

A measurement framework for assessing the contribution of social media to public engagement.

An empirical analysis on Facebook

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Abstract

The public sector is increasingly turning to social media as a means to communicate and interact with citizens, but little is known about the contribution that these social technologies make to public engagement. This paper used a scoping literature review of studies examining social media in order to develop a framework that measures two Facebook features (popularity and commitment), which was then used to evaluate two different levels of public engagement (public communication and public participation). The framework was validated by applying it to the Facebook pages of several Italian city administrations, and a social media engagement matrix was proposed to interpret the findings.

Keywords: public engagement, social media, public participation, measurement

INTRODUCTION

The world of local government has the ongoing objective of involving citizens in public decisions and public life. This practice, known as public engagement (Rowe and Frewer, 2005), has the well-defined function of establishing interaction for consultation and dialogue purposes between citizens and the public sector, and involving citizens in discussions relating to public decisions at different levels. This type of interaction can take the form of public communication, when the information is conveyed from the government to citizens, and of public participation, when citizens are actively involved in public discussions and there is a two-way flow of information (Rowe and Frewer, 2000).

Public engagement has taken on a new impetus in recent times, with the arrival of social media platforms (Golbeck et al, 2010), such as Twitter, YouTube and Facebook, which all have the common feature of encouraging real-time interaction. Interactivity and real-time communication of this kind is potentially useful in promoting public engagement, as it becomes easier for citizens to be involved in public life. However, while the number of studies on social media in the public sector is growing (e.g. Feeney and Welch, 2012; Ma, 2013; Snead, 2013), so far, scant evidence has been produced about the role of social media in supporting public engagement and, more precisely, the two forms of public communication and public participation. This denotes an important shortcoming, in first place because of the growing use of social media (e.g. Bonsón et al., 2012), with all its associated opportunities for local government (and also its risks) in terms of connecting transparently with the public in a ‘viral’ way and, secondly, because of the uncertainty about whether social media can actually be used to establish meaningful relationships between local government and public. This problem was also raised by the OECD back in 2009 (OECD, 2009), when it claimed that the use of social media does not automatically translate into engagement. The issue is addressed in this study, through an ad-hoc framework that can be used to measure if and how social media contribute to public engagement, at all levels.

The framework was the outcome of a scoping literature review (Arksey and O’Malley, 2005) carried out on extant studies examining how social media can be used to evaluate public communication and public participation. The framework was then validated through an empirical investigation. This involved examining the Facebook accounts of a number of Italian city administrations, specifically the 19 out of 20 regional capitals with a presence on Facebook. Through this analysis, we were able to refine our preliminary theoretical framework and define an engagement matrix to interpret the findings.

These findings have implications at the academic level in connection with the current discussion on the role of social technologies in involving citizens in public life. They also provide detailed insight into the way social media practices are used for public engagement. At the practitioner level, the measurement framework developed in this study can be adopted and adapted by local government at various levels to assess and benchmark the way it uses social instruments to engage with the public.

The structure of this paper is as follows. The concept of public engagement is first illustrated, with particular emphasis on the role that social media have acquired in supporting public communication and public participation. This is followed by a description of the research methodology and then by an analysis of the results, with an explanation of the process used to develop the measurement framework and a discussion about the engagement matrix. The main contributions of the study are then summarized in the final section.

PUBLIC ENGAGEMENT THROUGH SOCIAL MEDIA

This section contains a discussion of the background concepts on which our study is based, namely public engagement and social media. It is followed by a discussion of the extant literature and the current limitations concerning the contribution of social media in initiating and maintaining public engagement.

Public engagement

Public engagement is broadly defined as the involvement of citizens in public affairs (Rowe and Frewer, 2005) and its function is to establish a relationship between local government and citizens that goes beyond the simple exchange of information. The objective of public engagement is to support public interaction and participation, thereby leading to better-informed government decision-making (Rowe and Frewer, 2000). This requires the involvement of the public in all government activities, from formulating policies to implementing service co-production (Bovaird, 2007).

According to extant literature (Rowe and Frewer, 2000), the public can be involved at two different levels, known as public communication and public participation, depending on the flow of communication, which can be either unidirectional or bidirectional.

