The use of Facebook and Twitter by DMOs in Europe

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ABSTRACT

Social media promote destination image as they allow users to create and share travel-related information. This study based on Social Network Analytics and influence indicators, investigates the levels of adoption and information diffusion by Destination Management Organizations of European Countries in Facebook, and Twitter. It records the exact number of web 2.0 applications used by European countries DMO, and uses indicators of activity and influence on Facebook and Twitter. The study measures the level of information diffusion in relation to the electronic world of mouth dimension. A ranking of the countries on the basis of influence and activity is attempted.

Key words: social media, DMO, European countries, Facebook, Twitter, influence

INTRODUCTION

Tourism global market is characterized by complexity and high level of competition. Policy makers to an increasing extent rely on innovative ways in order to enhance the destination image of their countries, which is very important for the implementation of successful marketing strategies (Echtner and Ritchie, 2003). Among the most popular search queries in the web is information about tourism, and increasingly high traffic to tourism related web pages is observed (Heung, 2003; Lexhagen, 2008). Social Media are characterized as flexible and low-cost platforms with structural characteristics that enable the effective communication and information diffusion (Hays et al., 2013). To minimize the risk of an incorrect choice, tourists increasingly tend to use them for the evaluation of

the alternative destinations (Leung et al., 2013) and depend their information on them more than to other sources like friends or family members (Razvan and Gabriel, 2012). Destination Management Organizations (DMOs) have the structure of non-profit entities with a primary function to enhance and organize the main elements that enhance tourist visitation by creating a unique image for a specific destination (Gretzel et al., 2006, UNWTO, 2017). Nowadays, Destination Management Organizations have changed their traditional structures and became more complex entities that are not only marketing-oriented but are accompanied with wider managerial functions. Thus, many researches are referring to them as "Destination Marketing and Management Organizations" (Gretzel et al., 2006). Web 2.0 platforms used by DMOs have already become very useful applications for the creation and promotion of a destination image (Molinillo et al., 2018).

The main purpose of the study is to provide evidence about the extent of use, the level of adoption and the actual level of performance and influence of DMOs through the most widely used Social Media. The successful use of Web 2.0 by national DMOs can provide a useful framework for the development of tourism marketing strategy, as DMOs are proved to be among the main strategic tools for the national destination image promotion (Valachis et al., 2009; Pike and Page, 2014) and Web 2.0 applications can play an important role in national tourism marketing strategies (Razvan and Gabriel, 2012).

LITERATURE REVIEW

The increasing use of Web 2.0 applications and Social Media platforms by the tourism sector are highlighted by related surveys (Antoniadis et al, 2014; Hamill et al, 2012; Hays et al, 2013; Xiang and Gretzel, 2010). By playing a significant role on the promotion of specialized and diversified services and by contributing to the development of a recognizable and strong identity for the costumers, the role of Web 2.0 applications is fundamental in modern service marketing (Blumrodt and Palmer, 2014; Hvass and Munar, 2012). However, research efforts on the contribution of Web 2.0 tools to the promotion of tourism are mainly limited in content analysis (Bayram and Arici, 2013; Leung et al., 2013). There is scant evidence on the benchmarking of the relative position of European countries regarding their DMO influence and performance on Social Media and their ability to enhance information propagation by using their Social Media profiles (Christou, 2003, 2006; Antoniadis et al., 2014; Bayram and Arici, 2013; Roque and Raposo, 2016). Few studies in the area tend to either study one Social Media platform (Antoniadis et al., 2014), or limit analysis to just a few reference countries (Bayram and Arici, 2013; Roque and Raposo, 2016).

