How Mayors Perceive the Influence of Social Media on the Policy Cycle

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Abstract

Information technology clearly influences the decision-making behaviour of individuals, groups, and organisations. In particular, social media and Web 2.0 technologies can affect the rationality and effectiveness of the policy cycle in the public sector. This growing influence deserves to be analysed. This work aims to understand how the influence of social media in the different phases of the policy cycle is perceived by mayors, the main decision-makers in local governments.

Keywords Social media · Public sector · Local governments · Policy cycle · Accountability

Introduction

The political landscape has changed a lot in the last twenty years. The Internet has played an important role in this transformation, leading to an increasing use by the government of online media such as websites, social networking sites, and blogs. These communication systems are used to promote democratic values and public trust in the public sector by helping the different levels of government respond to citizen needs. Furthermore, some of these online channels encourage citizen participation in public decisions. Social media are a new arena in which organisational legitimacy is measured (Etter et al. 2018). Yet, although there is an ever-growing literature on democratic innovations and coproduction of public services, this scholarship still shows limited interest in the role of new media (Meijer 2011).

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In the literature, several authors see in Web 2.0 and in social media the potential to 'rethink traditional boundaries between individuals, the public, communities, and levels of government' in ways that 'dramatically alter how the public and government interact, develop solutions and deliver services' (Bertot et al. 2010).

Politics and public administration are based on a multiplicity of relationships that interconnect different actors. Citizens can contribute to the design, production, and delivery of the public services they receive. Despite the critical importance of these interactions in public administration throughout the policy cycle, and the growing trend for governments at all levels, national and local, to consult stakeholders on issues ranging from budgets to strategic plans of departments and agencies (Dixon 2010), they have received little direct attention from scholars.

This raises several issues for local governments on how to develop and effectively implement a social media strategy both from the communications point of view and from the point of view of the impact of social media on the choices of local governments. Not being unidirectional communication channels, social media must also be studied from the perspective of how they influence the policy cycle of each local government. The empirical setting of this study is Italy because of the peculiar characteristics of Italian local governments such as the strong powers residing in the mayor and the numerous tasks assigned to local government.

Starting from these considerations, this article aims to answer two research questions:

- RQ1 – Do social media influence the policy cycle in local governments? If so, to what extent and at what stages of the policy cycle?
- RQ2 – Does the perceived influence of social media change depending on certain characteristics of mayors (i.e. age of mayor, size of municipality, geographical area, gender)?

The answer to these questions helps shed light, thanks to data collected on a large scale, on a phenomenon that is increasingly modifying the political policy processes.

The remainder of this article is structured as follows: section 2 introduces the literature review about the theoretical background and the determinants of social media influence; section 3 presents the methodology; section 4 describes and discusses the results of the analysis; and, finally, section 5 draws conclusions and offers suggestions for future research perspectives.

Theoretical Framework

In terms of accountability and transparency, information and communication technologies (ICTs) are changing the relationship between public administrations and citizens (Gesuele 2016). In fact, citizens are increasingly using new technologies that can facilitate a proactive role in dialogue with the government.

The so-called e-Government approach is increasingly central to improving transparency and citizens' engagement, as well as promoting anti-corruption initiatives (Bertot et al. 2012). Many expectations in this sense are placed on the growth of social media, ubiquitous mobile connectivity, and Web 2.0 interactivity, which for the first time

provide cheap communication that is not just one-way but also allows two-way interaction with citizens (Benkler 2006).

As stated by O'Reilly (2005), Web 2.0 refers to the second generation of web technologies that allows and promotes collaboration and interaction. The Web 2.0 approach tends to change the communication model based on asymmetry between transmitter and receiver: with the network, in fact, society becomes more horizontal. The potential of social media to influence the connection between politicians, civil servants, and citizens is at the heart of a debate involving public managers, political scientists and philosophers, public policy scholars, ICT experts, and practitioners focused on the generally known concept of e-government and on how social media shape collective action (e.g., Ellison and Hardey 2013; Ceròn and Negri 2016).

The growing dynamics of social media show that they are not an out-of-the-ordinary phenomenon but, on the contrary, increasingly relevant in the citizen–government relationship. In particular, municipalities are using Facebook, Twitter, and YouTube as the most popular social media (Gesuele 2016). In light of this situation and growing phenomenon, several scholars have studied why local governments seek to increase their level of accountability through use of social media.

The government–citizen relationship is increasingly seen from the perspective of citizen co-production, which has been made 'more relevant and viable' with advances in technology, thanks to new technologies and Web 2.0. In this light, the government treats the public not as customers but as co-producers, improving the image of citizens from passive consumers of public services to active actors tackling social problems (Nabatchi et al. 2017). For this reason, continuous interaction with them is essential.

From the theoretical point of view, the literature concerning the use of social media by local governments mainly refers to agency theory and stakeholder theory. The principal–agent relationship, at the basis of agency theory, is configured when one part (agent) agrees to work in the interests of another party (principal) in return for some benefits. In the case of public administration, the agents are the politicians and the principals are the citizens. One of the most controversial issues arises from how the principals check that the agents are effectively pursuing the interests of the principals. To mitigate this potential conflict, social media can effectively intervene by providing adequate information disclosure (Serrano-Cinca et al. 2009). In the principal–agent relationship, the theme of the use of social media by local governments is inserted in order to satisfy the 'need to know' expressed by citizens (Gesuele 2016).

The involvement of stakeholders enables organisations to recognise and include their material needs and expectations (Bebbington et al. 2007). The growing pressure to connect more frequently with stakeholders demands an engagement with several stakeholders through enhanced inclusiveness and dialogue.

Knowing and managing the relationship with stakeholders requires the will, conviction, and knowledge of the stakeholders themselves. Reed's contribution (1999) separates stakeholders into internal and external groups. The internal stakeholders, such as workers and managers, are those who work within organisations and have formal, official, or contractual responsibilities (Kaur and Lodhia 2018). The external stakeholders are those individuals and groups that do not work for the organisation but still affect, or are affected by, the organisation's activities. These stakeholders include customers, government, and the local community. In the case of the present work, attention is centred precisely on the citizens and the local community.

In the last twenty years, stakeholder attitudes have switched noticeably from 'inform me' to 'engage me' to incorporate into the decision-making dynamic stakeholder needs and expectations (Cummings 2001). This evolution challenges organisations to understand and address stakeholders through practical means that involve, not only inform.

Nevertheless, few studies have been undertaken on the issues related to the basic features of stakeholder engagement, such as the tools used by organisations to initiate a stable relationship with stakeholders and the approach adopted by organisations to engage stakeholders (Rinaldi et al. 2014) and the impact of stakeholder engagement on strategic planning (Burchell & Cook, 2006).

In this regard, the issue of the use of social media by local governments in engaging citizens is still little investigated, even though in the last five years studies related to this topic have grown. In this regard, an important study by Ellison and Hardey (2013) concerning English local authorities should be noted. Their work analysed the use of social media and its potential to enhance local participation. From their work it emerged that English local governments were failing to use the full potential of social media to stimulate and manage citizen participation.

Policy Cycle in Local Governments

As shown by Ceròn and Negri (2016), social media data can provide policymakers with useful indicators to ponder the available policy alternatives according to the public policy; and it can help them to check citizens' opinions during the implementation phase. In short, social media data can provide important information throughout the policy cycle.

Five phases of the policymaking process are currently considered: agenda-setting, policymaking, public policy decision-making, policy implementation, and policy evaluation (Howlett et al. 2009). According to Knill and Tosun (2008) these five policymaking steps can be grouped into three fundamental steps:

1. agenda setting;
2. policy formulation and adoption;
3. implementation and evaluation.

The policymaking process model described above depicts some salient steps of policymaking, but the policy process varies in different contexts and can be influenced by several actors. In this regard, