Measuring and evaluating CSR information and involvement strategies on corporate Facebook pages

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Abstract
Organizations are increasingly involving stakeholders in their CSR activities through social networks. Despite the growing interest by academics and practitioners in this field of research, empirical studies are still limited, highlighting a gap in the identification and the use of effective measurement tools for evaluating sustainable marketing performances on social networks. The study aims to develop a framework to measure and assess stakeholder engagement strategies, in terms of CSR information and involvement, on Facebook pages of sustainable organizations. The framework is based on a set of dimensions (macro-item, item and micro-item) and adopts different types of variables (dichotomous and indices) and techniques (manual detection, Facebook developers tools, content analysis through the NooJ, and Likealyzer). A pilot study on firms classified by the Dow Jones Sustainability World Index (2015) confirms the applicability of the framework, showing that organizations prefer a “one-way” communication approach (CSR information strategies), rather than a “two-way” communication approach (CSR involvement strategies). The framework constitutes a tool aimed at analyzing and measuring the CSR communication strategies on corporate Facebook pages. It provides managers and consultants of digital communication useful indications to improve sustainable marketing activities and stakeholder engagement strategies on Facebook.

Keywords CSR communication · Stakeholder engagement · Sustainable marketing · Social network · Digital communication · Facebook

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1 Introduction

Over recent decades, CSR communication has acquired growing importance in business strategy, as it is considered as a legitimating corporate activity in the eyes of society (Deegan, 2002; Luo et al., 2015). Moreover, the increasing attention to stakeholder engagement practices suggests that organizations worldwide are making serious efforts in adopting appropriate sustainable marketing tools to encourage CSR information sharing and promote public participation in corporate actions (Friedman & Miles, 2006; Kaur and Lodhia, 2018). Based on dialogue, collaboration and mutual knowledge, stakeholder engagement processes can help to spread a corporate culture oriented to a “strategic listening”, thus improving trusting relationships with stakeholders and social consensus (Manetti, 2011).

Due to these phenomena, organizations communicate their commitment and activities not only through traditional reporting tools, but also using online channels (Moreno and Carpriotti, 2009; Illia et al., 2017; Siano et al., 2016; Schröder, 2021). CSR disclosure in digital environments is becoming, in fact, a topic of significant relevance in sustainable marketing (Gomez & Chalmeta, 2011; Gordon et al., 2011; Trivedi et al., 2018), as it represents an opportunity to increase the social legitimacy of organizations (Illia et al., 2017). Among the digital tools, an important role is played by social networks, such as Facebook, which are increasingly included in business strategies (Bonsón & Ratkai, 2013; Hughes et al., 2012; Lewis et al., 2008). Indeed, users observe the corporate Facebook pages, not only to look for firms’ performance, but also to research information related to the CSR corporate commitment (Godemann and Michelsen, 2011; Ho & Wang, 2020). Social network become key tools to create long-lasting relationships with stakeholders (Manetti et al., 2017; Viglia et al., 2018). In fact, they support stakeholder participation and allow users “to have a ‘say’ in organizational decisions impacting on their lives” (O’Dwyer, 2005, p. 28). Specifically, Facebook generates participation and interaction with firms’ stakeholders, offering the possibility of creating and spreading CSR content, as well as initiating a dialogue and actively listening to the organization’s stakeholders (Zeler & Capriotti, 2019).

On these lines, organizations should be able to constantly manage and measure their CSR performances on digital channels through specific digital analytics tools (Illia et al., 2017; Searcy, 2012). Indeed, monitoring CSR communication performance on social networks allows the evaluation of firms’ actions in order to guide future decisions (Clarke, 1999; Cutlip et al., 2000; Romenti, 2016; Wiencierz & Röttger, 2017). In addition, monitoring stakeholders’ requests regarding CSR issues provides firms relevant inputs on how correctly create participation with increasingly skeptical online users. Some studies show that the active participation of companies in social networks is positively associated with the corporate reputation (Dijkmans et al., 2015; Vogler & Eisenegger, 2021), as organizations increasingly recognize the potential of social networks. By utilizing interactive social networks, such as Facebook, companies can favour the development organization-public relationships and gain legitimacy from publics (Capriotti & Moreno, 2007; Cho et al., 2017).
Despite the upsurge of interest in the sustainable marketing online, both in the academic and in the managerial context, there is still a gap concerning the identification and use of effective measurement and evaluation tools to analyze CSR communication strategies on Facebook in an all-encompassing way. Contributions in this field are still quite limited and fragmented (Bonsón & Ratkai, 2013; Cho et al., 2017; Gusmerotti et al., 2020). Organizations still have difficulties in identifying, measuring and improving the key dimensions of an effective digital CSR disclosure.

To fill this gap, the study aims to develop and implement a framework capable of measuring, evaluating and improving CSR (information and involvement) strategies on Facebook pages of organizations belonging to different business activities. The “Framework of Information and Involvement in CSR on Facebook” is thus specifically designed for measuring the level of stakeholder engagement, in terms of CSR information and involvement strategies (Morsing & Schultz, 2006).

The development of a framework to measure and evaluate CSR communication strategies on Facebook is relevant both theoretically and practically, because it enriches the academic debate in this field of research and provides insights to marketing and communication managers on how to effectively communicate firms’ sustainability actions and engage stakeholders on corporate Facebook pages.

The remainder of the paper is as follows. Section 2 reviews the literature on CSR communication and stakeholder engagement, focusing on the CSR disclosure on social networks. Then, the research design is explained (Sect. 3). This allows the development of the framework in which all key dimensions are detailed (Sect. 4). Section 5 proposes a pilot study aimed at testing the applicability of the framework on corporate Facebook pages of companies included in the Dow Jones Sustainability Index 2015. The study concludes with discussion (Sect. 6), managerial implications and suggestions for future research (Sect. 7).

2 Conceptual background

2.1 CSR communication and stakeholder engagement

CSR communication is considered as a strategic means to building and strengthening corporate reputation and social legitimacy in the eyes of stakeholders (Lock & Schulz-Knappe, 2019; Luo et al., 2015; Windolph et al., 2014). CSR disclosure aims to improve CSR credibility of organizations, create trust towards corporate actions and generate positive relationships with the public (Du et al., 2010; Maignan & Ferrell, 2004). In this perspective, the engagement of stakeholders appears inherent to the concept of CSR (Donaldson & Preston, 1995; Lim & Greenwood, 2017), as it is a process addressed to developing social capital, collaborative relationships and shared responsibilities with stakeholders on firms’ decisions. This approach aims to improve the inputs coming from stakeholders to expand the strategic capabilities of companies (Romenti, 2008), and sustain competitive advantage (Johnson-Cramer et al, 2003; Morsing & Schultz, 2006). Furthermore, auditing and constant dialogue with stakeholders foster long-term trust relationships and contribute to reduce...
possible criticisms to sustainability reports, often indicated as corporate greenwashing tools (Laufer, 2003; Uyar et al., 2020).

