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Scientific Annals of Economics and Business
66 (4), 2019, 573-595
DOI: 10.2478/saeb-2019-0041

Emerging Practices in Facebook at National Parks

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Abstract

The main purpose of this paper is to contribute to analyze recent data about the behavior of national park administrations on Facebook. As public organizations, they endeavor to proactively communicate information to citizens, promoting transparency and accountability. It is important to study the case of national parks because of their relevant role in preserving natural and cultural heritage and promoting a very rich scenario of policy-making and responsible local and global citizenship. Some insights have arisen for political management of these institutions. According to the analysis of the results, it is shown that there exists a significant presence of these entities in Facebook, even if this type of communication is perhaps in its infancy. The results suggest that a potential factor (country in which each park is located and the corresponding administration style) exists, in order to explain significant differences between parks.

Keywords: national parks; online transparency; institutional dialogue; corporate Facebook; social media.

JEL classification: D8; R5; Z1; Z3.

1. INTRODUCTION

In the context of the global crisis and post-crisis, trust in corporations and public bodies has suffered tremendously. Transparency is still at the center of the discourse, as a key solution to guarantee an almost continuous monitoring of public managers and corporations. Trust in organizations, both public and private, along with the link between trust and corporate transparency and behavior, have been explored in a general sense (Swift, 2001), and by each interest group; i.e., for customers (Castaldo *et al.*, 2009), shareholders (Godfrey, 2005) and employees (Rawlins, 2008), among others. Swift (2001) points out that a mere increase in transparency does not necessarily guarantee an improvement in behavior,

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but perhaps helps an enhancement of reputation. Engagement is a key concept in these debates, in the sense that trust must be created and maintained over time, by means of – among other mechanisms and strategies – a certain level of interaction beyond purely unidirectional reporting. This engagement will depend on several factors such as political competition, public media visibility, and access to technology and educational levels of citizens (Gandia and Archidona, 2008).

The Internet is perceived as a powerful element in promoting and maintaining a satisfactory level of transparency. Vaccaro and Madsen (2009) clarified this relationship, in which the possibility of interaction plays a central role, even taking into account more skeptical views of these identifications such as those of Coombs and Holladay (2013). Transparency by means of digital media is extremely relevant according to several international bodies, including the United Nations (2016). In its studies on the use of new technologies by the public sector, the UN clearly distinguishes e-government from e-participation in order to prepare a different ranking of countries for each category (United Nations, 2016). The Internet itself is also evolving rapidly. The advent of social media revolutionized, a few years ago, its main features and the possibilities it offers in the context of personal, professional, political and participatory arenas (Kaplan and Haenlein, 2010). For some authors, the use of social media could modify even the attitudes of stakeholders to public sector transparency and its importance (Bertot *et al.*, 2010). Research on social media for public administration is still in its exploratory stage, in part due to the great level of heterogeneity that can be found among public institutions, particularly at the international level of comparison. As pointed out by Magro (2012), the use of social media for e-government purposes could depend on a country's culture and form of government.

National parks emerged at the end of the 19th century and since then they have been understood as places of great scenic value with unique flora and fauna. This makes them attractive spaces for visitors who wish to appreciate these values, which is why nowadays they are considered tourist resources. A satisfied visitor will probably return at the same national park (Arnberger *et al.*, 2019, p. 94) but a national park boards have to be ready for a significant increase in the number of visitors (Dupke *et al.*, 2019, p. 88), i.e., with an appropriate human resources plan (Tatarusanu *et al.*, 2016, p. 173). The number of national parks has increased considerably due to, among other issues, the fact that they are protected by states that manage them in accordance with criteria of environmental sustainability, bearing in mind the positive impact of tourism on the environment in which they are located. To ensure a balance between tourism promotion and ecosystem protection, the managers of national parks make decisions about a wide range of issues. Over time, the attention of management bodies of national parks has been directed to new and more diverse areas. Their remit is no longer simply about caring for flora and fauna and informing visitors of their values through tours; currently, the management bodies of national parks, as public entities, are seen to be influenced by concepts such as governance and transparency, among others. As state public managers, they defer to the regional public sector and the citizens of the places where the national parks are located, and this relationship implies a transfer of information to each group that is based on transparency and accountability of the decisions taken.

The present work contributes to this growing field of study, by analyzing in depth the most recent practices of a sample of European national parks in social media. Due to their specific nature, national parks can take advantage of the use of social media for a number of purposes, such as increasing awareness of their resources and heritage and to actively

involve local communities and global public opinion in their preservation, in the context of a particularly rich set of policies. Local communities need to be listened while public policies are defined (Weiler *et al.*, 2019, p. 125) establishing a compliance scenario about national parks rules (Epstein, 2017, p. 318). In order to assess current practices and to explore some explanatory factors, 196 parks were selected, corresponding with the EU15 countries except for Luxembourg (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and the United Kingdom). These entities play a key role as participants due to their obvious relevance as reservoirs of both natural treasures and ancestral cultural elements. Their activities are of high interest to local communities and general public opinion. In order to assess the extent to which national parks are effectively using these technological advancements, several research questions must be answered: (1) how many national parks maintain an official social media profile? (2) what is the nature of the content disclosed by the social profiles in terms of policies? and (3) how responsive are their audiences to the content shared? In order to preserve coherence with previous research (Bonsón *et al.*, 2012; Bonsón *et al.*, 2015), along with the need to focus on a particular set of social media metrics, the present article analyzes the case of Facebook as the most popular social site according to Alexa traffic rankings (2018).

The remainder of the paper is structured as follows: Section 2 introduces social media, corporate Facebook, and discusses the opportunities these offer for National Parks. Section 3 describes the methodology of our study. Results are presented in Section 4 and, finally, Section 5 concludes the paper.

2. INSTITUTIONAL DIALOGUE BY MEANS OF SOCIAL MEDIA AND CHALLENGES FOR NATIONAL PARKS

The Internet is evolving rapidly and creating new paradigms of interactions between people, organizations and devices. The role of the Internet in promoting transparency in the public sector is a key area of research and there exists a certain consensus about its potentially positive effects for the enhancement of relationships between public entities and citizens, suppliers, other public bodies, etc. (McIvor *et al.*, 2002). In addition to the content disclosed, some technical features of the Internet technologies involved are considered central to understanding the enhancement of these relationships, including dimensions such as accessibility (Caba Perez *et al.*, 2008). The core Organisation for Economic Co-operation and Development definition of e-government – "the use of new information and communication technologies (ICTs) by governments as applied to the full range of government functions (...) [involving] the networking potential offered (...) [which] has the potential to transform the structures and operation of government" (2008) – is highly connected with the idea of going beyond a simple use of the Internet to a real participatory scenario. It was the need for more interaction that motivated the emergence of social media some years ago. E-government facilitates the relationship between citizens and public administrations (Hughes, 2018, p. 297).

In our interconnected world, the information and technology that enable the generation and transmission of communications are critical. In fact, all kind of organizations that compete and collaborate both locally and internationally need an adequate channel of communication with their various stakeholders, including voters, customers, suppliers, employees, other governmental agencies, and even the general public. The Internet, through

the use of corporate Web sites, is the preferred medium to support this communication. However, because the technological and economic framework evolves so rapidly and interaction has become a key value in every act of communication, the second generation of the Internet has evolved in the form of Web 2.0 technologies and the social media developed from them. Therefore, the use that companies make of these new media is a relevant and prolific research topic. In some cases, social network sites (SNSs) can be observed as a new generation of corporate Web sites. The concept of corporate (or institutional) dialogue (Bonsón and Flores, 2011) can be understood as a new situation in which the organization offers its various stakeholders (shareholders, other investors, analysts, employees, customers, suppliers, public agencies, ecologists, and citizens) the possibility of analyzing the information made public about its activities and enables these stakeholders to express their own opinions publicly in the same virtual space. From now on, this ideal situation can become a reality thanks to enhanced institutional/corporate Web sites and official social media profiles. Additionally, with regard to social media and media sharing sites, the presence of a given organization can be considered at two different levels as outlined by Bonsón *et al.* (2012):

- Passive existence or conversation: This consists of detecting the name of the entity in the conversations that are taking place in blogs indexed by Google Blogs or the entity's passive presence by content; that is, content relating to the organization generated by on-line communities such as YouTube videos, Facebook groups and pages, and LinkedIn groups. This content is not controlled by the organization about which the content has been generated, or
- Active existence or direct presence: This involves locating official Facebook pages or groups, LinkedIn groups of current employees, YouTube channels supported by the entity, and various metrics related to them.

Based on these two levels of categorization, each organization could use these new technologies at two different levels. In the first case, the entity can make use of Web 2.0 technologies to facilitate the mass redistribution of content, making content more visible but staying with a unidirectional model. An instance of this approach is the implementation of functionalities that allow users to redistribute the content of an official Web site in their own blogs or social networks (such as ShareThis) or to syndicate them (using RSS, ATOM), with the object of having updated information available at all times. This approach is not true dialogue, but it involves much greater expansion, if appropriate, of the institutional Web site content.

