MASTER'S FINAL PROJECT

Digital communication strategy in Facebook of global technological companies

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Academic Year:

2017/2018

Almería, September 2018

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Abstract: Nowadays, social media are becoming omnipresent and organizations need to manage them like the rest of media to meet their goals. Per contra, social media are essentially different from any other traditional or online media due to their egalitarian nature and social network structure. That is why a different measurement approach is required for appropriate analysis and management. To establish proper social media metrics and therefore analyse how companies communicate through Facebook, a theoretical background about B2C communications, social networks and engagement on Facebook will be exposed in order to lead an empirical analysis where social media metrics play the main role to identify what makes users engage.

Keywords: Social media, Facebook, user generated content, marketer generated content, B2C communication, engagement, Internet marketing, digital marketing strategy.

1. Introduction

In the era of the Web 2.0, firms are taking advantage of social networks to connect with customers and enhance their brand communication using social media channels. Due to the latest changes in marketing communication, this research offers a better understanding of the impact of firm-created and user-generated brand communication through the most popular social network on Internet, Facebook.

The main purpose of this study is to discuss the interest that social networks create nowadays in the final consumer and therefore, the interest for the companies in them as a marketing communication tool. But also, this study aims to analyse the effect and the way in which firm-generated content and user-generated content in social media in the form of brand communication have an impact in consumer brand metrics through Facebook.

To investigate the abovementioned matters, we will go through a theoretical background, where B2C communication and other ideas related to this main topic, will be reviewed along with a second paragraph about social networks as digital B2C communication platforms, then Facebook as our main social network to be working on in this case, and finally, a final theoretical paragraph referring to how the user engagement can be measured on Facebook.

As for the empirical part, eight successful technological companies will be selected to study their Facebook official accounts, so that with the selected metrics we can revise their posts published during a determined period of time and then, through an statistical analysis with SPSS, get to know in what way and how these companies communicate and how their users react and behave depending on the type of content so that we can determine what are the best practices for a digital marketing strategy on Facebook.
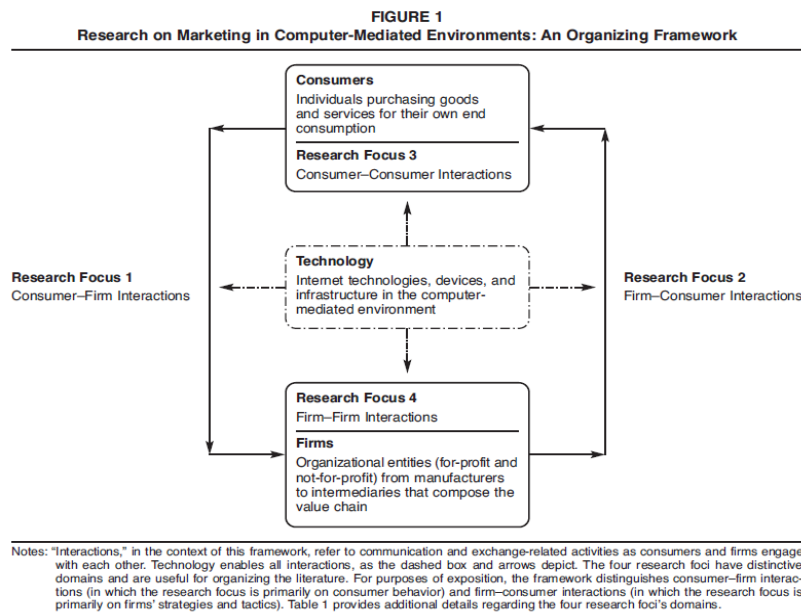
2. Theoretical background

2.1. B2C Communication

During the last couple of decades, a real burst of research in marketing on the consequences of the Internet and similar technologies on consumers and firms has blasted. Even though a significant amount of marketing literature has appeared, it remains fragmented. Particularly, there is a lack of general framework to provide a clear

structure and guidance to the quickly growing body of literature, so the aim is to organize it properly (MacInnis 2011).

To adapt this study to our research it is necessary to analyse all the ways a company and a consumer can communicate and, in order to understand how the communication works through digital channels, Hoffman and Novak (1996) first describe a CME as a "dynamic distributed network, universal, together with hardware and software" that allows consumers and firms to communicate and access hypermedia content. Given this view, this research offers a structure that studies consumer and firm activities in CME (see Figure 1). Figure 1 represents a group of interactions that make reference to technology communications and interactions between consumers and firms. Contextually, technology embraces a wide range of communication means and technologies, devices and infrastructure belonging to the Internet.

Figure 1. Research on Marketing in Computer-Mediated Environments: An Organizing Framework.

FIGURE 1
Research on Marketing in Computer-Mediated Environments: An Organizing Framework

	Consumers Individuals purchasing goods and services for their own end consumption	
	Research Focus 3 Consumer–Consumer Interactions	
Research Focus 1 Consumer–Firm Interactions	Technology Internet technologies, devices, and infrastructure in the computer-mediated environment	Research Focus 2 Firm–Consumer Interactions
	Research Focus 4 Firm–Firm Interactions	
	Firms Organizational entities (for-profit and not-for-profit) from manufacturers to intermediaries that compose the value chain	

Notes: "Interactions," in the context of this framework, refer to communication and exchange-related activities as consumers and firms engage with each other. Technology enables all interactions, as the dashed box and arrows depict. The four research foci have distinctive domains and are useful for organizing the literature. For purposes of exposition, the framework distinguishes consumer–firm interactions (in which the research focus is primarily on consumer behavior) and firm–consumer interactions (in which the research focus is primarily on firms' strategies and tactics). Table 1 provides additional details regarding the four research foci's domains.

Source: Yadav and Pavlou (2014). Marketing in computer-mediated environments: Research synthesis and new directions. Journal of Marketing.

The term "consumers" name the individuals who purchase goods and services from their own final consumption. "Firms" refer a wide formation of for-profit and not-for-profit organizations that go from manufacturers to intermediaries that create the value chain getting to the end consumer. Yadav and Pavlou (2014) frame the literature around

four main interactions that take place in computer-mediated environments (CME): consumer-firm interactions, firm–consumer interactions, consumer–consumer interactions and firm–firm interactions.

Research focus 1: Consumer-firm interactions. This context refers to consumer behaviour interactions with firms in CMEs where three fundamental elements are classified as follows:

Network navigation. For this topic, researches basically revise psychological matters related to communication in CMEs, clickstream data models and the effect of online interfaces (e.g., Bart et al. 2005). The idea of flow (Hoffman and Novak 1996), a psychical state that happens when there is a balance between things related to tasks and the perceived difficulty of the task during network navigation, has fundamentally influenced studies on psychological concerns associated to CMEs.

Technology-enabled search. Referring to product quality, the decreasing of online search costs can decrease consumers' price susceptibility creating the feeling of a big contrast between brands. Accordingly, a resultant study by Diehl, Kornish and Lynch (2003) propose that due to the ability of searching tools to generate the final decision subgroup more appealing-related, consumers could reduce the probability of paying a large premium to buy a better option.

Technology-enabled decision making. Studies in technology-enabled decision making have considered the acceptance and efficacy of several kinds of online tools to facilitate and reinforce decision making in CMEs. Online decision tools improves control over information, diminishes the amount of consideration groups, and can strengthen quality, memory and confidence related decisions. Nevertheless, all these benefits are not for free, decision-making tools may also dictate supplementary processing costs (Ariely, 2000), and the absenteeism of haptic information in CMEs can lower consumers' decision-making confidence (Peck and Childers 2003). However, are technology elements (e.g., perceived complexity) and individual variables (e.g., inertia) the ones that dictate consumers' promptness to utilize CMEs.

Research focus 2: Firm-consumer interactions. The context of firm–consumer interactions comprises firms' interactions with consumers in CMEs where every marketing mix element is analyzed:

Product decisions. To mitigate overloading information in CMEs, firms should improve and facilitate consumers' choices by suggesting a subgroup of products matching their preferences. Recommendation systems' researches ambition is to achieve this taking into account a consumer's predilection, others consumers' predilections, expert opinions, and product and demographic aspects. The second framework belongs generally to product design and development matters. Primary evidence suggests that when firms' design strategies related to digital products must accentuate the specialization of some main functionalities as the product category grows and gets mature; not so specialized, multifunctional product designs are more prone to fare better in the first stages. The possibility of customize product designs improves not only product usage but also user experience (Chung, Rust, and Wedel 2009).

Integrated marketing communication decisions. The arrival and facility of online ads deliveries has increased attempts researches to understand the impact of ad repetitions in CMEs. According to a banner ads research (Chatterjee, Hoffman, and Novak 2003), a repetitive displaying of ads had a negative impact on the possibility of doing click on it. So, as the accruing number of ads displayed got higher, so did the probability of clicking. Therefore, this means that bare exposure to ads in the first online sessions could have branding value. This proof considered with other studies related, indicated that despite online and offline frameworks differ, it is highly probable that the subjacent behavioural advertising processes of consumers are very similar.