The stakeholder engagement process can range from one-way information flows to the “passive” public, to approaches based on a broader and constant dialogue (Friedman & Miles, 2006). In particular, it is possible to identify two macro CSR communication strategies aimed at stakeholder engagement (Morsing & Schultz, 2006; Vollero et al., 2019): CSR information and involvement strategies.

The information strategy provides a one-way communication, from the organization to the stakeholders, and is mostly based on “telling, not listening” (Grunig & Hunt, 1984). The company is aware of the importance of the consensus of various actors and informs them about its activities and intentions to gain support (Du & Vieira, 2012; Manetti et al., 2017; McWilliams & Siegel, 2001).

The involvement strategy, instead, is based on dialogue with stakeholders in a symmetrical two-way communication, thus activating an iterative and mutual process of sensemaking and sensegiving. Thus, firms not only influence, but are themselves influenced by stakeholders (Patten & Crampton, 2004). The involvement strategy entails negotiating with stakeholders, after investigating their concerns. By triggering a process of dialogue, the company demonstrates that it takes into account the expectations of its counterparts, by recognizing their influence on corporate decisions (Peloza & Shang, 2011; Perez & del Bosque, 2014). This strategy incorporates and goes beyond the information approach, as it assumes that it is not sufficient to inform stakeholders and investigate their expectations. Indeed, the involvement approach aims to improve mutual understanding, find a more effective solution to conflicts arising from diverging interests and reduce the risks generated by the criticism received from key stakeholders (Gable & Shireman, 2005; Rinaldi et al., 2014).

The main tools which guarantee stakeholder engagement practices, in addition to appropriate tools to identify stakeholders’ expectations (materiality matrix) and interaction tools for corporate sustainability, such as blogs, forums, online communities, are social networks (Gusmerotti et al., 2020; Ilia et al., 2017; Viglia et al., 2018). In this field of research, Colleoni (2013) empirically observed two main communication strategies: self-centered and dialogical. The self-centered communication strategy implies that companies define their CSR agenda internally and, therefore, it is close to the CSR information strategy. The dialogical strategy suggests that the central actors are the stakeholders who actively interact with corporations and, thus, it refers more specifically to the CSR involvement strategy.

2.2 Communicating CSR on social networks

The growing use of social networks pushed sustainable companies to adopt these digital tools to communicate their CSR commitment (Ros-Diego & Castelló-Martínez, 2012; Viglia et al., 2018) in order to increase corporate reputation (Dutot et al., 2016; Etter & Fieseler, 2010).

Social networks are generally acknowledged as the best platforms for the co-creation of value in terms of sustainability, because they favour a dynamic interaction
between the organization and its stakeholders interested in participating in CSR initiatives (Biggemann et al., 2014). These platforms can improve the development of stakeholder engagement practices, both based on CSR information and CSR involvement strategies (Chu et al., 2020; Morsing & Schultz, 2006). Social networks allow to quickly share up-to-date corporate information and initiate two-way communications. The latter strategy is essential to increase stakeholders’ awareness of a CSR initiative. In fact, companies are increasingly accepting the dialogue with stakeholders that goes beyond merely disseminating information (Burchell & Cook, 2006). Crane and Livesey (2003) noted that “stakeholder dialogue on CSR is very much a two-way process of communication and negotiation” (p. 167). Drawing from dialogic theory, some studies show that companies can strategically use Facebook to engage stakeholders (Abitbol & Lee, 2017). Dialogical communication and stakeholder participation can be measured through the degree of popularity, commitment and virality (Bonsón & Ratkai, 2013). Popularity is measured by the “likes” on Facebook. Commitment refers to the number of “comments” and virality is measured by the “shares” on Facebook. Several studies use these metrics as a mode to evaluate publics’ participation in dialogue on Facebook (Kim et al., 2014). In this way, the interaction between the company and the users enables the collection of valuable feedback relating to the perception and the evaluation of stakeholders towards firms’ activities. In the dynamic environment of social networks, these feedback provide useful indications to marketing managers and communication consultants in measuring the performance of the business-user interactions (Kesavan et al., 2013; Searcy, 2012). In this direction, social media monitoring strategies and practices, which include the analysis of conversations generated on the net, become a strategic asset for sustainable organizations to better communicate their commitment (Divol et al., 2012).

The techniques of social media monitoring are numerous, ranging from content, sentiment, pattern analysis, netnography, social network analysis (Stavrakantonakis et al., 2012; Zhang & Vos, 2014) up to the use of (free or paid) tools that allow to control in real-time social media conversations. In this perspective, the company can profile users and understand their expectations in terms of CSR.

In both academic and managerial contexts, limited research has been conducted about the evaluation and improvement of CSR communication performance in digital environments (Bonsón & Ratkai, 2013; Gusmerotti et al., 2020; Manetti et al., 2017). In the business community, Lundquist (2017) analyzes different digital communication environments, such as corporate websites and social media. Various researchers attempted to develop different evaluation tools for digital sustainability communication, especially referred to corporate websites (Fukukawa & Moon, 2004; Gomez & Chalmeta, 2011; Illia et al., 2017; Parker et al., 2010; Siano et al., 2016). These frameworks are focused on a limited number of elements / dimensions and do not analyze stakeholder engagement practices.

Contributions aimed at measuring CSR communication on social networks appear, in fact, less widespread. In this regard, Manetti et al. (2017) assess the level and type of online interaction through social network adopted by firms as a mechanism of public information and stakeholder engagement. Cho et al. (2017) find that corporations communicate non-corporate social responsibility messages
more frequently than CSR messages. The research by Gusmerotti et al. (2020) reveals the frequency and density of information regarding social and environmental issues among different business units, highlighting the real role played by the CSR department.

The results achieved in previous studies show that only a few organizations, especially large ones, invest in online CSR communication and obtain good performances, considering the level and type of online interaction, the degree of popularity, commitment and virality on Facebook (Bonsón & Ratkai, 2013; Gomez & Chalmeta, 2011; Illia et al., 2017; Lundquist, 2017). Furthermore, the studies carried out are still lacking and do not propose an integrated perspective concerning the identification of effective measurement and evaluation tools to analyze CSR communication strategies on Facebook.