In the second case, the use of social media represents the active utilization by the company of social network platforms to open institutional dialogue. They could, for example, generate Facebook groups or pages, YouTube channels or LinkedIn groups; another option would be to create blogs where, in addition to members of governing bodies, individuals associated with the principal groups of stakeholders would have the opportunity to publish their own points of view on the material distributed. In this sense, the SNSs can be perceived to be new platforms that could replace the role and functionalities of classic corporate Web sites. For that reason, this digital dialogue can be understood as an elongation of the traditional corporate disclosure policy, as it implies more dynamic reporting, a combination of mandatory and voluntary information, and a more participative way to present and analyze information provided by the organization. This second step could potentially impact government practices. Among social media platforms, some are

perceived to be more specific (i.e., LinkedIn for professional networking) while others are considered to be general purpose, with Facebook being the leading platform in which both personal and professional interaction can take place (Bodell and Hook, 2011).

Research on the use of social media by public organizations is far from conclusive. Several authors highlight the incremental impact of social media for public entities. Magro (2012) analyzed scholarly results on the use of social media in public administrations up until 2012 and found gaps in the literature concerning the need for social media *strategy* in public entities as a potential means to ensuring its supposed benefits, along with the need to consider differences between administrations.

National parks are a particular type of public institution. National parks are tourist resources managed by states, despite the participation in their operation by regional and local entities. As public organizations, they are also usually committed to and approve of the transmission of information to citizens, which facilitates transparency and accountability. National parks emerged at the end of the 19th century and since then they have been understood to be places of great scenic value with unique flora and fauna. This makes them attractive spaces to visitors who wish to enjoy these values; hence, nowadays they are considered to be tourist resources. The number of national parks has considerably increased because, among other reasons, these entities are protected by the states which manage them in accordance with criteria of environmental sustainability. They also have a positive economic impact on the surrounding environment. Due to this, managers of national parks have to make decisions on a wide range of topics in a very rich scenario of policy-making and implementation. Despite the numerous benefits (Loomis and Bilmes, 2020), some adjacent communities do not always perceive the advantages of the presence of a national park, particularly when they do not agree on how the resources generated are managed (Archabald and Naughton-Treves, 2001). For that reason, it is interesting to analyze the extent to which national parks could take advantage of social media tools.

Knowledge and citizen's information about public management and their transparency and governance, based on the concepts discussed above, are increasingly transferred to social networks (Bonsón and Ratkai, 2013; Bonsón *et al.*, 2015; Bonsón *et al.*, 2012), especially Facebook; however, "access to information does not necessarily contribute to an increase in participation levels" (Wijnhoven *et al.*, 2015, p. 30). Despite the relevance of social networks, word to mouth positive opinions are still a channel to share positive opinions on national parks (Moore *et al.*, 2017, p. 20) because visitors share their travel experiences with relatives and friends (Law and Lo, 2016, p. 133).

Social networks are conduits of transmission of information in many areas such as municipalities (Bonsón *et al.*, 2015; Bonsón *et al.*, 2012; Park *et al.*, 2016), hospitals (Gittelman *et al.*, 2015; Glover *et al.*, 2015), media (Fernandez Gomez and Diaz-Campo, 2014), tourism marketing (Ketter, 2016; Kiralova and Pavliceka, 2015; Mariani *et al.*, 2016; Martinez-Valerio, 2012), companies and industries (Hayati *et al.*, 2018; Mills and Plangger, 2015; Song *et al.*, 2018; Yuki, 2015), students and teachers (Asterhan and Bouton, 2017; Kondakci *et al.*, 2018; Van Waes *et al.*, 2018), agriculture (Bao *et al.*, 2018), energy (de Paulo and Porto, 2017), archaeology (Mills, 2017) and even academic articles (Haustein *et al.*, 2015; Ringelhan *et al.*, 2015), among other areas.

Facebook, which is free to use, offers different possibilities of interacting with public authorities through its publications; the reaction of citizens to these allows unmediated interaction with the people who run public administrations (Diaz-Campo and Segado-Boj,

2016; Valera Ordaz, 2013). Given that the public increasingly relies on social networks to find information of interest (Lovari and Parisi, 2015, p. 206) and "the degree of penetration of social networks among citizens is growing" (Fernandez Gomez and Diaz-Campo, 2014, p. 181), we observed that there is a risk of interacting with misinterpreted, decontextualized information (Dumortier, 2009), which may even result in negative consequences (Anagnostopoulos *et al.*, 2014, p. 1). Nowadays, social networks "are as influential as conventional media in different ways, even more so for young people" (Mills and Plangger, 2015, p. 523). Park managers can influence visitor's opinions through social networks like Facebook (Švajda *et al.*, 2016, p. 108). The engage of visitors and the national park board, through social networks, can achieve highly goals like the voluntary funding to renovate public spaces (Kubo *et al.*, 2018, p. 127) the acceptance to pay an entrance fee (Gonzalez *et al.*, 2019, p. 48; Cozma and Coros, 2017, p. 94; Lal *et al.*, 2017, p. 149) or the establish a booking system to access (Wang and Watanabe, 2019, p. 16). Also, Facebook profiles can be complement with mobile apps in their way of sharing information (Mihanyar *et al.*, 2016, p. 325).

To avoid using information outside of its natural context, Facebook offers three elements which allow the user to indicate certain preferences: the ability to post comments to publications from accounts other than their own; share the content of others in one's own account; or indicate directly that a certain publication is to the user's liking, by pointing to an external publication with the use of 'likes'. Facebook can be also used as a platform to publish public information for any user (Thelwall and Kousha, 2015) and freely accessible data that "generate new forms of possible research" (Nardi, 2015, p. 18). This information has great user immediacy, because the user receives multiple publications based on their interests (Gurevich, 2016). Messages elaborated by national park managers should follow visitor's interest to receive a better feedback (Carvache-Franco *et al.*, 2019, p. 7) in Facebook comments. Also, national park managers has the opportunity to use Facebook as a platform to follow the visitor's experiences through the park (Huang and Sun, 2019, p. 9). However, negative comments on Facebook have impact reducing potential future visitors (Poku and Boakye, 2019, p. 3).

Different authors demonstrate how Facebook users behave within certain guidelines around the ways they have to indicate preferences toward publications which they have marked as preferred third party accounts. In this sense, "content is the most important asset for users to engage not only in the dissemination of information on Facebook, but also in the dialogue and expression of opinions" (Segado-Boj *et al.*, 2015, p. 161). However, sharing a publication does not necessarily indicate that the user has read it (Heimbach *et al.*, 2015, p. 46), but it does allow it to be widely disseminated (Goel *et al.*, 2015, p. 180) and this is no longer controlled by its authors (Alhabash *et al.*, 2013, p. 180). Followers, also, can create activities by their own (Büscher *et al.*, 2017, p. 111). On the contrary, "a publication not commented, nor liked (...) becomes gradually invisible" (Gurevich, 2016, p. 229), so we observe that "mere presence is not enough" (Gamboa and Goncalves, 2014, p. 710).

Table no. 1 contains a non-exhaustive list of how a national park could take advantage of each social media functionality. This table also allows us to analyze potential emerging practices. These and other uses will be surveyed among the analyzed national parks of the sample.

Recently, public policies in national parks have been incorporated transparency and accountability by public stakeholders to facilitate the citizens access to information about the environment. These authorities must make clear the management of the funding which the public body receives to manage a national park, because those who make the decisions "are responsible to the public" (Kaltenborn *et al.*, 2011, p. 85). In this sense, "the real or

perceived misuse of tourism revenues by the implementation agency may increase, rather than resolve, the tension between communities and protected areas" (Archabald and Naughton-Treves, 2001, p. 146). Therefore, if a local community receive part of tourism revenue will be proactive to establish new projects at a national park along with the respective management board (Gabrovec *et al.*, 2017, p. 61). Currently, we understand that the public agencies that manage National Parks "demonstrate their proactive commitment toward a sustainable future through reporting and other disclosures, which will have to clearly explain their contributions to tackling society's real issues, such as food and water security issues, wealth distribution issues and climate change"(Cipullo, 2016, p. 541).

Table no. 1 – Some potential uses of social media platforms by National Parks

Social media tool	Features	Utility
Integrated instant messaging	Pieces of software in conventional websites or in social network platforms that allow the users to automatically communicate in real time with profile administrators or other users.	To send messages to the national park authority asking for information or any questions. Instant messages allow for instant responses and facilitate keeping in touch with the national park's followers; i.e., notifying alerts or specific timetables, etc.
Pictures and related functionalities	Tools that allow uploads of photos where places and people can be interlinked by means of virtual labels.	To demonstrate the beauty of the national park to potential visitors and remind the local community about the importance of the national park; i.e., to show specific seasonal flowers or animal activities, etc.
Posts	Periodically written short pieces of text plus links.	To notify followers about news and other information related to the national park; i.e., visits from scientific experts, conferences, opening of new areas, etc.
Educational contests	Games to share the value of the national park with the community.	Questions for adults and teenagers designed to generate a commitment to a new visit because of the attractive information shared.
Online videos	Videos uploaded in real time.	To show important events organized by the national park authority.

Source: own elaboration

For more than 100 years, the task of protection and management of parks by states has grown. The number of parks under state guardianship has increased and public policies have developed too. At first, parks were understood to be places to protect territory and for citizen enjoyment; however, today, they have developed into areas of planning and management based on the increase in citizen demand (Caneday *et al.*, 2009, p. 187). In the same way, "the question of the planning of parks and protected areas has grown in complexity over the years" (Eagles and McCool, 2002, p. 74). The constant influx of the public ensures that there is precise management of the resources and more extensive planning because of the demands of conservation and promotion of parks.

Each state legislates with regard to the parks in its territory and numerous differences have been established according to the parks' classifications. In this sense, it is possible to differentiate types of parks according to, for example, their natural characteristics or their geographical situations. From there, the legal system establishes the possibility that public entities of a lower rank than a state can promote the protection of certain areas of their territory. The parks established by a national or federal parliament are national parks, while

those defined by parliaments or agencies of lower spheres have numerous denominations. In these cases, the regional municipalities are responsible for many different park types. In this sense, the state parks try to fill "a niche between the smallest urban parks and the largest National Parks" (Caneday *et al.*, 2009, p. 189). The creation of parks is a response to political pressure and, according to Lowry, "different types of policies are implemented more effectively at different levels of government" (Lowry, 2001, p. 405). National parks are considered in this paper because they have the same international consideration when promoted by states with equal legal recognition in each state. In spite of the centralized management of national parks by states, the fact that they are located in specific regions implies that the interests of other administrations are indirectly present in their management, such as issues regarding access or legislation applicable to the fauna or flora of the place.

With the boom of tourism in protected areas, new models of public management are necessary, beginning with the concept of governance and thus trying to involve "more dynamic and network-based connections between stakeholders with common interests, a greater distribution of power between institutions at different levels and an increase in negotiations around the desired goals and results" (Kaltenborn *et al.*, 2011, p. 85). Likewise, we understand that governance, in the context of attention to natural resources in national parks, should take into account the different points of view from the public administration at the regional and local level. Governance implies accountability from the public administrations to the citizens (Hughes, 2018, p. 151).

The different public administrations who has any relationship with a national park should work together to guarantee the conservation and promotion of the national park and its unique landscape which protects the flora and fauna, and encourage citizen leisure. Nowadays, due to the highly use of social networks, Facebook is a relevant platform for public administrations in their role to share the advantages of a national park in a surrounding area. Local community need to be part of the benefits (Das, 2017, p. 45; Fagan *et al.*, 2018, pp. 137-138; Gabrovec *et al.*, 2017, p. 63; Ghoddousi *et al.*, 2018, p. 25; Mannetti *et al.*, 2019, p. 2; Tilahun *et al.*, 2017, p. 75), also economically, reducing their intensive use of national park resources due to the possibility to produce an irremediable environmental degradation (Krishnadas *et al.*, 2018, p. 153; Wondirad and Ewnetu, 2019, p. 10) or wildlife damage (Muboko *et al.*, 2016, p. 172). Tourism is an economic point to engage local citizens and the national park managers reducing the pressure on the environment (Mavah *et al.*, 2018, p. 44) and sharing activities designed for tourist that guarantee a positive impact on the society. Collaboration between local stakeholders and national park managers will generate a better conservation understanding of the environment (Arpin, 2019, p. 59).

In this way, we understand decision-making as a process which involves reflection on the past, a final decision, and the evaluation of initiatives approved by the national park management body. Therefore, it is not just about being present in economic matters, but in all areas that affect the national park and all the opinions of the managers.

It is necessary to consider that "the administration of the National Park is a complex administrative task with biological and social dynamics that cannot be easily managed by a park administration" (Seeland, 2000, p. 52). Therefore, taking into account the high number of visitors, the managers run the risk that the parks are geared more toward tourism than toward the conservation of the landscape, flora or fauna. However, it is especially important not to lose sight of the fact that biodiversity attracts visitors (Siikamaki *et al.*, 2015) and, for this, conservation and striking a balance between conservation and tourism exploitation are

fundamental. National parks administrators has to take into account the importance of manage the visitors experience and the biodiversity conservation in a coexistence context (Weaver and Lawton, 2017, p. 142) to involve local communities' stakeholders without losing sight of the increased visitor expectations (Teshome and Endalew, 2018, p. 3).

Currently, the management of national parks includes a broad mandate of planning and administration. Each area is very detailed in terms of the aspects it deals with. This analysis identifies the main issues taken into account by national parks. Apart from the general questions of transparency, as discussed by Ervin (2003, p. 840), we understand that human resources, natural resources, and the external affairs of parks are the minimum issues to which attention is paid. From there, prevention and security, education and information, permitted uses within a national park, and tourism and visitors, are all issues related to the previous ones which must be addressed for a more efficient management, after considering the main issues affecting national parks. In this sense, when collecting information in some national parks, "it is often difficult for the external observer to access manuals that describe the methods used, which suggests that transparency and accountability are not high priorities. This makes it difficult to collect harmonized data sets between countries" (Eagles, 2014, p. 530).

Table no. 2 - Summary of administrative styles.

Administrative style	**Countries (ISO code)**	**Features**	**Expected outcomes**
Anglo-Saxon	IE GB	"Anglo-Saxon countries introduced a new public managerial approach that emphasizes efficiency, effectiveness, and value for money. These countries are more likely to introduce market mechanisms, notions of competitiveness, and attempts to make public services more responsive to users or customers"	"The literature on public sector management usually considers that Anglo-Saxon and Nordic countries have a long-standing reputation of public sector reforms, transparency, and citizen engagement"
Nordic	DK FI NL SE	"Nordic countries also belong to a public administration style that is concerned with meeting citizens' needs and they have a tradition of negotiation and consultation"	
Germanic	AT DE	"The Germanic and Southern European countries are influenced by structures inherited from a bureaucratic, hierarchical, Weberian public administration grounded in administrative law"	"On the contrary, Germanic and Southern European countries belong to a more legalistic tradition and have been considered as laggards in introducing some public sector reforms."
Southern European	BE FR GR IT LU PT ES		

Source: Torres (2004) as summarized by Bonsón et al. *(2012)*

In this scenario, the different administrative bodies that manage several national parks are not likely to behave homogeneously to take advantage of the benefits described before. In a similar manner to how significant differences have been detected in the use of social media by private firms, it is reasonable to present as a hypothesis the significance of certain potential explanatory factors. As summarized by Bonsón et al. (2012), the public administration style is an important element for explaining the evolution of other areas of public sector reforms, along with recent developments in e-government related to transparency, accountability, and the diffusion of financial information on the Internet (Dunleavy and Hood, 1994; Pollitt and Bouckaert, 2000; Torres, 2004; Torres and Pina, 2002). Some features of each administrative style that could be found in the EU15 countries are summarized in Table no. 2. The country in which each national park is located is considered to be a potential factor that could explain significant differences between parks when using social media for e-government processes.

This article contributes in different ways to existing literature. First, it adds to the previous empirical findings on institutional transparency with incremental evidence. Second, the present work explores both political styles with other explanatory factors like the relationship between presence and impact in the digital context.

3. METHODOLOGY

The methodology used in this paper is based on the collection and analysis of primary information; the database created for this purpose made it possible to identify all the national parks in the EU15 (In 1995, the European Union consisted of: Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Holland, Ireland, Italy, Luxembourg, Portugal, the United Kingdom and Sweden). Once a list was drawn up of the national parks of each state (Luxembourg has no national parks), the official Facebook accounts of each National Park were identified and, in the absence of a Facebook account, other followers were detected, in order to check the existing information for a series of previously identified items. The items address three areas which allow us to check the transparency and accountability of the managers of national parks on issues common to each of them – i.e., popularity, comments, and virality – for a total of 196 Facebook profiles.

These variables were analyzed for a period of 50 consecutive days from 1 November, 2017, and each area reveals specific items. With regard to popularity, the following were taken into account: the number of publications with likes, the total number of publications, the total number of likes, and the total number of followers. To understand activity in terms of comments, the following were considered: the total number of publications with comments and the total number of comments along with the number of followers. To approximate the virality of the account, the total number of shared publications was tracked along with the number of followers. In this sense, with regard to "the success of the operation of publishing, the effectiveness of this action can be quantified by adding likes, comments and the number of times an image is shared" (Gurevich, 2016, p. 226). However, it is necessary to elaborate advanced metrics (Smallwood, 2016) in order to not limit the study to the data offered by the social network Facebook. Hence, a series of indicators proposed by Bonsón and Ratkai (2013) are elaborated which allow, in a more precise way, to know with precision the reach of popularity, comments and virality of selected accounts (Table no. 3).

We have used the aforementioned database of the national parks of the EU15 together with a multivariable technique; i.e., factorial analysis. Factorial analysis is a statistical technique of data reduction that we use to explain the correlations between the observed variables (in this case, the use of Facebook by national parks and the corresponding interaction of users) in terms of a smaller number of unobserved variables, which we will call 'factors'. These factors will permit the subsequent interpretation in terms of effectiveness of the use of Facebook for transparency purposes, as discussed.

Table no. 3 – Details of social media metrics

Metric	Calculation	Utility
Number of posts with likes	All posts that received a like from followers	Each post written can receive likes and it is interesting for the community manager to understand why some posts receive more likes than others.
Total posts	Total amount of posts	
Total likes	Total amount of likes	
Number of fans	Total amount of followers	Followers are vital to the national park account. They want to know more about the national park and the Facebook account should help them find what they are looking for.
Number of posts with comments	All posts that received a comment	Comments are instant messages which need to be answered as soon as possible. Different posts can receive more comments than others
Total comments	Total amount of comments	
Number of posts with shares	All posts that have been shared	When followers share any post in their personal account, the original national park posts reach new personal accounts; these people could be converted to new followers if they like what they see.
Total shares	Total amount of shares	

Source: Bonsón and Ratkai (2013)

4. ANALYSIS OF RESULTS

First of all, we must consider several issues about the surveyed Facebook accounts of national parks that led us to finally consider the aforementioned 196 accounts. First, not all national parks have an official Facebook account. Second, some accounts are not available in English or offer very limited information in this language compared with the country's official language. Third, in some countries, the accounts of national parks have very similar information because all the pages belong to a specific service of the corresponding state in charge of that policy. In Table no. 4a, we show the descriptive statistics detailing the indicators used in the research and their respective scores. Table no. 4b contains key descriptive statistics on the primary metrics. From the data of 50 consecutive days from 1 November, 2017, national parks posted, on average, around 20 posts, a majority of which received feedback from users. The average park was able to engage around 5700 people who contributed almost 70 comments to the shared content. More than 300 people decided to share content from the official profiles, promoting the information virally. This sharing activity was concentrated among a few posts (nine on average).

Table no. 4a – Descriptive statistics, primary metrics

	Mean	Median	Maximum
Number of posts with likes	19	5	210
Total posts	20	6	210
Total likes	2071	129	73846
Number of fans	5702	827	132584
Number of posts with comments	9	2	120
Total comments	67	3	3264
Number of posts with shares	9	1	147
Total shares	306	1	10238

Source: own elaboration

Table no. 4b – Descriptive statistics, primary metrics, correlations

	Number of posts with likes	Total posts	Total likes	Number of fans	Number of posts with comments	Total comments	Number of posts with shares	Total shares
Number of posts with likes	1.000000	0.979283	0.595998	0.516602	0.864174	0.406313	0.882601	0.454919
Total posts	0.979283	1.000000	0.545451	0.463542	0.818772	0.373888	0.808685	0.409056
Total likes	0.595998	0.545451	1.000000	0.688086	0.812488	0.777054	0.651664	0.513128
Number of fans	0.516602	0.463542	0.688086	1.000000	0.641415	0.478989	0.643684	0.588560
Number of posts with comments	0.864174	0.818772	0.812488	0.641415	1.000000	0.638741	0.867622	0.564927
Total comments	0.406313	0.373888	0.777054	0.478989	0.638741	1.000000	0.485100	0.450513
Number of posts with shares	0.882601	0.808685	0.651664	0.643684	0.867622	0.485100	1.000000	0.581242
Total shares	0.454919	0.409056	0.513128	0.588560	0.564927	0.450513	0.581242	1.000000

Source: own elaboration

Subsequently, and taking into account that the variables seem to be correlated (Table no. 4b), it was possible to implement the previously proposed technique (Principal Component Analysis). Table no. 5 displays the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and the Bartlett tests. According to the KMO, it is possible to identify the proper values (greater than 0.808, according to Beavers *et al.*, 2013, p. 4) to know if this dataset could allow the construction of a suitable model; that is, if we manage to reduce the number of variables into a smaller number of factors or components while avoiding the loss of a significant amount of information present in the primary data. On the other hand, the Bartlett test allows us to analyze the significance of the values in order to arrive at the same conclusion; it checks whether or not these data can be combined in an acceptable model. In this case, we arrive at a positive answer, since the condition that the significance value is less than 0.05 is fulfilled. So, in sum, it is possible to reduce the obtained variables to a smaller number of factors.

Table no. 5 – KMO and Bartlett's Tests

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		0.808
Bartlett's Test of Sphericity	Approx. Chi-Square	1984.918
	df	28
	Sig.	0.000

Source: own elaboration

Table no. 6 shows the commonality; that is, the information not lost in the variables left after the analysis. Eight variables remained for the extraction phase; the application of

this technique gave us results without repeated or redundant information. These values can be converted to a percentage and, thus, the lowest values lose the most unnecessary information. It can be observed that commonalities are high (over 0.5 is adequate, according to Beavers *et al.*, 2013, p. 10) which makes this Principal Component Analysis reliable.

Table no. 6 – Communalities. Extraction Method: Principal Component Analysis

	Extraction
Number of posts with likes	0.985
Total posts	0.946
Total likes	0.839
Number of fans	0.658
Number of posts with comments	0.914
Total comments	0.739
Number of posts with shares	0.878
Total shares	0.542

Source: own elaboration

In Table no. 7, the total variation explanation is shown. This is one of the most important steps in the process, considering that this will define more thoroughly why the model can be built. In this case, it is possible to observe that the model is balanced in that it gives us approximately the same information: it is balanced in the percentage shown and in the number of indicators per factor. Thus, our model with two new variables (factors) would explain 81% of the information that the eight original variables explained separately. In this sense, the explanatory power of the two-factor model is quite relevant.

Table no. 7 – Total Variance Explained. Extraction Method: Principal Component Analysis. Kaiser Criterion

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.441	68.017	68.017	5.441	68.017	68.017	3.390	42.375	42.375
2	1.061	13.260	81.277	1.061	13.260	81.277	3.112	38.902	81.277
3	0.663	8.292	89.569						
4	0.423	5.284	94.853						
5	0.170	2.124	96.977						
6	0.157	1.963	98.940						
7	0.075	0.938	99.879						
8	0.010	0.121	100.000						

Source: own elaboration

Another relevant criterion relating to quality is offered in Table no. 8: the matrix of rotated components. This table shows us the factors or new variables that have been created through a varimax rotation and in which we must classify the original variables – in the position in which they fall depending on the highest factorial coefficient. In this case it is possible to interpret the resulting Variable (or component) 1 as the efforts made by the park

toward its public: action, effort or 'sowing'. Variable (or component) 2 could be understood as the response of the public toward the park: reaction or 'harvesting'.

Table no. 8 – Rotated Component Matrix[a.] Extraction Method: Principal Component Analysis

	Component	
	1 (Sowing)	**2 (Harvesting)**
Number of posts with likes	0.952	0.279
Total posts	0.948	0.216
Number of posts with shares	0.813	0.466
Number of posts with comments	0.745	0.600
Total comments	0.146	0.847
Total likes	0.374	0.836
Number of fans	0.347	0.733
Total shares	0.293	0.676

Rotation Method: Varimax with Kaiser Normalization→Rotation converged in three iterations.
Source: own elaboration

With the aforementioned reduction in variables, it is possible to explore potential explanatory factors; i.e., the effect of the administration style of the corresponding state in which the national park is located. With this purpose we developed the ANOVA procedure with the rest of the empirical data and these results are presented in Table no. 9.

Table no. 9 – Means of 'Sowing' and 'Harvesting' among groups of countries. ANOVA

		N	**Mean**	**Std. Deviation**
'Sowing'	Anglo Saxon	21	0.579***	1.23034563
	Nordic	91	-0.193***	0.60357064
	Germanic	22	0.0351***	0.84811761
	South European	62	0.0757***	1.31815584
'Harvesting'	Anglo Saxon	21	0.2992**	1.76650931
	Nordic	91	-0.1757**	0.25655307
	Germanic	22	0.3254**	1.83098693
	South European	62	0.0411**	0.89749599

*Note: ** p<0.07. Non-homogeneity of variances; *** p<0.05. Non-homogeneity of variances*
Source: own elaboration

As can be seen Table no. 9, Mediterranean countries tend to invest more in the development of their Facebook profiles. In terms of intensity of investment, British and Central European countries are next. The Nordic countries focus more in the sowing dimension. With regard to the harvesting dimension, it can be observed that Mediterranean countries are, again, the most effective, with Central European countries being the second most effective. British and Nordic countries are at the end of this list.

