Received 17 June 2016
Revised 24 February 2017
31 May 2017
12 June 2017
Accepted 13 June 2017

How to measure engagement in Twitter: advancing a metric

Miriam Muñoz-Expósito, M. Ángeles Oviedo-García and Mario Castellanos-Verdugo
Department of Business Management and Marketing, University of Seville, Seville, Spain

Abstract

Purpose – As social media are essentially different from traditional media, due to their social networking structures and egalitarian nature, conventional media metrics are not appropriate. Social media networks have nevertheless become another communications channel that companies use to achieve their marketing goals. Even though the measurement of marketing constructs in social media is elusive, a comprehensive means of measuring engagement is proposed for a successful social media site: Twitter. The paper aims to discuss this issue.

Design/methodology/approach – A measurement for customer engagement based on conceptual reflections is presented in the context of Twitter.

Findings – A new environment fostered by internet obliges companies to manage social media accounts and to assess engagement with company brands. To do so, companies need to analyze engagement trends by means of a metric, helping them to design an appropriate engagement strategy. The proposed metric provides much needed insight for companies to fine-tune their engagement strategy. Moreover, a means of calculating engagement from the parameters that Twitter makes available to the public is also proposed.

Research limitations/implications – The metric for engagement in Twitter that is proposed in this paper will be the starting point for future improvements through a conceptual and empirical discussion on this issue.

Originality/value – This is the first proposal specifically designed for Twitter, to the best of the authors' knowledge, for measuring engagement.

Keywords Metric, Customer engagement, Twitter, Social media

Paper type Conceptual paper

Introduction

Firms recognize the power of internet, an open, cost-effective, and omnipresent network, which contributes to reducing and even eliminating geographical barriers and physical distance. It serves as a platform to co-create value with customers on the basis of its interactivity, broad scope, pervasiveness, speed, and flexibility (Sawhney *et al.*, 2005) where the information may be searched for or provided both for private and business purposes (Daniel *et al.*, 2017). In this context, social media are becoming increasingly important in the firms' media mix. Managers may have few alternatives other than traditional media metrics for the measurement, analysis, and management of social media. Nevertheless, social media are substantially different from other media, because they are dynamic, interconnected, egalitarian, and interactive organisms beyond the control of any one organization (Peters *et al.*, 2013), which all calls for a different approach.

According to the Digital Trends 2016 report (Kemp, 2016), there are about 2.3 billion active users of social media throughout the world, and social media such as Facebook and Twitter dominate the digital scene. In particular, Twitter has 313 million monthly active users.

Additionally, a lot of research has focused on the nature and the dynamics of consumer/brand relationships over the last three decades and, more recently, research in an interactive environment has included specific social media settings. Customer engagement is of

This work has been supported through research project Contrato 68/83 – 1754/0641 return on investment measurement in social media.

Internet Research
Vol. 27 No. 5, 2017
pp. 1122-1148

1066-2243
DOI 10.1108/IntR-06-2016-0170

particular interest and is defined as a psychological state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object. It recognizes the fact that there are new active rather than passive roles and behaviors for customers in specific brand-based processes (Brodie *et al.*, 2011; Hollebeek *et al.*, 2014). The expected benefits of a high level of customer engagement are superior organizational performance outcomes such as sales growth, cost reductions, brand referrals, enhanced consumer contributions for collaborative product development processes, enhanced co-creative experiences, and superior profitability (Hollebeek *et al.*, 2014; Zhang *et al.*, 2016).

Nevertheless, although the importance of customer engagement in social media has been recognized, in spite of the potential usefulness of a metric to assess engagement, none exist. This work proposes a specific metric to evaluate engagement on Twitter, which is useful from both a theoretical point of view (to be used in subsequent research) and a practical point of view, as firms will only be able to define their engagement strategy properly, once they know how to measure engagement (Kumar *et al.*, 2010). This is important because social media metrics need to be connected to marketing actions and related to relevant outcomes (Peters *et al.*, 2013).

The metric proposal designed specifically for Twitter is in line with Ambler and Roberts (2006) and Peters *et al.* (2013) who affirmed that pursuing a single silver-bullet metric in a social media context is a poor option. The proposed metric is, moreover, opportune, because there is little agreement over how engagement may be measured within a social media context (Schultz and Peltier, 2013).

Social media are an increasingly researched area. Basically, because they represent an essential part of the daily lives of over two billion users of digital environments and because of the greater diversity of channels through which users can communicate with each other in comparison to traditional media (Kwon *et al.*, 2014).

Marketing oriented around social networking is indeed a relatively new phenomenon (Wang and Chang, 2013), which poses significant opportunities and challenges for both researchers and practitioners. So far, most research has been qualitative and conceptual (Men and Tsai, 2012) from a content analysis approach (describing the communication strategies used by firms; i.e. examining the discourse and the dialogue between the firm and its public) and attempts to operationalize the construct have been rare, in spite of the fact that research into customer engagement has been developed within online contexts and within the exchange paradigm (Vivek, 2009). A metric for engagement is operationalized within the context of Twitter, seeking to provide guidance to both academia and managers, as the volume of research is still not large enough to understand how the activities developed on social media can, through engagement, contribute to the objectives of firms (Benthaus *et al.*, 2016) as well as metrics that permit the monitoring of their activity on social networks. The collection of new kinds of information, as Hennig-Thurau *et al.* (2013) have noted, "to evaluate marketing performance in a way that adequately captures the elements of the new paradigm such as the interconnectedness of customer and their active role in the marketplace" (p. 239) is key for the businesses marketing strategy.

Social media

The Web 2.0 is a technical infrastructure where the social phenomenon of collective media facilitates the creation and exchange of user generated content through internet-based applications (Kaplan and Haenlein, 2010). Sharing content (e.g. text, image or audio), communicating and relating with others are key elements in social media definitions (Hennig-Thurau *et al.*, 2010; Kietzmann *et al.*, 2011; Peters *et al.*, 2013).

Social media encompass a broad and varied set of internet-based applications which vary with regard to such aspects as richness of context, temporal structure, level of social interactivity, social cues, reach of communication (Munar and Jacobsen, 2014), nature of

connection (profile-based vs content-based), and level of customization of messages (broadcast vs customized) (Zhu and Chen, 2015). Kaplan and Haenlein (2010), in one of the works on social media that has had (and will continue to have) the greatest impact on social media in the literature (Zhang *et al.*, 2015), classified them into six types: collaborative projects, blogs and micro blogs, content communities, social networking sites, virtual game worlds, and virtual communities. This classification has permitted the systematic and explicit study of social media (Zhang *et al.*, 2015), which has created a fertile ground for debate that is needed to expand the study of social media into such varied fields as social participation (Boulianne, 2015), collaborative learning (Zhang *et al.*, 2015), recruiting/selection decisions (Roth *et al.*, 2016), tourism (Zeng and Gerritsen, 2014), medicine and healthcare (Adams *et al.*, 2015; Grajales *et al.*, 2014), sport (Filo *et al.*, 2015), communication (McFarland and Ployhart, 2015), public-spending review (Agostino *et al.*, 2017) and organizing (Leonardi and Vaast, 2015), opening new fields of future investigation in such areas as "organization orientation, social power, cultural differences and impacts of social media" (Ngai *et al.*, 2015, p. 39).

The changes promoted by digitalization, in general, and by social media, in particular, are evident in the field of communications and, specifically, in commercial communications (Li and Li, 2014), as users of social networks generate spaces in which they reflect their opinions and concerns, including those that refer to products, brands, and firms (Oviedo-García *et al.*, 2014), which highlights the key "social" element in social media, over and above the media element (Drury, 2008). There again, in contrast to traditional media, social media are egalitarian in nature (Peters *et al.*, 2013).

Not only have social media revolutionized interaction between the public and organizations/firms, but they have also changed the way in which firm-related content is produced, distributed, and consumed (Oviedo-García *et al.*, 2014). Social media networks offer unprecedented opportunities for communicators within the firm to target the public in the social communities and to construct relations at a more personal level with online stakeholders (Kelly *et al.*, 2010), without the need for physical proximity (Sawhney *et al.*, 2005), in such a way that the image of a firm and its reputation is at present formed to a great extent by "likes," "posts," and "tweets" from individuals connected through social media (Muntinga *et al.*, 2011).

Firms that market on social media seek to reach consumers who are online in their homes and to achieve customer engagement, as a final aim, through such techniques as segmentation, viral marketing, and personalization of messages. Firms use social media so that they can build direct relationships with their customers, increase website traffic, identify new business opportunities, create communities, distribute content, collect feedback from customers, and generally support their brand (Michaelidou *et al.*, 2011). Järvinen *et al.* (2012), within the B2B context, found that the first priorities when companies use social media are to create awareness and to enhance brand image, seeking customer relationship development afterwards rather than direct sales.

Social media marketing is therefore important, as it is a very cheap way of reaching a very large potential audience and of amassing large volumes of information that users input in order to access a site (Ofcom, 2008). Social media are especially suited for collecting information/feedback from customers, due to their non-transactional nature, initiating two-way conversations with customers and developing customer relationships through communication and interaction (Kaplan and Haenlein, 2010). All in all, social media facilitate active communication between companies and users and spur interactions between users supporting and expanding existing social or business networks and, even, fostering the creation of new ones (Lorenzo-Romero *et al.*, 2011).

The impact of social media on marketing practices is clearly visible in the fact that potential consumers rely more on the members of their own networks when making a decision, instead of solely relying on figures of authority, experts, the mainstream media,

and mass advertising (Bigné *et al.*, 2013; O'Connor, 2010; Richter *et al.*, 2011; Wang and Chang, 2013; Wang *et al.*, 2012), although differences in this behavior may exist depending on the type of product – utilitarian or hedonic (Sen and Lerman, 2007) – and the culture (Goodrich and Mooij, 2014).

Twitter a particular sort of social media

Social media, the main aims of which are to facilitate relationships with acquaintances, friends, family, and professional contacts (Richter *et al.*, 2011), are web-based services through which individuals can: construct a public or semi-public profile within a bounded system; set up a list of other users with whom they share a connection; and view and scan their list of connections and those made by others within the system (Boyd and Ellison, 2007).

Twitter, one of the most popular communication platforms, is a micro-blogging social networking service, launched in 2006. By means of a profile created in Twitter, users can interact with friends and other people around the world by means of a message limited to 140 characters known as a tweet. In spite of this limit, conversations can be effectively organized with hashtags (a word beginning with the "#" symbol), which also facilitates searches. The other two basic symbols in Twitter are "@" followed by a Twitter account name for a mention or tweet and "RT" for "retweeting" a message (Aladwani, 2015). Therefore, Twitter offers five functionalities: tweets, hashtags, @-messages, retweets, and follower relations (Kayser and Bierwisch, 2016). Tweets can include URLs (automatically condensed to 19 characters to conserve space), use links to preview content, view images, and play videos, providing an interactive experience (Swani *et al.*, 2014). Besides the personal use of Twitter to spread information on users, it is also used in professional and more recently political contexts and even to distribute malevolent information (Daniel *et al.*, 2017).