A second framework to mention is the utilization of marketing communications to attract and keep customers. Ramani and Kumar (2008) defined the term of interaction orientation as a firm's capability to communicate with customers individually, get valuable information from those interactions, and use it to boost profitability acquiring new customers and keeping them. An improved interaction orientation guides to more efficient levels of customer acquisition and retention.

Pricing decisions. Price adaptations, which can be applied more easily in CMEs than in offline environments, augments profitability. Research have analysed a wide variety of consumer and market factors to implement customized pricing strategies: consumer variety behaviour in searches, brand loyalty, geographical area, purchasing circumstances (Haws and Bearden 2006) and readiness to pay (Fay 2004, Spann and Tellis 2006). Certain fundamental ideas have come up from studies about pricing strategies in CMEs. Initially, pricing strategies applied to attract customers may have a

critical long lasting impact. For instance, Pauwels and Weiss (2008) realized that customers attracted by informational e-mails or search engine ads are more likely to be long-term committed than the ones attracted by online price promotions that are just committed in the short-term. The other idea is that improving the pricing of digital goods and services requires an accurate analysis of customer heterogeneity because there might be considerable differences among consumers' perceptions of goods and services (Kannan, Pope, and Jain 2009) and certain ambiguity about the usefulness and purpose perceived by consumers.

Multichannel management decisions. Research on multi-channel management has centered on basically two main areas: comprehending multichannel customers' behaviour and the development of an effective multichannel strategy. Regarding customer behaviour, there are indicators that indicate that a channel swap from offline to online can have both advantages and disadvantages for brands. For instance, customers migrate to the online channel when retailers encourage them, however, they are also likely to stop buying from that retailer in the long-term (Ansari, Mela, and Neslin 2008). Developing a multichannel strategy request for attention to the changes that demand and supply factors may go through (Alba et al. 1997). Balasubramanian (1998) stands out the long run dilution of specific location benefits. Concerning the conversion to multichannel formats, a relevant matter is that this conversion can be full of challenges, like customer relationships management and time coordination of product launches in different channels (Lehmann and Weinberg 2000). Supervision over shipping costs to keep up with profitability is another serious threat. Despite that, the inclusion of online channels has advantageous financial results.

Research focus 3: Consumer-consumer interactions. This involves consumer behaviour interactions with other consumers in CMEs. In this field the main roles are played by social networks and user generated content (UGC), which refers to any form of content created by users of a system or service that is publicly available on that system.

Social networks. Most of consumers' initial interest in online social networks is normally brought about by an event of personal meaning. Individuals feel excitement when speaking about themselves and count on a series of presentation tactics to build and communicate their interests in their online community. Social media can have significant influence in consumers' awareness and purchase behaviour. Thompson and

Sinha (2008) analyse four online brand communities focused on high technology products and discovered that consumers' engagement in online brand communities have a serious impact on new product acquisition. As long as the probability of acquiring a new product from the community brand gets higher, the probability of acquiring a competitor's new product falls. Also, when consumers have loyalty programs as memberships in several online brand communities, merging participation in a community can also increment the probability of acquiring new products from a competing brand.

UGC. This element has demonstrative value respecting to marketplace effects. A good example is Godes and Mayzlin's (2004) study, in which they analyse ratings on new TV shows and see that the diffusion of a product review in a TV show is a significant predictor of its Nielsen rating. The spreading of UGC could be significant for a TV show's customer attraction. Research has also studied circumstantial determinants that can have an effect on the creation of online reviews. Relevant product information in UGC could be unnoticed if the online context has a high level of interactivity. However, Mayzlin's (2006) prove that some firms with no scrupulous manipulate marketplace perceptions by writing reviews themselves or hiring people to do so. The frequently unexpected ways in which public opinions can change in the marketplace accentuate the necessity for continuous control of UGC. That is why UGC is risky, it has both advantages and disadvantages when referring to a firm's product offer.

Significant evidence connecting online and offline complaints and firms' stock prices increases willingness to understand the hidden factors that lead online complaining behaviour. Increasing evidence (Ward and Ostrom 2006) indicates that not satisfied customers could have different reasons for complaining, going from just reporting a noticed injustice to express an advocacy position.

Research focus 4: Firm-firm interactions. This context comprises firms' strategies when firms interact with other firms in CMEs. This context has been built around three main areas:

Interorganizational networks. Important cuts in the cost of communication technologies, along with global matters like globalization, have boosted a significant and structural change when speaking of how firms nowadays relate their internal and external value-adding activities (Achrol and Kotler 1999). An existing research stream

has studied one of those structural changes: the function of "infomediaries", term that refers to companies that provide information about sellers' offerings in a determined product category and get benefits for directing online traffic to a given firm's website.

Competition. In spite of lowered search costs in CME, a significant thrust of research efforts were directed to find methods that may lighten competition between firms. There is investigation about two types of methods. Firstly, some consumers prefer not to search despite low search costs (He and Chen 2006; Lal and Sarvary 1999), hence, restraining competition. Secondly, firms can get committed to a series of planned actions to lighten price competition. For instance, Zettelmeyer (2000) proves that as long as the Internet's reach spreads, firms have more opportunities for more accurate segmentation and thus, can have more market power.

B2B auctions. Research on these have especially focused on firms' use of online opposite biddings or auctions. The key issue analysed is the effect of auction features on firms' communications with suppliers. The open-bid structure increments suppliers' opportunism distrustful that therefore, can be prejudicial to long-term relationships. Per contra, a sealed-bid structure, in which every participant bid is secret, does not have a negative impact. There is also research on B2B auctions in the context of how firms buy keyword-base ads using platforms like Google Adwords. There are basically two main ideas. First, even though Google keywords ads dictates and rules the marketplace, improvements in structure can be made in these systems. Second, the predominant system of key-word ads auctions tends to create click fraud, and therefore, third actors are necessary to detect the fraud.

Social media is changing traditional marketing communication. Internet users are continuously shaping brand communication that were formerly controlled and managed by marketers. However, the old-fashioned one-way communication is now multidimensional, two-way communication. The differentiation between Marketer Generated Content (MGC) and UGC in social media communication is of great relevance as one is controlled by the firm (MGC), whereas the other is independent of the company's control (UGC). Regarding MCG online communication, concretely through Facebook, it is important to highlight that in this research we are going to focus on controlled communication by the brand, insomuch as Facebook accounts owned by the brands will be selected. So, when a brand owns a Facebook page they can control the advertisements, the content is posted and how users react, they can delete comments

or posts undesired and they can also allow or not followers to publish their own posts on the fan page itself. But in the case of not controlled communication or UGC, it's the prescribers who can share the content and comment or talk about it and the brand cannot edit it or change it but just see it. In Figure 2 we can appreciate the possibilities that Facebook offers to a communication strategy.

Figure 2. Online communication through Facebook.
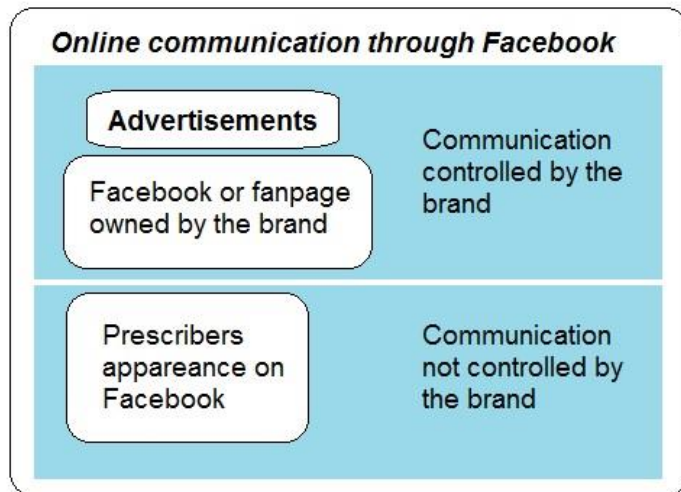
Source: Own elaboration.

2.2. Social networks as digital B2C communication platform

Companies are nowadays well aware of social media impacts on business and are now embracing the opportunities to promote sales and business. The concept of 'social media' comes from two different fields of research, communication science and sociology. It is, in the framework of communication, a means for telling or delivering information. In the sociology domain, and specifically social network theory and analysis, social network are social formats made up of a group of social elements (e.g., individuals, groups or organizations) with an elaborate group of dyadic ties among them (Wasserman and Faust, 1994). Social media are communication systems that allow their social elements to communicate in two ways. Consequently, in contrast with other traditional or online media, social media have the same nature. This means, for instance, that a brand is basically an actor, or an element, just like any other in a network.

Alba et al. (1997) describe this two-ways relational interactivity as the principal distinction of social media in comparison to other media, either online or offline. Plenty

of social media have arisen in the last years, and Kaplan and Haenlein (2010) define them as a set of Internet-based applications that allow the creation and exchange of UGC. By way of social presence and self-presentation, they categorize social media into six different groups: (1) collective projects (i.e., Wikipedia), blogs and microblogs (i.e., Twitter), (3) content communities (i.e., Youtube), (4) social networks (i.e., Facebook, Instagram, LinkedIn), (5) massively multi-player online role-playing games, called MMORPGs (i.e., World of Warcraft) and (6) social virtual worlds (e.g., Second Life).

Different from the traditional marketing tools that allow one-way communications, social media has a hybrid social-and-media-marketing function (Kaplan and Haenlein, 2010) and, creates new challenges for marketers. Initially, managers can be tempted to apply the concepts of traditional media metrics to the measurement, analysis, and management of social media. Nevertheless, social media is, unlike other media, offering dynamism, and interconnection, equitable and interactive organisms beyond the control of any organization. Thus, they require a distinct approach to measurement, analysis, and subsequently management (Peters et al., 2013).

Farris et al. (2006) define a metric as a measurement system that quantifies static or dynamic characteristics. From a more general point of view, metrics can define or quantify a state, i.e., characteristic, or a process, i.e., a dynamic, trend, or evolution. Besides, states or processes might be stochastic and therefore, need additional information on the level of certainty, i.e., the likelihood or variance. In research as much as in business, metrics are used to determine goals, measure the degree of fulfillment or the deviation, and then implement measures to improve these metrics. However, there is no metric alone able to capture the importance and diversity in the phenomena of social media, so managers need a methodical approach to recognize and build proper metrics. This can be achieved with a social media dashboard, which we define briefly below.

To design accurate metrics for social media it is essential to build a good dashboard. Pauwels et al. (2008) describe a dashboard as "a relatively small collection of interconnected key performance metrics and underlying performance drivers that reflects both short and long-term interests to be viewed in common throughout the organization." When a dashboard is effective, it gives back a common definition and understanding of key drivers and outcomes within a company, recognises deficient or excellent performance, allows for actions to evaluate financial results, facilitates organizational learning and embraces decision-making to improve performance.

Notwithstanding, lately, the gap of social media, the spreading of extra sales channels, and the appearance of "big data" evidenced in the collection of UGC on the web and in social media present appreciable changes to the design of appropriate dashboards (Pauwels et al., 2008).

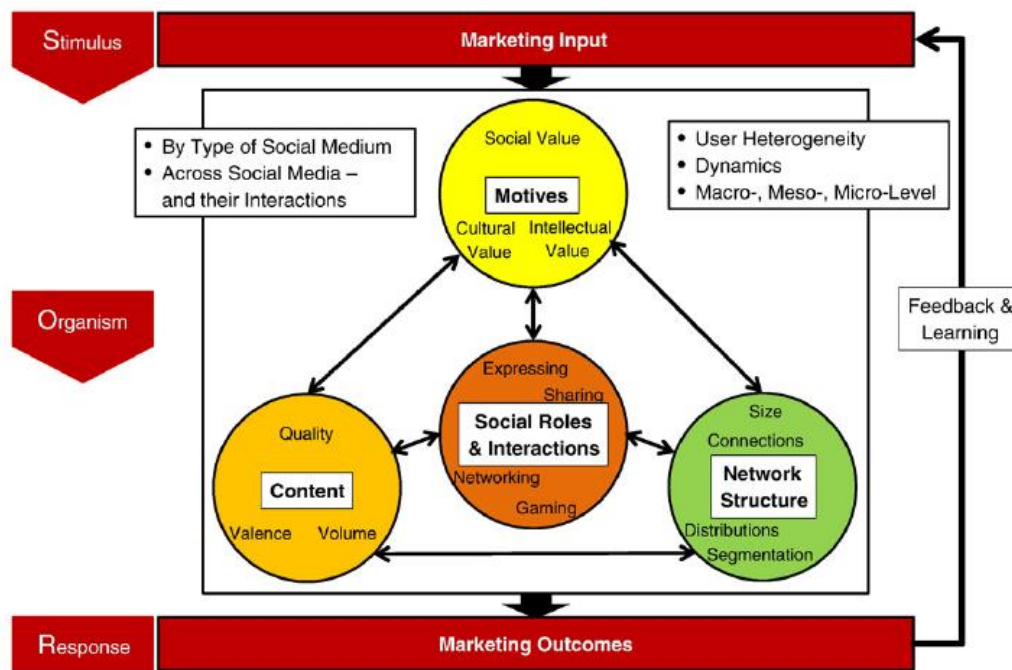**Figure 3.** Core elements of social media strategy

Fig. 1. S–O–R framework for social media metrics.

Source: Peters, K., Chen, Y., Kaplan, A. M., Ognibeni, B., & Pauwels, K. (2013). Social media metrics—A framework and guidelines for managing social media. Journal of Interactive Marketing.

To explain Figure 3, it is important to know that from a managerial context, 'understanding' social media is essential for effectively managing these channels. Therefore, it is necessary to understand how marketing input interact with social media to generate the desired marketing output. This refers to the Stimulus (S) → Organism (O) → Response (R) paradigm. Marketing inputs are compared to ordinary marketing instruments (e.g., advertising, pricing), whereas social media represents the Organism. Managerial outcomes (Response) can be specific (intermediate) success metrics, i.e., brand management (awareness, likes), or general success metrics (market share, profit; Farris et al. 2006).

Therefore, social media becomes a new kind of organism in comparison to traditional media, so they stand in need for deeper investigation.

From the definition of social media as communication systems that allow social actors to communicate along dyadic ties we infer the four main elements already mentioned of social media for our S-O-R scheme: motives, content, network structure and social roles & interactions. Primarily, actors are the basic factor of the system as they interact along the dyadic ties, so the communication of each of them is driven by specific motives. Next, they communicate producing UGC and then, the mix of all dyadic ties designs the network structure that is the setting for every actor as well as for the social mean as a whole. Subsequently, actors create content at the same time they communicate, modify, share or simply consume it. Therefore, actors share different kinds of social communication that, along the time, they infer several social roles. Now we will get in details particularly in motives and content, which are the most relevant for this research.

Motives. Based on the Motivation, Opportunity and Ability (M-O-A) paradigm, created and developed by MacInnis, Moorman and Jaworski in 1991 to clarify the driving force hidden in the action of actors in social media. Motivation is defined as arousal aimed at a goal (e.g., Park and Mittal 1985), for instance, the desirability or readiness to process information, also opportunity is described as the extent to which interferences or limited exposure time affect actors' attention to a piece of information (e.g., Batra and Ray 1985). Ability is explained as an actor skill to understand or interpret information given previous knowledge (e.g., Alba and Hutchinson 1987). From a business point of view, it is vital to evaluate the reasons of why people act or react as they do.

Peters et al. (2013) classify these motives into the motivational structure suggested by Seraj (2012): (1) intellectual value derived from co-creation and content quality (Seraj 2012). (2) Social value coming from platform actions and social ties (Seraj 2012) that also implies domination as well as socializing, escaping and social identification (Eisenbeiss et al. 2012); and (3) cultural values, that symbolizes or represents the culture of self-governed community (Seraj 2012) and subsumes legitimation and group intentions (Eisenbeiss et al. 2012). Therefore, Peters et al. (2013) add up these three elements to the 'motives' dimension in our theoretical framework (see Fig. 3), since these empirical results prove that most of users engages with social media due to principally one of these three motivations, and only some of the users report several

motivations. As a result, firms must reflect this diversification when they analyse outcomes from social media in their dashboards.

Content. To build the structure of content in social media Peters et al. (2013) rely exclusively on the latest researches. Four different studies that classify social media content are selected to explain the diverse types to managerial outcomes (Berger and Milkman 2012; De Vries, Gensler, and Leeflang 2012; Kozinets et al. 2010; Van Noort, Voorveld, and von Reijmersdal 2012). De Vries, Gensler, and Leeflang (2012) evaluate how already created content boosts social media actions. Firstly they catalogue the content among different dimensions: vividness, interactivity, information, entertainment, position and valence. They state that these features influence in an unequal way the number of likes and comment. Van Noort, Voorveld, and von Reijmersdal (2012) additionally focus on the relevance of the interactive content on diverse cognitive, affective, and behavioural outcomes. Berger and Milkman (2012) study how and what features drive online content to become viral. They found out that content is more likely to go viral when it shows feelings like anxiety, anger, awe or when it is surprising or practically useful. Therefore, the valence of content itself is not enough to demonstrate its virality. Kozinets et al. (2010) classify the content in the framework of online WOM (word of mouth) and they recognise four approaches to explain conveyance in blogs, which reflect various narrative styles, happening to be in different quality conditions of content: evaluation, explanation, endorsement and embracing. Each of these transform original marketing messages in several different but precise ways, always depending on norms and the primitive marketing message. When taken all together, it propitiates content to possibly have three different aspects, which are named (1) content quality, subsuming content features (i.e., vividness, interactivity), content domain (i.e., education, information, entertainment), and narrative styles: (2) valence, subsuming feelings or emotions (i.e., joy, anger) and (3) content volume.

Consequently, marketers must learn how to communicate with their target customers effectively on social media and hopefully shape consumers' online discussions according to the company's mission and marketing goal.

2.3. Facebook

We are currently in the digital age, so it is fundamental the relevance for business of having continuous and active presence not only online but also in social media. This is where nowadays you can find the consumer, and so there is the chance for a more direct contact. Thanks to social media it is easier to understand what the consumer's need, their perception and awareness of a brand, which can be very useful when launching new products.