In public communication, the flow of information is one way, and this is the lowest level of engagement. Information is conveyed in one direction, from local government to citizens, local governments tending to broadcast information through their public communications, rather than interacting with citizens (Rowe and Frewer, 2005).

In public participation, on the other hand, there is a two-way communication process between local government and citizens. There is a higher level of engagement, based upon dialogue and the active role of citizens; the end purpose is to collect feedback from people and so interact with them. The two levels of engagement differ in terms of the flow of information: in public communication processes, citizens simply receive information from the government, while in public participation, they, in turn, contribute, establishing in this way a two-way flow of information.

Social media

Social media can potentially be powerful tools in strengthening the role of public communication and public participation. Citizenship engagement can be further reinforced with the integration between social media and traditional methods, such as focus groups, surveys, open panels, opinion pools, workshops, deliberative polling and citizen juries (e.g. Lynn and Busenberg, 1995; Barnes, 1999; Rowe and Frewer, 2000; Rowe et al., 2004; IAP2, 2007).

Social media are web-based technologies with interactive platforms, used by individuals to connect with each other, share comments and co-create information (Kietzmann et al, 2011; Chun and Luna-Reyes, 2012). They are defined as ‘a set of online tools that are designed for and centred around social interaction’ (Bertot et al., 2012: 30). The term social media is a broad concept that encompasses a number of applications, which vary widely in scope and function. They include a whole variety of different social networking sites, such as Facebook, micro-blogging services like Twitter, blogs, photo sharing and video sharing like YouTube or Flickr (Gilfoil, 2012). All of them, however, contain several common features that are potentially useful for engaging with the public, in the form of user-generated content and real-time communication.

Firstly, users can be active creators of content rather than the passive recipients of information, and this can stimulate their contribution to public life. Social media applications are based on Web 2.0, also known as the ‘Read-Write Web’ (Price, 2006; Richardson, 2006), since members of the public can contribute actively to shape the website content. Secondly, parties communicate in real-time, shifting the dialogue from offline communication to instantaneous online communication. This means that local government and public can dialogue there. These two aspects set social media apart from traditional tools used for engagement, contributing, in this way, towards better public engagement.

The contribution of social media to public engagement

Although it has been widely acknowledged in studies concerning public administration (e.g. Bekkers et al., 2011; Kim et al., 2013; Ma, 2013) that real-time communication and user-generated content has the potential to stimulate interaction, so far, there is limited evidence concerning the contribution of public media to public engagement. In some papers, the issue of public engagement has been tackled indirectly, with the acknowledgment that ‘among the several ways that Web 2.0 can provide added value to public service organizations are the possibility of enabling more effective social networking, citizens engagement and collaboration with the community’ (Pérez et al., 2012: 42). This position is widely supported by other studies in the field of public administration (e.g. Bertot et al., 2012; Bonsón et al., 2012). While it has been recognized that, potentially, social media can bring about a greater participation of the public, it is also true that this does not automatically translate into engagement (Kamal, 2009; Panagiotopoulos et al., 2011; Pérez et al., 2012): ‘merely providing typical ICT solutions are not the answer to citizen participation’ (Kamal, 2009: 342). The same issue has been raised by OECD, which stated that ‘blogs, wikis and social media (also known as Web 2.0) do not automatically deliver public engagement’ (OECD, 2009:29). The whole issue of public engagement requires greater planning, introducing measurements to evaluate its progress.

Although extant studies support the theory that social media can bring about public engagement, they do not propose any methods that can be used to evaluate how far this process actually goes. The aim of our paper is to address this shortcoming, by developing a theoretical framework to measure the contribution of social media to public communication and public participation.

METHODOLOGY

In order to develop the framework above, we first carried out a scoping literature review (Arksey and O’Malley, 2005) and then tested the proposed framework empirically, by examining the Facebook pages of several major Italian cities. We looked at Facebook in particular, rather than social media as a whole, as every platform has its own specific functions and the metrics used for Facebook cannot be applied to other social media or vice-versa. Furthermore, Facebook is the most wide-spread of all social media globally (Cosenza, 2014), which is a further corroboration of our choice.