The statistics endorse the success of Twitter: 313 million users who produce tweets in more than 40 languages, basically on mobile phones. The users' profile can contain any information they want to share such as name, contact details, education, interests, etc. User accounts can be public, so other users can access the content and/or follow the user (whether logged in to Twitter or not) or private (restricted to only certain followers who can access to the content). Twitter recently changed the sorting algorithm[1] that arranges the timeline. Previously, the timeline presented the tweets in chronological order with a time-stamped record. The new sorting algorithm gives preference to those tweets that, according to the criteria of Twitter, are more relevant. Nevertheless, it is possible to deactivate the new Twitter algorithm and to recover the chronological order of the timeline. What started as a private communications channel between individuals has quickly changed and now Twitter is used more and more by businesses and politicians to reach consumers and citizens, respectively (Kayser and Bierwisch, 2016).

Twitter has demonstrated its utility in such fields as event detection (such as social events, natural disasters or illnesses) (Daniel *et al.*, 2017), foresight (Kayser and Bierwisch, 2016), outcome of elections or political debate (Larson and Moe, 2012; Hong and Kim, 2016), health care sector (Pinho-Costa *et al.*, 2016), scholarly communication (Holmberg and Thelwall, 2014) and business layer for supply chain practices, stock market prediction (Oliveira *et al.*, 2017), brand reputation (Vidya *et al.*, 2015), and the reactions of customers to new product launches (Lipizzi *et al.*, 2015).

Approximately, 83 percent of the Fortune 500 companies use Twitter to connect with their customers (Barnes and Leschault, 2014). The option of open and public delivery of communications can benefit marketers who may need to spread their messages to a larger audience, beyond followers (Swani *et al.*, 2014). By tweeting their followers, marketers may increase brand awareness, generate leads and revenues, foster relationships, and create brand loyalty (Kumar and Mirchandani, 2012; Rapp *et al.*, 2013). Further, a tweet posted by a company can, under the right conditions, turn into a global customer engagement event (Aladwani, 2015).

Customer engagement

Customer engagement is attracting increasing interest among both practitioners and academics, which is evident in the attention lent to this construct in the recent literature (Harrigan *et al.*, 2017), in part due to the growth of internet as an effective platform for customer interaction (So *et al.*, 2014, 2016) where social media are the ideal environment for customers social and interactive behaviors (Okazaki *et al.*, 2015), as shown in the Econsultancy (2013) State of Customer Engagement Report. Employing data from over 1,000 companies operating in different industries worldwide, the Report asserted that 94 percent of those companies considered that customer engagement was important.

Undoubtedly, the new networked society, where customers interact easily with peers and firms, means that non-transactional customer behavior is likely to become more important in the near future (Verhoef *et al.*, 2010). So, companies "are placing more emphasis on competing for the social attention of consumers to drive customer engagement" (p. 28) by means of incorporating social media in their marketing strategies and tactics (Hudson *et al.*, 2016), such as branding strategy (Okazaki *et al.*, 2015).

Organizations increasingly seek customer commitment and participation (Prahalad and Ramaswamy, 2004; Sawhney *et al.*, 2005) and the concept of customer engagement provides a construct that comprises the total set of behavioral activities toward a firm (Gummerus *et al.*, 2012), reflecting the broadest theoretical perspectives of the paradigm of services and of relational marketing (Brodie *et al.*, 2011, 2013; Vivek *et al.*, 2012) and is able to provide enhanced predictive and explanatory power of focal consumer behavior outcomes such as brand loyalty (Hollebeek *et al.*, 2014).

The engagement concept reflects a motivational state that involves an individual's (the engagement subject) focal interactive experiences with a particular object or agent (the engagement object) (Hollebeek *et al.*, 2014). The engagement subject is the customer or the consumer while the engagement object may be brands, offerings, organizations, and organizational activities beyond purchase. Therefore, as Zhang *et al.* (2017) state, engaged customer's behaviors exceed the mere transaction and consumption.

Customer engagement has been recognized as an emotional connection between a company and its customers focused on interaction with customers and their participation (Oviedo-García *et al.*, 2014). The truly engaged customer must have an enduring psychological connection with the brand in addition to behavioral participation (So *et al.*, 2014), meaning that knowledge exchange is key to customer engagement (tapping the immense opportunities provided by information and communication technologies) (Vivek, 2009). Engagement represents a multidimensional construct with cognitive, emotional, and behavioral dimensions (Hollebeek, 2011a, b, 2013; Hollebeek *et al.*, 2014; So *et al.*, 2014, 2016), although the specific expression of these generic dimensions can vary in accordance with the specific concept of engagement that is used, as well as the relative importance of each one in accordance with the context (Brodie *et al.*, 2013; Hollebeek *et al.*, 2014).

Individuals are no longer merely seen as passive receptors of marketing actions, but increasingly as proactive participants in interactive processes of co-creation that generate value (Sawhney *et al.*, 2005), turning into the effective advocates of brands/firms (So *et al.*, 2016). Congruently, customer engagement has been linked with relevant outcomes such as sales growth, cost reduction, superior competitive advantage and profitability, emotional connections/attachment, contributions to collaborative product development processes and enhanced co-creative experiences, customer feedback and referrals, trust, commitment, satisfaction, and loyalty (Chan and Li, 2010; Hollebeek, 2011a; Harrigan *et al.*, 2017; Kumar *et al.*, 2010), contributing to the enhancement of organizational performance. In research on Facebook, user-generated content largely exceeded marketer-generated content, particularly when user-generated content was

compared with marketer-generated content on consumer purchase behavior (Goh *et al.*, 2013), which stresses the importance of clearly understanding customer engagement in companies (Harrigan *et al.*, 2017).

Hollebeek (2011b) defined customer brand engagement as the level at which the motivational, brand-related, and context-dependent state of mind of a customer is expressed, in terms of a degree of activation, identification, and absorption in brand interactions. Her concept of brand engagement is close to the idea advanced by Vivek *et al.* (2012) of the intensity of individual participation and individual connections with the offers and activities of the organization, initiated by the customer as much as by the organization. Van Doorn *et al.* (2010) defined customer engagement behavior as the behavioral manifestation of customers toward a brand or a firm, beyond purchase, resulting from motivational drivers, including word-of-mouth activities, recommendations, helping other customers, blogging, and writing reviews.

If an online consumer is considered, online consumer engagement has been defined as the cognitive and affective commitment of the customer to an active relationship with the brand as personified by the website or other computer-mediated entities designed to communicate brand value (Mollen and Wilson, 2010). All in all, previous research on customer engagement conceptualizes the construct as a multidimensional one compounded by cognitive, emotional, and behavioral components. These three dimensions (and their components) have been expressed at different levels of detail, depending on the authors. So *et al.* (2014, 2016) considered five of them (enthusiasm – or vigor, attention, absorption, interaction, and identification), while Hollebeek *et al.* (2014) distinguished between just three (activation, affection, and cognitive processing). Finally, Dwivedi (2015), in an adaption of the concept of employment engagement, speaks of vigor, dedication, and absorption as elements of consumer brand engagement. However, the specific dimensions considered in the literature are always present: the cognitive, emotional, and behavioral components of customer engagement (Harrigan *et al.*, 2017).

Commitment, involvement, and participation are concepts connected with customer engagement that are included within the broader construct of customer engagement. Involvement relates to the cognitive dimension of customer engagement (Harrigan *et al.*, 2017), participation is connected with the behavioral one and, finally, commitment with the emotional dimension.

As previously discussed, there is no generally accepted consensus on the definition of customer engagement and each concept represents a single theoretical scope, which has complicated the achievement of greater conceptual advances and reflects the lack of absolute consensus (Hollebeek, 2013). Our study proposes a comprehensive metric that operationalizes engagement on Twitter; it is useful from both a theoretical and a practical point of view, providing much needed insight for firms to fine-tune their engagement strategy.

As the Marketing Science Institute (2013) has pointed out, it is clear that customer engagement is a manifestation of client behavior towards the brand or the company "beyond the purchase". Therefore, an individual who is not a customer can nevertheless express commitment toward the brand and remain open to the engagement strategies of the firm. Adaptation to customer engagement strategies will therefore help firms to take a step forward in their relations with customers, increasing their loyalty, for example, and capturing potential customers. The feasibility of such an adaptation strategy is even clearer, insofar as firms hold data management systems on their customers (creation of a Customer Relationship Management system with the data provided by social media), with all the necessary information to address them, aware of their purchase behavior, favorites, preferences, priorities, roles that they play in their online communities, expectations, etc. (Oviedo-García *et al.*, 2014).

In line with Dolan *et al.* (2016), Gummerus *et al.* (2012) and van Doorn *et al.* (2010), we also recognize the importance of the cognitive and the affective dimensions of engagement, though for practical reasons this paper will focus on behavioral manifestations of engagement. This preference is because the behavioral manifestations of engagement can be identified and measured more easily than the cognitive and affective dimensions. So, as Agostino and Sidorova (2016, p. 42) stated, "engagement measures the ability of an organization to establish dialogue and interactions with social media users and is based on the quantification of responses to social media posts."

Therefore, in the absence of a universally accepted definition, a working definition is proposed with the aim of specifying a metric for the concept of engagement, bearing in mind that the attitude of commitment toward a brand, a product, or a service is measured through manifestations of behavior, which take place regardless of whether there is a purchase. We therefore understand engagement as the manifestation of commitment, through the intensity of interactions and their implications, toward the offers and activities of a brand, product, or firm, regardless of whether it is initiated by the individual or by the firm. Certainly, there is no reason to be limited exclusively to clients, but to take into consideration the actions of other individuals interested in the communications of a firm on Twitter, although they are not at present effective clients, and, in general, all stakeholders with an interest in those communications (Oviedo-García *et al.*, 2014).

Metric proposal for customer engagement in Twitter

Metrics in social media

A metric is a measurement system that quantifies either static or dynamic characteristics (Farris *et al.*, 2006); in other words, a metric either describes or quantifies a state (characteristic) or a process (trend or evolution). Metrics are used, both in business and research, to define goals, to measure degrees of completion or deviation and, then, to implement measures for their improvement (Peters *et al.*, 2013).

As with every marketing tool, the effectiveness of social media at achieving brand-related objectives should be assessed. However, conventional marketing metrics based on a linear form of communication are not appropriate for the Web 2.0 environment and the simple transfer of metrics from traditional media is not possible, due to the different nature of social media (Peters *et al.*, 2013), as existing business metrics are designed for a world of concrete boundaries and fixed categories (Borders *et al.*, 2001). In the words of Järvinen *et al.* (2012), companies need know how "to make the most of opportunities provided by the developing digital environment" (Järvinen *et al.*, 2012, p. 102).