In conclusion, it can be observed that when analyzing Facebook according to those artificial variables (sowing and harvesting), and taking into account the groups of countries referred to in the literature, there exists a clear relationship between sowing and harvesting; thus, the national parks feed their own visibility by means of active publishing and promotion of their profiles. This should also be viewed in the light of administration styles linked to the

groups of countries. Nordic nations already had a participatory tradition and systems before the expansion of Facebook; thus, this type of tool should be considered redundant with respect to the public management that they traditionally carry out. On the other hand, for Mediterranean countries, social networks and, in particular, Facebook profiles could represent an actual shift in their respective relations to the citizen, helping to fill pre-existing gaps in their traditional styles of administration, which were less citizen-centered.

5. DISCUSSION, LIMITATIONS AND CONCLUSIONS

This paper deals with transparency in the management of national parks as tourist resources through the social network Facebook. It considers first what we define as a national park, the different entities that manage parks, the purpose of these, and their intentions toward the public. We have performed a descriptive analysis in relation to the transparency of public authorities managing national parks using Facebook; this exploration is based mainly on the collection and analysis of primary data and its initial treatment. According to the analysis of the results, following our first research question, it is shown that there exists a significant presence of these entities in the network, even if this type of communication is perhaps in its infancy. Although the official language of many states is not English, they do interact in that language with potential visitors, thus facilitating the communication and transmission of information; a small group does not have any information in that language, such as the Greek national parks. Likewise, it can also be observed that many of the official pages renew content or publish innovative information, while others simply rely on repeating previous publications, being these results in relation to our second research question, about content of these communications. In this sense, we suggest that "to encourage participation, the pages in the social network should offer more attractive, interactive and promotional content" (Martinez-Valerio, 2012, p. 335). Based on all of the above, we can point out that, thanks to the database previously collected and the application of the dimension reduction technique, a potential factor (country in which each park is located and the corresponding administration style) can be detected in order to explain significant differences between parks, in particular in the way that their respective audiences interact with the specific park, which answer our third research question, the intensity of responsiveness. This and other factors can be further explored in future studies.

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References

Alexa, 2018. The top 500 sites on the web. from https://www.alexa.com/topsites

Alhabash, S., McAlister, A. R., Hagerstrom, A., Quilliam, E. T., Rifon, N. J., and Richards, J. I., 2013. Between likes and shares: Effects of emotional appeal and virality on the persuasiveness of anticyberbullying messages on Facebook. *Cyberpsychology, Behavior, and Social Networking*, *16*(3), 175-182. http://dx.doi.org/10.1089/cyber.2012.0265

Anagnostopoulos, A., Bessi, A., Caldarelli, G., Del Vicario, M., Petroni, F., Scala, A., Quattrociocchi, W., 2014. Viral misinformation: The role of homophily and polarization. *Cornell University Social and Information Networks*. https://arxiv.org/abs/1411.2893.

Archabald, K., and Naughton-Treves, L., 2001. Tourism revenue-sharing around National Parks in Western Uganda: Early efforts to identify and reward local communities. *Environmental Conservation, 28*(2), 135-149. http://dx.doi.org/10.1017/S0376892901000145

Arnberger, A., Eder, R., Allex, B., Preisel, H., and Husslein, M., 2019. National park affinity segments of overnight tourists differ in satisfaction with, attitudes towards, and specialization in, national parks: Results from the Bavarian Forest National Park. *Journal for Nature Conservation, 47*, 93-102. http://dx.doi.org/10.1016/j.jnc.2018.09.005

Arpin, I., 2019. The rise of planning in nature conservation and the practitioners' approach to conflicts. The inspiring case of the Northern French Alps nature reserves. *Journal for Nature Conservation, 48*, 54-60. http://dx.doi.org/10.1016/j.jnc.2019.01.009

Asterhan, C. S., and Bouton, E., 2017. Teenage peer-to-peer knowledge sharing through social network sites in secondary schools. *Computers & Education, 110*, 16-34. http://dx.doi.org/10.1016/j.compedu.2017.03.007

Bao, H., Zhu, X., Cen, Y., Peng, Y., and Xue, J., 2018. Effects of social network on human capital of land-lost farmers: A study in Zhejiang Province. *Social Indicators Research, 137*(1), 167-187. http://dx.doi.org/10.1007/s11205-017-1592-6

Beavers, A. S., Lounsbury, J. W., Richards, J. K., Huck, S. W., Skolits, G. J., and Esquivel, S. L., 2013. Practical considerations for using exploratory factor analysis in educational research. *Practical Assessment, Research & Evaluation, 18*(6), 1-13.

Bertot, J. C., Jaeger, P. T., and Grimes, J. M., 2010. Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. *Government Information Quarterly, 27*(3), 264-271. http://dx.doi.org/10.1016/j.giq.2010.03.001

Bodell, S., and Hook, A., 2011. Using Facebook for professional networking: A modern-day essential. *British Journal of Occupational Therapy, 74*(12), 588-590. http://dx.doi.org/10.4276/030802211X13232584581533

Bonsón, E., and Flores, F., 2011. Social media and corporate dialogue: The response of the global financial institutions. *Online Information Review, 35*(1), 34-49. http://dx.doi.org/10.1108/14684521111113579

Bonsón, E., and Ratkai, M., 2013. A set of metrics to assess stakeholder engagement and social legitimacy on a corporate Facebook page. *Online Information Review, 37*(5), 787-803. http://dx.doi.org/10.1108/OIR-03-2012-0054

Bonsón, E., Royo, S., and Ratkai, M., 2015. Citizens' engagement on local governments' Facebook sites. An empirical analysis: The impact of different media and content types in Western Europe. *Government Information Quarterly, 32*(1), 52-62. http://dx.doi.org/10.1016/j.giq.2014.11.001

Bonsón, E., Torres, L., Royo, S., and Flores, F., 2012. Local e-government 2.0: Social media and corporate transparency in municipalities. *Government Information Quarterly, 29*(2), 123-132. http://dx.doi.org/10.1016/j.giq.2011.10.001

Büscher, B., Koot, S., and Nelson, I. L., 2017. Introduction. Nature 2.0: New media, online activism and the cyberpolitics of environmental conservation. *Geoforum, 100*(79), 111-113. http://dx.doi.org/10.1016/j.geoforum.2016.12.001

Caba Perez, C., Pedro Rodriguez Bolivar, M., and Lopez-Hernandez, A. M., 2008. E-Government process and incentives for online public financial information. *Online Information Review, 32*(3), 379-400. http://dx.doi.org/10.1108/14684520810889682

Caneday, L., Jordan, D., and Liang, Y. T., 2009. Management policy in and typology of state park systems. *American Journal of Environmental Sciences, 5*(2), 187-196. http://dx.doi.org/10.3844/ajessp.2009.187.196

Carvache-Franco, M., Segarra-Ona, M., and Carrascosa-Lopez, C., 2019. Segmentation and motivations in eco-tourism: The case of a coastal national park. *Ocean and Coastal Management, 178*, 104812. http://dx.doi.org/0.1016/j.ocecoaman.2019.05.014

Castaldo, S., Perrini, F., Misani, N., and Tencati, A., 2009. The missing link between corporate social responsibility and consumer trust: The case of fair trade products. *Journal of Business Ethics, 84*(1), 1-15. http://dx.doi.org/10.1007/s10551-008-9669-4

Cipullo, N., 2016. Biodiversity indicators: The accounting point of view. *Procedia Economics and Finance, 39*, 539-544. http://dx.doi.org/10.1016/S2212-5671(16)30297-0

Coombs, T. W., and Holladay, S. J., 2013. The pseudo-panopticon: The illusion created by CSR-related transparency and the internet. *Corporate Communications, 18*(2), 212-227. http://dx.doi.org/10.1108/13563281311319490

Cozma, A. C., and Coros, M. M., 2017. Tourism Development in Rodna Mountains National Park: the Public Administration, a Key Stakeholder. *Revista de turism-studii si cercetari in turism, 24*, 89-94.

Das, D., 2017. Park, People and Biodiversity Conservation in Kaziranga National Park, India. *Space and Culture, India, 5*(1), 36-48. http://dx.doi.org/10.20896/saci.v5i1.244

de Paulo, A. F., and Porto, G. S., 2017. Solar energy technologies and open innovation: A study based on bibliometric and social network analysis. *Energy Policy, 108*, 228-238. http://dx.doi.org/10.1016/j.enpol.2017.06.007

Diaz-Campo, J., and Segado-Boj, F., 2016. El uso de Facebook por parte de los ciberparlamentarios espanoles. *Chasqui. Revista Latinoamericana de Comunicación*(130), 365-379.

Dumortier, F., 2009. Facebook y los riesgos de la <<descontextualizacion>> de la informacion. *IDP: Revista de Internet*(9), 25-41.

Dunleavy, P., and Hood, C., 1994. From old public administration to new public management. *Public Money & Management, 14*(3), 9-16. http://dx.doi.org/10.1080/09540969409387823

Dupke, C., Dormann, C. F., and Heurich, M., 2019. Does Public Participation Shift German National Park Priorities Away from Nature Conservation? *Environmental Conservation, 46*(1), 84-91. http://dx.doi.org/10.1017/S0376892918000310

Eagles, P. F., 2014. Research priorities in park tourism. *Journal of Sustainable Tourism, 22*(4), 528-549. http://dx.doi.org/10.1080/09669582.2013.785554

Eagles, P. F., and McCool, S. F., 2002. *Tourism in National Parks and protected areas: Planning and management*. New York: CABI. http://dx.doi.org/10.1079/9780851995892.0000

Epstein, G., 2017. Local rulemaking, enforcement and compliance in state-owned forest commons. *Ecological Economics, 131*, 312-321. http://dx.doi.org/10.1016/j.ecolecon.2016.09.012

Ervin, J., 2003. Rapid assessment of protected area management effectiveness in four countries. *Bioscience, 53*(9), 833-841. http://dx.doi.org/10.1641/0006-3568(2003)053[0833:RAOPAM]2.0.CO;2

Fagan, K. E., Willcox, E. V., and Willcox, A. S., 2018. Public attitudes toward the presence and management of bats roosting in buildings in Great Smoky Mountains National Park, Southeastern United States. *Biological Conservation, 220*, 132-139. http://dx.doi.org/10.1016/j.biocon.2018.02.004

Fernandez Gomez, E., and Diaz-Campo, J., 2014. Los canales tematicos infantiles y juveniles en Facebook: Analisis de los perfiles de Disney Channel, Boing y Neox. *Comunicación y Hombre, 10*, 179-194. http://dx.doi.org/10.32466/eufv-cyh.2014.10.164.179-194

Gabrovec, M., Komac, B., Kozina, J., Polajnar Horvat, K., Nared, J., and Smrekar, A., 2017. Triglav National Park, Slovenia, and its contribution to regional development. *Journal on Protected Mountain Areas Research and Management, 9*(special issue), 57-65. http://dx.doi.org/10.1553/eco.mont-9-sis57

Gamboa, A. M., and Goncalves, H. M., 2014. Customer loyalty through social networks: Lessons from Zara on Facebook. *Business Horizons, 57*(6), 709-717. http://dx.doi.org/10.1016/j.bushor.2014.07.003

Gandia, J. L., and Archidona, M. C., 2008. Determinants of web site information by Spanish city councils. *Online Information Review, 32*(1), 35-57. http://dx.doi.org/10.1108/14684520810865976

Ghoddousi, S., Pintassilgo, P., Mendes, J., Ghoddousi, A., and Sequeira, B., 2018. Tourism and nature conservation: A case study in Golestan National Park, Iran. *Tourism Management Perspectives, 26*, 20-27. http://dx.doi.org/10.1016/j.tmp.2017.12.006

Gittelman, S., Lange, V., Gotway Crawford, C. A., Okoro, C. A., Lieb, E., Dhingra, S. S., and Trimarchi, E., 2015. A new source of data for public health surveillance: Facebook likes. *Journal of Medical Internet Research, 17*(4), e98. http://dx.doi.org/10.2196/jmir.3970

Glover, M., Khalilzadeh, O., Choy, G., Prabhakar, A. M., Pandharipande, P. V., and Gazelle, G. S., 2015. Hospital evaluations by social media: A comparative analysis of Facebook ratings among performance outliers. *Journal of General Internal Medicine, 30*(10), 1440-1446. http://dx.doi.org/10.1007/s11606-015-3236-3

Godfrey, P. C., 2005. The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. *Academy of Management Review, 30*(4), 777-798. http://dx.doi.org/10.5465/amr.2005.18378878

Goel, S., Anderson, A., Hofman, J., and Watts, D. J., 2015. The structural virality of online diffusion. *Management Science, 62*(1), 180-196. http://dx.doi.org/10.1287/mnsc.2015.2158

Gonzalez, R. M., Roman, C., and de Dios Ortuzar, J., 2019. Preferences for sustainable mobility in natural areas: The case of Teide National Park. *Journal of Transport Geography, 76*, 42-51. http://dx.doi.org/10.1016/j.jtrangeo.2019.03.002

Gurevich, A., 2016. El tiempo todo en Facebook. *Aposta*(69), 217-238.

Haustein, S., Costas, R., and Lariviere, V., 2015. Characterizing social media metrics of scholarly papers: The effect of document properties and collaboration patterns. *PLoS One, 10*(3), e0120495. http://dx.doi.org/10.1371/journal.pone.0120495

Hayati, B., Atefi, Y., and Ahearne, M., 2018. Sales force leadership during strategy implementation: A social network perspective. *Journal of the Academy of Marketing Science, 46*(4), 612-631. http://dx.doi.org/10.1007/s11747-017-0557-2

Heimbach, I., Schiller, B., Strufe, T., and Hinz, O., 2015. *Content Virality on Online Social Networks: Empirical Evidence from Twitter, Facebook, and Google+ on German News Websites*. Paper presented at the Proceedings of the 26th ACM Conference on Hypertext & Social Media, Guzelyurt, Northern Cyprus. http://dx.doi.org/10.1145/2700171.2791032

Huang, S. C. L., and Sun, W. E., 2019. Exploration of Social Media for Observing Improper Tourist Behaviors in a National Park. *Sustainability, 11*(6), 1637. http://dx.doi.org/10.3390/su11061637

Hughes, O. E., 2018. *Public management and administration: An introduction*. London: Macmillan International Higher Education. http://dx.doi.org/10.1057/978-1-137-56010-0

Kaltenborn, B. P., Qvenild, M., and Nellemann, C., 2011. Local governance of national parks: The perception of tourism operators in Dovre-Sunndalsfjella National Park, Norway. *Norsk Geografisk Tidsskrift–Norwegian Journal of Geography, 65*(2), 83-92. http://dx.doi.org/10.1080/00291951.2011.574320

Kaplan, A. M., and Haenlein, M., 2010. Users of the world, unite! The challenges and opportunities of social media. *Business Horizons, 53*(1), 59-68. http://dx.doi.org/10.1016/j.bushor.2009.09.003

Ketter, E., 2016. Destination image restoration on Facebook: The case study of Nepal's Gurkha Earthquake. *Journal of Hospitality and Tourism Management, 28*, 66-72. http://dx.doi.org/10.1016/j.jhtm.2016.02.003

Kiralova, A., and Pavliceka, A., 2015. Development of social media strategies in tourism destination. *Procedia: Social and Behavioral Sciences, 175*, 358-366. http://dx.doi.org/10.1016/j.sbspro.2015.01.1211

Kondakci, Y., Bedenlier, S., and Zawacki-Richter, O., 2018. Social network analysis of international student mobility: Uncovering the rise of regional hubs. *Higher Education, 75*(3), 517-535. http://dx.doi.org/10.1007/s10734-017-0154-9

Krishnadas, M., Agarwala, M., Sridhara, S., and Eastwood, E., 2018. Parks protect forest cover in a tropical biodiversity hotspot, but high human population densities can limit success. *Biological Conservation, 223*, 147-155. http://dx.doi.org/10.1016/j.biocon.2018.04.034

Kubo, T., Shoji, Y., Tsuge, T., and Kuriyama, K., 2018. Voluntary Contributions to Hiking Trail Maintenance: Evidence From a Field Experiment in a National Park, Japan. *Ecological Economics, 144*, 124-128. http://dx.doi.org/10.1016/j.ecolecon.2017.07.032

Lal, P., Wolde, B., Masozera, M., Burli, P., Alavalapati, J., Ranjan, A., . . . Mugabo, R., 2017. Valuing visitor services and access to protected areas: The case of Nyungwe National Park in Rwanda. *Tourism Management, 61*, 141-151. http://dx.doi.org/10.1016/j.tourman.2017.01.019

Law, F. Y., and Lo, M. C., 2016. Rural tourism destination competitivenes of Kubah National Park in Sarawak: Tourists' perspective. *Asian Academy of Management Journal, 21*(1), 127-148. http://dx.doi.org/10.21315/aamj2016.21.supp.1.6

Loomis, J. B., and Bilmes, L. J., 2020. Benefits of National Parks extend far beyond visitation and tourism. In L. J. Bilmes and J. B. Loomis (Eds.), *Valuing U.S. Natinsl Parks and Programs. America's Best Investment*. New York: Rouledge.