According to Klout (2018) "influence is the ability to drive action. You are influential when you share something on Social Media or in real life and people respond". To identify the quantitative indexes in order to measure activity, performance and influence characteristics on Social Media and to reach better conclusions about the most influential users, it is important to clarify the concepts of responsiveness and influence on Social Web 2.0 tools (Gretzel et al., 2012; Rabiger and Spiliopoulou, 2015). To measure activity and influence on Social Media, one can address to measurements that come from Social Network Analysis theory (SNA) (Peters et al., 2013) as well to corresponding endogenous indicators of social networks known as Social Media Analytics. Social Network Analysis (SNA) includes measurements such as the density of the network, the centrality measures, the page rank etc. For the purposes of this study, Social Media Analytics are used as influence indicators based on endogenous factional and structural characteristics of specific social network platforms, such as the number of followers, followings and posts in Twitter, the number of Facebook posts etc. In conjunction with other metrics and content analysis tools the above indicators are referred by a significant number of researchers (Adi et al., 2014; Bayram and Arici, 2013; Peters et al., 2013; Razis and Anagnostopoulos, 2014). Given the popularity of social media and in particular of Facebook and Twitter among social media platforms (Bayram and Arici, 2013; Rogue and Raposo, 2016), we postulate the following research questions:

1. To what extend the national DMOs of European countries have adopted the Web 2.0 applications and social media tools?
2. What is the relative position of the national DMOs of European countries according to their activity, performance and influence on the most widely used Social Media?
3. Are national DMO profiles of European countries in Social Media able to enhance information diffusion in their networks?

The first research question refers to the degree of adoption of Social Media by the national DMOs of European countries while the second deals with the identification of the relative position of the reference countries according to the activity, influence and performance of their DMOs in the two most popular Social Media. Finally, the third research question is related to the measurement of the level of successful implementation of Social Media by national DMOs in terms of Electronic Word of Mouth (e-WOM) dimension and information diffusion.

METHODOLOGY

The data were collected during 6-10 May 2018, using the official Facebook and Twitter accounts of the national DMOs of the 54 European countries of the analysis. The popularity of Facebook and Twitter is also confirmed by the findings of the analysis as they are chosen to a greater extent by the European national DMOs under study than other Web 2.0 applications. To be comparable, indexes should be recorded during the same period for all the countries. For that purpose, a short time window was chosen during May as this month was found to be the starting point in which tourists began to plan their summer vacations, and additionally it was found to attract the greatest number of visitors for tourism destinations (Eurostat, 2018; Statista, 2017).

Five transcontinental countries located both in Asia and Europe (Russia, Kazakhstan, Azerbaijan, Georgia and Turkey) were included to the study, as well as Armenia and Cyprus. United Kingdom was also analyzed both as a Union and as Separate countries.

In order for the first research question to be answered, the official web pages of the national European DMOs were searched for hyperlinks that link to Web 2.0 applications and Social Media accounts. A table which shows the web 2.0 applications that are hyperlinked from the official DMO websites was then constructed. In some cases, the search engine of Google and Social Media own search engines were used as well. For the second research question the study proceeded with the recording of the key performance, influence and activity indicators for Facebook and Twitter by using the profiles of the DMOs of the 54 European countries. At this stage four Facebook and five Twitter endogenous indexes were recorded. For Facebook the indicators are the Number of Likes, the Number of People Following the Page, the Number of Posts Per Day and the Number of People Talking About which measures the number of people interacted with the profile over the last seven days and for Twitter the Number of Followers, the Number of Followings, the Number of Tweets, the Number of Likes and the Number of Tweets Posted During the Last Month. By using Principal Component Analysis (PCA) one overall performance and activity index for Facebook and one for Twitter were constructed. The factor scores produced by PCA were used for the construction of the final ranking of the countries. The cases with factor score bigger than one are considered to be the most active and influential. In order to answer the third research question, two more indexes were recorded, one for Facebook (the "Engagement Rate" that is proposed by Likealyzer.com and represents the rate of messages that actual lead to interaction with other users) and one for Twitter ("Last Month Tweets/Last Month Retweets") which refers to the rate of the messages that were posted during last month by a user that was reproduced (retweeted) by other users. The "Number of Retweets" is referred by a number of researchers as an indicator of message diffusion on Twitter (Adi et al, 2014; Hendricks et al., 2016; Hoffman and Fodor, 2010). The countries are then ranked according to their relative scores to the above indicators. The Likealyzer website was used for the recording of some of the Facebook indexes, and Twitter's scroll down button was used in order to search for previous posts.