As Peters *et al.* (2013) stated, a social media metric would, like any other, require a theoretical grounding, completeness, a diagnostic system, and would have to be perceived by management as credible and reliable over time. Additionally, due to the special nature of social media, more than objectivity in the metric, Peters *et al.* (2013) recommended inter-subjectivity and a pragmatic corridor of comfort, defined in terms of heterogeneity and dynamics in relation to crucial metrics. The metric should also describe dynamic phenomena in social media.

Surveys among marketing executives have shown the need and the increased demand among practitioners for appropriate and specific metrics that may be used in social media, both in the business-to-business (Leeflang *et al.*, 2014; Rollins *et al.*, 2014) and business-to-consumer contexts (Leeflang *et al.*, 2014).

The commitment of users to social media leads on naturally to the cultivation of relations, which has been studied as an antecedent of attitudes and affective responses and reactions to advertising messages (Calder *et al.*, 2009). Commenting on the company and its products, expressing support and criticism, sharing information with social connections are, for example, forms of participation in conversations on the social media

of a firm, in such a way that online stakeholders make direct commitments with the firm and with other consumers.

Importantly, customer engagement, in the field of relationship marketing, not only incorporates the relations established between buyers and sellers, but also any possible combination between potential and actual clients, non-clients, and society in general and sellers; in other words, the stakeholders (Oviedo-García *et al.*, 2014). Additionally, each communication has to be pertinent and relevant to the client, contributing value, so that it produces interaction based on user participation and implication, which the firm can only do if it understands the needs of the clients.

Therefore, interactions are key, as they are the means of achieving engagement, and interactions will occur if there is individual participation and involvement. It is by focusing on relationship-based interactions with their customers that companies will improve their digital engagement (Tiago and Veríssimo, 2014), because "managing within complex networks and interactions" and not just buying and selling is the epitome of marketing (Gummesson *et al.*, 2014). It is not rare for present and potential clients to interact with each other and consumer purchase decisions are strongly influenced by those interactions (Ku *et al.*, 2012; Li *et al.*, 2010).

Metric proposal for customer engagement in Twitter

Engagement requires connections and interactions that take place between individuals and organizations and these are due to the participation of individuals, on the basis of their experiences with the offers and the activities of the organization (Vivek *et al.*, 2012). Thus, in the absence of user participation, those interactions would not take place and engagement could not be achieved (Oviedo-García *et al.*, 2014).

Engagement implies individual involvement in the production and performance of the service. This involvement in an interactive situation is of common interest for both the individual and for the firm that can, in addition, generate higher levels of enthusiasm and commitment toward the entity (Bagozzi and Dholakia, 2006). Bidirectional interaction between the firm and users is, therefore, the basis of engagement (Vivek *et al.*, 2012).

Additionally, customer engagement behaviors can be evaluated in terms of their valence, quantity, the channel used, and their short- and long-term effects (Van Doorn *et al.*, 2010). In particular, and from an analytical point of view, internet as an online medium and in particular, online social networks provide us with access to certain data on interaction that may be used to arrive at an index for engagement.

Engagement is interactive and context dependent and, therefore, a full understanding of the engagement concept will require an examination of each service experience, i.e. each touch-point/interaction with a company or a brand (Dolan *et al.*, 2016). Twitter, which is growing at a faster rate than Facebook, the other majority social network, can be used to represent a context specific analysis of engagement. While Facebook centers on reciprocal social interaction, in such a way that friends in the network are needed to send a message (i.e. users who have previously accepted the request to be friends), Twitter is focused on the exchange of opinions and information, without requiring that other users be converted into followers to circulate the message (Huberman *et al.*, 2009; Kwak *et al.*, 2010), which implies an opportunity for user participation and responses (Park and Kaye, 2017). In addition, the personality of the individual has been shown to have influence over the choice of social media: Facebook is used by more social individuals and Twitter by less socially minded users (Hughes *et al.*, 2012). Clearly, examining customer engagement in either Twitter or Facebook will simply reflect a singular component of that engagement and not its entirety, but a full comprehension of the engagement, without the analysis of each context, will never be achieved (Dolan *et al.*, 2016).

On social networks, engagement helps firms to understand the perception that users have of their brand, looking beyond return on investment that is of concern to companies in

this medium. It may be said that this indicator approximates a measurement of the feelings of social network members toward the brand, its passion, and the degree of identification and involvement in the values or culture of the brand, allowing firms to estimate the level of linkage, acceptance, and commitment of users toward the brand. Therefore, the development of a metric of engagement that is specifically applied to Twitter is a relevant marketing objective for firms.

A metric to evaluate engagement in Twitter should measure the participation of users with regard to the offers and the activities (configurations of value) of a brand, a product, and a firm through interactions in this social media. As a consequence, any measure of engagement in Twitter should consider user interaction with the stimuli to which users are exposed, through participation, in relation to the total number of users that have been exposed to the same content and of the number of users who have been reached by it. So, in accordance with the objective of this work, we will go on to develop a quantitative measure of engagement, in conceptual terms, by means of a ratio to quantify user responses to the stimuli of a brand on Twitter.

First, from a behavioral approach, users should participate through interaction with the content to stimulate user engagement. On the one hand, they would have previously been interested in some aspect related to the brand, product, service, or organization. On the other hand, they would have to use the functionalities that permit user interaction on Twitter. In particular, following the approach provided by Kayser and Bierwisch (2016), there are five main functionalities that make it possible for users to interact on Twitter: tweets, hashtags, @-messages, retweets, and follower relations.

However, following the technical and statistical improvements recently incorporated in Twitter, it is now possible to access data on any type of action of interest that a user produces with a tweet. These actions that denote interest – a situation prior to participation – may be measured on Twitter and constitute the numerator of our engagement ratio. Nevertheless, the ratios of engagement that are most widely used at present circumscribe their numerators to the following actions of interest: "retweets," "replies," and "likes." Without any doubt, this limitation reduces the reliability of the ratio. So, our work takes us a step forward, by considering all possible actions of interest for the calculation of the numerator of the ratio of engagement, which give rise to tangible interactions between Twitter users – in order to obtain a more complete and realistic numerator of the ratio – as detailed below:

- App install attempts: clicks to install an app via the Twitter Card[2].
- App opens: clicks to open an app via the Twitter Card.
- Detail expands: clicks on the tweet to view more details. Measures how many times the "expand" button is clicked on a tweet.
- Embedded media clicks: measures the number of times a photo, video, or Graphics Interchange Format (GIF) attached to a tweet has been clicked.
- Follows: the number of times a user decides to follow the person who has sent a tweet.
- Hashtag clicks: the number of times a tweet hashtag is clicked. The # symbol, called a hashtag, is used to mark keywords or topics in a tweet. People use the hashtag symbol # before a relevant keyword or phrase in their tweet to categorize those tweets and so that they will show up more easily in a twitter search.
- Leads submitted: the number of times a user submits info via a Lead Generation Card in the tweet.
- Likes: the number of times a user "likes" a tweet, indicating that the user appreciates a specific tweet. Users can find all of their favorite tweets by clicking on the "like" link on their profile page.

- Link clicks: clicks on an URL[3] or Card in the tweet.
- Permalink clicks: every tweet has its own URL that the user can bookmark or share with friends. The number of Permalink clicks measures how many times the URL linked to an individual tweet has been clicked.
- Replies: users can reply to others and mention them in their own tweets. "Replies" measures the number of replies and mentions that have been sent in relation to a specific tweet.
- Retweets: times a user retweeted the tweet. A retweet is a re-posting of someone else's tweet. Twitter's retweet feature helps the user and others to share a tweet quickly with all of a user's followers.
- Shared via e-mail: the number of times a user e-mailed the tweet to someone.
- User profile clicks: measures how many times a username, @handle, or profile photo of the tweet author is clicked within a tweet.

Likewise, it is convenient to classify the above-mentioned actions into groups of interactions that means the firm may analyze what type of actions of interest are potentially viable to a greater or lesser extent in terms of generating engagement, as well as in reference to their contribution to the objectives of marketing pursued by the company. These categories are detailed as follows.

(1) Interactions of diffusion: actions that drive the enlargement of the content through "virality" (mass diffusion of particular content).

(2) Interactions of conversation: actions in which the interest of the user is based on starting and continuing a dialogue with the brand or with other users in reference to the brand.

(3) Interactions of approval: actions that denote inclination, enthusiasm, and expectation of the user for a particular content.

(4) Interactions of reaction: actions that indicate that a user has reacted to content, expressing interest in obtaining more information, consulting the multimedia content or the hashtag of the publication.

(5) Interactions of authority: actions that evidence the interest of the user for a Twitter profile in particular, in a direct manner either by consulting its information, or by following the profile that is the object of interest in a tweet.

(6) Interactions of directing: actions that cover the interest of the user through the clicks on the links that contain the tweets.

(7) Interactions with apps: actions that show the interest of the user in an application.

(8) Interactions of subscription: covers the interest that users show through subscription to a contact form that the firm shares through the Twitter Cards.

Moreover, the usefulness of the groups of interactions for the analysis of engagement may be improved by establishing relations between those groups and the actions of interest that constitute them (see Table I).

The actions of interest described above are maintained thanks to a certain content that stimulates the interest of the user. Thus, it is necessary to relate those actions that express interest with the number of posted tweets. In addition, we will multiply that ratio $\times 100$ to obtain the result in percentage terms that facilitates their longitudinal analysis and comparison.

Group of interactions	Types of interest actions
Diffusion	Retweets
	Shared via e-mail
Conversation	Replies
Approval	Likes
Reaction	Detail expands
	Embedded media clicks
	Hashtag clicks
Authority	Follows
	User profile clicks
Addressing	Link clicks
	Permalink clicks
App	App install attempts
	App opens
Subscription	Leads submitted

Table I. Classification of interactions

Source: Authors

We may therefore obtain an average measurement of the interest of the user in relation to the number of tweets by proposing what we call a ratio of interest:

$$\text{Ratio of interest} = \frac{\text{Interactions}}{\text{No. of tweets}} \times 100$$

With regard to the user, this ratio provides a quantitative evaluation of the interest that the tweets of the firm generate in terms of a general average (average interaction by publication). Nevertheless, a ratio should measure the performance and the effectiveness of the parameter that is evaluated. In fact, engagement is something more than what is reflected by the ratio of interest, as the degree of effectiveness of the tweets that the firm posts on Twitter also has to be evaluated. From the point of view of the firm, it is worth relating the interest of the contents for the users with the effectiveness of the posts.