Lovari, A., and Parisi, L., 2015. Listening to digital publics. Investigating citizens' voices and engagement within Italian municipalities' Facebook pages. *Public Relations Review, 41*(2), 205-213. http://dx.doi.org/10.1016/j.pubrev.2014.11.013

Lowry, W., 2001. The impact of reinventing government on state and federal parks. *Journal of Policy History, 13*(4), 405-428. http://dx.doi.org/10.1353/jph.2001.0017

Magro, M. J., 2012. A review of social media use in e-government. *Administrative Sciences, 2*(2), 148-161. http://dx.doi.org/10.3390/admsci2020148

Mannetti, L., Gottert, T., Zeller, U., and Esler, K., 2019. Identifying and categorizing stakeholders for protected area expansion around a national park in Namibia. *Ecology and Society, 24*(2), art5. http://dx.doi.org/10.5751/ES-10790-240205

Mariani, M. M., Di Felice, M., and Mura, M., 2016. Facebook as a destination marketing tool: Evidence from Italian regional destination management organizations. *Tourism Management, 54*, 321-343. http://dx.doi.org/10.1016/j.tourman.2015.12.008

Martinez-Valerio, L., 2012. Estrategias de promocion turistica a traves de Facebook. *Palabra Clave (La Plata), 15*(2), 318-338.

Mavah, G. A., Funk, S. M., Child, B., Swisher, M. E., Nasi, R., and Fa, J. E., 2018. Food and livelihoods in park-adjacent communities: The case of the Odzala Kokoua National Park. *Biological Conservation, 222*, 44-51. http://dx.doi.org/10.1016/j.biocon.2018.03.036

McIvor, R., McHugh, M., and Cadden, C., 2002. Internet technologies: Supporting transparency in the public sector. *International Journal of Public Sector Management, 15*(3), 170-187. http://dx.doi.org/10.1108/09513550210423352

Mihanyar, P., Rahman, S. A., and Aminudin, N., 2016. The effect of national park mobile apps on national park behavioral intention: Taman Negara national park. *Procedia Economics and Finance, 37*, 324-330. http://dx.doi.org/10.1016/S2212-5671(16)30132-0

Mills, A. J., and Plangger, K., 2015. Social media strategy for online service brands. *Service Industries Journal, 35*(10), 521-536. http://dx.doi.org/10.1080/02642069.2015.1043277

Mills, B. J., 2017. Social network analysis in archaeology. *Annual Review of Anthropology, 46*(1), 379-397. http://dx.doi.org/10.1146/annurev-anthro-102116-041423

Moore, S. A., Rodger, K., and Taplin, R. H., 2017. Developing a better understanding of the complexities of visitor loyalty to Karijini National Park, Western Australia. *Tourism Management, 62*, 20-28. http://dx.doi.org/10.1016/j.tourman.2017.03.012

Muboko, N., Gandiwa, E., Muposhi, V., and Tarakini, T., 2016. Illegal hunting and protected areas: Tourist perceptions on wild animal poisoning in Hwange National Park, Zimbabwe. *Tourism Management, 52*, 170-172. http://dx.doi.org/10.1016/j.tourman.2015.06.023

Nardi, B., 2015. Virtuality. *Annual Review of Anthropology, 44*(1), 15-31. http://dx.doi.org/10.1146/annurev-anthro-102214-014226

Park, J. H., Lee, C., Yoo, C., and Nam, Y., 2016. An analysis of the utilization of Facebook by local Korean governments for tourism development and the network of smart tourism ecosystem. *International Journal of Information Management, 36*(6), 1320-1327. http://dx.doi.org/10.1016/j.ijinfomgt.2016.05.027

Poku, G., and Boakye, K. A. A., 2019. Insights into the safety and security expressions of visitors to the Kakum National Park: Implications for management. *Tourism Management Perspectives, 32*, 100562. http://dx.doi.org/10.1016/j.tmp.2019.100562

Pollitt, C., and Bouckaert, G., 2000. *Public management reform: A comparative analysis*. Oxford: Oxford University Press.

Rawlins, B. R., 2008. Measuring the relationship between organizational transparency and employee trust. https://scholarsarchive.byu.edu/facpub/885.

Ringelhan, S., Wollersheim, J., and Welpe, I. M., 2015. I like, I cite? Do Facebook likes predict the impact of scientific work? *PLoS One, 10*(8), e0134389. http://dx.doi.org/10.1371/journal.pone.0134389

Seeland, K., 2000. National park policy and wildlife problems in Nepal and Bhutan. *Population and Environment, 22*(1), 43-62. http://dx.doi.org/10.1023/A:1006629531450

Segado-Boj, F., Diaz-Campo, J., and Soria, M., 2015. La viralidad de las noticias en Facebook: Factores determinantes. *Telos*(100), 153-161.

Siikamaki, P., Kangas, K., Paasivaara, A., and Schroderus, S., 2015. Biodiversity attracts visitors to national parks. *Biodiversity and Conservation, 24*(10), 2521-2534. http://dx.doi.org/10.1007/s10531-015-0941-5

Smallwood, B., 2016. Resisting the siren call of popular digital media measures. *Journal of Advertising Research, 56*(2), 126-131. http://dx.doi.org/10.2501/JAR-2016-025

Song, X., Geng, Y., Dong, H., and Chen, W., 2018. Social network analysis on industrial symbiosis: A case of Gujiao eco-industrial park. *Journal of Cleaner Production, 193*, 414-423. http://dx.doi.org/10.1016/j.jclepro.2018.05.058

Švajda, J., Korony, S., Zieba, A., and Adamski, P., 2016. Perceptions of natural disturbance in Tatra National Park, Poland. *Forestry Journal, 62*(2), 105-109. http://dx.doi.org/10.1515/forj-2016-0011

Swift, T., 2001. Trust, reputation and corporate accountability to stakeholders. *Business Ethics (Oxford, England), 10*(1), 16-26. http://dx.doi.org/10.1111/1467-8608.00208

Tatarusanu, M., Onea, A., and Zait, D., 2016. Human Resources Strategies in Romanian Tourism Companies. *Scientific Annals of Economics and Business, 63*(2), 171-179. http://dx.doi.org/10.1515/saeb-2016-0114

Teshome, E., and Endalew, D., 2018. The characteristics, length of stay and motivation of foreign tourists who visit Simien Mountains National Park, World Heritage Site, Ethiopia. *African Journal of Hospitality, Tourism and Leisure, 7*(2), 1-15.

Thelwall, M., and Kousha, K., 2015. Web indicators for research evaluation. Part 2: Social media metrics. *El Profesional de la Informacion, 24*(5), 607-620. http://dx.doi.org/10.3145/epi.2015.sep.09

Tilahun, B., Abie, K., Feyisa, A., and Amare, A., 2017. Attitude and perceptions of local communities towards the conservation value of gibe Sheleko national park, Southwestern Ethiopia. *Agricultural and Resource Economics: International Scientific E-Journal, 3*(2), 65-77.

Torres, L., 2004. Trajectories in public administration reforms in European continental countries. *Australian Journal of Public Administration, 63*(3), 99-111. http://dx.doi.org/10.1111/j.1467-8500.2004.00394.x

Torres, L., and Pina, V., 2002. Changes in public service delivery in the EU countries. *Public Money & Management, 22*(4), 41-48. http://dx.doi.org/10.1111/1467-9302.00328

United Nations, 2016. UN E-Government Survey 2016. from https://publicadministration.un.org/

Vaccaro, A., and Madsen, P., 2009. Corporate dynamic transparency: The new ICT-driven ethics? *Ethics and Information Technology, 11*(2), 113-122. http://dx.doi.org/10.1007/s10676-009-9190-1

Valera Ordaz, L., 2013. Eficacia y cinismo politico en Facebook. *Revista Faro, 1*(17), 56-72.

Van Waes, S., De Maeyer, S., Moolenaar, N. M., Van Petegem, P., and Van den Bossche, P., 2018. Strengthening networks: A social network intervention among higher education teachers. *Learning and Instruction, 53*, 34-49. http://dx.doi.org/10.1016/j.learninstruc.2017.07.005

Wang, T., and Watanabe, T., 2019. Impact of Recreational Activities on an Unmanaged Alpine Campsite: The Case of Kuro-Dake Campsite, Daisetsuzan National Park, Japan. *Environments, 6*(3), 34. http://dx.doi.org/10.3390/environments6030034

Weaver, D. B., and Lawton, L. J., 2017. A new visitation paradigm for protected areas. *Tourism Management, 60*, 140-146. http://dx.doi.org/10.1016/j.tourman.2016.11.018

Weiler, B., Moyle, B. D., Scherrer, P., and Hill, M., 2019. Demarketing an iconic national park experience: Receptiveness of past, current and potential visitors to selected strategies. *Journal of Outdoor Recreation and Tourism, 25*, 122-131. http://dx.doi.org/10.1016/j.jort.2018.06.001

Wijnhoven, F., Ehrenhard, M., and Kuhn, J., 2015. Open government objectives and participation motivations. *Government Information Quarterly, 32*(1), 30-42. http://dx.doi.org/10.1016/j.giq.2014.10.002

Wondirad, A., and Ewnetu, B., 2019. Community participation in tourism development as a tool to foster sustainable land and resource use practices in a national park milieu. *Land Use Policy, 88*, 104155. http://dx.doi.org/10.1016/j.landusepol.2019.104155