3 Research design

The study aims to develop and implement a framework for measuring, evaluating and improving the level of stakeholder engagement, in terms of CSR information and involvement strategies on corporate Facebook pages. The measurement indicators of these two strategies have been organized in a both theoretically and data driven coding scheme. Thus, the research design is divided into two phases (Table 1).

The first phase concerns the literature review on corporate legitimacy, stakeholder engagement, social media communication and CSR communication (Morsing & Schultz, 2006; Du an Vaara & Tienar, 2008; Bonsón & Ratkai, 2013). As part of this phase, the research identify, in a top-down perspective, the macro categories (macro-items), i.e. the fundamental constructs that refer to CSR stakeholder engagement strategies on social networks.

Following the literature review, the identified macro-items were then subjected to a first empirical confirmation and validation, through the analysis of tools and functions present on the Facebook pages of the organizations classified by the Reputation Institute in the “Global CSR RepTrak 2015”. This bottom-up analysis provided the identification of the set of items and micro-items for each of the profiled macro-items.

Based on CSR previous research and the empirical analysis, the key constituent elements of the framework are identified, from which measurement algorithms can be derived. In particular, the framework is based on a set of dimensions (macro-item, item and micro-item) and adopts variables of different types (dichotomous and indices) and various techniques (manual detection, tools of Facebook developers, content analysis through the NooJ, and the software of Likealyzer).

The framework was tested through a pilot study that concerns the empirical investigation of the requirements of effective CSR communication on the Facebook pages of organizations classified by the Dow Jones Sustainability World Index (DJSWI) 2015. The pilot study served for a first evaluation of the framework and eventually allow modifications and improvements for subsequent adoption in large-scale investigations.
| Perspective | I phase: top-down                                                                 | II phase: bottom-up                                                                                  |
|-------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Source      | Theoretically driven<br>Literature review on corporate legitimacy, stakeholder engagement, social media communication and CSR communication (Morsing & Schultz, 2006; Du an Vaara & Tienar, 2008; Bonsón & Ratkai, 2013) | Data driven<br>Empirical analysis of tools and functions present on the Facebook pages of the organizations classified by the Reputation Institute in the “Global CSR RepTrak 2015” |
| Result      | Macro-items: CSR information strategy and CSR involvement strategy                | Set of items and micro-items for each macro-items                                                    |
Specific guidelines (e.g., procedures, sequences) have been developed for the evaluation protocol, thus supporting the researchers/coders in the identification of micro-items on Facebook pages. For the inter-coder reliability, the corporate Facebook pages belonging to the sample were analyzed by three different researchers. According to the Krippendorff (2012) coefficient of reliability, the agreement for each item of the framework has reached a satisfactory level ($\alpha = 0.78$).

4 The framework: dimensions and metrics

The framework is based on a set of dimensions (macro-item, item and micro-item). In particular, in order to measure and assess CSR communication on corporate Facebook pages, the framework analyses two macro-items based on the theoretical constructs of “CSR information strategies” and “CSR involvement strategies” which incorporate the stakeholder engagement process. Each macro-item includes a set of items that categorize in homogeneous categories the micro-items. Micro-items are the effective indicators for measuring and evaluating CSR communication. Overall, the framework includes 2 macro-items, 8 items and 26 micro-items, divided as follows (Table 2):

- the macro-item “CSR information strategies” presents 4 items and 13 micro-items (INF_1. Strategic orientation: 3 micro-items; INF_2. Corporate identity and corporate governance information: 6 six micro-items; INF_3. CSR contents: 3 micro-items; INF_4. Type of presence on Facebook: 1 micro item).
- the macro-item “CSR involvement strategies” presents 4 items and 13 micro-items (INV_1. Popularity and commitment: 3 micro-items; INV_2. Virality: 2 micro-items; INV_3. Participation tools: 2 micro-items; INV_4. Interactivity and multimedia: 6 micro-items).

4.1 CSR information strategies: operational definition

4.1.1 Strategic orientation

Corporate orientation represents the strategic approach that defines the core elements of an organization’s identity in relation to sustainability. It expresses a company’s engagement in CSR through symbolic statements, declarations about environmental and social issues (Rhee & Lee, 2003). Value statements are a strategic tool of stakeholder management since they represent a form of organizational self-presentation to different stakeholders (Jonsen et al., 2015). An organization can be defined sustainable if it is able to guarantee the right balance between achievement economic results, the preservation of environmental resources and progress social (Quaddus & Siddique, 2011).
| Macro-item                                   | Item                     | Micro-item                                                                 | Type of variables | Techniques                         |
|---------------------------------------------|--------------------------|-----------------------------------------------------------------------------|-------------------|------------------------------------|
| CSR information strategies                  | INF_1                    | References to environmental sustainability (Planet)                         | Dummy             | Manual content analysis            |
|                                             |                          | References to social sustainability (People)                                | Dummy             |                                    |
|                                             |                          | References to economic sustainability (Profit)                              | Dummy             |                                    |
|                                             | INF_2                    | Certifications                                                             | Dummy             |                                    |
|                                             |                          | Awards and acknowledgments                                                  | Dummy             |                                    |
|                                             |                          | Report of sustainability                                                    | Dummy             |                                    |
|                                             |                          | Core theme                                                                  | Dummy             |                                    |
|                                             |                          | Sustainability indices                                                      | Dummy             |                                    |
|                                             |                          | Ideas-opinions of top management                                           | Dummy             |                                    |
|                                             | INF_3                    | Content of environmental sustainability                                     | Index             | Content analysis by Nooj           |
|                                             |                          | Content of social sustainability                                            | Index             |                                    |
|                                             |                          | Content of economic sustainability                                         | Index             |                                    |
|                                             | INF_4                    | Pages dedicated to specific sustainability issues (e.g. educational / people / career) | Dummy             | Manual Content analysis            |
| Macro-item                | Item                        | Micro-item                                                                 | Type of variables | Techniques       |
|--------------------------|-----------------------------|----------------------------------------------------------------------------|-------------------|------------------|
| CSR involvement strategies | INV_1                       | Mean number of like per post (applause rate)                              | Index             | LikeAlyzer       |
|                          | Popularity and Commitment   | Like button                                                                | Dummy             | Manual Content analysis |
|                          |                             | Mean number of comments per post (conversation rate)                      | Index             | LikeAlyzer       |
|                          | INV_2                       | Mean number of shares per post (amplification rate)                       | Index             | LikeAlyzer       |
|                          | Virality                    | Share button                                                               | Dummy             | Manual Content analysis |
|                          | INV_3                       | Games, APP and Contest                                                     | Dummy             | Manual Content analysis |
|                          | Participation tools         | Communication campaigns                                                   | Dummy             | Manual Content analysis |
|                          | INV_4                       | Publication frequency                                                      | Index             | LikeAlyzer       |
|                          | Interactivity and Multimedia| Responce rate                                                              | Index             |                   |
|                          |                             | Possibility to publish by users                                           | Dummy             |                   |
|                          |                             | Percentage of videos                                                      | Index             | FB Developers     |
|                          |                             | Percentage of photo/image                                                  | Index             | FB Developers     |
|                          |                             | Percentage of links                                                       | Index             | FB Developers     |
The adoption of a business approach based on sustainability can be interpreted as a real company philosophy (Golinelli & Volpe, 2012) which implies a radical cultural and organizational change. Strategic orientation is in fact integrated into the organizational culture and significantly affect consumer perceptions and the company’s potential CSR development (Zerbini, 2017).