The first phase in developing our framework involved a scoping literature review (Arksey and O’Malley, 2005), which focused on papers examining how the two levels of engagement, public communication and public participation, can be measured through social media.

Generally, using a scoping literature review is deemed appropriate when the object of analysis is wide-ranging and it is difficult to define the boundaries of the review itself (Arksey and O'Malley, 2005). Here, it was considered to be the most suitable approach for two main reasons. In first place, the purpose of our scoping review was simply to help us develop a measurement framework for use in evaluating public engagement through social media. This was the reason why we decided not to use a systematic literature review, since this method is used to evaluate the quality of studies in a specific research field. A scoping approach, on the other hand, is particularly useful when there is the need to 'map rapidly the key concepts underpinning a research area and the main sources and types of evidence available' (Mays et al., 2001: 194). This method has the additional benefit of providing summarized research findings that can support further work (Arksey and O'Malley, 2005), and this is consistent with our intention of developing a framework. The second reason behind our choice lies in the broadness of the subject being investigated. The concept of public engagement is covered in a whole range of fields, not only within that of public administration, but also in marketing, general management and IT management. The breadth of the research field makes setting the boundaries of the literature review difficult, since it cannot be narrowed to public administration studies only, and other academic fields must also be examined, although these fields cannot be defined univocally a priori.

Because of these two features (i.e. purpose of study and boundaries of analysis), a systematic literature review was not appropriate for our study, pushing us towards a different review approach. Although using a scoping review is unusual in studies on public administration, it is seen as a useful method in the management field, when there is the need for analyzing broader areas of research and it is not easy to set precise boundaries in advance (e.g. Arena and Arnaboldi, 2014; Baxter and Connolly, 2014).

We carried out the review following the five methodological steps (see Table 1) proposed by Arksey and O'Malley (2005).

< Table 1 near here >

We first started by asking how public communication and public participation can be measured through social media, and used the search engine Scopus to search through papers from academic journals, electronic databases and conference proceedings, applying the keywords 'communication', 'participation' and 'engagement' in combination with 'social media' or 'Facebook'. We initially retrieved 1224 articles (see Table 2). After reading the abstracts of these first papers, we only retained studies where operational measures were proposed and, more precisely, only measures

potentially relevant to the topic of engagement. For example, while some of the papers acknowledged that it is important to develop a measurement system for social media, they did not propose any relevant metrics; these we excluded, being unconnected to our analysis. After this step, we were left with 36 papers, which were then subjected to a full-text analysis. We reviewed the citations in these papers using a snowball approach, and were able to identify further material that had escaped the keyword search. Three additional papers were added to our sample.

< Table 2 near here >

All this literature was analyzed and used to create the measurement framework. We followed the general concept of public engagement to guide this process, making the distinction between public communication and public participation. We classified the 39 papers into studies proposing social media metrics to evaluate public communication and studies proposing social media metrics to evaluate public participation (while stressing that this was not the purpose of these papers). It was, therefore, possible to produce a synthesis of the metrics currently available to measure social media. We then selected the metrics most appropriate for our purpose, that of quantifying the contribution of social media to public engagement.

In the second phase of our analysis, the proposed measurement framework was validated through an empirical analysis of the websites of a chosen set of Italian city administrations with a presence on Facebook. We selected Italy because of the strength of its Facebook activity. Facebook is the most wide-spread social media in Italy (Cosenza, 2014) and the country, as a whole, is among the top ten Facebook users worldwide. We decided to investigate local government at city level because ‘the most important interactions between citizens and government happen at the local level’ (Sandoval-Almazan and Gil-Garcia, 2012: S72). This implies that public engagement can be investigated very effectively by looking at local governments. Our research initially focused on 20 city administrations, these being the capital cities of each Italian region. The decision to concentrate on these larger areas within the public sector is justified because larger cities ‘are usually the most innovative in the adoption of new technologies’ (Bonsón et al., 2012: 126). Our research was carried out in 2014 and consisted of two main phases, website analysis and social media analytics.

To make sure that we found the right Facebook webpage for each local government, we looked for a direct link to Facebook on each city’s official website. It is common practice for social media links to be placed on a website’s home page (Snead, 2013). We checked where the links to Facebook were located on these homepages, since less important information is generally placed at the bottom of the page (Nielsen and Loranger, 2006). We only examined the local governments’ official sites, as we decided that the data from Facebook would be the most reliable. Of the 20

Italian city administrations examined, we found that only one had no official Facebook account (and it took no further part in our study).

Using the framework prepared from the scoping literature review, we collected analytical measurements from the Facebook pages of each city administration. More precisely, we gathered the 50 most recent Facebook posts published by each city administration, throughout December 2014, giving us a sample of 950 posts. We used these posts to calculate the values for each city administration and build the measurement framework presented in the next section. We then constructed an engagement matrix to interpret our findings about the different ways in which social media can support public engagement.

RESULTS

The results are divided into two main parts. The measurement framework used to evaluate the contribution of social media to public engagement is presented in the first section, and the second part contains a discussion about the empirical application of this framework to our group of Italian city administrations and the associated engagement matrix used to interpret our findings.

Social media for public engagement: development of a measurement framework

The contributions gathered from the scoping literature review were used to develop a social media measurement framework (see Table 3). This framework consists of two dimensions, popularity and commitment, and these, in turn, are used to evaluate public communication and public participation, respectively.

< Insert Table 3 near here >

Popularity

Popularity measures whether social media are capable of broadcasting information to a large audience. It is aligned to the concept of public communication, where information flows in one direction, from local government to citizens (Rowe and Frewer, 2000). For Facebook, popularity is determined by the ratio between ‘Total Likes’ per post and total number of fans on a Facebook page¹. By comparing the number of ‘Likes’ with the number of Facebook fans, it is possible to make several deductions, so this metric particularly is suited to a comparative analysis. The

¹ A Facebook fan is a user who clicked the button ‘Like’ of a certain page and because of this he will receive updates from the page’s administrators. Liking a post means to click on the ‘Like’ button in correspondence of a certain post published by the page administrator. While a user can become a fan of a certain Facebook page just once, he can ‘Like’ one or more posts published by the administrator.

resulting value is multiplied by 1,000 to avoid working with values close to zero. We found this particular metric during the scoping literature review in a paper by Bonsón and Ratkai (2013), who proposed a series of metrics to quantify the level of interactivity and dialogue within corporate Facebook pages.

According to the majority of studies reviewed, the number of 'Likes' for a message can be used to calculate the popularity of a message (see Table 4), although there are differences in the various metrics proposed. All the relative authors agreed that the 'Total like this' counter can be used as a reference measure (e.g. Gerlitz and Helmond, 2013; Hebrang Grgić, 2013; Mergel, 2013; Reilly, and Hynan, 2014; Sabate et al., 2014), in part because it is a feature already provided by Facebook. There is, however, a level of ambiguity since the 'Total like this' counter can calculate both the number of fans on a page or for a single post, and, in fact, they are two distinct metrics (i.e. total 'Likes' per page and total 'Likes' per post). In the first case, the measurement entails counting the total number of people who have said they like the local government's fan page since it was created. As a side point, people who like a particular fan page will be sent updates from it directly to their Facebook Timeline (previously called News Feed). In the second case, the measurement calculates the total number of times that people have clicked on the 'Like this' button for a specific post. Incidentally, the use of the 'Like' button to express interest in something on social media has become so frequent that these buttons are now seen as being part of what is known as the 'Like economy' (Gerlitz and Helmond, 2013).

We also found several other studies that provide alternative metrics. One of these is the paper by Pérez et al. (2012), in which the authors carried out a broader investigation into how Spanish local governments are using social media to update the way public sector services are delivered, by looking at the number of followers on Facebook fan pages to assess the intensity of social media activity. In this case in particular, however, the results cannot be used as a proxy for public communication, because of the bias introduced by the fame of one local administration (a tourist town or city administration can have a high number of followers, not necessarily because people are interested in public life, but because of the high number of tourists who like the place).