Up until the present, the Click Thought Rate continues to be used to measure this effectiveness, calculated as the ratio between the number of clicks over the content and the number of times that content has been shown. In particular, we propose an effectiveness ratio for the tweets that the firm posts on Twitter, based on the aforementioned ratio of interest (because the actions under consideration in all cases involve a click by the user): the quotient between the ratio of interest and the impressions of that content. The impressions measure the number of times a user is served a tweet on a timeline or through its search results (whether it is clicked or left unclicked) (Twitter, 2014). Accordingly, content with fewer impressions, but with more interactions, will be more effective than content with more impressions and an equal or lower number of interactions.

To sum up, this measurement of effective interest establishes the effectiveness of the contents posted by the firm in accordance with its capability to generate interactions (which is, as previously stated, the basis of engagement), taking into account the number of impressions that it will subsequently have. Likewise, it is convenient to recall that the ratio of interest, which forms the basis of our ratio of engagement, really provides an average value (average interaction by publication). Therefore, following the mathematical logic for the calculation of the effective ratio of interest, we should use the average impressions[4] instead of the impressions in absolute terms, thereby avoiding lower results, and as stated earlier,

multiplying the ratio by 100 to obtain a percentage result. We therefore propose the following ratio of effective interest:

$$\text{Ratio of effective interest} = \frac{(\text{Interactions}/\text{No. of tweets})}{\text{Average impressions}} \times 100$$

Finally, according to the initial definition of engagement and given the characteristics of the particular social network, firms should evaluate engagement based on the number of people that the content has reached, regardless of whether they are followers of the account. In other words, the reach of the interactions that take place has to be calculated, in a way that neither takes the status of follower or non-follower into account nor the commercial relation between the individual and the firm. So, with the calculation of engagement, we seek to measure what percentage of people who see our publications – are reached by them – feel sufficiently motivated to react to them through one or various actions of interest (RT, likes, comments, etc.).

Reach is defined as the proportion of the target audience exposed to at least one advertisement (Aksakalli, 2012). In particular, reach is the total number of single Twitter accounts that received at least one tweet on a topic within a particular period (https://unionmetrics.com/blog/2013/02/new-reach-algorithm/), or, in other words, it is the size of the single audience for a set of tweets. This concept, therefore, allows us to establish the visibility reached on Twitter thanks to the content that is published. So, the evaluation of engagement would be the ratio of effective interest in accordance with the reach obtained by the publications of the firm on Twitter.

Moreover, it is possible to achieve a high level of virality through Twitter, which can occur from the retweet of a post up until it is converted into a trend (trending topic[5]). In other words, we can reach the followers of our followers and thereby increase the reach of the content. So, despite the use of reach to calculate the ratio of engagement constituting a logical and realistic scenario, the most widely used measures of engagement up until the present make exclusive use of the number of followers on Twitter for the calculation of this parameter. This practice unnecessarily restricts the mediation to the community of followers of the brand on Twitter, detracting from the reliability of the ratio for two fundamental reasons:

(1) There are users who although not followers of the brand on Twitter – i.e. they have not clicked on the button to follow – may be reached by the content of the brand and may even express their interest in it (i.e. a user may be reached by a tweet even though not a follower, for example, through the RT of a follower of the brand whom this user follows). So, if the users who are reached are not included in the calculation of engagement, because they do not possess the condition of followers, the calculation of the ratio would be biased, as the numerator would include the actions of interest that the users (in general, the actions taken by followers and non-followers may not be differentiated) have experienced with the content and the denominator would, nevertheless, exclusively include the followers of the brand.

(2) There are followers of the brand who might not be connected to Twitter at that time and who would not therefore have the chance to view the content that is the object of engagement, thereby converting themselves into followers who are not really reached by the content, and whose inclusion might distort the ratio of engagement.

Therefore, we measure the engagement of the audience that is really exposed to our messages by using reach, regardless of whether the members of the audience follow the brand on Twitter. All in all, the formula for engagement in Twitter is the user response index to the different messages of a brand through this social network. This ratio signals the quantity of interactions that the firm has received in proportion to the times that the content (impressions) has been shown and the people that it has reached. Moreover, in comparison

with the existing metrics, the metric proposed here differs in two fundamental ways: it identifies in an exhaustive manner the actions that denote the interest of users in the content and considers efficiency by dividing those actions by the number of tweets, the number of impressions, and the reach. Therefore, our proposal takes us a step forward in the precise calculation of engagement in Twitter, while avoiding the aforementioned bias. So, the evaluation of engagement would be the ratio of effective interest in accordance with the reach achieved by an offer of value on Twitter. In the same way as before, we have to relate the reach with the number of posted tweets, which we refer to as the average reach, understood as the quotient between the reach and the number of posted tweets over the period of study, multiplying the ratio by 100 to obtain a percentage result. We propose the following ratio of engagement:

$$\text{Engagement on Twitter} = \frac{(\text{Interactions}/\text{No. of tweets})/(\text{Average impressions})}{\text{Average reach}} \times 100$$

The proposed metric for engagement in Twitter fulfills the requirements of Peters *et al.* (2013), because it is firmly rooted in the previous literature, and covers all relevant behavioral manifestations of engagement in the context of Twitter, which facilitate the quantification of social media activities of our object (a unit, an individual, a product or a service) of study that we wish to control (Dolan *et al.*, 2016). For this reason, this metric provides a diagnostic system that we believe is practical for managers, as will be explained in the next section.

Management implications

The relations between firms and their consumers in the new environment created by Web 2.0 and the social media are developing with new and very different precepts: participative and active users who exchange information very rapidly between each other and firms which no longer control the communications that take place in relation to themselves or their brands. In this new environment, the value of the individual is not merely what is spent on a brand or a firm, but is related to the information that they pass on to others and to its value. In particular, social media allow organizations to present themselves and their products and services, in one way or another, to dynamic communities and to individuals that may be interested in them (Akar and Topçu, 2011).

Firms should carefully measure and examine engagement behaviors as a multidimensional and comprehensive set of indicators. They should do so, because many forms of engagement behaviors can induce long-term dynamic effects and motivate other individual engagement behaviors, and because some engagement behaviors are very visible to the firm while others may be less visible (Van Doorn *et al.*, 2010).

The development of measures for the evaluation and monitoring of engagement behaviors on social media is important for the design of the strategies of organizations with respect to the organization and its brands. However, customer engagement has up until now been predominantly researched in online contexts under the exchange paradigm, with very few attempts to explore and to put the construct into operation (Vivek, 2009). This work has proposed, in the earlier section, a specific way to operationalize engagement on Twitter.

Currently, Twitter has more than 300 million active users which makes it a powerful medium to open conversations between any brand and its audience, answering questions and promoting their messages in real time. Although the whole potential audience might be desirable, the large quantity of tweets that are published make it difficult to estimate the reach of the users and the generation of sufficient interest in the tweets, so that the interactions take place that give rise to engagement. Due to the degree of competitiveness on Twitter, it is increasingly necessary to use tools that, on the one hand, diminish the margin

of error as much as possible and, on the other, generate a database of users who have been reached that will promote the brand.

Hence, the development of a customer engagement metric that specifically applies to Twitter is a relevant marketing objective for firms. At present, Twitter makes a series of business metrics available to the user that permit the calculation of indicators of success in the community. These have been used to calculate a measurement of engagement, mindful of the firms that do not have the necessary resources to access specific software and that wish to introduce greater efficiency into their marketing budgets. Moreover, we are not measuring intention with this metric but concrete actions that have been implemented by Twitter users, thereby avoiding bias arising from the measurement of intentions (Tausczik and Pennebaker, 2012) rather than real behavior. In this section, we therefore present a proposal for a ratio of engagement, so that firms may measure their engagement on Twitter freely, as well as a series of recommendations for the effective management and optimization of that parameter.

Twitter identifies a series of indicators in its statistics that denote interest and participation with the content of the tweets and that therefore contribute to the generation of commitment. These indicators are available for any Twitter account in the menu Analytics/tweet. Access is given to users on the activity of their tweets over the selected period of time, as well as the option "export data," should they wish to employ them outside of the interface provided by the social network.

After exporting the data to an Excel spreadsheet, the managers of Twitter can obtain:

(1) The sum of all actions that denote interest (response, retweet, like, etc.) and the number of tweets of the period that has been selected. It is possible to calculate the ratio of interest with these data.

(2) Twitter provides data on the impressions of each tweet. The sum of the impressions of the tweets divided by the number of tweets – from the selected time period – provide the necessary data for the calculation of the effective ratio of interest.

These figures represent generative actions of engagement in an organic[6] way on Twitter, in that they are obtained in a natural way within the social network. Additionally, the same figures have been calculated by Twitter in case of promoted tweets[7] (promoted retweet, promoted replies, promoted favorites, promoted user profile clicks, etc.), so we also have open access to that information. If the company is paying for promotional tweets, the figures on the promoted tweets are all that are necessary to calculate engagement.

Although Twitter does in fact calculate a parameter that it calls "engagement," equivalent to our calculation of "ratio of effective interest," the social network neither takes into account nor provides the data on the reach of the tweets, in order to determine what in our study is considered engagement, where reach plays a crucial role in helping us to understand the full impact of our tweets and provides a context for engagement metrics. With reach as a denominator, the number may be more easily compared across campaigns and time periods to start to understand effectiveness, because the result makes more sense. For example, even though clicks as actions of interest may have risen 10 percent in one month, it would have to be seen in relation to the total number of tweets for it to have meaning; the results are better if the user can increase the ratio of customer engagement and reach at the same time. "Reach quantifies the size of your message's universe and helps you understand if your campaign is successful" (TweetReach, 2014). So, it is absolutely necessary to take into account the influence of reach in the figures.

Nevertheless, Twitter has still to provide the data on reach obtained from the tweets within a particular time frame. In fact, it is recognized in the existing formula for engagement that includes impressions that this information is used as a denominator in the

absence of data on reach, giving rise, however, to an important conceptual and analytical bias as explained in the earlier section. Therefore, this work takes us a step forward by employing a free tool that will provide that much needed parameter for the calculation of engagement, TweetReach.

Reach provided by the tool TweetReach (www.tweetreach.com) developed by the company Union Metrics constitutes a robust prediction that explains 99.51 percent of the variance of the reach of a Twitter campaign (https://unionmetrics.com/blog/2015/05/how-union-metrics-twitter-analytics-impressions-compare-to-twitter-impressions/). In other words, this information serves to predict in a precise way and to a high degree of confidence that reach has for over a decade been calculated by an algorithm based on exhaustive data-mining analysis gathered on Twitter. We therefore consider that it is an acceptable and precise way to quantify the audience on Twitter, taking into account only single users. Likewise, this tool is capable of providing the data on reach for accounts, hashtags, and keywords.

