cluster that have the highest volume of publications in each content characteristic evaluated. For example, it was found that i) ibm\_es, cepsa\_es, atresmediacom, kyndryl, and ferrovial publish mostly topics on their corporate skills; ii) cepsa, Iberdrola, fundación\_once, endesa and foretiva publish mostly topics on CSR; iii) fundatresmedia, ilunion, fundacion\_once, Iberdrola, and cepsa publish social issues; iv) enagas, naturgy, cepsa, foretica, Iberdrola publish environmental issues; v) fundacion\_once, f\_sanitas, fpmaragall, gsk and naturgy publish more ethical and legal issues; vi) Mapfre, adif\_es, cajamar, endesa, Iberdrola publish economic issues; vii) ferrovial, adif\_es, cemexespana, mercadona, fundibercaja are those companies whose publications are intended to inform audiences about their activities;

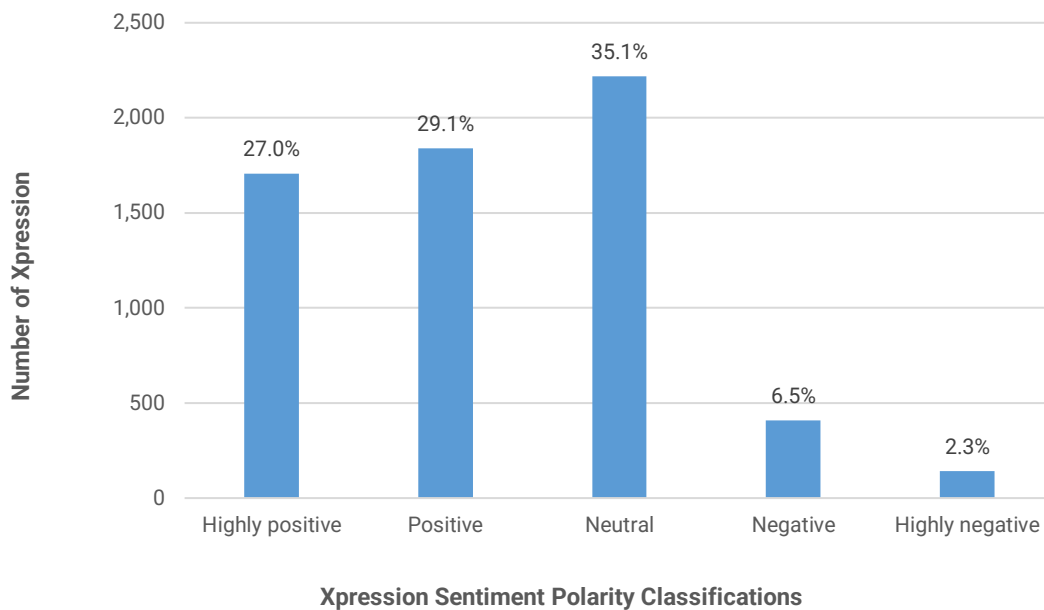
viii) foretica, energiaedp, fundlacaixa, lillyes, antolin\_oficial are those members that mainly include in their publications symbols or expressions that create community; ix) lillyes, \_capitalenergy\_, fundibercaja, foretica, fundlacaixa are those companies that promote action among their audience.

It was also possible to identify the companies that have used images and/or videos as resources in their publications to reach their stakeholders more forcefully. For example, i) lorealspain, compromisoatres, Mapfre, enusa\_sa, enresa published mainly in text format or included links; ii) cecabank\_es, cemexespana, fundacion\_once, foretica, quironsalud included in their tweets an image or a GIF; and iii) reale\_seguros, gsk, lorealgroupe, cepssa\_es, campofrio\_es included in their tweets video or audio.

### 5.3. Sentiment analysis

The sentiment analysis of tweets posted by companies in the SI-Forética cluster during the study period shows that more than 50% of the tweets analysed are emotionally charged (RQ5). A small proportion of tweets (8.8%) promote negative or very negative emotions, while a larger proportion of tweets (56.1%) promote positive or very positive feelings in the audience (i.e., cepssa\_es, kyndryl, pascual, etc.), which demonstrates the companies' interest in generating profits (Figure 2).

**Figure 2.** Tweet Count in Each Sentiment Polarity Classifications



Source: Own elaboration.

The results show that profiles on the X-platform of companies in the SI-Forética cluster, such as cepssa\_es, campofrio\_es, f\_sanitas, etc., tweet messages that promote positive feelings. That is, they use tokens and tags such as "know how to enjoy", "become a winner", "example and pride", etc., which motivate and express well-being.

When the algorithm detects a mixed tone, e.g., when a text has two sentences with a different sentiment, it calculates the final score by comparing the amount of negative and

positive sentiment (Elbagir & Yang, 2020). This may be one of the reasons why company profiles were observed posting messages that caused negative emotions. Another reason may be the low number of tokens and tags in the message.

The results show the necessary for the companies in the SI-Forética cluster to have communication strategies that bring together different characteristics of design, content, and language connotation, efficiently operating the platform's functionalities. For example, companies can design strategies for messages to create community, which implies having direct conversations with audiences through interactive messages and/or limiting themselves to referring to social issues in which the companies are involved and/or mentioning the work done by their competitors or partners with no intention of generating conversations. Companies should give special attention to ensuring that in their strategies, their publications transmit feelings and emotions of real motivation that seek to strengthen and increase the links between the companies and their audience.