This approach translates on the Facebook pages (sections dedicated to company profile) into statements aimed at highlighting the corporate commitment to the “3Ps” (Planet, People and Profit) (Savitz & Weber, 2006). The orientation consists of three micro-items that evaluate the presence of explicit references to environmental, social and economic sustainability.

4.1.2 Corporate identity and corporate governance information

The presence of CSR corporate identity and governance tools are important in ensuring that the CSR culture is integrated into the organization’s strategies and translated into tangible action (Adams et al., 2001; Herrera, 2015). The adoption of governance and reporting tools makes transparent the achievements of a business in terms of sustainability to gain trust and legitimacy (Carroll & Einwiller, 2014).

This item includes the set of organizational elements and tools for promoting the credibility of CSR corporate information and relationships with users within the Facebook page. Among the main corporate identity and corporate governance tools, we find the sustainability report (Tagesson et al., 2009), the certifications (Serra, 2000) and the sustainability indexes (Fowler & Hope, 2007). Effective dimensions in terms of CSR are also the communication of the core themes, the awards and acknowledgments obtained by companies, as well as the ideas and opinions of the top management (boards and organizational units) and the objectives and strategies related to sustainability.

4.1.3 Corporate social responsibility content

Organizations can enhance the credibility of CSR communication by showing the economic, environmental and social impacts of CSR activities and initiatives undertaken (Menon & Kahn, 2003). In order to rank the content more relevant in the CSR communication, Porter and Kramer (2006) identified three dimensions: content related to the core business; contents that impact on the value chain and contents of generic social issue).

This item of the framework considers the contents of sustainability on Facebook page. These contents are detected both through the analysis of the incidence of concepts relating to the thematic areas of “3P”, and through the use of hashtags related to specific sustainability issues and initiatives implemented by organizations. The creation of hashtag grammars allows a more detailed evaluation of the contents related to environmental, social and economic sustainability issues.
4.1.4 Type of Facebook presence

One of the emerging trends in CSR communication is setting up CSR-dedicated spaces on Facebook with the goal of sharing information about CSR initiatives, interacting with stakeholders and gathering feedback (Cho et al., 2017). Topics in these pages were effective in engaging stakeholders when they were congruent with a company’s core business (Abitbol & Lee, 2017).

Thus, this item considers the presence of pages dedicated to specific sustainability issues, including (Bonsón & Ratkai, 2013): educational page (e.g.: financial education, nutrition, etc.); page for sports sponsorships; pages dedicated to special initiatives (e.g., cultural actions) and to employer branding (e.g., contest). These specific pages can generate a higher level of brand engagement and, can be easier to monitor and manage, as they target specific audiences.

4.2 The items of CSR involvement strategies

4.2.1 Popularity and commitment

Within a Facebook page, users have the opportunity to interact with the organization by performing various actions: clicking the “like” button, commenting or sharing a post. The amount of these actions that the user / navigator can perform allows to measure the popularity and the commitment of the pages. In detail, the popularity can be indicated by the “applause rate”, i.e. the average number of likes per post, as well as by the presence on other digital communication channels (e.g.: the corporate website, magazine, blog, etc.) of a specific “like button”, which allows the user to click “like” directly on the Facebook page (Gorry & Westbrook, 2011; Sebate et al., 2014). The commitment of a Facebook page is instead expressed by the conversation rate, that is the average number of comments per post.

4.2.2 Virality

The virality of a Facebook page can be measured through the “amplification rate” or the average number of shares per post and the presence on other digital communication channels (e.g.: the corporate website) of a specific “share button” which allows the user to share content directly on the Facebook page (Bonson et al., 2012).

4.2.3 Participation tools

This item concerns the analysis of tools that the organization uses in order to encourage the participation of stakeholders in business decisions (Cho et al.,
The main tools that allow, in a more or less direct way, the interaction between an organization and the public in the context of the corporate Facebook page are: contests, games and apps dedicated to sustainability issues.

4.2.4 Interactivity and multimedia

In the context of a Facebook page, the parameters capable of guaranteeing interactivity and multimedia (Nielsen, 2000; Palmer, 2002) are the publication frequency, i.e. the daily number of posts published by the organization; the response rate to be understood as the percentage of responses of the company to the users’ posts of its Facebook page; the possibility of publishing posts by not only the organization but also by users; and the percentage of posts that, in addition to the text, contain also images, videos or links that have positive effects as regards the engagement and the involvement of users.

4.3 Techniques of the framework

Functional to the implementation of the framework is the use of various standard and non-standard tools and techniques for the data collection. The combination of multiple approaches within the same research is essential for studying complex social phenomena, which requires the integration of different theoretical perspectives, as in the case of CSR communication (Khan et al., 2020).

In detail, to detect the variables of the framework (micro-items), manual detection techniques are used as regards the presence/absence of some elements of the Facebook page, software for extracting posts of the page in a specific time (Facebook developers tools), software for the implementation of content analysis (NooJ), as well as tools that allow to detect, in an automated way, dimensions related to the participation, the frequency of publication, the type of post, the response times, etc. (Likealyzer).

4.3.1 Facebook developers tools

We have used tools of Facebook Developers, and in particular the API (Application Programming Interface), to extract the posts and information on the actions performed by users within each corporate Facebook page (Müller & Thiesing, 2011), in order to constitute the corpus of texts (to be processed with NooJ). The acquisition of data from the Facebook platform takes place after registering a developer account, resulting in access codes: “access token”. Once these credentials were obtained, the API was queried for the list of publications of a specific ID, corresponding to the page in question. At the same time, queries were carried out to obtain data regarding the amount of interactions collected.