Facebook is born in 2004 as the social network par excellence, and even though brands are finding effective ways to make good use of Facebook as a marketing communication tool, Facebook never stops reinventing itself so as to maintain its dominant position as the number one social networking site. To name some of the changes, in 2017, Facebook introduced new emotions buttons and added many new tools to enable business to undertake target advertisements. Such changes not only shape companies' communication strategies on Facebook, but also facilitate and foster more dynamic interactions among customers and companies.

According to Peters et al. (2013), Quality, Volume and Valence are metrics essentially used to define the content posted on Facebook. To analyse the content dimension in Facebook, it is crucial to take into account every element that a Facebook page of a brand has.

Content quality and domain. First, it is essential to define the term Quality in the context of social media we rely on how is a post in terms of vividness, interactivity and content. That means the more vivid or interactive a post is, the more quality it has. To understand interactivity, it is the extent of a post to be interactive (i.e., a question or a quiz would be highly interactive because it asks directly the user for participation and it is more likely for them to comment, click or participate when that occurs). There are four categorisations for this dimension: (1) there is no interactivity at all when the post contains statuses, pictures or videos, since that is static content that can only be read or seen. We talk about (2) low interactivity given a post with links to a web site or votes for alternatives because it can be clicked users who want to see additional content. This level refers to links without 'visit us' or similar. Links with 'visit us', 'join us' or similar refer to (3) medium interactivity, that is basically, direct requests for users to

interact (visiting another site, liking, commenting, sharing or joining contests for which they can win prizes). (4) High interactivity is for questions, quizzes and events.

If we talk about vividness, it is the extent of a post to be vivid, showy or striking (i.e., when a post is just a status with no hashtags or images, is not vivid at all, but in contrast when this has a video and hashtags is highly vivid). There are four subcategories of vividness, a post can have (1) no vividness if it is a status because it has form of a short text, (2) low vividness for pictures and images, because that constitutes pictorial content, (3) medium vividness for links or hashtags (#) mainly to blogs, other sites other Facebook pages, etc., and lastly (4) high vividness for videos, gifts or events.

When referring to content quality, we classify the content in three categories: (1) informative, (2) transactional or (3) affective/transformational. A post is informative when it gives information about specific products, brands, companies and related marketing activities like Corporate Social Responsibility which can be confused with emotional appeal. Secondly, a post is transactional when the content of the post is information about promotion, trials, coupons, contests, special offers, quizzes, deals, loyalty programs, distribution points and any other sales related details. Otherwise, an affective or transactional post can be either entertaining (humorous items or messages, anecdotes, teasers, slogans or witty messages) or emotion-evoking when it contains artistic works, imaginery, sentimental message, storytelling, inspirational quotation or poems.

Picture 1. Example of a post of Siemens
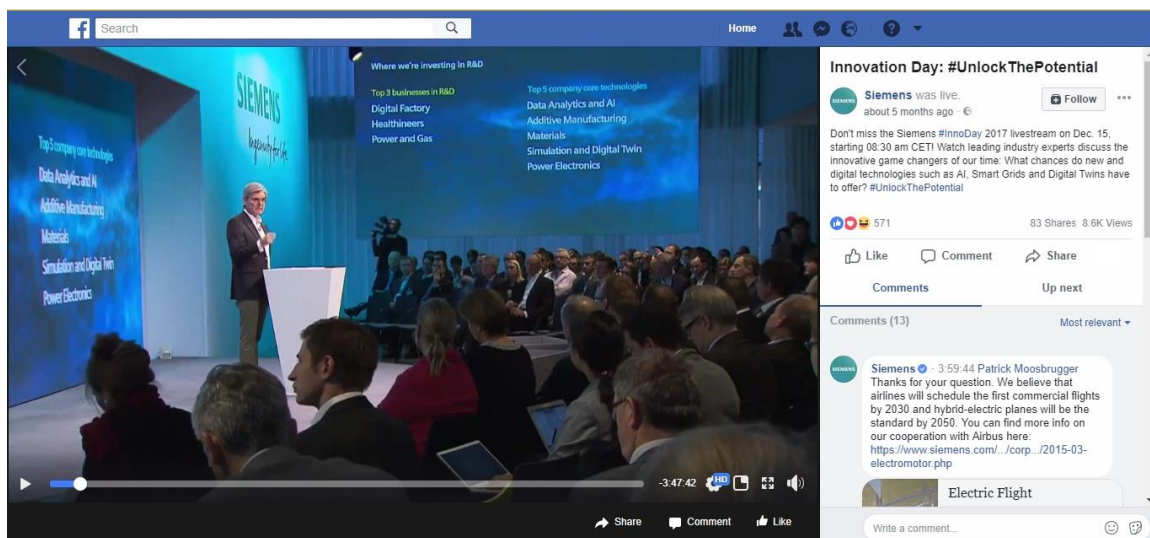
Source: Facebook Siemens Official Account

There is no better explanation than showing practical examples, for instance, when visiting an official verified brand page, in this case, Siemens, we choose the post we want to analyse and then, we should define the extent of quality vividness of the aforementioned. So, as we can see in Picture 1, the post contains a video, so the level of vividness is high.

In this case the interactivity of the post is defined according to the text "Don't miss the Siemens #InnoDay 2017 livestream on Dec. 15, starting 08:30 am CET! Watch leading industry experts discuss the innovative game changers of our time: What chances do new and digital technologies such as AI, Smart Grids and Digital Twins have to offer? #UnlockThePotential". We can notice a couple of hashtag, but also a question, so that makes the post having a high interactivity, because they are asking directly to the users.

To evaluate the content domain we should analyse the text of the post abovementioned: as it is information about a livestream, it is considered a marketing related activity so the content domain would be just informative.

Narrative style. That refers to the valence, which term refers to the feelings or emotions a post can reflect. These can be: like, love, joy, surprise, sad and angry, all can be found when passing over the 'like' button to choose one of them. That is a more concrete way of expressing what the post is about. See Picture 2.

Picture 2. Range of feelings and emotions the 'like' button offers.
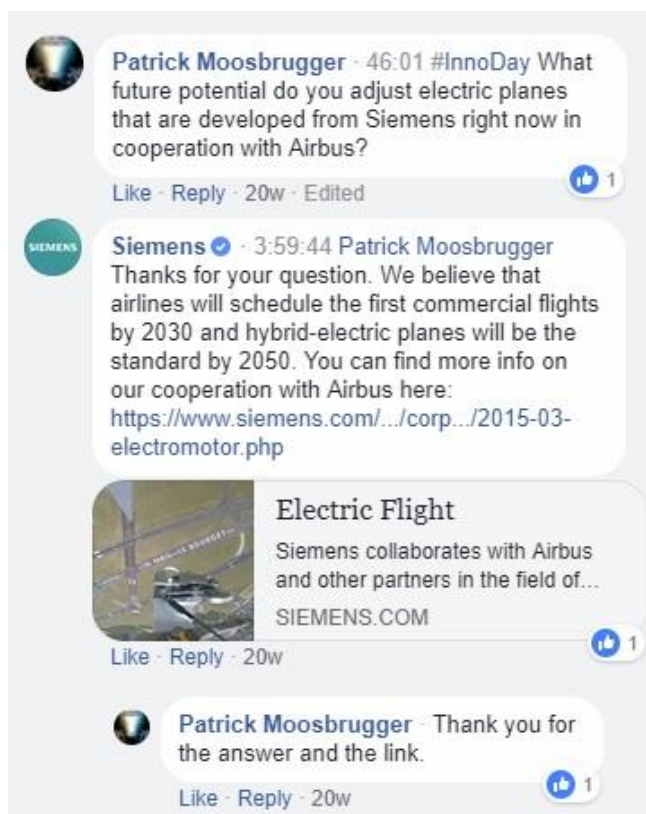

Source: Facebook Siemens Official Account

Content volume. This refers essentially to the number of comments on a post made either by the brand or by users. We find four subcategories in this dimension, the

first one (1) is the UGC comments volume 1, which indicates the total volume of comments of users of first level (replies to a concrete brand post), (2) the MGC comments volume 1, that refers to the total volume of comments of the brand (replies to a post of its own brand), usually zero. Then we have (3) UGC comments volume 2, which is the total volume of comments of users of second level (replies to comments of first level), and therefore, (4) MGC comments volume 2, the total volume of comments of the brand level 2 (replies to comments of first level). For instance, in the Picture 3, a user comments on the post, this would be UGC comments volume 1. In this case, the brand doesn't reply directly on his comment (that would be MGC comments volume 2), however, they comment as a MCG comment volume 1 but tagging the user, and is when this one replies with a UGC comment volume 2 thanking for the answer.

Picture 3. Comments on a Facebook post

Source: Facebook Siemens Official Account

2.4. Engagement on Facebook

Over several past years, brands have embraced Facebook as a key marketing tool and channel to drive engagement, brand awareness and create communities among their customers. Customer engagement is a term that has emerged recently to capture customers' total set of behavioural activities towards a firm.

In the current marketing era, the terms engagement and participation are the main used to define the nature of members' specific interactions and interactive experiences (Brodie et al. 2011; Kietzmann et al. 2011). One of the first descriptions of engagement within brand communities is "consumer's intrinsic motivation to interact and cooperate with community members" (Algesheimer et al. 2005). Since them, the term has been used more and more in the marketing literature, and there are different definitions depending on the context. Although some interpretations focus on the cognitive and emotional aspects of engagement, others make reference to the idea of engagement mainly as a certain kind of activity or pattern that goes beyond purchase, originated by motivational drives (Van Doorn et al. 2010). This type of engagement, on online platforms, is usually known as online engagement and its approach is from the point of view of measuring undertaken responses like click-through rates (CTR), bounce rates, page views, etc.

Brand communities enhance interactions with the exchange of different opinions about a brand or a particular product, creating engagement among their members in a way of WOM communication. WOM is an effective tool for marketing commonly used by individuals as a source of product or brand-related information (Buttle 1998). As it plays a critical role for increasing brand engagement and purchase decision making (Harrison-Walker 2001), reinforcing sales.

Additionally, multidimensional communication on social networks is represented with increasing growth of the WOM volume. This kind of message spreading is usually referred to as viral marketing (Kaplan and Haenlein 2011). The transformation in the dynamics of marketing interchange between brands and consumers as brought in by social media platforms has put a focus on the non-transactional consumer behaviour.

Regarding Facebook, the engagement is measured through the comments, likes and shares that a publication receives. But also includes the number of clicks, as well as the number of stories created. In other words, when you click on a post, whether to view a

photo, watch a video, or "other clicks" such as "see more" clicks, you're considered a user who has interacted and therefore, an engaged user. These actions are just clicks and do not create stories. Then, if you do click on "like", "comment", or "share" in a publication, you also enter the category of "engaged users". These are actions that do create stories.

Therefore, understanding the influencing elements that can increase engagement levels on social media is an important goal that could result in bigger volume of WOM and better attitude towards the brand, with an exponential growth of the company's sales.

3. Methodology/Empirical research

3.1. Research context and data collection

During the months of November and December of 2017 this sample has been through a process of selection. First, among the top 100 global brands from the BrandZ (2017) ranking the technology sector has been selected, formed by 20 companies. However, only the 8 companies formerly mentioned have been finally taken for the analysis due to the fact that unlike from the others, they meet the following requirements: these Facebook accounts have been verified and are global accounts mainly in English and with a regular activity.

Once the Facebook accounts have been selected, all the posts from 15th November to 15th December have been taking into account and analysed properly according to the criteria during January of 2018.

As the aim of this research, the eight technological companies that are going to be checked to get all the data necessary for the analysis are the following ones:

➢ Accenture
➢ Baidu Mobile
➢ Cisco
➢ Hp
➢ Huawei Smartphones
➢ Oracle
➢ Siemens
➢ Youtube

3.2. Research variables

In this section only the summarized table will be added to complement the former explanation of the research variables that is in the 'Facebook' paragraph.

Table 1. Metrics for Facebook posts

Variable name	Variable type	Reference	Description
Content quality: vividness (or richness)			
NO vividness	Nominal-dichotomic	Luarn et al. (2015) /Cvijikj et al. (2013)/ Coursaris et al. (2016) / Jeon et al. (2016)	No vividness for status posts.
LOW vividness	Nominal-dichotomic	Luarn et al. (2015) /Cvijikj et al. (2013)/ Coursaris et al. (2016) / Jeon et al. (2016)	Low vividness for photos and images.
MEDIUM vividness	Nominal-dichotomic	Luarn et al. (2015) /Cvijikj et al. (2013)/ Coursaris et al. (2016) / Jeon et al. (2016)	Medium vividness for links and #.
HIGH vividness	Nominal-dichotomic	Luarn et al. (2015) /Cvijikj et al. (2013)/ Coursaris et al. (2016) / Jeon et al. (2016)	High vividness for videos (mainly from Youtube), gifs and events.
Content quality: interactivity			
NO interactivity	Nominal-dichotomic	Luarn et al. (2015)	No interactivity for statuses, photos and videos (static content that can only be read or seen).
LOW interactivity	Nominal-dichotomic	Luarn et al. (2015)	Low interactivity for links to a website (without 'visit us', 'join us' or similar).
MEDIUM interactivity	Nominal-dichotomic	Luarn et al. (2015)	Medium interactivity for request for users to interact. 'Visit us', 'join us' expressions included.
HIGH interactivity	Nominal-dichotomic	Luarn et al. (2015)	High interactivity for questions, quizzes and events.
Content quality: content domain			
INFORMATIVE (rational appeal)	Nominal-dichotomic	Coursaris et al. (2016) /Tafesse (2015)	Information about specific products, brands, companies and marketing related activities.
TRANSACTIONAL	Nominal-dichotomic	Coursaris et al. (2016)	Information about

(rational appeal)		/Tafesse (2015)	promotions, trials, coupons, contests, quizzes, special offers, deals, loyalty programs, distribution points and other sales related details.
AFFECTIVE/ TRANSFORMATIONAL (emotional appeal)	Nominal-dichotomic	Coursaris et al. (2016) /Tafesse (2015)	Entertaining: humorous items or messages, anecdotes, teasers, slogans, witty messages, wordplays.
			Emotion-evoking content: artistic works, imaginery, sentimental message, storytelling, inspirational quotation, poems.
Content valence			
Emotions LIKE	Percentage or ratio (continuous variable)	Adapted from Peters et al. (2013) and Cvijikj et al. (2013) (ratios of likes, comments and shares divided by number of fans)	Total likes of this post (2nd level) divided by total Facebook emotions in this post by users
Emotions LOVE	Percentage or ratio (continuous variable)	Adapted from Peters et al. (2013) and Cvijikj et al. (2013) (ratios of likes, comments and shares divided by number of fans)	Total loves of this post (2nd level) divided by total Facebook emotions in this post by users
Emotions JOY	Percentage or ratio (continuous variable)	Adapted from Peters et al. (2013) and Cvijikj et al. (2013) (ratios of likes, comments and shares divided by number of fans)	Total joys of this post (2nd level) divided by total Facebook emotions in this post by users
Emotions SURPRISE	Percentage or ratio (continuous)	Adapted from Peters et al. (2013) and Cvijikj et al. (2013) (ratios of likes, comments and shares divided by number of fans)	Total surprises of this post (2nd level) divided by total Facebook emotions in this post by users
Emotions SAD	Percentage or ratio (continuous variable)	Adapted from Peters et al. (2013) and Cvijikj et al. (2013	Total sads of this post (2nd level) divided by total Facebook emotions

		(ratios of likes, comments and shares divided by number of fans)	in this post by users
Emotions ANGRY	Percentage or ratio (continuous variable)	Adapted from Peters et al. (2013) and Cvijikj et al. (2013) (ratios of likes, comments and shares divided by number of fans)	Total angries of this post (2nd level) divided by total Facebook emotions in this post by users
Content volume			
UGC comments 1 vol	Continuous variable	Peters et al. (2013)	Total volume of comments made by users of 1st level (replies to a concrete brand post)
MCG comments 1 vol	Continuous variable	Peters et al. (2013)	Total volume of comments made by the brand of 1st level (replies of a post of the same brand)
UGC comments 2 vol	Continuous variable	Peters et al. (2013)	Total volume of comments made by users of 2nd level (replies to comments of 1st level)
MCG comments 2 vol	Continuous variable	Peters et al. (2013)	Total volume of comments made by the brand of 2nd level (replies to comments of 1st level)

Source: Own elaboration

3.3. Statistical analysis

After the whole analysis of B2C communication, social networks, Facebook for global companies and engagement, it is necessary to proceed for an empirical analysis with all the data collected to find out more about how these companies communicate on Facebook and analyse users' behaviour on this platform to know which the best practices are. Objectives and methodology used are detailed below.

3.4. Objectives

   I.   To find out the posting frequency per brand.
  II.   To determine what kind of post is more frequent.
 III.   To find out which brand displays a higher degree of vividness in their publications

IV. To find out which brand displays a higher degree of interactivity in their publications.

V. To find out what content domain is more used by every brand.

VI. To find out what brand has in average more UGC comments.

VII. To find out what brand has in average more MGC comments.

VIII. To determine what brand generates more engagement rate.

IX. To find out what content domain generates more engagement.

3.5. Sample and methodology

The research carried out has a quantitative nature, considering observation and manual collection of data as a research approach. To do it, an Excel document was compiled with a sample of 282 Facebook posts of the eight different global accounts chosen during the period from November 15, 2017 to December 15 of the same year to respond to each of the specific objectives set. The Excel document contains one-dimensional nominal and discrete scale variables used to characterize the sample.

The collected data has been coded and analysed using the statistical package SPSS version 20. Table 1 below contains the technical data of this study.

In order to cover the research objectives, descriptive analysis, mean comparison, contingency tables and regression have been carried out.

Table 2. Research technical data.

Technique used	Observation
Instrument	Excel & SPSS
Collection method	Manual
Universe	Posts published by the eight chosen Facebook global accounts from 15th November to 15th December of 2017
Sampling size	282
Sampling method	Systematic
Date	September 2018

Source: Own elaboration

3.6. Results

First of all it is important to analyse our sample profile. To do that we will find out the number of followers every fanpage has on Facebook. We will consider followers instead of fans because fans can like the page but if they don't follow the page they cannot see the content on their timelines.