It is also recommended that companies deepen their understanding of the path that online communities follow in their interactions. That is, a publication initiates a tie that generates patterns of connection between cluster members, which can be described in terms of common interests, values or paradigms. Once these types of connections within the cluster are accentuated, direct and indirect interactions based on trust, support, and frequent exchange between members are promoted, which generates capital in the companies.

Likewise, for companies to effectively use the tools and functions of the X platform, they should i) use the analytics tools to monitor the performance of their publications and campaigns; ii) perform A/B testing to experiment with different approaches and optimize their results; iii) segment their ads by topics, location, interests, behaviour or other; and iv) create content of value (relevant, informative, entertaining or educational). This will allow them to identify what type of content works best and adjust their strategy accordingly.

## **6. Conclusions, limitations & future research**

The X-platform (formerly Twitter) has become a corporate alternative for communicating activities that promote interaction and integration in the social environment. This means that corporate behaviour on the platform is reflected in the characteristics of their publications. In order to find out whether cluster companies are exploiting the full potential that SNS platforms promote, this study examines how cluster companies communicate their activities on X-platform. A sample of 6,314 tweets (original and retweets with a mention) published by the companies in the SI-Forética cluster during the period from March 2021 to March 2022 were analysed and classified. Among the strengths of this study are: i) unlike other research that has evaluated corporate communication, it does not work with a database from surveys, but considers as a source of data the information available on the SNS platform; ii) it focuses on a set of publications made by companies in the cluster on platform X, rather than getting publications by a group of relevant keywords; iii) it classifies the messages published by the companies of the cluster.

This study had three main tasks. Firstly, to know the type of content published by the companies of the SI-Forética cluster on X-platform. To do this, an analysis was carried out at the Tweet level according to the topics published and the CSR dimensions. This allowed us to solve questions RQ2 and RQ2(a) posed in this study. As a result, it was found that companies mostly post about their business initiatives and efforts and less about their CSR initiatives. Social and environmental dimensions prevail in CSR publications. It was also found that companies mostly use graphic and audio-visual resources within the contents of their publications to promote their commercial or CSR activities.

The second task was, to identify the design features in terms of message purpose and vividness to answer RQ<sub>3</sub> and RQ<sub>4</sub> posed in this study. As a result, it was found that the companies in the cluster posted tweets intending to build community or to disseminate information about their activities and not to mobilise the audience to do something for them. The thirdly task was to find the positive, negative, or neutral connotations of the language used in each message to answer question RQ<sub>5</sub>. To do this, the content was evaluated using the sentiment analysis technique using the Orange software VADER algorithm and the composite value scoring rule proposed by Elbagir and Yang (2020). As a result, it was found that 65% of the tweets analysed are affectively charged, with a predominance of messages that promote positive or very positive emotions in the audience. This allows us to deduce that companies are interested in generating profits.

The study also responds to RQ<sub>1</sub> by finding that companies publish more frequently during working hours (8:00 to 18:00) on weekdays and that few companies consider publishing on the X-platform during non-working hours on non-working days. Thus, few companies have a daily presence on X-platform, and not many companies use textual elements to configure their tweet, nor do they use videos or audio. Therefore, it can be concluded that the companies in the SI-Forética cluster have an average performance in the use of the X-platform functionalities.

Consequently, this study contributes to the literature on corporate communication in terms of a business group publishing on the X-platform. Empirical evidence is provided on the characteristics of content, design, and programming used by the companies of the SI-Forética cluster in their publications during the study period. The results provide practical insights into the communication factors employed and can be used by companies to monitor and improve their communication strategies. The results of the study provide insight into the characteristics of the content in terms of purpose, subject matter, CSR dimensions, and vividness.

However, this study has limitations. First, the results presented are limited to messages posted on the X-platform. Therefore, it is suggested that future research should apply the methodology used to analyse messages posted by companies on other SNS platforms (e.g., Facebook). Second, as a data source, we worked with a cluster consisting of a small number of companies with profiles mainly in Spain. It would be interesting to know how companies in a larger cluster communicate their activities on SNS platforms. Third, the study was limited to analysing Tweet-level messages in terms of communication factors, without measuring the benefits of the different strategies used. Therefore, it is proposed to assess what participation, engagement, or legitimacy through the X-platform looks like. Fourth, the study was limited to analysing original messages and retweets that included a mention. Therefore, it is suggested that viral trends, hashtag campaigns and responses to user comments on messages posted by companies in the SI-Forética cluster should also be evaluated. Fifth, the study focused on identifying what was the purpose of the messages posted without addressing the engagement and management of companies on the X-platform with regard to controversial or crisis issues. Therefore, it would be interesting to explore how companies in the SI-Forética cluster navigate controversies, engage with dissenting voices or manage crises on the X-platform. Sixth, we conducted a cross-sectional study in which information was collected on the communication of the companies in the SI-Forética cluster over the course of the period from March 2021 to March 2022. Therefore, it is suggested that a longitudinal study should be undertaken, evaluating the communication practices of the SI-Forética cluster companies and showing a historical view of strategic results. Finally, the determination of the frequency of words and characters present in the distribution of sentiment polarity (positive, negative, and neutral) of the language used in each message is proposed as a new research route.

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