4.3.2 Content analysis with NooJ

In this study, the content analysis is conducted through the use of NooJ, a Natural Language Processing (NLP) environment, capable of processing texts at orthographic, lexical, morphological, syntactic and semantic levels (Elia et al., 2010;
Silberztein, 2015). NooJ is therefore able to automatically read digitized texts, locate and extract linguistic patterns from them in the form of concordances (Maisto & Pelosi, 2014).

Unlike other systems, NooJ performs a deductive analysis of the text (based on predetermined grammars and dictionaries), allowing the creation or modification of user-defined queries. It also enables an analysis based on the position (co-occurrence rules and selection restriction) that the words cover within the text. This allows repeatable and controllable results (Donabédian et al., 2013).

The framework involves, with reference to the content analysis, the creation of grammars based on the semantic expansion of concepts referring to environmental, social and economic sustainability, with respect to which the software conducts the calculation of frequencies based on an analysis position.

From a procedural point of view, the analysis through Nooj proceeds according to the following stages: creation of the grammar by the researcher; application of grammar to the corpus of texts; carrying out the “word match” within the text in order to obtain information on tokens and digraphs, comparisons with a single word (located pattern) or with multiple words (conjunction \ disjunction operators).

### 4.3.3 Likealyzer

LikeAlyzer is an online tool that analyzes and evaluates Facebook pages, assigning a rating/score ranging from 0 to 100. The software takes into consideration the page information, company posts and posts published by fans, highlighting the critical areas to improve and compare the pages with those of the main competitors (Nguyen & Kravets, 2016).

This tool illustrates the evaluations related to a page by dividing the elements analyzed into 4 macro-areas:

1. Page Information (about),
2. Page Performance (activity),
3. Response (response rate, response time),
4. Engagement (posts by others).

This information was used to identify some variables of the operating framework.

### 4.4 Measurement and evaluation criteria

In the framework, the attribution of the score to evaluate CSR communication was placed at the level of the elementary units (micro-items) that include variables of different types (dichotomous and indices). Specifically, most of the variables were treated as dummy variables to avoid subjective evaluation errors, in fact this approach is more reliable and is commonly used in CSR research (Bravo et al., 2012; Vollero et al., 2019). Manual detection techniques are used for dummy variables, identifying the presence/absence of some elements of the Facebook page.
Otherwise, the variables considered as indices were examined using specific software, such as Facebook developers tools, NooJ and Likealyzer.

Following standard procedures, cumulative indices of the two macro-items (CSR information strategy and CSR involvement strategies) were calculated. In accordance with Babbie (2012), each macro-items was scored by accumulating scores assigned to micro-items, in order to ensure that all selected indicators had a logical validity and provided an adequate amount of variance. The scoring mechanism applied to each variable was based on the equalization criterion (Brusa, 2008). Thus, each of the macro-items had a range with a maximum value equal to the sum of the scores of the corresponding measurement micro-items, that is equal to 50. In detail, during the detection phase, each micro-item, if found, involves the attribution of a base score of 3.846. This value is obtained by dividing the maximum score achievable for each macro-item (50) by the number of micro-items that compose it (13).

Thus, the framework enables to separately measure and evaluate strategies achieved on each stakeholder engagement approach: CSR information and involvement. Considering that the range for both strategies includes a score that oscillates between $0 \leq s \leq 50$, five ranges can be described:

1. $40 \leq s \leq 50$. This range includes firms that show an excellent score in CSR information strategy/CSR involvement strategy;
2. $35 \leq s \leq 39$. This type of result indicates firms that fulfill CSR information strategy/CSR involvement strategy in a satisfactory way;
3. $30 \leq s \leq 34$. This range presents firms with an acceptable score in CSR information strategy/CSR involvement strategy. Improvement actions are however possible in some items;
4. $25 \leq s \leq 29$. Firms in this range show some weaknesses in CSR information strategy/CSR involvement strategy. Several changes are required to avoid reputational risks.
5. $s \leq 24$. In the last range, firms present a poor score in CSR information strategy/CSR involvement strategy. A complete revision of CSR communication strategies on Facebook is needed.

Therefore, in order to gain best performances in CSR communication on Facebook corporate page, organizations must try to achieve a good score in both strategies.

5 The pilot study

The unit of analysis of the pilot study includes the corporate Facebook pages of organizations classified in the Dow Jones Sustainability World Index (DJSWI) 2015, belonging to twenty-four different industrial and service sectors. The DJSWI was chosen as it is one of the most prestigious world indices, which has become a global reference point for sustainability. This index has been frequently adopted in various studies concerning CSR communication (Chams & García-Blandón, 2019; Hawn
et al., 2018; López et al., 2007; Papoutsi & Sodhi, 2020; Sardanelli et al., 2021), since it considers aspects related to the economic, social and environmental profile, highlighting the leading companies in the sustainability of each sector.

The procedure for selecting the companies to be included in the sample took place in two main phases, according to a non-probabilistic method, that is a choice justified by the exploratory nature of the investigation. In a first phase, after excluding the organizations that do not have a Facebook page, the twenty-four sectors labeled by the DJSWI were grouped together by homogeneous categories (since they are business areas that can be superimposed on each other), in order to obtain fourteen sectors. In detail, the sectors considered are: Automotive & Components; Banks & Diversified Financial; Capital Goods; Consumer Durables & Apparel; Energy & Utilities; Food, Beverage & Tobacco; Health Care Equipment & Services; Insurance; Media; Materials; Real Estate; Retailing; ICT; Transportation (Table 3).

In the second phase, for each sector, we selected the organizations (fourteen) with the greatest activity in terms of frequency of publication on the corporate Facebook page, taking into account the largest number of posts published on a daily basis. The daily average of posts published by each company was measured through the use of the LikeAlyzer tool. In this way, it was possible to test the applicability of the framework to different product sectors (horizontal analysis).

The content analysis refers to a period of six months (January–July 2018) in line with similar studies in this field (De Vries et al., 2012; Singh & Sonnenburg, 2012).