- ➢ Accenture: 571,085 followers
- ➢ Baidu Mobile: 1,378,330 followers
- ➢ Cisco: 1,566,215 followers
- ➢ Hp: 2,830,068 followers
- ➢ Huawei Smartphones: 279,179 followers
- ➢ Oracle: 2,980,940 followers
- ➢ Siemens: 610,079 followers
- ➢ Youtube: 81,542,964 followers

According to these figures, Youtube has the highest number of followers with more than 81 million. In the second place and with a huge difference goes Oracle, with almost 3 million. In the third place and almost overpassing Oracle we find HP with more than 2,830,000 followers. On the contrary, the one with less followers goes for Huawei Smartphones with hardly 279,000 followers.

- *OBJECTIVE I. To find out the posting frequency per brand.*

The frequency table of the posts analysed included in Table 3 is used to find out which brand posted more often during the period estimated (one month). In this case is Cisco the first one with 75 posts, followed by Youtube and Oracle with 56 and 54 respectively, such a small difference. On the other hand, Baidu Mobile and HP are the ones posting the least with the same number of posts: 15. In Graphic 1 you can see more visually how the sample is distributed.

Table 3. Sample distribution respecting to company and posting frequency

COMPANY NAME		Frequency	Percent
	ACCENTURE	20	7,0
	BAIDU MOBILE	15	5,3
	CISCO	75	26,3
	HP	15	5,3
Valid	HUAWEI SMARTPHONES	20	7,0
	ORACLE	54	18,9
	SIEMENS	27	9,5
	YOUTUBE	56	19,6
	Total	282	98,9
Missing	System	3	1,1
Total		285	100,0

Source: Own elaboration

Graphic 1. Pie chart of the simple distribution respecting to company and posting frequency
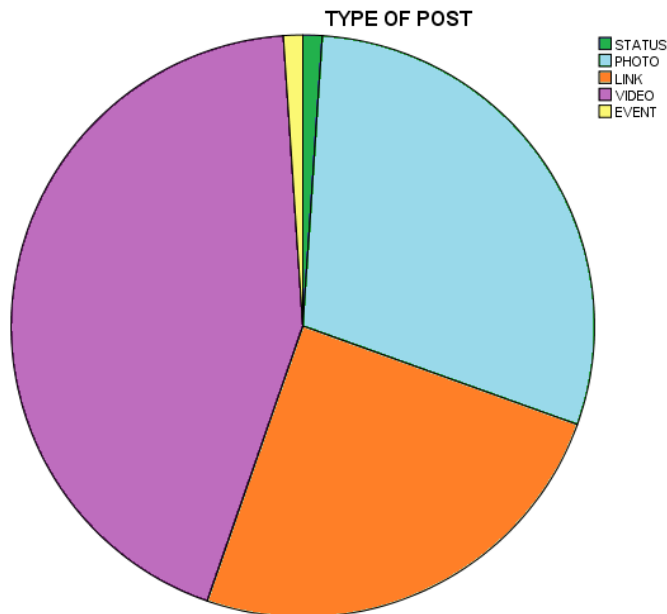

Source: Own elaboration

25
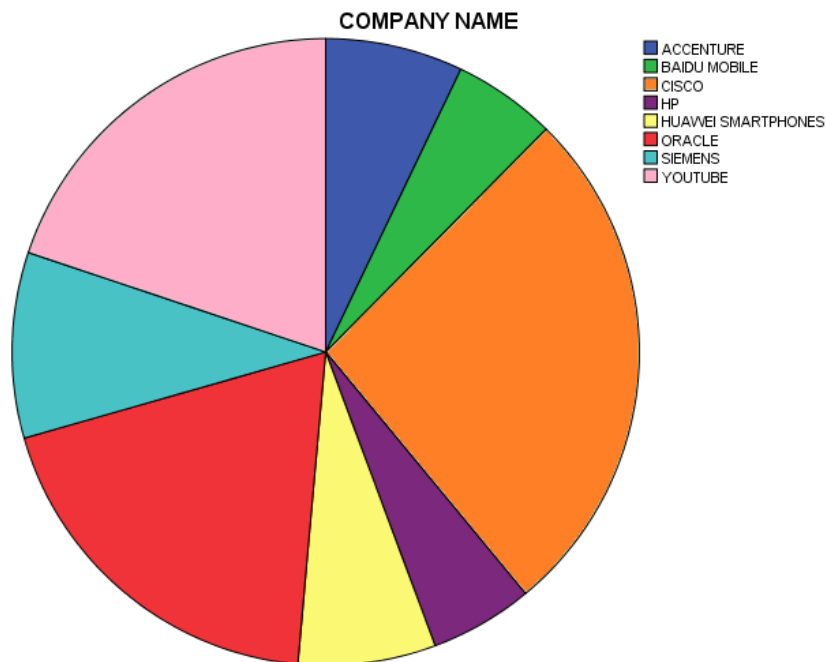
- *OBJECTIVE II. To determine what kind of post is more frequent.*

For this objective a pie chart has been created (see Graphic 2) so we can appreciate in a more visual way how posts are distributed according to if they are a status post, photos or images, if they contain links, videos or if they are events. Every post is measured up forward, that means that if a post contains a photo and a link, in the pie chart is considered a link. Therefore, as we can see in Graphic 2 that out of 282 posts, 123 (43.2%) contain at least a video, 83 (21.9%) have photos or images, 70 (24.6) are mainly text with links or hashtags, and 3 (1.1%) goes for status and 3 (1.1%) more for events.

Graphic 2. Pie chart of sample distribution according to type of post.

TYPE OF POST

- STATUS
- PHOTO
- LINK
- VIDEO
- EVENT

Source: Own elaboration

- *OBJECTIVE III. To find out which brand displays a higher degree of vividness in their publications.*

To find out this objective a contingency table was created (see Table 4), where we can see that in HP, 93,3% out of all their posts are highly vivid and the rest have all medium vividness (6,7%), which means almost the totality of their posts contain videos, gifs or events. In the second place is Youtube with a 69.6%. Referring to the brand with the lowest percentage of highly vivid posts goes Baidu Mobile with just a 13.3%.

Regarding medium vividness Baidu Mobile leads the list with a 86.7% percentage of medium vivid posts, followed by Oracle with a 70.4%. The lowest values are attributed to HP with a poor 6.7%. This means that these posts have links and/or hashtags.

We continue with low vividness posts, these are the posts that only have pictorial content; photos and images. For this degree of vividness we find that only Huawei Smartphones, Youtube and Cisco and Huawei Smartphones have posts considered low vivid with 5%, 1.8% and 1.3% respectively. For the no vividness categorization, only Huawei Smartphones presents a 5% of posts with no vividness at all, which means status posts, just text.

We can say that all these brands work on publishing highly vivid posts, although Baidu Mobile remains pretty much in just medium vividness.

Table 4. Sample distribution respecting to company and level of vividness

COMPANY NAME * LEVEL OF VIVIDNESS Crosstabulation

COMPANY NAME (Count % within COMPANY NAME)		LEVEL OF VIVIDNESS				Total
		NO VIVIDNESS	LOW VIVIDNESS	MEDIUM VIVIDNESS	HIGH VIVIDNESS	
ACCENTURE		0	0	11	9	20
		0,0%	0,0%	55,0%	45,0%	100,0%
BAIDU MOBILE		0	0	13	2	15
		0,0%	0,0%	86,7%	13,3%	100,0%
CISCO		0	1	52	22	75
		0,0%	1,3%	69,3%	29,3%	100,0%
HP		0	0	1	14	15
		0,0%	0,0%	6,7%	93,3%	100,0%
HUAWEI SMARTPHONES		1	1	9	9	20
		5,0%	5,0%	45,0%	45,0%	100,0%
ORACLE		0	0	38	16	54
		0,0%	0,0%	70,4%	29,6%	100,0%
SIEMENS		0	0	12	15	27
		0,0%	0,0%	44,4%	55,6%	100,0%
YOUTUBE		0	1	16	39	56
		0,0%	1,8%	28,6%	69,6%	100,0%
Total		1	3	152	126	282
		0,4%	1,1%	53,9%	44,7%	100,0%

Source: Own elaboration

- *OBJECTIVE IV. To find out which brand displays a higher degree of interactivity in their publications.*

In Table 5 we find that the brand with a higher percentage of highly interactive posts is Baidu Mobile with a generous 53.3%, followed by the 25.9% of Siemens. That means these posts contain basically questions and quizzes. For the less percentage of high interactive posts we can see that Huawei Smartphones is the last in the list with a sad 0%.

As to medium interactivity level we can see that only Oracle gets almost a 51.9% of medium interactive posts, followed by Siemens with a 44.4%. On the other hand we find again that Huawei Smartphones gets another 0% in this categorization.

In the case of low interactivity we find the biggest percentages, concretely the first one goes for HP with a 86,7% of low interactive posts, coming next is Accenture with a 80%. Siemens is at the end of the ranking with a 29.6%.

To end we go with no interactivity, that is, posts with static content that can only be read or seen. Here we only find this kind of posts in Huawei Smartphones (25%), Youtube (3.6%), Cisco (2.7%) and Oracle (1.9%).

These figures show that the majority of the posts have low interactivity, so they contain links but they don't ask directly to users for interaction at all. Some companies should work on posting more vivid posts like in the case of Huawei Smartphones or Cisco.

Table 5. Sample distribution respecting to company and level of interactivity

COMPANY NAME * INTERACTIVITY Crosstabulation

| COMPANY NAME (Count % within COMPANY NAME)		INTERACTIVITY				Total
		NO INTERACTIVE NESS	LOW INTERACTIVE NESS	MEDIUM INTERACTIVE NESS	HIGH INTERACTIVE NESS	
ACCENTURE		0	16	3	1	20
		0,0%	80,0%	15,0%	5,0%	100,0%
BAIDU MOBILE		0	6	1	8	15
		0,0%	40,0%	6,7%	53,3%	100,0%
CISCO		2	52	9	12	75
		2,7%	69,3%	12,0%	16,0%	100,0%
HP		0	13	1	1	15
		0,0%	86,7%	6,7%	6,7%	100,0%
HUAWEI SMARTPHONES		5	15	0	0	20
		25,0%	75,0%	0,0%	0,0%	100,0%
ORACLE		1	20	28	5	54
		1,9%	37,0%	51,9%	9,3%	100,0%
SIEMENS		0	8	12	7	27
		0,0%	29,6%	44,4%	25,9%	100,0%
YOUTUBE		2	30	12	12	56
		3,6%	53,6%	21,4%	21,4%	100,0%
Total		10	160	66	46	282
		3,5%	56,7%	23,4%	16,3%	100,0%

Source: Own elaboration

- *OBJECTIVE V. To find out what content domain is more used by every brand.*

Graphic 3 shows the distribution of what content domain brands use for their posts. Every company will be analysed according to what content domain prevails in their Facebook fanpages.

➢ For Accenture we see that all their posts are informative (100%), no transactional or affective posts at all, and they just focus on giving informational content to their public.

➢ Baidu Mobile has a better distributed content domain, although the informative content prevails (53.3%), a 33.3% of their posts are transactional and a 13.3% affective.

➢ Cisco also chooses an approach where informative content reigns with a rich 73.3% of informative posts. Just a low 2.7% for transactional posts and a 24% of affective posts.

➢ HP is in the informative team as well, with a 86.7% of informative posts and a equal 6.7% for the two remaining, transactional and affective.

➢ In the case of Huawei Smartphones the same thing keeps happening, informative posts predominate (90%), while there is no place for transactional posts at all (0%) and just a 10% for affective posts.

➢ Coming next and following the same trend, we find Oracle with a 90.7% of informative posts, a 7.4% for transactional posts and a small 1.9% for affective posts.

➢ Regarding Siemens, a 96.3% are informative posts and just a 3.7% transactional posts. There are no affective posts found.

➢ Lastly and surprisingly changing the given trend goes Youtube with a majority of affective posts (82.1%), only a 14.3% for informative posts and a 3.7% for transactional posts.

Graphic 3. Bar chart with sample distribution respecting to company and content domain
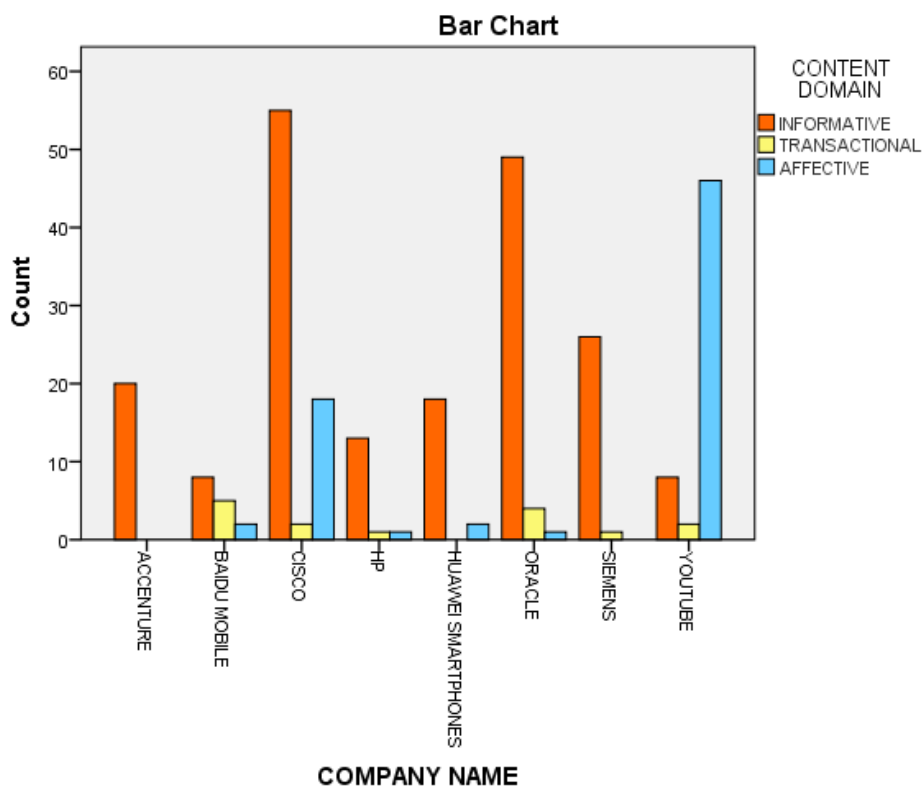
Source: Own elaboration

- *OBJECTIVE VI. To find out what brand has in average more UGC comments.*

Observing Table 6 we can find out what brands get more and less UGC comments in average. Youtube is the first in the ranking with an average of 155 user comments per post reaching a maximum of 993 in a post. Then goes HP that with only 15 posts published in the given period gets an average of almost 111 user comments per post, being its maximum 426. The third position with a huge different is for Baidu Mobile with approximately 41 user comments per post having a maximum of 390. As the least commented brand in average we find that is Oracle with just 3 user comments per post although it has a maximum of 71 user comments in a post, in contraposition with Accenture that has the lowest maximum with only 20 user comments.

It is important to highlight that some brands (e.g. Accenture, Baidu Mobile, Siemens, etc.) have a minimum of 0 comments, that means that many post do not receive even one user comment, and some others like Youtube, Huawei Smartphones and HP have a positive minimum: 22, 3 and 3 respectively, which means that in average they get at least that number of UGC comments.

Table 6. Sample distribution respecting to Brand and UGC average comments

COMPANY NAME	Mean	N	Std. Deviation	Minimum	Maximum
ACCENTURE	4,80	20	6,118	0	20
BAIDU MOBILE	40,60	15	99,732	0	390
CISCO	5,67	75	29,983	0	259
HP	110,93	15	133,723	3	426
HUAWEI SMARTPHONES	24,90	20	17,023	3	74
ORACLE	3,37	54	10,236	0	71
SIEMENS	8,96	27	10,021	0	41
YOUTUBE	155,25	56	207,294	22	993
Total	44,01	282	117,278	0	993

Source: Own elaboration

- *OBJECTIVE VII. To find out what brand has in average more MGC comments.*

To find out what brand makes more comments in their own posts, can be either a first level comment or a second level comment (usually replies) Table 7 was created. There it is easy to see that these brands do not usually comment or reply in their own posts, being Baidu Mobile the one who does the most with an average of almost 6 marketer comments and a maximum of 46 in a post. After goes HP with approximately an average of 2 marketer comments and a maximum of 7. The rest of brands do not even reach 1 average comment being the values of Accenture, Cisco and Youtube purely 0.

Table 7. Sample distribution respecting to brand and MGC average comments

TOTAL VOLUME OF MCG COMMENTS

COMPANY NAME	Mean	N	Std. Deviation	Minimum	Maximum
ACCENTURE	,00	20	,000	0	0
BAIDU MOBILE	5,67	15	12,228	0	46
CISCO	,00	75	,000	0	0
HP	2,20	15	2,624	0	7
HUAWEI SMARTPHONES	,90	20	,912	0	3
ORACLE	,13	54	,516	0	3
SIEMENS	,22	27	,424	0	1
YOUTUBE	,00	56	,000	0	0
Total	,53	282	3,110	0	46

Source: Own elaboration

- *OBJECTIVE VIII. To determine what brand generates more engagement rate.*

For that we will use the engagement rate (see Picture 4) (Ure, 2018):

Picture 4. Engagement rate on Facebook

Source: Own elaboration

Once worked out all the calculations, we get the following results:

- ➤ ACCENTURE: [(6,300 + 652 + 96)/21]/571,085 x 100= 0.059%
- ➤ BAIDU MOBILE [(106,630 + 2,828 + 609)/15]/1,378,330 x 100= 0.532%
- ➤ CISCO [(7,644+ 1,011 + 425)/75]/1,566,215 x 100= 0.008%
- ➤ HP [(13,111 + 2,776 + 1,666)/15]/2,830,068 x 100= 0.041%
- ➤ HUAWEI SMARTPHONES [(5,918 + 412 + 498)/20]/279,179 x 100= 0.122%
- ➤ ORACLE [(2,792 + 756 + 185)/54]/2,980,940 x 100= 0.002%
- ➤ SIEMENS [(13,145 + 1,703 + 242)/27]/610,079 x 100= 0.092%
- ➤ YOUTUBE [(74,795 + 10,099 + 8,694)/56]/81,542,964 x 100= 0.002%

We can observe that all the numbers are lower than 1%. The brand that generates more engagement among them all is Baidu Mobile that gets the first position with an engagement rate of 0.53%, coming next is Huawei Smartphones with a 0.12% and in third position goes Siemens with a 0.09%. The rest have similar rates not overpassing the 0.06% being Youtube the one with the lowest engagement rate with a value of 0,002%. As a conclusion we can determine from these figures that less post frequency but visual and quality content lead to better results.