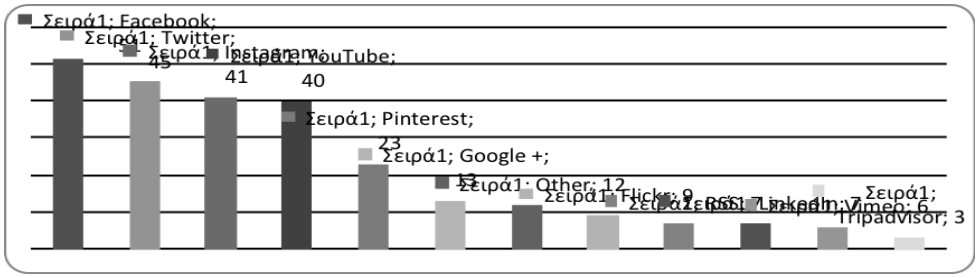
FINDINGS

Figure 1 presents the web 2.0 tools that are hyperlinked the most by the official web sites of the national European DMOs. There is a big difference between the four most popular applications and the rest web 2.0 tools that are used by DMOs under study. Facebook is hyperlinked 51 times, followed by Twitter (45 times).

Table 2 presents the four Facebook indexes that were used in the PCA analysis. Countries with PCA factor scores greater than one are reported. San Marino appears to be the only country without a Facebook DMO account, while Turkey's profile has the maximum number of likes (5,155,302), followed by UK profile (3,372,810 likes), Germany (2,652,738 likes), Switzerland (2,230,644 likes) and Spain (1,747,352 likes). The countries having DMOs profiles that receive the

minimum number of likes on Facebook are Moldova, Bosnia Herzegovina and Kosovo. The picture also remains the same for those who follow the page indicator. The account of Portuguese DMO appears to be the most active with an average 3.7 messages posted per day, followed by the Croatian profile (3.2 messages per day), the Italian profile (2.9) the profile of Turkey (2.7) and the Greek profile (2.4). The less active countries are Albania, Fyr Macedonia, Moldova and Bosnia and Herzegovina. They appear to have the less active DMO Facebook accounts (with an average 0 posts per day). Finally, the Scottish DMO account involves more people in a conversation and information diffusion with 92,983 people talking about the specific page, followed by Wales (with 37,124 to interact with its page), Turkey (23,731), Slovenia (19,209) and Denmark (16,903). The Facebook accounts of Bulgaria, Czech Republic, Albania, Russia, Ukraine, Kazakhstan, Kosovo, Fyr Macedonia, Moldova, Bosnia and Herzegovina and Sweden, fail to engage their users in conversation, since less than 100 of them talk about the specific pages.

Figure 1
Ranking of Web 2.0 platforms hyperlinked by the official sites of DMOs



With the exception "of the number of posts per day" all the other Facebook indexes have standard deviations larger than their means. There is a great dispersion of the indexes among the accounts. Principal Components Analysis (PCA) with varimax rotation was performed in order an overall Facebook performance index to be created. The analysis resulted to the extraction of one component which explains 62.8% of the total variance (Table 1). Table 1 presents the factor loadings for the four Facebook variables of the PCA. Highest scores indicate better performance of the accounts on the specific indicators.

Table 1
PCA loadings of the four Facebook metrics

Facebook Performance Metrics	Factor Loadings
Number Facebook Likes	0.926
Number of Page Followers	0.925
Number of Posts Per Day (mean)	0.695
Number of People Talk About	0.537

Based on the factor scores produced by PCA, the DMO of Turkey appears to have the better overall performance on Facebook, followed by Scotland, UK, Croatia, Germany, Portugal, Switzerland and Wales. These countries are considered to have the most active and influential DMO accounts on Facebook since factor scores produced by PCA are over unity.