### 5.1 Findings of the pilot study: measurement

Tables 4 and 5 show the ranking of organizations classified by the DJSWI considering the presence of dimensions aimed to the CSR information strategies and the CSR involvement strategies on Facebook. Findings demonstrate that firms communicate

**Table 3** Organizations analyzed in the pilot study

| Industry                              | Organizations                          |
|---------------------------------------|----------------------------------------|
| Automobiles & Components              | Pirelli                                |
| Banks & Diversified Financial         | Bank of America Corp                   |
| Capital Goods                         | Siemens AG                             |
| Consumer Durables & Apparel           | Kering                                 |
| Energy & Utilities                    | United Utilities Group PLC             |
| Food, Beverage & Tobacco              | Coca-Cola Enterprises Inc              |
| Health Care Equipment & Services      | Humana Inc                             |
| Insurance                             | Standard Life PLC                      |
| Media                                 | WPP PLC                                |
| Materials                             | Newmont Mining Corp                    |
| Real Estate                           | CapitaLand Ltd                         |
| Retailing                             | Woolworths Holdings Ltd                |
| ICT                                   | Wipro Ltd                              |
| Transportation                        | Latam Airlines Group SA                |
### Table 4  “CSR information strategy” ranking of the Facebook pages of organizations included in DJSWI

| Organizations                | CSR information index |
|------------------------------|------------------------|
| Newmont Mining Corp          | 47.29                  |
| Siemens AG                   | 45.36                  |
| Wipro Ltd                    | 41.45                  |
| WPP PLC                      | 36.81                  |
| Kering                       | 32.97                  |
| CapitaLand Ltd               | 32.53                  |
| Humana Inc                   | 31.53                  |
| Woolworths Holdings Ltd      | 28.60                  |
| Bank of America Corp         | 28.28                  |
| Pirelli                      | 28.03                  |
| Coca-Cola Enterprises Inc    | 24.55                  |
| Standard Life PLC            | 24.06                  |
| Latam Airlines Group SA      | 16.08                  |
| United Utilities Group PLC   | 15.72                  |
| **MEAN**                     | **30.94**              |
| **MEDIAN**                   | **30.05**              |
| **MIN**                      | **15.72**              |
| **MAX**                      | **47.29**              |

### Table 5  “CSR involvement strategy” ranking of the Facebook pages of organizations included in DJSWI

| Organizations                  | CSR involvement index |
|--------------------------------|------------------------|
| Humana Inc                     | 36.42                  |
| Coca-Cola Enterprises Inc      | 29.53                  |
| Siemens AG                     | 22.97                  |
| Bank of America Corp           | 22.01                  |
| WPP PLC                        | 20.96                  |
| Woolworths Holdings Ltd        | 20.45                  |
| Wipro Ltd                      | 19.91                  |
| Pirelli                        | 18.49                  |
| Standard Life PLC              | 18.42                  |
| CapitaLand Ltd                 | 17.54                  |
| Kering                         | 14.00                  |
| United Utilities Group PLC     | 13.17                  |
| Latam Airlines Group SA        | 12.98                  |
| Newmont Mining Corp            | 12.97                  |
| **MEAN**                       | **19.98**              |
| **MEDIAN**                     | **19.20**              |
| **MIN**                        | **12.97**              |
| **MAX**                        | **36.42**              |
better in terms of information rather than involvement on their corporate Facebook pages.

The mean score totaled by the companies on the CSR information strategies is 30.94; this value is significantly higher compared to the mean score obtained in the CSR involvement strategies (19.98). The values of the median (CSR information: 30.05; CSR involvement: 19.20) are close to the values of the respective mean scores, thus the distribution is symmetrical.

In addition, the maximum score on the macro-item of the information strategies is 47.29, while this score is 36.42 on the macro-item of the involvement strategies. There is also a significant difference between the minimum scores of the two macro-items: 15.72 for the CSR information strategies and 12.97 for the CSR involvement strategies.

The best score on the CSR information strategies is obtained by Newmont Mining Corporation (47.29); Humana Inc. is the first in terms of involvement (36.42). It is quite surprising that organizations that perform well on one of the two macro-items, instead achieve very low scores on the other. This is the case, for example, of Newmont Mining Corporation which, as mentioned, ranks first on the information strategies, while it is the last in the ranking as regards the involvement strategies.

The Table 6 reports the results totaled by companies on the CSR information macro-item, with details of the scores obtained on each reference item. Newmont Mining Corporation, ranked first on the macro-item of CSR information strategies, confirms itself as the company that scores the highest score on all the items that make it up: strategic orientation (11.54), corporate identity information and corporate governance (23.98), CSR content (8.83) and type of Facebook presence (3.85). In fact, Newmont Mining Corporation presents on its corporate Facebook page a

| Organizations          | Strategic orientation | Corporate identity/governance | CSR content | FB presence | CSR information index |
|------------------------|-----------------------|-------------------------------|-------------|-------------|------------------------|
| Newmont Mining         | 11.54                 | 23.08                         | 8.83        | 3.85        | 47.29                  |
| Siemens                | 11.54                 | 23.08                         | 6.90        | 3.85        | 45.36                  |
| Wipro                  | 7.69                  | 23.08                         | 6.83        | 3.85        | 41.45                  |
| WPP                    | 11.54                 | 23.08                         | 2.19        | 0           | 36.81                  |
| Kering                 | 3.85                  | 23.08                         | 6.05        | 0           | 32.97                  |
| CapitaLand             | 3.85                  | 19.23                         | 5.61        | 3.85        | 32.53                  |
| Humana                 | 3.85                  | 23.08                         | 0.76        | 3.85        | 31.53                  |
| Woolworths Holdings    | 11.54                 | 11.54                         | 1.68        | 3.85        | 28.60                  |
| Bank of America        | 3.85                  | 15.38                         | 5.21        | 3.85        | 28.28                  |
| Pirelli                | 7.69                  | 15.38                         | 1.11        | 3.85        | 28.03                  |
| Coca-Cola Enterprises  | 0                     | 19.23                         | 1.47        | 3.85        | 24.55                  |
| Standard Life          | 7.69                  | 7.69                          | 4.83        | 3.85        | 24.06                  |
| Latam Airlines Group   | 0                     | 15.38                         | 0.70        | 0           | 16.08                  |
| United Utilities Group | 0                     | 7.69                          | 4.19        | 3.85        | 15.72                  |
clear definition of corporate orientation, as periodically publishes posts referring
to its sustainability report, code of ethics, indices, interviews with the sustainabil-
ity board, etc., and it has pages dedicated to specific sustainability issues (career,
educational).

The Table 7, instead, reports the details of the scores scored by the companies on
the items that are part of the macro—item of CSR involvement strategies.