Yuki, T., 2015. What makes brands' social content shareable on Facebook? *Journal of Advertising Research, 55*(4), 458-470. http://dx.doi.org/10.2501/JAR-2015-026

ANNEX 1

Sample of National Parks

Country	Park name
Netherlands	Schiermonnikoog
Netherlands	Lauwersmeer
Netherlands	Alde Feanen
Netherlands	Drents-Friese Wold
Netherlands	Drentsche Aa
Netherlands	Dwingelderveld
Netherlands	Weerribben
Netherlands	Sallandse Heuvelrug
Netherlands	Utrechtse Heuvelrug
Netherlands	Duinen van Texel
Netherlands	Zuid-Kennemerland
Netherlands	De Zoom - Kalmthoutse Heide
Netherlands	De Biesbosch
Netherlands	Loonse en Drunense Duinen
Netherlands	De Groote Peel
Netherlands	De Meinweg
Netherlands	De Maasduinen
Netherlands	Veluwezoom
Netherlands	De Hoge Veluwe
Denmark	Thy National Park
Denmark	Mols Bjerge National Park
Denmark	The Wadden Sea National Park
Denmark	Skjoldungernes Land National Park
UK	Brecon Beacons

Country	Park name
UK	Broads
UK	Cairngorms
UK	Dartmoor
UK	Exmoor
UK	Lake District
UK	Loch Lomond
UK	New Forest
UK	Northumberland
UK	North York Moors
UK	Peak District
UK	Pembrokeshire Coast
UK	Snowdonia
UK	South Downs
UK	Yorkshire Dales
Belgium	Hoge Kempen Nationaal Park
Italy	Parco Nazionale d'Abruzzo, Lazio e Molise
Italy	Parco Nazionale Alta Murgia
Italy	Parco Nazionale dell'Appennino Lucano Val d'Agri - Lagonegrese
Italy	Parco Nazionale Appennino Tosco-Emiliano
Italy	Parco Nazionale dell'Arcipelago di La Maddalena
Italy	Parco Nazionale Arcipelago Toscano

Country	Park name
Italy	Parco Nazionale dell'Asinara
Italy	Parco Nazionale dell'Aspromonte
Italy	Parco Nazionale del Cilento, Vallo di Diano e Alburni
Italy	Parco Nazionale delle Cinque Terre
Italy	Parco Nazionale del Circeo
Italy	Parco Nazionale Dolomiti Bellunesi
Italy	Parco Nazionale delle Foreste Casentinesi, Monte Falterona, Campigna
Italy	Parco Nazionale del Gargano
Italy	Parco Nazionale Gran Paradiso
Italy	Parco Nazionale del Gran Sasso e Monti della Laga
Italy	Parco Nazionale della Majella
Italy	Parco Nazionale dei Monti Sibillini
Italy	Parco Nazionale del Pollino
Italy	Parco Nazionale della Sila
Italy	Parco Nazionale dello Stelvio
Italy	Parco Nazionale della Val Grande
Italy	Parco Nazionale del Vesuvio
Italy	Parco Nazionale del Golfo di Orosei e del Gennargentu
Germany	Bavarian Forest National Park
Germany	Berchtesgaden National Park
Germany	Black Forest National Park
Germany	Eifel National Park
Germany	Hainich National Park
Germany	Hamburg Wadden Sea National Park
Germany	Harz National Park
Germany	Hunsrück-Hochwald National Park
Germany	Jasmund National Park
Germany	Kellerwald-Edersee National Park
Germany	Lower Saxony Wadden Sea National Park
Germany	Müritz National Park
Germany	Lower Oder Valley National Park
Germany	Saxon Switzerland National Park
Germany	Schleswig-Holstein Wadden Sea National Park
Germany	Western-Pomeranian Boddenlandschaft National Park
Ireland	Wicklow Mountains National Park
Ireland	Burren National Park
Ireland	Killarney National Park
Ireland	Glenveagh National Park
Ireland	Connemara National Park
Ireland	Ballycroy National Park
Sweden	Abisko National Park
Sweden	Björnlandet National Park
Sweden	Blå Jungfrun National Park
Sweden	Dalby Söderskog National Park
Sweden	Djurö National Park
Sweden	Fulufjället National Park
Sweden	Färnebofjärden National Park
Sweden	Garphyttan National Park

Country	Park name
Sweden	Gotska Sandön National Park
Sweden	Hamra National Park
Sweden	Haparanda Skärgård National Park
Sweden	Kosterhavet National Park
Sweden	Muddus / Muttos National Park
Sweden	Norra Kvill National Park
Sweden	Padjelanta / Badjelánnda National Park
Sweden	Pieljekaise National Park
Sweden	Sarek National Park
Sweden	Skuleskogen National Park
Sweden	Sonfjället National Park
Sweden	Stenshuvud National Park
Sweden	Stora Sjöfallet / Stuor Muorkke National Park
Sweden	Store Mosse National Park
Sweden	Söderåsen National Park
Sweden	Tiveden National Park
Sweden	Tresticklan National Park
Sweden	Tyresta National Park
Sweden	Töfsingdalen National Park
Sweden	Vadvetjåkka National Park
Sweden	Ängsö National Park
Austria	Neusiedler See – Seewinkel National Park
Austria	Donau-Auen National Park
Austria	Thayatal National Park
Austria	Kalkalpen National Park
Austria	Gesäuse National Park
Austria	Hohe Tauern National Parks
Finland	Archipelago National Park
Finland	Bothnian Bay National Park
Finland	Bothnian Sea National Park
Finland	Ekenäs Archipelago National Park
Finland	Gulf of Finland National Park
Finland	Helvetinjärvi National Park
Finland	Hiidenportti National Park
Finland	Isojärvi National Park
Finland	Kauhaneva-Pohjankangas National Park
Finland	Koli National Park
Finland	Kolovesi National Park
Finland	Kurjenrahka National Park
Finland	Lauhanvuori National Park
Finland	Leivonmäki National Park
Finland	Lemmenjoki National Park
Finland	Liesjärvi National Park
Finland	Linnansaari National Park
Finland	Nuuksio National Park
Finland	Oulanka National Park
Finland	Pallas-Yllästunturi National Park
Finland	Patvinsuo National Park
Finland	Petkeljärvi National Park
Finland	Puurijärvi and Isosuo National Park
Finland	Pyhä-Häkki National Park
Finland	Pyhä-Luosto National Park
Finland	Päijänne National Park

Country	Park name
Finland	Repovesi National Park
Finland	Riisitunturi National Park
Finland	Rokua National Park
Finland	Salamajärvi National Park
Finland	Seitseminen National Park
Finland	Sipoonkorpi National Park
Finland	Southern Konnevesi National Park
Finland	Syöte National Park
Finland	Teijo National Park
Finland	Tiilikkajärvi National Park
Finland	Torronsuo National Park
Finland	Urho Kekkonen National Park
Finland	Valkmusa National Park
France	Les Cévennes National Park
France	Les Ecrins National Park
France	La Guadeloupe National Park
France	La Guyane National Park
France	Le Mercantour National Park
France	Port-Cros National Park
France	Les Pyrénées National Park
France	La Réunion National Park
France	La Vanoise National Park
Spain	Parque Nacional de Aigüestortes i Estany de Sant Maurici
Spain	Parque Nacional Marítimo - Terrestre del Archipiélago de Cabrera
Spain	Parque Nacional de Cabañeros
Spain	Parque Nacional de la Caldera de Taburiente
Spain	Parque Nacional de Doñana
Spain	Parque Nacional de Garajonay
Spain	Parque Nacional Marítimo-Terrestre de las Islas Atlánticas de Galicia
Spain	Parque Nacional de Monfragüe
Spain	Parque Nacional de Ordesa y Monte Perdido
Spain	Parque Nacional de los Picos de Europa
Spain	Parque Nacional de la Sierra de Guadarrama
Spain	Parque Nacional de Sierra Nevada
Spain	Parque Nacional de las Tablas de Daimiel
Spain	Parque Nacional del Teide
Spain	Parque Nacional de Timanfaya
Portugal	Parque Nacional da Peneda-Gerês
Greece	Ainos National Park
Greece	Alonnisos National Marine Park
Greece	Oeta National Park
Greece	Olympus National Park
Greece	Parnassos National Park
Greece	Parnitha National Park
Greece	Pindus National Park
Greece	Prespes National Park
Greece	Samaria National Park
Greece	Sounio National Park
Greece	Vikos–Aoös National Park
Greece	Zakynthos National Marine Park

Source: own elaboration

ANNEX 2

Scores applied in the equation

Component Score Coefficient Matrix		
	Component	
	1	2
Number of posts with likes	.408	-.197
Total posts	.429	-.232
Total likes	-.115	.349
Number of fans	-.090	.299
Number of posts with comments	.174	.070
Total comments	-.242	.442
Number of posts with shares	.262	-.034
Total shares	-.098	.286

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization Component Scores
Source: own elaboration

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