Table2
Facebook metrics for the European countries DMO accounts with factor scores greater than 1

Country	Number Facebook Likes	Number of Page Followers	Number of Posts Per Day (mean)	Number of People Talk About (How many people have interacted with a page or its content over the last seven days)	Factor Scores Produced by the PCA
Turkey	5,155,302	5,117,734	2.7	23,731	4.29207

Scotland	1,306,634	1,306,664	2.3	92,983	2.29139
UK	3,372,810	3,329,937	0.8	4,775	2.02453
Croatia	1,663,042	1,641,590	3.2	15,709	1.66783
Germany	2,652,738	2,650,179	1.0	3,355	1.53249
Portugal	1,317,247	1,290,525	3.7	4,460	1.39144
Switzerland	2,230,644	2,229,923	1.1	204	1.19478
Wales	952,252	924,833	2.2	37,124	1.12574
Minimum	67	70	0	1	-0.86775
Maximum	5,155,302	5,117,734	3.7	92,983	4.29207
Mean	633,266	628,493	0.94	5,468	0
Std. Deviation	978,318	971,634	0.87	14,175	1

Table 3
Factor loadings of the five Twitter metrics after PCA

Twitter Performance Metrics	Factor Loadings
Number of Tweets Posted During the Last Month	0.935
Number of Tweets	0.792
Number of Followings	0.768
Number of Likes	0.608
Number of Followers	0.565

For Twitter, Table 4 presents the findings of the indicators along with the factor scores produced by the PCA and countries are ranked according to their factor scores. By using five Twitter performance indexes (the "number of tweets", the "number of followings", the "number of followers", the "number of likes" and the "number of tweets that posted during the last month") PCA contributes to the construction of an overall Twitter performance Index. Table 3 shows the factor loadings for the five Twitter performance indexes of the one component that is produced by the PCA analysis with varimax rotation which explains the 55.6% of the total variance.

Table 4
A ranking of the 54 national DMOs according to the factor scores produced by PCA for the cases with factor scores greater than one

Country	Number of Tweets	Number of Followings	Number of Followers	Number of Likes	Number of Tweets Posted During the Last month	Factor Scores Produced by the PCA
Spain	37,128	24,607	300,781	18,300	449	4.37985
Portugal	86,790	4,811	80,378	10,600	336	2.88739
Czech Republic	11,562	2,328	32,305	71,100	207	1.86234
Scotland	20,986	1,023	319,589	20,300	223	1.41533
UK	42,460	3,426	380,416	16,000	40	1.36532
Wales	11,495	1,654	308,902	13,600	258	1.25403
Greece	28,995	1,675	95,014	17,100	220	1.21103
Minimum	1	3	2	0	0	-0.80034
Maximum	86,790	24,607	764,931	71,100	449	4.37985
Mean	9,748	1,655	67,981	6,078	68	0
Std. Deviation	14,301	3,469	134,204	10,834	91	1

The countries without a DMO account on Twitter are Latvia, Belarus and Albania. Portugal has the most active DMO profile as it posts more messages (86,790 tweets), followed by UK (42,460), Spain (37,128), Greece (28,995) and Scotland (20,986). Romania, Armenia, Hungary, Fyr Macedonia, Moldova, Georgia, Slovakia, Kosovo, Kazakhstan and Bosnia and Herzegovina have the less active DMO profiles in Twitter with less than 100 tweets. In comparison to the results of the study of Antoniadis et al (2014), Spain remained in the first position, and Portugal and Scotland are placed in the top five. Some of the accounts seem to be inactive. Regarding the number of tweets that were