Humana Inc., ranked first on this macro-item, achieves the highest score on the
following items: popularity and commitment (10.96), virality (7.69), interactivity
and multimedia (13.91). On the item of stakeholder participation tools, several com-
panies achieve the best score, equal to 7.69, such as Siemens AG; Standard Life
PLC; WPP PLC; etc. In the context of corporate Facebook pages, there is in fact a
frequent use by organizations of games, applications, specific contests or commu-
nication campaigns.

Taking into account that the CSR communication strategies consists of CSR
information and involvement strategies, in order to have a synthetic vision, findings
of rankings of the two strategies can be added together in an overall score equal to
100 (Table 8).

Considering this overall ranking on CSR communication strategies, the corporate
Facebook page of Siemens AG obtains the best score (68.33), followed by Humana
Inc. (67.95). On the other hand, the Facebook pages of Latam Airlines Group SA
(29.06) and United Utilities Group PLC (28.89) achieve the worst scores.

However, it should be noted that the overall score can lead to misleading valua-
tions as it does not demonstrate how active the company Facebook page is in one-
way or two-way communication strategies. For example, the highest score (68.33),
which was achieved by Siemens AG, is composed by the scores of 45.36 in the CSR

| Organizations              | Popularity and commitment | Virality | Participation tools | Interactivity multimedia | CSR involvement index |
|---------------------------|---------------------------|----------|---------------------|--------------------------|------------------------|
| Humana                    | 10.96                     | 7.69     | 3.85                | 13.91                    | 36.42                  |
| Coca-Cola                 | 5.23                      | 5.58     | 7.69                | 11.02                    | 29.53                  |
| Siemens                   | 5.17                      | 4.11     | 7.69                | 6.00                     | 22.97                  |
| Bank of America           | 2.31                      | 1.15     | 7.69                | 10.86                    | 22.01                  |
| WPP                       | 0                         | 3.87     | 7.69                | 9.38                     | 20.96                  |
| Woolworths                | 1.10                      | 0.28     | 7.69                | 11.38                    | 20.45                  |
| Wipro                     | 0                         | 0        | 7.69                | 12.15                    | 19.91                  |
| Pirelli                   | 4.13                      | 0.08     | 3.85                | 10.43                    | 18.49                  |
| Standard Life             | 0                         | 0        | 7.69                | 10.70                    | 18.42                  |
| CapitaLand                | 3.88                      | 3.87     | 0                   | 9.80                     | 17.54                  |
| Kering                    | 3.96                      | 0.16     | 3.85                | 6.04                     | 14.00                  |
| United Utilities          | 0                         | 0        | 3.85                | 9.28                     | 13.17                  |
| Latam Airlines            | 0.20                      | 0.06     | 0                   | 12.73                    | 12.98                  |
| Newmont Mining            | 3.92                      | 0.03     | 3.85                | 5.17                     | 12.97                  |
information strategy and 22.97 in the CSR involvement strategy. Therefore, the overall score must be disaggregated to have a right understanding on the specific stakeholder engagement strategies developed on Facebook.

### 5.2 Findings of the pilot study: evaluation

In order to obtain a proper evaluation of CSR communication strategies implemented by organizations analyzed in the pilot study, it is useful to compare the scores achieved with the ranges established for the CSR information and CSR involvement strategies on Facebook pages. The mean score totaled by firms in the CSR information strategies (30.94) falls within an acceptable range (30 ≤ s ≤ 34). Differently, the mean score obtained in the CSR involvement strategies (19.98) demonstrates a poor implementation of the two-way communication approach (s ≤ 24), which implies the need for a complete revision of this strategy on Facebook pages.

The maximum score in the CSR information strategies is 47.29, obtained by Newmont Mining Corp, which shows an excellent use of strategies aimed at informing stakeholders about corporate CSR practices on Facebook page. Instead, the maximum value in the CSR involvement strategies is 36.42, achieved by Humana Inc. This score indicates that this firm fulfills two-way communication strategy in a

| Organizations                  | Industry                          | Score CSR information | Score CSR involvement | Score CSR communication strategies |
|--------------------------------|-----------------------------------|-----------------------|------------------------|-----------------------------------|
| Siemens AG                     | Capital Goods                     | 45.36                 | 22.97                  | 68.33                             |
| Humana Inc                     | Health Care Equip. & Services     | 31.53                 | 36.42                  | 67.95                             |
| Wipro Ltd                      | ICT                               | 41.45                 | 19.91                  | 61.36                             |
| Newmont Mining Corp            | Materials                         | 47.29                 | 12.97                  | 60.26                             |
| WPP PLC                        | Media                             | 36.81                 | 20.96                  | 57.77                             |
| Coca-Cola Enterprises Inc      | Food, Beverage & Tobacco          | 24.55                 | 29.53                  | 54.08                             |
| Bank of America Corp           | Banks & Diversified Financials    | 28.28                 | 22.01                  | 50.29                             |
| CapitaLand Ltd                 | Real Estate                       | 32.53                 | 17.54                  | 50.07                             |
| Woolworths Holdings Ltd        | Retailing                         | 28.60                 | 20.45                  | 49.05                             |
| Kering                         | Consumer Durables & Apparel       | 32.97                 | 14.00                  | 46.97                             |
| Pirelli                        | Automobiles & Components          | 28.03                 | 18.49                  | 46.52                             |
| Standard Life PLC              | Insurance                         | 24.06                 | 18.42                  | 42.48                             |
| Latam Airlines Group SA        | Transportation                    | 16.08                 | 12.98                  | 29.06                             |
| United Utilities Group PLC     | Energy & Utilities                | 15.72                 | 13.17                  | 28.89                             |
satisfactory way, activating interactive tools to involve stakeholders in CSR issues on its Facebook page. The Fig. 1 provides a more detailed view on the distribution of scores in the ranges of the CSR information and CSR involvement strategies.

The distribution of scores obtained in the CSR information strategy shows that: three organizations are in the range $40 \leq s \leq 50$, one is in the range $35 \leq s \leq 39$, three are in the range $30 \leq s \leq 34$, three are in the range $25 \leq s \leq 29$, and four are in the range $s \leq 24$. The distribution of scores achieved in the CSR involvement strategy shows that: one organization is in the range $35 \leq s \leq 39$, one in the range $25 \leq s \leq 29$ and twelve are in the range $s \leq 24$, while none organization is found in the ranges $40 \leq s \leq 50$ and $30 \leq s \leq 34$. Therefore, findings reveals a more critical situation for the CSR involvement strategies on which organizations have to undertake corrective action with appropriate changes and improvements on corporate Facebook pages.