On the one hand, one particular point to highlight with regard to reach in Twitter is that reach may not be assumed to be equal to the number of followers of an account, as happens on Facebook, where organic reach is determined by the Edgerank algorithm that establishes the social network (Oviedo-García *et al.*, 2014). In the case of Twitter, reaching all followers in a natural way (organic, without paid promotional tweets) is materially impossible, because of the simple fact that not all followers will be connected at the time a tweet is posted. Moreover, Twitter suggests that high visibility is uncommon, unless promotional tweets are considered. "Brands that tweet two to three times per day can typically reach 30% of their follower base during a given week" (Blog Twitter, 2014).

On the other hand, it is logical to think that the reach will be a smaller number than the impressions, because a single user may be exposed more than once to the content of a tweet. For example, a user might see a tweet various times (e.g. three times), but this user will continue to have the same profile (one person reached). This concept gives us insight into the visibility of a tweet in terms of single users.

Having arrived at this point, it is necessary to mention two points with regard to TweetReach. In the first place, this tool provides global data on reach, without differentiating between the reach of organic tweets that have been reproduced in a natural way, and the reach achieved through promoted tweets. In any case, this failure to differentiate is no inconvenience, as we should take account of actions that generate engagement in a natural way (retweet, replies, favorites, user profile clicks, etc.), which may be added to paid actions that generate engagement (promoted retweet, promoted replies, promoted favorites, promoted user profile clicks, etc.), in the case of having paid for promotional tweets, as explained earlier.

In second place, this tool provides free access to the data on weekly reach. So, companies should therefore take into account the time frame and the tweets (seven days), the reach of which is being measured, so as to gather the statistical data correctly that are exported from Twitter and that are necessary to obtain the numerator for the ratio of engagement.

In all, Twitter identifies a series of parameters from among its statistics that denote interest and participation with the content of the tweets and that, therefore, contribute to the generation of engagement. As mentioned earlier, the scope should be considered and divided between the number of tweets to obtain the average reach. Likewise, the ratio should be multiplied by 100 to obtain a percentage result. We propose a method of calculating engagement on the basis of the indicators that are publicly available through Twitter as well as other tools such as TweetReach:

$$\text{Engagement on Twitter} = \frac{\left(\text{Interactions}_{7\text{ days}}/\text{No. of tweets}_{7\text{ days}}\right)/\left(\text{Average impressions}_{7\text{ days}}\right)}{\sum \text{Average reach of the tweets}_{7\text{ days}}} \times 100$$

Taking into account that the methodological aspect is less applicable in this work of a conceptual nature and without intending to be exhaustive, an example is nevertheless given in what follows (see Table II) of use to managers of Twitter accounts for the calculation and analysis of the proposed ratio of engagement.

At present there is neither a template nor a barometer that serves to evaluate the suitability of the index of engagement. This analysis should therefore be done from a longitudinal perspective, so that the Twitter account manager may evaluate and optimize the ratio in the light of whether it improves or worsens.

Additionally, knowing that it is beneficial for firms to increase both the actions that denote interest because of the content as well as the reach of the tweets, and consequently the possibilities of engagement, we should take decisions that help us to improve these values. This scenario obliges the marketing experts to take measures that will increase the effectiveness of tweets in terms of engagement. After all, users should see what the firm is doing and commit themselves as often as possible.

Therefore, if the social media management team makes no use of the measurement of engagement to improve its strategy and the design of engaging content on the basis of information that its Twitter audience generates, then the ratio of engagement is of little use. An investment of time, effort, and money is required to generate content on Twitter. The more optimized the content that the firm creates for its audience, the greater the affinity and the interaction with that audience will be.

The social network manager should propose a series of questions that assist with reflection and decision making, in order to carry out an acceptable analysis of the results provided by the ratio of engagement. The following presents a sample of useful questions, in order to analyze the results of the ratio of engagement – and of its components – and the advice to help the Twitter manager to manage and to optimize that indicator:

(1) Which tweets have motivated a higher and a lower number of actions of interest in terms of users, impressions, and reach?

(2) What are the elements that those tweets possess to have provoked greater or lesser interaction, impressions, and reach?

- What is the format of the content? For example: text, links, and multimedia content such as photos, videos, and GIFs.
- What type of content do they hold? For example: commercial or non-commercial.
- In what style of language is the content written? For example: very formal, informal, technical expressions, etc.
- Is it different from what is published by the competitors? In what way?
- Does it contain a particular hashtag?

Weekly calculate (7 days)	
Interest actions	27.00
Number of tweets	14.00
Ratio of interest	192.86%
Impressions	72.00
Average impressions	5.14
Ratio of effective interest	37.50%
Reach	41.00
Average reach	2.93
Ratio of engagement	12.80%

Table II. Numerical calculation of the proposed ratio of engagement (example)

- Is there a mention of any other user or brand?
- Were they published at a particular point in time?
- Are the contents of a promotional nature?

In the first place, it is possible that the text-only tweets prompt less interest in the audience, and obtain fewer impressions and reach (in all, less engagement) than the tweets with multimedia content. Moreover, tweets with photographs and GIFs might function best – in terms of the generation of engagement – from among the multimedia tweets. The manager of the Twitter account should center on the formats of the tweets that stimulate greater audience interaction with their content, impressions, and reach.

In second place, the multi-media team managing the Twitter account should publish content that is of interest for the user and not excessively commercial. It is therefore a question of designing tweets that encourage virality, motivating users to share them and to interact with them, adapting the tone and form of the language to the audience and innovating to differentiate its own content.

In third place, it is also possible that for different sorts of reasons (i.e. trends, modes, culture, etc.), the audience finds itself more receptive to one rather than another hashtag, which would increase the interactions and the reach of that content. Finding the correct hashtags that reach the audience will improve the impact of the tweets. The Twitter account manager can experiment with some different hashtags and analyze the engagement that arises.

In fourth place, TweetReach also means it is possible to know which users are influencers of the brand. So, the manager of the Twitter account can track the influencer who contributes most to content diffusion. Moreover, the manager can detect users who are influencers on Twitter and follow them. Influencers are users who possess a high number of followers that lend attention to the contents that they diffuse and help in a disinterested way with their amplification. Influencers possess great credibility among their audience – they are considered as references in the sector and they contribute quality information. Therefore, when an influencer shares the content of the firm, it implies that the enormous audience of that influencer is converted into a potential audience of the brand, increasing the interactions and the scope of the content. So, with this type of analysis, the firm can turn these users into opinion formers and mention them in the contents of firm tweets to improve the ratio of engagement.

In fifth place, the time at which the tweet is published can affect engagement. Although there are "prime times" where the highest number of users are concentrated on Twitter, each audience that follows a brand can have its own hourly routines. It is important to observe whether the variable "time at which the contents are published" either positively or negatively affects engagement. The manager of the Twitter account can publish similar content at different hours of the day to detect the possible influence of this variable.

Finally, as discussed, firms can hardly take steps to increase reach in a natural way; they can, however, design tweets in such a way as to encourage virality that motivates users to share them, as well as to dedicate a part of the marketing budget to sponsored tweets. These would be potential ways of increasing impressions, reach, and actions of interest and, as a consequence, engagement.

In short, the manager of the Twitter account should compare the theme, content, and written style, with photos, text, videos, etc. that generate higher levels of engagement, indicating successful aspects to tweet that the firm should follow on Twitter. The account manager should search for and contextualize behavioral patterns of users with published contents, in order to increase actions of interest that will improve the impressions and the reach of publications that, in the last instance, will help to take better marketing decisions on Twitter.

Nevertheless, it has to be taken into account that a high ratio of engagement will not always mean quality engagement. The Twitter account manager must, when the ratio values are clear, consider whether the results are in agreement with the objective of the publications. For example, if the highest value corresponds to the conversation (comments) that are generated, then the manager must ensure that the objective pursued with this content is to generate this type of user interaction.

The managers of Twitter accounts can use the grouping of the types of actions of interest developed in this work (see Table I) to improve precision in both the calculation and the analysis of the ratio of engagement, so that both quality and the contribution of the contents to the fulfillment of the marketing objectives may be increased. For example, a company is interested in improving its brand position through a branding campaign on Twitter. Following its marketing objective, the firm should be more interested in obtaining the widest possible diffusion of its contents on this social network, as well as lending greater attention to the temporal evolution of the group "Interactions of diffusion," actions that drive the enlargement of the content through virality (retweets and shared via e-mail), as part of the ratio of engagement that is most suitable for the objective that is pursued. Moreover, with the passage of time and the continuity of the measurements, firms can distinguish segments within their audience that are differentiated by the types of commitment they generate and can even establish incentives for users who contribute most to the achievement of the set objective.

Likewise, using the groups of interactions, the Twitter account manager can analyze the type of content that is more or less likely to be, for example, shared, "liked," or commented on by the audience and to detect trends with the preferences on actions of interest of the users. The accounts manager can use this information to adapt the type of content on the basis of the objective that is pursued at any one time by the firm.

The ratio of engagement on Twitter proposed in this study is therefore a key performance indicator of a marketing strategy on online social networks that permits the ratio of engagement to be monitored in real time on Twitter and its fluctuations to be confirmed, which entails a series of advantages for firms that are set out below:

(1) Logically, specific software exists that could provide these parameters, but it would require a significant investment, something which not all firms can or are willing to make. The use of the proposed ratio would therefore improve the efficiency of marketing proposals.

(2) When analyzing the measurement of engagement in social media, the key consideration for the firm is the effect that engagement may have on both transversal and longitudinal decision making: to evaluate the efficiency of the action (considering both the set-up costs and the fixed objectives) and, in accordance with strategic changes in the firm with regard to content, to assess its evolution. For example, when monitoring the ratio and confirming its fluctuations, a Twitter campaign may be optimized, according to the results, constantly improving the strategy under implementation.

(3) The proposed metric for the measurement of engagement in Twitter is flexible and easily adaptable to different situations:

- It can be globally calculated – for a period of seven days, as explained in this section – or to measure the engagement of a particular tweet. For example, because a special promotion, campaign or a particular objective is pursued of individual interest to us. In this case, the ratio would be the following:

$$\text{Engagement on Tweet} = \frac{(\text{Interactions}_{\text{tweet}})/(\text{Impressions}_{\text{tweet}})}{\text{Reach of the tweet}} \times 100$$

- If other measures of engagement are available on other social networks, comparisons may be established between them, allowing a critical evaluation of the resources assigned to each platform. In particular, if the manager of social networks applies the ratio of engagement on Facebook provided by Oviedo-García *et al.* (2014), the calculation of which essentially follows the same premises as in the present work (see the following equation), the generation of engagement on Facebook and Twitter could be compared and the marketing budget allocated in the most efficient way:

$$\text{Customer engagement on Facebook} = \frac{((\text{Likes} + \text{Comments} + \text{Shares} + \text{Other clicks})/(\text{Number of Posts}))/(\text{Average Impressions})}{\text{Average Reach}} \times 100$$

(4) This tangible view of engagement also means that the firms can conduct market research and test new products or services measuring the engagement that is generated among users, which reduces the complexity and uncertainty of new promotional launches and programs.

(5) In addition to knowledge of their situation on Twitter, firms can anticipate events detecting trends through this ratio. So, its application would help to maintain a position of superiority over its competitors. The ratio of engagement implies an opportunity for the brands to stand out and to reach a dominant position over time (www.metricool.com).

Future research and limitations

Although this paper contributes to the development of the body of literature on engagement and its contents have shed light on the management of business Twitter accounts through a ratio of engagement, certain limitations are recognized that will be discussed in what follows together with the proposals for future academic works in the field.

In the first place, the influence of each group or type of action of interest on the generation of engagement is taken into account in a linear manner. However, not all of the actions of interest require the same effort on the part of the user. Each one of these actions could contribute in a different way to the degree of engagement of the user with the brand. Moreover, not all of the actions of interest have to have the same value for the marketing objective that is pursued. Future works should therefore continue to advance the study of the ratio proposed in this work, for example, establishing average weightings for each type or group of actions of interest based on sectoral data, by products, by contribution to marketing objectives, etc.

With the results of these future investigations, firms may weigh the actions of interest that include the ratio of engagement. For example, the interactions of diffusion such as retweeting content demonstrate a greater involvement by the user as this content will be visible for the followers of that user. Interactions in the conversation – comments on a tweet – can be the second action of interest of greater quality in a particular audience, as the user becomes a participant of the information that is received. Finally, interactions of approval – tweeting a "Like" – could be actions of interest of lower quality, because they require less effort on the part of the user. With the development of future works in this field, firms could establish patterns for weighting the actions of interest from their audience; for example, assigning the value 3 to the RT, 2 to the comments, and

1.5 to the "Likes," in such a way that the formula of engagement could be presented as the following ratio:

Ratio of weighted engagement on Twitter

$$= \frac{\left((3 \times (\text{I.difussion}) + 2 \times (\text{I.conversation}) + 1.5 \times (\text{I.approval}) + \text{other interactions}_{7\ \text{days}}\right) / \left(\text{No. of tweets}_{7\ \text{days}}\right)\right) / \left(\text{average impressions}_{7\ \text{days}}\right)}{\sum \text{Average reach of the tweets}_{7\ \text{days}}} \times 100$$

Likewise, this "weighted" form of estimation of engagement would produce a control effect (www.pazmartin.com) : by considering the suitability of the interactions in terms of the contribution to the objective, so that the firm would not accept a high volume of interactions of "low quality" with regard to the achievement of the proposed objective.

In second place, the parameters included in the proposed metric are the result of participation and correspond to the behavioral dimension of engagement; they therefore do not cover the cognitive and emotional dimensions in accordance with the multidimensional perspective of Vivek *et al.* (2012). So, one form of including the emotional dimension could be to evaluate the tone (positive or negative) of the interactions of the audience with the content of the brand. In other words, a comment by a user may be positive or negative and can, however, continue to be an action of interest that should, therefore, be considered in the calculation of the ratio de engagement, because in any event it reflects the reality of the brand and should, therefore, be analyzed and managed. So, future investigations could differentiate between interactions between the audience and the brand with a positive and a negative sign and could even study the possible appropriateness of granting different values to the actions of interest with positive and negative signs.

In third place, although it is true that the proposed ratio in this work contributes to the development of the existing theory to date on engagement and discusses all of the variables that concern it, the work is of an essentially conceptual nature. In particular, although it provides a numerical example of the calculation of the ratio, future investigations will, however, need to confirm the empirical validity of that ratio with a representative sample of real data taken from the firms. Moreover, an important step in the future would be to relate these metrics with financial measurements, which could improve decision making on the customer base, especially the customer base that shows signs of engagement (Van Doorn *et al.*, 2010). For example, a database would be of great utility that could compare user-related data that generate engagement on Twitter with information on commercial transactions linked to that data, by using a customer relations management model. In this way, the engagement that clients generate may be differentiated from the engagement generated by non-clients. Consequently, the firm could define and adapt its strategies, and set up systems of incentives for those individuals with higher levels of engagement with the firm or the brand through Twitter. So, in this way, firms could create a system of incentives or rewards for clients with a higher degree of engagement toward the brand in Twitter with the results of these future investigations. Therefore, future research could seek agreements with certain firms that are ready to share their data to measure the ratio of engagement as well as the volume of sales obtained through Twitter, thanks to interactions with the audience.

In fourth place, considering that it is even more common for firms to offer prizes to people that share their content without expecting anything specific in return. Considering that there is a higher degree of involvement when the individual is interested in the content of a tweet, without expecting a specific benefit in exchange, it would be appropriate if future investigations could continue developing the ratio of engagement, to distinguish the degree of engagement stimulated by content that offers the chance of prizes and those that offer none.

In fifth place, it is worth highlighting that data on reach and impressions of the publications is all that may be accessed at present from the particular accounts that are administered. Therefore, the ratio proposed in this work will neither serve to analyze competence nor sectoral studies. It would therefore be convenient for future investigations to continue developing the ratio proposed in this work with the purpose of completing its comparative utility with real data on firms of different sizes and sectors that could serve as a "road map" for Twitter accounts managers, in order to measure the efficacy of the ratio of engagement with greater precision, thereby promoting competitive benchmarking business practices.

In sixth place, a limitation linked to any work in the field of social networks that feeds off data provided from third-party platforms (such as Facebook, Twitter, and TweetReach) is that the specific algorithms of these tools tend to give priority to the contents that receive most interaction within a country or an audience. For example, at election time, the topics that receive most attention when processed by the algorithms of these platforms are those related to politics, and the Twitter account manager may possibly observe a reduction in the data on reach when calculating the ratio of engagement – even through sponsored tweets are sent out (www.marketersv.com). Therefore, it is necessary to evaluate the environment that surrounds the audience, as in particular circumstances, the conversations and temporal content with which they interact revolve around topics that cannot be covered by the brand in question and that could require some type of adjustment – such as a correction "factor" – in the ratio of engagement that shows evidence of it. Therefore, future investigations should take account of this circumstance, in order to continue exploring the ratio of engagement proposed in this work.

Finally, firms need to use metrics for the design of organizational strategies, with regard to their strategies and brands that let them monitor and evaluate engagement behaviors on social media. In this sense, as no single metric can sufficiently capture the importance and diverse phenomena in social media (Peters *et al.*, 2013), a useful metric for Twitter has been proposed in this study and another metric has been proposed for Facebook (Oviedo-García *et al.*, 2014), although future research may develop further metrics for other social media sites on the internet (commonly, YouTube, Google+, LinkedIn, and Pinterest), because each site has its own unique architecture, culture, and norms that affect how companies use them to implement their social media strategies (Swani *et al.*, 2014).

All in all, social media and the patterns of online user behavior are in constant flux. Therefore, aware that there is no definitive – but there is a more or less precise – behavioral pattern, it is essential that firms and researchers remain flexible, designing metrics that can help to ascertain academic knowledge of engagement and to advance the effectiveness of Twitter business account management.

Notes

1. Each social network uses its own algorithm to determine the order and, in some cases, the reach of the contents published by its users.
2. Twitter Cards allow the user to attach rich photos, videos, and media experience to tweets that drive traffic to a website. With only a few lines of HTML on a webpage, users who tweet links to the content will have a "Card" added to their tweets that will be visible to all of their followers (https://dev.twitter.com/cards/overview).
3. Uniform Resource Locator.
4. Average impressions is the total number of impressions recorded on the tweets under consideration for the measurement divided by the number of tweets considered over the same period.
5. What are trends and how are they determined (Twitter, https://support.twitter.com/articles/101125).

6. A standard tweet that a user publishes on this Twitter account and that is sent out to the followers of that user in accordance with the normal procedure of social networks.
7. Promoted tweets are ordinary tweets purchased by advertisers who want to reach a wider group of users or to spark engagement from their existing followers. Promoted tweets are clearly labeled as Promoted when an advertiser is paying for their placement on Twitter. In every other respect, Promoted tweets act just like regular tweets and can be retweeted, replied to, favorite, and so on (Twitter, 2014).

References

Adams, S.A., Van Veghel, D. and Dekker, L. (2015), "Developing a research agenda on ethical issues related to suing social media in healthcare", *Cambridge Quarterly of Healthcare Ethics*, Vol. 24 No. 3, pp. 293-302.

Agostino, D. and Sidorova, Y. (2016), "A performance measurement system to quantify the contribution of social media: new requirements for metrics and methods", *Measuring Business Excellence*, Vol. 2 No. 2, pp. 38-51.

Agostino, D., Arena, M., Catalano, G. and Erbacci, A. (2017), "Public engagement through social media: the spending review experience", *Public Money & Management*, Vol. 37 No. 1, pp. 55-62.

Akar, E. and Topçu, B. (2011), "An examination of the factors influencing consumers' attitudes towards social media marketing", *Journal of Internet Commerce*, Vol. 10 No. 1, pp. 35-67.

Aksakalli, V. (2012), "Optimizing direct response in internet display advertising", *Electronic Commerce Research and Applications*, Vol. 11 No. 3, pp. 229-240.

Aladwani, A.M. (2015), "Facilitators, characteristics, and impacts of twitter use: theoretical analysis and empirical illustration", *International Journal of Information Management*, Vol. 35 No. 3, pp. 15-25.

Ambler, T. and Roberts, J. (2006), "Beware the silver metrics: marketing performance measurement has to be multidimensional", Marketing Science Institute Working Paper Series, London, Nos 6-11, pp. 1-13.

Bagozzi, R.P. and Dholakia, U.M. (2006), "Antecedents and purchase consequences of customer participation in small group brand communities", *International Journal of Research in Marketing*, Vol. 23 No. 1, pp. 45-61.

Barnes, N.G. and Leschault, A.M. (2014), "The 2014 Fortune 500 and social media: LinkedIn dominates as use of newer tools explodes", available at: www.umassd.edu/cmr/socialmediaresearch/2014fortune500andsocialmedia/ (accessed November 10, 2014).

Benthaus, J., Risius, M. and Beck, R. (2016), "Social media management strategies for organizational impression management and their effect on public perception", *Journal of Strategic Information Systems*, Vol. 25 No. 2, pp. 127-139.

Bigné, E., Küster, I. and Hernández, A. (2013), "The social network sites and the brands. Influence of eC2C exchange of experience on brand users' attitudes", *Revista Española de Investigación en Marketing*, Vol. 17 No. 2, pp. 7-27.