posted during the last month, the results appear to be slightly differed with the Spanish DMO profile placed at the top of the list (449 tweets), followed by the Portuguese account (336), the account of Wales (258), the account of Scotland (223), the Greeks account (220) and the profile of Czech Republic (207). The DMO of Spain has by far the most Followings (24,607), with DMO of Portugal to appear in the second place (4,811), followed by the account of Slovenia (4,471), Netherland (3,710), UK (3,426) and Croatia (3,224). All other national DMO profiles have less than 3,000 Followings. Turkey DMO account attracts by far the higher number of followers (764,931) with UK in the second place (380,416), followed by Scotland (319,589) Wales (308,902), Spain (300,781), England (205,468), North Ireland (105,653) and Croatia (100,750). All other countries have DMO Twitter accounts with less than 100,000 followers. Finally, the DMO account that engage more users to its content is that of Czech Republic with 71,100 total likes, followed by that of Scotland, Spain, Greece, UK, Croatia, Wales, Switzerland and Portugal with 20,300, 18,300, 17,100, 16,000, 14,900, 13,600, 13,300, 10,600 likes respectively, with all the others to have less than 10,000 likes and 18 of them less than 1,000 (Russian Federation, Lithuania, Ukraine, Cyprus, Sweden, Hungary, Malta, Bulgaria, Bosnia and Herzegovina, Armenia, Georgia, Azerbaijan, Slovakia, Kazakhstan, Kosovo, Fyr Macedonia and Moldova). There is great dispersion of the indexes among the accounts, since all indicators have standard deviation which are larger than the mean. According to the factor scores produced by PCA, the Spanish account appear in the first position as it has the better overall performance. Together with Spain Portugal, Czech Republic, Scotland, UK, Wales and Greece have the most active and influential DMO accounts in Twitter according to the scores produced by PCA. In order for the third research question to be answered one index for Facebook ("engagement Rate") which is proposed and reported by Likealizer (www.Likealizer.com) and one for Twitter ("last month tweets/last month retweets") that refers to the calculation of the percentage of the number of tweets that are posted during the last month that have been retweeted by other users, are analyzed. These two indicators are relevant for the measuring of the level of information propagation. Table 5 reports the findings.

Table 5
Indicators of information diffusion

Country	Engagement Rate (Facebook)	Last Month Tweets/Last Month Retweets (Twitter)
Albania	0.00	-
Andorra	0.01	5.42
Armenia	0.08	0.00
Austria	0.00	0.92
Azerbaijan	0.00	1.50
Belarus	0.13	-
Belgium	0.03	3.07
Bosnia & Herzegovina	0.00	0.00
Bulgaria	0.01	0.00
Croatia	0.01	37.41
Cyprus	0.00	14.10
Czech Republic	0.00	6.83
Denmark	0.03	32.88
England	0.00	21.22
Estonia	0.00	12.15
Finland	0.01	31.13
France	0.00	7.22
Fyr Macedonia	0.00	0.00
Georgia	0.01	0.00
Germany	0.00	11.98
Greece	0.01	33.87
Hungary	0.00	0.00
Iceland	0.02	17.09
Ireland	0.00	0.00
Italy	0.02	42.57

Kazakhstan	0.00	0.00
Kosovo	0.06	0.00
Latvia	0.09	-
Liechtenstein	0.04	2.86
Lithuania	0.03	8.58
Luxembourg	0.03	6.42
Malta	0.00	21.33
Moldova	0.00	0.00
Monaco	0.00	55.03
Montenegro	0.01	11.57
Netherlands	0.00	10.18
North Ireland	0.01	22.28
Norway	0.00	15.42
Poland	0.01	3.65
Portugal	0.00	48.37
Romania	0.02	24.17
Russia	0.01	45.58
San Marino	-	8.57
Scotland	0.07	386.44
Serbia	0.04	20.10
Slovakia	0.01	0.00
Slovenia	0.04	16.84
Spain	0.00	48.29
Sweden	0.00	1.75
Switzerland	0.00	18.63
Turkey	0.00	120.24
Ukraine	0.00	0.36
United Kingdom	0.00	1,005.48
Wales	0.04	32.21
Minimum	0	0
Maximum	0.13	1,005.48
Mean	0.017	43.41
Std. Deviation	0.03	148.36

The Facebook account of the DMO of Belarus seems to engage its users in conversation to a greater extent than the accounts of the other countries, as it appears at the first position according to the engagement rate index. Nearly half of the national DMOs of the study have a rate that equals zero. Only the accounts of Latvia, Armenia Scotland, Kosovo, Liechtenstein, Serbia, Slovenia and Wales manage to have rates from greater or equal to 0.4. Thus, the number of people that interact with the European DMO accounts during the last seven days (during the period of the study) is very low and the followers of DMO profiles appear to have a somehow passive attitude towards the information published in the profiles. On Twitter the DMO profile of UK appears to be way ahead from other national profiles acquiring 1,005 retweets for the tweets that it posted during the last reference month. Turkey remains well behind followed by Monaco, Portugal, Spain, Russia, Italy, Croatia, Greece, Denmark, Wales and Finland, which DMO accounts received more than 30 retweets on average to their tweets that posted during the last month. In all other cases profiles received less than 30 retweets. The DMO accounts of Armenia, Hungary, Georgia, Island, Slovakia, Bulgaria, Kazakhstan, Kosovo, Fyr. Macedonia, Moldova, Bosnia and Herzegovina are inactive having a ratio that equals to zero.

CONCLUSIONS

This study aimed to provide a framework for the measurement of adoption, performance, activity and influence of national European DMOs in Web 2.0 applications and Social Media. This framework can be regarded as a basic approach based mainly on Social Media Analytics. The proposed methodology can be applied to other marketing fields as well. The two most widely used web 2.0 platforms by the national European DMOs are Facebook and Twitter, followed by YouTube and Instagram. This finding is accordance with previous research (Bayram and Arici, 2013; Rogue and

Raposo, 2016). The majority of countries have active DMO profiles in every one of the above applications while a number of them have hyperlinks from their official web pages to some other Web 2.0 platforms as well. In conjunction with the study made by Rogue and Raposo (2016) the tendency for the national European DMOs is to adopt more web 2.0 applications in order to promote the destinations of their countries. The presence in Social Media is not big enough to ensure a level of activity and influence. There is a large dispersion in the values of indexes, which means that only a small number of countries manage to maintain an active and influential DMO profile in Social Media and given the low values in the relative indicators, the number of them that manage to successfully engage the users that follow their profiles to conversation is even smaller. The results confirm the findings of other relative studies (Hamill et al., 2012; Hays et al., 2013; Sevin, 2013). Web 2.0 applications must be used as part of an integrated marketing plan in a well-structured communication strategy under the scope of integrated marketing communications (IMC) (Minazzi and Lagrosen, 2014). By knowing the relative position of their countries in the basis of the successful implementation of web 2.0 applications and by understanding the main elements that contribute to the successful use of these applications, tourism policy makers will be in position to develop better destination image promotional strategies by adding the new means to their marketing plans (Echtner and Ritchie, 2003). The proposed methodological approach can be beneficial for the governments and the related tourism bodies in order to reach a better understanding about the mechanisms of web 2.0 applications and their main parameters that lead to the better implementation of them in their marketing strategies. Based on the proposed framework, tourism agencies, policy makers and Ministries of Tourism will be in position to better understand the performance indicators in order to be able to monitor their performance, activity and information provision capability in their social media profiles. This study was based only to Social Media Analytics and endogenous Social Media performance indicators. The combination of the above analytics with Social Network Analysis metrics is proposed in order to reach better conclusions and to lead to the better understanding of the elements of activity and influence on Social Networks under study. Also, qualitative analysis may also contribute to the confirmation and further support of the findings.

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