We did, however, determine that the 'Like' button, used to express interest in a particular post, is suitable for evaluating the *level* of public communication. This is the second of the two possible uses of the 'Like' counter, that of counting the number of 'Likes' for individual posts and, unlike the first counter, it does not depend on when the site or webpage was created. This means that the higher the number of 'Likes' for a post published by a public government, the higher the level of public interest in the information it provides.

Participation

Commitment measures whether social media are capable both of supporting dialogue and interaction between local government and the public, and of encouraging feedback from the public, which can be used to inform public decision-making process. Public involvement, with a two-way flow of information between public sector and citizens is consistent with public participation level of engagement (Rowe and Frewer, 2000). Clearly, therefore, there is the need for metrics capable of capturing the aspects of interaction and dialogue that are such a distinctive feature of social media. The metric measuring public participation on Facebook is defined here as the ratio between the total number of comments per post and the number of fans for a specific page, once again multiplied by 1,000 to help make comparisons and avoid near zero values.

Once again, this metric was deduced from the study by Bonsón and Ratkai (2013), but is corroborated by the results of our scoping literature review (see Table 4). It has been suggested several times that the number of comments about a post can be used as a proxy for measuring the level of interactivity on a Facebook page (Hebrang Grgić, 2013; Mergel, 2013; Snead, 2013), and this further endorses our choice. The measurement involves counting how many times people have commented on a message posted by the city local authority. While the study by Mergel (2013) simply proposed the measurement, in his paper, Snead (2013) noted that ‘these numbers are indicators of high participation rates with a site’s post’ (p. 59) and that ‘high numbers of participation counts suggest that the public actively participates with agencies through the use of social media’ (p.62). We also found a further two metrics that could potentially be used to evaluate public participation.

The first metric is a counter giving the number of ‘People Talking about This’ (Pérez et al., 2012). It is located on the local authority’s Facebook page and shows how many people have actually spoken to their friends on Facebook about the city administration. This number includes all those who liked the page, or who liked a post and commented on it or shared it, and those who replied to a posted question, responded to an event, mentioned the page or tagged the city administration in a photo (Facebook, 2011). We decided, however, not to use this metric in our study, as the counter was removed by Facebook in March 2014, following criticisms about its ambiguity in terms of how the numbers were calculated.

The second metric is a measurement that combines the ratio between the effective interest shown for a Facebook post and the average reach of the post itself (Garcia et al., 2014). While it seems to meet our purpose of measuring the level of dialogue and interaction between local government and public, its original function was to quantify customer engagement in the marketing field. This is a limitation and, in addition, we were unable to find an empirical application to test its validity.

Based on the examined literature, we decided to use the metric giving the number of comments per post to evaluate the level of public participation, in part because it has been already applied in the public administration field (Mergel, 2013, Snead, 2013).

<Insert Table 4 near here>

Social media measurement framework: application to Italian city administrations

The second area of results involved validating the proposed measurement framework by applying it to the set of Italian city administrations. This process was also used to develop a more general engagement matrix, which has the purpose of assessing the extent to which a local government can use social media as a public engagement tool.

The values of public communication and public participation were computed for all the city administrations in the sample according to the previously proposed measures of popularity and commitment. Our results show that Italian city administrations are more disposed to use social media for promoting communication than for public participation purposes (Table 5). This can be seen by the low values of commitment compared to those of popularity. These findings are consistent with other similar research works examining the adoption and use of social media in the Italian government at all levels of administration (in Italy, local government is composed of regional and provincial administrations - known as Regions and Provinces - and city or town administrations, known also as municipalities and are the level closest to citizens). According to these investigations (Arata, 2013), the use of social media is higher at municipality level than at other governmental levels, and the Facebook adoption rate is 3.5% for Provinces and 0.7% for Regions. At all three governmental levels, social media are used mainly to broadcast information, and 65.7% of all local governments use it in this way. In terms of public engagement (taking the number of replies to online posts), social media are more widely used for this purpose in large municipalities (such as our regional capitals, with 100% of the posts receiving a reply over the period of our analysis), than in the Provinces (50%) and Regions (0%)

Apart from this data at local level, it is interesting to notice that there is greater variability in the measurement of popularity than in that of commitment. Indeed, while commitment scored a value of less than one for all the city administrations being analyzed, popularity measures range from less than one to values close to 10.