Blog Twitter (2014), available at: https://blog.twitter.com/2014/introducing-organic-tweet-analytics (accessed March 7, 2016).

Borders, A.L., Johnston, W.J. and Rigdon, E.E. (2001), "Beyond the dyad: electronic commerce and network perspectives in industrial marketing management", *Industrial Marketing Management*, Vol. 30 No. 2, pp. 199-205.

Boulianne, S. (2015), "Social media use and participation: a metaanalysis of current research", *Information, Communication & Society*, Vol. 18 No. 5, pp. 524-538.

Boyd, D.M. and Ellison, N.B. (2007), "Social network sites: definition, history and scholarship", *Journal of Computer-Mediated Communication*, Vol. 13 No. 1, pp. 210-230.

Brodie, R.J., Hollebeek, L., Juric, B. and Ilic, A. (2011), "Customer engagement: conceptual domain, fundamental propositions and implications for research", *Journal of Service Research*, Vol. 14 No. 2, pp. 252-271.

Brodie, R.J., Ilic, A., Juric, B. and Hollebeek, L. (2013), "Consumer-engagement in a virtual brand community: an exploratory analysis", *Journal of Business Research*, Vol. 66 No. 1, pp. 105-114.

Calder, B.J., Malthouse, E.C. and Schaedel, U. (2009), "An experimental study of the relationship between online engagement and advertising effectiveness", *Journal of Interactive Marketing*, Vol. 23 No. 4, pp. 321-331.

Chan, K.W. and Li, S.Y. (2010), "Understanding consumer-to-consumer interactions in virtual communities: the salience of reciprocity", *Journal of Business Research*, Vol. 63 Nos 9-10, pp. 1033-1040.

Daniel, M., Ferreira Neves, R. and Horta, N. (2017), "Company event popularity for financial markets using Twitter and sentiment analysis", *Expert Systems with Applications*, Vol. 71, April, pp. 111-124.

Dolan, R., Conduit, J., Fahy, J. and Goodman, S. (2016), "Social media engagement behaviour: a uses and gratifications perspective", *Journal of Strategic Marketing*, Vol. 24 Nos 3-4, pp. 261-277.

Drury, G. (2008), "Social media: should marketers engage and how can it be done effectively?", *Journal of Direct Data and Digital Marketing Practice*, Vol. 9 No. 3, pp. 274-277.

Dwivedi, A. (2015), "A higher-order model of consumer brand engagement and its impact on loyalty intentions", *Journal of Retailing and Consumer Services*, Vol. 24, May, pp. 100-109.

Econsultancy (2013), "State of consumer engagement report", available at: https://econsultancy.com/reports/state-of-customer-engagement-report (accessed January 20, 2017).

Farris, P.W., Bendle, N.T., Pfeifer, P.E. and Reibstein, D.J. (2006), *Marketing Metrics: 50+ Metrics Every Executive Should Master*, Prentice Hall, Upper Saddle River, NJ.

Filo, K., Lock, D. and Karg, A. (2015), "Sport and social media research: a review", *Sport Management Review*, Vol. 18 No. 2, pp. 166-181.

Goh, K.Y., Heng, C.S. and Lin, Z. (2013), "Social media brand community and consumer behaviour: quantifying the relative impact of user- and marketer generated content", *Information Systems Research*, Vol. 24 No. 1, pp. 88-107.

Goodrich, K. and Mooij, M. (2014), "How 'social' are social media? A cross-cultural comparison of online and offline purchase decision influences", *Journal of Marketing Communications*, Vol. 20 Nos 1-2, pp. 103-116.

Grajales, F.J., Sheps, S., Ho, K., Novak-Lauscher, H. and Eysenbach, G. (2014), "Social media: a review and tutorial applications in medicine and health care", *Journal of Medical Internet Research*, Vol. 16 No. 2, pp. 1-23.

Gummerus, J., Liljander, V., Weman, E. and Pihlström, M. (2012), "Customer engagement in a Facebook brand community", *Management Research Review*, Vol. 35 No. 9, pp. 857-877.

Gummesson, E., Kuusela, H. and Närvänen, E. (2014), "Reinventing marketing strategy by recasting supplier/customer roles", *Journal of Service Marketing*, Vol. 25 No. 2, pp. 228-240.

Harrigan, P., Evers, U., Miles, M. and Daly, T. (2017), "Customer engagement with tourism social media brands", *Tourism Management*, Vol. 57, April, pp. 597-609.

Hennig-Thurau, T., Hofacker, C.F. and Bloching, B. (2013), "Marketing the pinball way: understanding how social media change the generation of value for consumers and companies", *Journal of Interactive Marketing*, Vol. 27 No. 4, pp. 237-241.

Hennig-Thurau, T., Malthouse, E.C., Friege, C., Gensler, S., Lobschat, L., Rangaswamy, A. and Skiera, B. (2010), "The impact of new media on customer relationships", *Journal of Service Research*, Vol. 13 No. 3, pp. 311-330.

Hollebeek, L.D. (2011a), "Demystifying customer brand engagement: exploring the loyalty nexus", *Journal of Marketing Management*, Vol. 27 Nos 7-8, pp. 785-807.

Hollebeek, L.D. (2011b), "Exploring customer brand engagement: definition and themes", *Journal of Strategic Marketing*, Vol. 19 No. 7, pp. 555-573.

Hollebeek, L.D. (2013), "The customer engagement/value interface: an exploratory investigation", *Australasian Marketing Journal*, Vol. 21 No. 1, pp. 17-24.

Hollebeek, L.D., Glynn, M.S. and Brodie, R.J. (2014), "Consumer brand engagement in social media: conceptualization, scale, development and validation", *Journal of Interactive Marketing*, Vol. 28 No. 2, pp. 149-165.

Holmberg, K. and Thelwall, M. (2014), "Disciplinary differences in Twitter scholarly communication", *Scientometrics*, Vol. 101 No. 2, pp. 1027-1042.

Hong, S. and Kim, S.H. (2016), "Political polarization on twitter: implications for the use of social media in digital governments", *Government Information Quarterly*, Vol. 33 No. 4, pp. 777-782.

Huberman, B.A., Romero, D.M. and Wu, F. (2009), "Social network that matters: Twitter under the microscope", *First Monday*, Vol. 14 No. 1, available at: http://dx.doi.org/10.5210/fm.v14i1.2317

Hudson, S., Huang, L., Roth, M. and Madden, T.J. (2016), "The influence of social media interactions on consumer-brand relationships: a three-country study on brand perceptions and marketing behaviors", *International Journal of Research in Marketing*, Vol. 33 No. 1, pp. 27-41.

Hughes, D.J., Rowe, M., Batey, M. and Lee, A. (2012), "A tale of two sites: Twitter vs Facebook and the personality predictors of social media usage", *Computers in Human Behavior*, Vol. 28 No. 2, pp. 561-569.

Järvinen, J., Tollinen, A., Karjaluoto, H. and Jayawardhena, C. (2012), "Digital and social media marketing usage in B2B industrial section", *The Marketing Management Journal*, Vol. 22 No. 2, pp. 102-107.

Kaplan, A.M. and Haenlein, M. (2010), "Users of the world, unite! The challenges and opportunities of social media", *Business Horizons*, Vol. 53 No. 1, pp. 59-68.

Kayser, V. and Bierwisch, A. (2016), "Using Twitter for foresight: an opportunity?", *Futures*, Vol. 84, November, pp. 50-63.

Kelly, L., Kerr, G. and Drennan, J. (2010), "Avoidance of advertising in social networking sites: the teenage perspective", *Journal of Interactive Advertising*, Vol. 10 No. 2, pp. 16-27.

Kemp, S. (2016), "Digital in 2016. Wearesocial", available at: http://wearesocial.com/uk/special-reports/digital-in-2016 (accessed May 16, 2017).

Kietzmann, J.H., Hermkens, K., McCarthy, I.P. and Silvestre, B.S. (2011), "Social media? Get serious! Understanding the functional blocks of social media", *Business Horizons*, Vol. 54 No. 3, pp. 241-251.

Ku, Y., Wei, C. and Hsiao, H. (2012), "To whom should I listen? Finding reputable reviewers in opinion-sharing communities", *Decisions Support Systems*, Vol. 53 No. 3, pp. 534-542.

Kumar, V. and Mirchandani, R. (2012), "Winning with data: increasing the ROI of social media marketing", *MIT Sloan Management Review*, Vol. 54 No. 1, pp. 55-61.

Kumar, V., Aksoy, L., Donkers, B., Venkatesan, R., Wisel, T. and Tillmanns, S. (2010), "Undervalued or overvalued customers: capturing total customer engagement value", *Journal of Service Research*, Vol. 13 No. 3, pp. 297-310.

Kwak, H., Lee, C., Park, H. and Moon, S. (2010), "What is Twitter, a social network or a news media?", paper presented at the 19th World-Wide Web (WWW) Conference, Raleigh, NC, available at: https://an.kaist.ac.kr/~haewoon/papers/2010-www-twitter.pdf (accessed May 25, 2017).

Kwon, S.J., Park, E. and Kim, K.J. (2014), "What drives successful social networking services? A comparative analysis of user acceptance of Facebook and Twitter", *The Social Science Journal*, Vol. 51 No. 4, pp. 534-544.

Larson, A.O. and Moe, H. (2012), "Studying political microblogging: Twitter users in the 2010 Swedish election campaign", *New Media and Society*, Vol. 14 No. 5, pp. 729-747.

Leeflang, P.S.H., Verhoef, P.C., Dahlström, P. and Freundt, T. (2014), "Challenges and solutions for marketing in a digital era", *European Journal of Management*, Vol. 32 No. 1, pp. 1-12.

Leonardi, P. and Vaast, E. (2015), "Social media and their affordances for organizing: a review and agenda for research", *Academy of Management Annals*, Vol. 11 No. 1, pp. 105-149.

Li, Y., Lin, C. and Lai, C. (2010), "Identifying influential reviewers for word-of-mouth marketing", *Electronic Commerce Research and Applications*, Vol. 9 No. 4, pp. 294-304.

Li, Z. and Li, C. (2014), "Tweet or 'retweet'? An experiment of message strategy and interactivity on Twitter", *Internet Research*, Vol. 24 No. 5, pp. 648-667.

Lipizzi, C., Iandoli, L. and Ramirez Marquez, J.E. (2015), "Extracting and evaluating conversational patterns in social media: a socio-semantic analysis of customers' reactions to the launch of new products using Twitter streams", *International Journal of Information Management*, Vol. 35 No. 4, pp. 490-503.

Lorenzo-Romero, C., Constantinides, E. and Alarcón-del-Amo, M.C. (2011), "Consumer adoption of social networking sites: implications for theory and practice", *Journal of Research in Interactive Marketing*, Vol. 5 Nos 2-3, pp. 170-188.