6 Discussion

The purpose of this study was to develop a framework to measure CSR information and CSR involvement strategies on corporate Facebook pages. The pilot study demonstrates that companies tend to adopt more CSR information strategies on corporate Facebook pages, rather than CSR involvement strategies. This suggests that firms prefer to define their CSR agenda internally, adopting a self-centered communication strategy (Colleoni, 2013). According to this perspective, firms exhibit care and precision in disclosing information about CSR value statements, corporate governance, CSR reporting, and projects in order to enhance corporate visibility (Morsing, 2006). To meet this goal, the informing strategy is in fact directed to: create emphasis of CSR as a shared concern between firms and stakeholders, link CSR to core corporate business, make evidence that demonstrates CSR corporate commitment and performances (Grunig & Hunt, 1984; Morsing & Schultz, 2006).

![CSR information and CSR involvement](image-url)
The organizations, instead, tend not to pursue a high “intensity level” of stakeholder engagement on Facebook, in terms of CSR involvement strategy. Similarly to Cho et al. (2017), the pilot study reveals in fact a limited commitment by firms in implementing concrete practices of user involvement. Thus, results highlight an underpowered use of Facebook page by companies that do not seize the opportunities offered by this social network in developing dialogic and interactive processes. Indeed, organizations currently do not fully exploit their Facebook pages, adopting them as simple showcases for disseminating corporate CSR news with the same function of corporate websites, and not as tools to stimulate user participation on CSR issues. In particular, organizations seem to underestimate the active use of participation strategies, and do not involve users through Facebook tools—like, share and comment – that improve engagement between an organization and its public (Cho et al., 2014). These findings are in line with previous studies (Parveen et al., 2015), who affirm that social networks are used for promotion, publicity, branding, and to a much lesser extent to dialogue about their CSR activities. Results are also consistent with the study of Kent and Taylor (2016) that shows that the strength of social network to build up relations with stakeholders was not being fully realized by companies due to a unidirectional communication strategy. In the same way, Wei et al. (2015) stated that “information overload” from information updates led to decreasing levels of engagement by stakeholder.

The preference for an information strategy is likely due to the fact that a CSR involvement strategy can be challenging and risky (Cooke & Kothari, 2001). Thus, firms are likely unwilling to engage with stakeholder to minimize public criticism (Cho & Chun, 2016). However, the implementation of dialogic processes with stakeholders is a form of strategic investment that can further differentiate companies by creating a competitive advantage (McWilliams & Siegel, 2001). The study by Eberle et al. (2013) showed that when stakeholders perceived CSR communication to be interactive, the feelings of identification with a company were higher, which led to a boost credibility in corporate CSR messages. In fact, the active participation of stakeholders on Facebook can have a positive impact on corporate reputation (Dijkmans et al., 2015).

7 Managerial implications and future research

The study offers different managerial implications. The framework constitutes a tool aimed at analyzing and measuring CSR communication strategies on the corporate Facebook pages (Bonsón & Ratkai, 2013). The framework provides digital communication managers and consultants with useful information for the optimization of sustainable marketing activities on Facebook. In fact, the framework enables to obtain a unified vision about the adequacy of stakeholder engagement practices reached by the organization, representing an immediately understandable tool for the professionals involved in this field of research. Marketing and communication managers have the possibility to self-evaluate the CSR information and CSR involvement strategies on corporate Facebook page, thanks to the detection of scores achieved by organizations. Furthermore, the partial rankings referable to
the different dimensions of the framework highlight the criticalities connected to each item, and related micro-items, identifying “areas for improvement” on which managers can act with corrective actions. In light of this, the study makes managers aware of this delay in the use of all the potential of Facebook page, and provides indications to improve stakeholder engagement strategies.

Following the logic of evaluation research (Clarke, 1999; Cutlip et al., 2000), the framework can be a tool for digital communication managers to be used at both a training and summative level of online communication measurement (Romenti, 2016). From a training point of view, the framework allows organizations to evaluate, during the design and implementation phase, the relevance of strategies, tools, activities and content designed for an adequate CSR communication. From the perspective of the summative level, the framework enables to measure some effects generated by communication activities on Facebook page, such as popularity, commitment and virality, which aim at creating and maintaining relationships with stakeholders. In particular, the measurement of consumer behavior using digital analytics techniques provides significant indications on the effects of digital communication strategies (Erevelles et al., 2016). This allows organizations to understand if and how they are pursuing CSR communication objectives, to compare their performance over time and to define possible improvement actions in the implemented strategy. In this perspective, the proposed framework can be both a descriptive analytics tool, as it detects and describes the structure of CSR communication on Facebook as designed and implemented by a company; and a prescriptive analytics tool as it could perform a regulatory function for communication managers who must be guided in this field of study (Wheeler, 2016).

Therefore, the framework suggests insights that can be translated into strategic choices on which to develop concrete actions aimed at setting up a valid digital communication and consequently strengthen the legitimacy of the organization in terms of sustainability (Lock & Schulz-Knappe, 2019; Luo et al., 2015). In this perspective, the repeated application of the framework allows the company to monitor the performances achieved over time, in order to verify the effectiveness of the corrective actions implemented, as well as to specifically plan further initiatives aimed at improving CSR communication strategies.

The framework does not claim to be exhaustive as it focuses on a limited number of dimensions which could be further enriched considering the dynamic nature of Facebook. The measurement elements of the model also need to be further developed in a more operational perspective in future studies.

Moreover, the framework has limitations associated with the use of content analysis techniques. In fact, the grouping into items may be influenced by the subjective assessments of the researchers (Beattie et al., 2004). Further research is needed to refine the measurement processes implemented by the framework and to expand the study on a large scale, in order to make changes and improvements aimed at increasing the applicability of the framework. Thus, it would be interesting to undertake empirical investigations with a greater number of companies per sector to verify if there are significant differences in CSR communication. In fact, the framework has to possibility to detect not only of the score referred to the individual company, but also of the sector rankings, which can be analyzed in a comparative key. The
information collected through an intra-sectoral and inter-sectoral benchmarking can be used by the business activities to identify strengths and weaknesses, as well as stimulate continuous learning and change processes. In this regard, the identification of best practices in further studies can provide guidelines that can inspire companies wishing to enhance business performances on their Facebook pages. Lastly, the proposed framework is operationalised to work with Facebook, thus future studies could verify the possibilities of applying the framework to other social networks, such as Twitter, providing appropriate adjustments.

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**Declarations**

**Conflict of interest** The authors declare that there is no conflict of interest.

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