<Table 5 near here>

These differences suggest that, while all Italian regional capitals are equally capable of using social media for public participation purposes, this is not true for public communication, where the use of social media varies in terms of intensity. We were also keen to find a reason for the variability in the measurement of popularity (used for public commitment), and examined in detail the posts of the city administrations with the highest and lowest popularity scores, Trento and Rome. We found that it was probably linked to the timing of the content posted on Facebook. Rome, which scored lowest in our sample, published 50 posts over three days, with 34% of them not receiving any 'Like' at all. The posts covered a range of topics, including public transport, climate and local events. Trento, which scored highest in popularity, published the same number of posts with the same type of content but over a period of 39 days, with all apart from one being 'Liked'. These findings are particularly interesting, as it would seem that, for city administrations, continuously posting on Facebook does not always translate into better engagement and that citizens will instead ignore this information overload.

Starting from the measurements of popularity and commitment contained in our framework, we obtained an engagement matrix to see how capable local administrations are of using social media to engage with the public. The purpose of the matrix is to analyse how far social media contribute towards promoting public engagement, making the distinction between public communication (through popularity) and public participation (through commitment).

The engagement matrix (Figure 1) is composed of four quadrants defined by the popularity and commitment measurements obtained from the sample of observations. Popularity and, therefore, public communication, is plotted on the x-axis, while public participation, expressed through commitment, is on the y-axis. By positioning the axes on the median values of the observations (i.e. median value of popularity and commitment for all the city administration), we were able to identify four quadrants corresponding to different levels of social media activity and, thus, to different levels in which social media contribute to public engagement. These quadrants represent ghosts, chatterboxes, engagers and leaders.

< *Figure 1 near here* >

Ghosts, in the bottom-left quadrant, are city administrations with a low level of both popularity and commitment. This means that only a few people know about their posts on social media, as indicated by the low value of popularity, and only a few people comment about these posts, indicated by the low value of commitment. This is the lowest level of engagement, from both communication and participation perspectives. Currently, for these local administrations, social

media activity is limited, despite their official presence on Facebook. The explanation may be simply because these city administrations joined Facebook because it was fashionable or the trend to do so, but they are not really interested or, indeed, able to communicate or dialogue with citizens through this channel. Local governments in the bottom-left area of the matrix should ask themselves why they have a social media page. If they are really interested, they should review their social media processes thoroughly, starting by reflecting on what they actually want from social media. If their purposes are plain, they will understand more clearly whether to stimulate communication, or participation or both. On the other hand, if they have no clear purpose or interest in having a social media page, it may be better for them to stop using it, for no other purpose than to avoid the potential risks arising from uncontrolled communication channels.

Chatterboxes, in the bottom-right quadrant of the matrix, indicate city administrations with a high level of popularity and low level of commitment. It follows that many people are aware of their posts and like them, but the level of interactivity is low. This means that, according to their current social activity, they are in favour of public communication, but not of public participation, given the low value of commitment. Public engagement can be improved, because the local government knows how to communicate through social media, but it does not know how to involve the public or how to establish a two-way dialogue. Improvements to interaction and dialogue on social media can be achieved by changing the content or language of the communications.

Engagers, in the upper-left side of the matrix, are city administrations with a high level of commitment, but a low level of popularity. This means that the local administration interacts intensively on social media with the public, but only with a small number of people because only so few of them are aware of the Facebook posts, as indicated by the low popularity value. Administrations in this area, very few in our empirical analysis, should understand whether this is a deliberate choice, or not. If the answer is yes, then the public administration can maintain this level of activity, otherwise they should increase their exposure.

Leaders, in the upper-right side of the matrix, are city administrations with high levels of both popularity and commitment, which means that many people know about the Facebook posts and many of them are also interacting intensively with the city administration. This is the highest level of engagement, and provides evidence that the current level of social media activity is successful in supporting both public communication and public participation.

CONCLUSION

The aim of this study was to develop a measurement framework to be used for evaluating the contribution of social media to public engagement, making the distinction between the

unidirectional use of social media - *public communication* - and a bidirectional approach, which promotes dialogue - *public participation*. Starting from the two public engagement levels of public communication and public participation, we equated them to popularity and commitment in our measurement framework (Bonsón and Ratkai, 2013), which was then used to measure the contribution of social media to public engagement. This framework was applied empirically to a group of Italian city administrations, and the resulting engagement matrix was used to evaluate whether a public administration is capable of employing social media as a public engagement tool. At the academic level, this study provides three main contributions. The first contribution moves beyond the widespread acknowledgement that social media can promote interaction and participation (Kamal, 2009; Pérez et al., 2012), and proposes a measurement framework to evaluate how far social media can engender public communication and public participation. We argue here that a feasible measurement approach is necessary in order to understand if and how social media contribute towards engaging citizens. The proposed measures of popularity and commitment, which rely on data provided by the social media platform, yield a practical insight into how the actual level of engagement for each individual administration can be quantified, and can also be used at government level for benchmarking purposes (Kouzmin et al., 1999).

The second contribution relates to the social media evaluation matrix, and is concerned with the importance of planning a social media strategy in advance and then using a measurement instrument to evaluate the results. According to the engagement matrix, it is important that public administrations, rather than using social media serendipitously, should make sure that citizens are aware about their presence on social media. Furthermore, using this matrix can encourage public administrations to plan their engagement strategies in advance, as they can be evaluated subsequently and compared to the planned target, and it can also be used to make comparisons with other similar administrations.

The third contribution concerns the specific measures of popularity and commitment used for evaluating the social media activity of local administrations. The potential and benefits of social media have been widely acclaimed, and studies on the use of social media in governments are increasing (e.g. Bertot et al., 2012; Snead, 2013). However, the issue of evaluating social media has received scarce attention, despite the widely recognized view that social media do not automatically translate into public engagement (Kamal, 2009; OECD, 2009; Panagiotopoulos et al., 2011). This study, gaining insights from a scoping literature review specifically focused on Facebook metrics (e.g. Bonsón and Ratkai, 2013), suggests that popularity and commitment are valuable measures for evaluating the contribution of social media to public communication and participation. It has been suggested that popularity measures the level of public communication by providing information

about the city administration's capacity to share information with the public, while commitment measures public participation, since it evaluates the level of interaction that public administrations establish with the public. These concepts of popularity and commitment expand the current literature on the adoption of social media, by proposing a measurement framework that can be used to evaluate the contribution of social media to public engagement, with particular reference to Facebook.

At a practitioner level, this study not only provides managers with an operative tool to evaluate their presence on social media, but it also makes suggestions about how public engagement can be improved through the use of social media. These suggestions include the following. Firstly, when setting up a social media page, local authorities should have a clear and well-defined purpose, an engagement strategy and relative targets. This will help them to select their audience, language to be used and content to be posted. Secondly, the process of measuring the level of engagement achieved through the proposed framework and plotting the results on the engagement matrix can help the local government to understand whether their initial targets have been achieved and what the trend is over time; this, in turn, can lead to a better review of their social media and engagement strategy. Thirdly, posting on social media continuously throughout the day does not result in the higher probability of engagement but, on the contrary, there is the risk that users will be put off and not interact because of information overload. These suggestions are not valid in general, but they derive from our empirical and theoretical exploration. Further studies, in particular quantitative studies, can help to provide further evidence.

To conclude, this study represents a first attempt to move forward with the discussion on social media in public administrations, by recognizing the importance of evaluating social media activity and its contribution to public engagement. However, it is also important to underline the limitations of the current research and suggest avenues for further work. The main limitation of the proposed measurement framework relates to the engagement matrix and, specifically, to the positioning of the axis on the median values of the observations. While avoiding the problem of outliers, this choice does not provide an absolute reference target value, but is influenced by the city administrations included in the sample. The same model applied to a different European local administration can give different median values, changing the threshold level used to identify the four quadrants. Further research can, therefore, focus on how to define a threshold level that can distinguish between the quadrants of the matrix, and not be dependent on the sample of observations. The next step could be that of analyzing the content of the posts and comments published on social media. This would involve looking at the types of Facebook posts that generate high values of popularity

and commitment, and so highlight the best and most effective type of information to be posted by the public administrations on social media.

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