- *OBJECTIVE IX. To find out what content domain generates more engagement*

For this objective, we will proceed doing a regression analysis to establish if there is any relationship between content domain and engagement. The objective of the regression analysis is to know if there are dependency relations between variables, in this case, the variables that we are going to use are the three dependent variables that we consider as engagement: "likes", "shares" and "total UGC comments".

The analysis will be done with these variables because we assume that depending on the content domain, some posts will have more engagement than others, knowing if these variables depend on each other and the way they do it.

- Regression analysis between content domain and likes.

First of all, the Durbin-Watson statistic oscillates between 0 and 4, and it takes the value 2 when the residuals are independent. Values less than 2 indicate positive autocorrelation and those greater than 2 negative autocorrelation. We can assume independence between the items when Durbin-Watson takes values between 1.5 and 2.5.

Also, for the linear regression analysis to be valid, it has to be confirmed that the Durbin-Watson value (Table 8) is be close to 2, in this case it is 2.035, so we can assume that those items are independent.

In addition, it is necessary that the ANOVA analysis (Table 8.1), which indicates whether the set of independent variables that have been selected for the analysis significantly influences the dependent variable, gives us a significance value less than 0.05, as it is in this case, Sig = 0.018, it is confirmed that the content domain influences the number of likes.

Table 8. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,141a	,020	,016	3274,657	2,035

a. Predictors: (Constant), CONTENT DOMAIN

b. Dependent Variable: LIKES ON A POST

Source: Own elaboration

Table 8.1. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60635747,679	1	60635747,679	5,655	,018[b]
	Residual	3002545338,97 7	280	10723376,211		
	Total	3063181086,65 6	281			

a. Dependent Variable: LIKES ON A POST

b. Predictors: (Constant), CONTENT DOMAIN

Source: Own elaboration

From the estimated coefficients of the regression model (Table 8.2) other key information is extracted for the investigation, the B value indicates the intensity of the relationship between the dependent variable "likes" and the independent "content domain", so that the higher the value, the stronger the relationship will be. To find out if there is a positive or negative relationship between the variables we have to pay attention to sign of the B value, in this case, as the value is -16,293, it means that a change of the content domain will produce less likes.

Table 8.2. Linear regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-16,293	400,955		-,041	,968		
	CONTENT DOMAIN	537,597	226,078	,141	2,378	,018	1,000	1,000

a. Dependent Variable: LIKES ON A POST

Source: Own elaboration

- Regression analysis between content domain and shares.

To verify again that the linear regression analysis is valid, we confirm that the Durbin-Watson value (Table 9) is close to 2, in this case it is 1,943, so we can assume that those items are independent. We continue with the analysis of ANOVA (Table 9.1), in this

case it gives us a value of significance less than 0.05, with a value of Sig = 0.015, so it confirms that the content domain influences the number of shares.

Table 9. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,144ª	,021	,017	216,767	1,943

a. Predictors: (Constant), CONTENT DOMAIN

b. Dependent Variable: SHARES OF A POST

Source: Own elaboration

Table 9.1. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	280019,881	1	280019,881	5,959	,015b
1	Residual	13156567,200	280	46987,740		
	Total	13436587,082	281			

a. Dependent Variable: SHARES OF A POST
b. Predictors: (Constant), CONTENT DOMAIN

Source: Own elaboration

From the estimated coefficients of the regression model (Table 9.2), the B value indicates the intensity of the relationship between the dependent variable "shares" and the independent "content domain", so as we have previously explained, the higher the value, the stronger the relationship will be. Looking at the B value, we see there is a positive relationship, with a value of 15,149, which means that a change of the content domain will produce more shares.

Table 9.2. Linear regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constant)	15,149	26,541		,571	,569		
1	CONTENT DOMAIN	36,533	14,965	,144	2,441	,015	1,000	1,000

a. Dependent Variable: SHARES OF A POST

Source: Own elaboration

- Regression analysis between content domain and UGC comments.

To verify that this linear regression analysis is also valid, we confirm that the Durbin-Watson value (see Table 10) is again close to 2 and between 1.5 and 2.5, in this case it is 1,855, so we can determine that those items are independent. Then we analyse the ANOVA table (see Table 10.1), in this case it gives us a value of significance of 0.00 which is less than 0.05, therefore it is confirmed that the content domain influences the number of UGC comments.

Table 10. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,352a	,124	,121	109,978	1,855

a. Predictors: (Constant), CONTENT DOMAIN

b. Dependent Variable: TOTAL VOLUME OF UCG COMMENTS

Source: Own elaboration

Table 10.1. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	478245,594	1	478245,594	39,540	,000b
	Residual	3386636,392	280	12095,130		
	Total	3864881,986	281			

a. Dependent Variable: TOTAL VOLUME OF UCG COMMENTS

b. Predictors: (Constant), CONTENT DOMAIN

Source: Own elaboration

From the estimated coefficients of the regression model (Table 11.2), the B value indicates the intensity of the relationship between the dependent variable "UGC comments" and the independent "content domain", so to learn if there is a positive or negative relationship between the variables we observe again the sign of the B value, in this case, as the value is -29,979, it means that a change of the content domain will produce less UGC comments.

Table 10.2. Linear regression coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-29,979	13,466		-2,226	,027		
CONTENT DOMAIN	47,744	7,593	,352	6,288	,000	1,000	1,000

a. Dependent Variable: TOTAL VOLUME OF UCG COMMENTS

Source: Own elaboration

To conclude we can affirm that there is an existing relationship between content domain and engagement, but in this case, a change of the content domain may produce less likes, more shares and less user comments, therefore, a decrease in the engagement.

4. Conclusions and implications

This research focused on the effectiveness of digital communication strategies and their fundamental value for the success of a company, has provided a series of advantages and facilities in all areas of it. After having analysed how global companies communicate through Facebook with its respective theoretical framework and the proper metrics needed to measure engagement applied in an empiric case study of eight global companies from the technology sector, some series of conclusions are drawn based on given results.

- The care and management of online communication should be a maxim in any scenario, is a fundamental part of any company, especially for the management of important brands and it is essential to know how to manage it properly and adapt it to the target audience.

- Higher posting frequency does not give better engagement results, it is preferable to publish quality content in a moderate way or too many posts will lead to less visibility in the users feed and therefore, less engagement, like in the case of Cisco, Youtube or Oracle.

- Regarding content domain, it is recommendable to post mainly the same type, preferably informative but also rotating and using other content domains to surprise the target audience and create a sense of novelty. As bad examples to mention we find Accenture that publish purely informative posts, Youtube because they exceed the volume of posts with affective content and Siemens that does not publish affective content at all. On the other hand, good examples to mention are Baidu Mobile, Oracle, Cisco and HP that uses all kinds of content domains progressively and well distributed.

- About vividness it is important to mention HP, since almost all of their posts are highly vivid, unlike Baidu Mobile that is focused basically on medium vividness posts.

- Concerning interactivity Baidu Mobile and Siemens are the most interactive brands, being the first one the brand with more MGC comments on Facebook, which means they reply and answer questions from users interacting with them and enhancing more engagement. In the case of Huawei not the same thing can be said since they do not have any highly interactive posts at all.

- Therefore, according to results, Baidu Mobile is a role model to follow about engagement, they top the engagement rate list and manage their Facebook page better than the other brands studied, they adapt their content to the target audience, publish frequently and request interaction to their users through questions, MGC comments and replies, quizzes and contests.

- The relationship between the content domain and the engagement of a company's communication with its success is fully confirmed, creating a link and communities among users that lasts in the long term if used in the right way. Since what consumers want is to be part of a community, if brands on Facebook encourage online communities, consumers will develop relationships with individuals sharing similar interests and stimulating the exchange of information about experiences related to the brand. This will not only enhance participation, but also the consumption of content where users can feel they belong to a group associated to a brand with just a "like".

To conclude and based on the results obtained, every company must adapt its strategy consistently to their public audience, being able to capture consumers' motivations to interact, providing valuable and quality content, investing on entertainment by creating

games, videos and quizzes to draw consumers' interest, alternating different content domains to improve the effectiveness of their online communication and engagement and being active not only stimulating the participation, but also answering promptly any questions or issues that might emerge. Eventually, a higher brand engagement will lead to higher brand equity and therefore, to a valuable competitive advantage to the brand over competitors.

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