Marketing Science Institute (2013), "2010-2012 research priorities", available at: www.msi.org/research/index.cfm?id=271 (accessed February 5, 2014).

McFarland, L.A. and Ployhart, R.E. (2015), "Social media: a contextual framework to guide research and practice", *Journal of Applied Psychology*, Vol. 100 No. 6, pp. 1653-1677.

Men, L.R. and Tsai, W.S. (2012), "How companies cultivate relationships with publics on social network sites: evidence from China and the United States", *Public Relations Review*, Vol. 38 No. 5, pp. 723-730.

Michaelidou, N., Siamagka, N.T. and Christodoulides, G. (2011), "Usage, barriers and measurement of social media marketing: an exploratory investigation of small and medium B2B brands", *Industrial Marketing Management*, Vol. 40 No. 7, pp. 1153-1159.

Mollen, A. and Wilson, H. (2010), "Engagement, telepresence, and interactivity in online consumer experience. Reconciling scholastic and managerial perspectives", *Journal of Business Research*, Vol. 63 Nos 9-10, pp. 919-925.

Munar, A.M. and Jacobsen, J.K.S. (2014), "Motivations for sharing tourism experiences through social media", *Tourism Management*, Vol. 43, August, pp. 46-54.

Muntinga, D.G., Moorman, M. and Smit, E.G. (2011), "Introducing COBRA as exploring motivations for corporate-related social media use", *International Journal of Advertising: The Review of Marketing Communications*, Vol. 30 No. 1, pp. 13-46.

Ngai, E.W.T., Tao, S.S.C. and Moon, K.K.L. (2015), "Social media research: theories, constructs, and conceptual frameworks", *International Journal of Information Management*, Vol. 35 No. 1, pp. 33-44.

O'Connor, P. (2010), "Managing a hotel's image on TripAdvisor", *Journal of Hospitality Marketing and Management*, Vol. 19 No. 7, pp. 754-772.

Ofcom (2008), "Social networking: a quantitative and qualitative research report into attitudes, behaviors and use", available at: http://news.bbc.co.uk/2/shared/bsp/hi/pdfs/02_04_08_ofcom.pdf (accessed March 7, 2016).

Okazaki, S., Díaz-Martín, A.M., Rozano, M. and Menéndez-Benito, H.D. (2015), "Using Twitter to engage with customers: a data mining approach", *Internet Research*, Vol. 25 No. 3, pp. 416-434.

Oliveira, N., Cortez, P. and Areal, N. (2017), "The impact of microblogging data for stock market prediction: using Twitter to predict returns, volatility, trading volume and survey sentiment indices", *Expert Systems with Applications*, Vol. 73 No. 1, pp. 125-144.

Oviedo-García, M.A., Muñoz-Expósito, M. and Castellanos Verdugo, M. (2014), "Metric proposal for customer engagement in Facebook", *Journal of Research in Interactive Marketing*, Vol. 8 No. 4, pp. 327-344.

Park, C.S. and Kaye, B.K. (2017), "The tweet goes on: interconnection of Twitter opinion leadership, network size, and civic engagement", *Computers in Human Behavior*, Vol. 69, April, pp. 174-180.

Peters, K., Chen, Y., Kaplan, A.M., Ognibeni, B. and Pauwels, K. (2013), "Social media metrics – a framework and guidelines for managing social media", *Journal of Interactive Marketing*, Vol. 27 No. 4, pp. 281-298.

Pinho-Costa, L., Yakubu, K., Hoedebecke, K., Laranjo, L., Reichel, C.P., Colon-Gonzalez, M.C., Neves, A.L. and Errami, H. (2016), "Healthcare hashtag index development: Identifying global impact in social media", *Journal of Biomedical Informatics*, Vol. 63, October, pp. 390-399.

Prahalad, C.K. and Ramaswamy, V. (2004), "Co-creation experiences: the new practice in value creation", *Journal of Interactive Marketing*, Vol. 18 No. 3, pp. 5-14.

Rapp, A., Beitelspacher, L.S., Grewal, D. and Hughes, D.E. (2013), "Understanding social media effects across seller, retailer, and consumer interactions", *Journal of the Academy of Marketing Science*, Vol. 41 No. 5, pp. 547-566.

Richter, D., Riemer, K. and vomBrocke, J. (2011), "Internet social networking. Research state of art and implications for enterprise 2.0", *Business & Information Systems Engineering*, Vol. 3 No. 2, pp. 89-101.

Rollins, M., Nickell, D. and Ennis, J. (2014), "The impact of economic downturns on marketing", *Journal of Business Research*, Vol. 67 No. 1, pp. 2727-2731.

Roth, P.L., Bobko, P., Van Iddekinge, C.H. and Thatcher, J.B. (2016), "Social media in employee-selection-related decisions. A research agenda for uncharted territory", *Journal of Management*, Vol. 42 No. 1, pp. 269-298.

Sawhney, M., Verona, G. and Prandelli, E. (2005), "Collaborating to create: the internet as a platform for customer engagement in product innovation", *Journal of Interactive Marketing*, Vol. 19 No. 4, pp. 4-17.

Schultz, D.E. and Peltier, J. (2013), "Social media's slippery slope: challenges, opportunities and future research directions", *Journal of Research in Interactive Marketing*, Vol. 7 No. 2, pp. 86-99.

Sen, S. and Lerman, D. (2007), "Why are you telling me this? An examination into negative consumer reviews on the web", *Journal of Interactive Marketing*, Vol. 21 No. 4, pp. 76-94.

So, K.K.F., King, C. and Sparks, B. (2014), "Customer engagement with tourism brands: Scale development and validation", *Journal of Hospitality and Tourism Research*, Vol. 38 No. 3, pp. 304-329.

So, K.K.F., King, C., Sparks, B.A. and Wang, Y. (2016), "The role of customer engagement in building consumer loyalty to tourism brands", *Journal of Travel Research*, Vol. 55 No. 1, pp. 64-78.

Swani, K., Brown, B.P. and Milne, G.R. (2014), "Should tweets differ for B2B and B2C? An analysis of Fortune 500 companies' Twitter communications", *Industrial Marketing Management*, Vol. 43 No. 5, pp. 873-881.

Tausczik, Y.R. and Pennebaker, J.W. (2012), "Participation in an online mathematics community: differentiating motivations to add", paper presented at the ACM 2012 Conference on Computer Supported Cooperative Work, Seattle, WA, February 11-15, available at: www.cs.cmu.edu/~ylataus/files/TausczikPennebaker2012.pdf (accessed January 18, 2017).

Tiago, M.T. and Veríssimo, J.M.C. (2014), "Digital marketing and social media: why bother?", *Business Horizons*, Vol. 57 No. 6, pp. 703-708.

TweetReach (2014), "TweetReach. How far did your tweet travel?", available at: http://tweetreach.com/ (accessed February 7, 2014).

Van Doorn, J., Lemon, K.E., Mittal, V., Pick, D., Pirner, P. and Verhoef, P.C. (2010), "Customer engagement behavior: theoretical foundations and research directions", *Journal of Service Research*, Vol. 13 No. 3, pp. 253-266.

Verhoef, P.C., Reinartz, W.J. and Krafft, M. (2010), "Customer engagement as a new perspective in customer management", *Journal of Service Research*, Vol. 13 No. 3, pp. 247-252.

Vidya, N.A., Fanany, M.I. and Budi, I. (2015), "Twitter sentiment to analyze net brand reputation of mobile phone providers", *Procedia Computer Science*, Vol. 72, pp. 519-526, available at: www.sciencedirect.com/science/article/pii/S1877050915036200

Vivek, S. (2009), "A scale of consumer engagement", dissertation for the degree of Doctor of Philosophy in the Department of Management and Marketing, University of Alabama, Tuscaloosa, AL, available at: http://acumen.lib.ua.edu/content/u0015/0000001/0000096/u0015_0000001_0000096.pdf (accessed February 7, 2014).

Vivek, S.D., Beatty, S.E. and Morgan, R.M. (2012), "Customer engagement: exploring customer relationships beyond purchase", *Journal of Marketing Theory and Practice*, Vol. 20 No. 2, pp. 122-146.

Wang, J. and Chang, C. (2013), "How online social ties and product-related risks influence purchase intentions: a Facebook experiment", *Electronic Commerce Research Applications*, Vol. 12 No. 5, pp. 337-346.

Wang, X., Yu, C. and Wei, Y. (2012), "Social media peer communication and impacts on purchase intentions: a consumer socialization framework", *Journal of Interactive Marketing*, Vol. 26 No. 4, pp. 198-208.

Zeng, B. and Gerritsen, R. (2014), "What do we know about social media in tourism? A review", *Tourism Management Perspectives*, Vol. 10, April, pp. 27-36.

Zhang, M., Guo, L., Hu, M. and Liu, W. (2016), "Influence of customer engagement with company social networks on stickiness: mediating effect of customer value creation", *International Journal of Information Management*, Vol. 37 No. 3, pp. 229-240.

Zhang, M., Hu, M., Guo, L. and Liu, W. (2017), "Understanding relationships among customer experience, engagement, and word-of-mouth intention on online brand communities: the perspectives of Service Ecosystem", *Internet Research*, Vol. 27 No. 4, pp. 839-857.

Zhang, X., Wang, W., Ordóñez de Pablos, P., Tang, J. and Yan, X. (2015), "Mapping development of social media research through different disciplines: collaborative learning in management and computer science", *Computers in Human Behavior*, Vol. 51, October, pp. 1142-1153.

Zhu, Y.-Q. and Chen, H.-G. (2015), "Social media and human need satisfaction: implications for social media marketing", *Business Horizons*, Vol. 58 No. 3, pp. 335-345.

Further reading

Nielsen Online (2009), "Nielsen online provides fastest growing social networks for September 2008", available at: www.nielsen-online.com/ (accessed February 5, 2014).

About the authors

Miriam Muñoz-Expósito is a PhD Student at the University of Seville, Spain. Her research interests focus on marketing in social media and social integration in online communities. She has published in *RAE-Revista de Administração de Empresas* and *Journal of Research in Interactive Marketing*.

M. Ángeles Oviedo-García is an Associate Professor in the Department of Business Management and Marketing at the University of Seville, Spain. She researches on social media-marketing strategy interaction and participates in European research projects within the COST (European Cooperation in Science and Technology) framework. Additionally, she has published in reputed journals in tourism and marketing fields. M. Ángeles Oviedo-García is the corresponding author and can be contacted at: maoviedo@us.es

Mario Castellanos-Verdugo is an Associate Professor in the Department of Business Management and Marketing at the University of Seville, Spain. He researches on social media and marketing strategy interaction and he is involved in research projects related with social media.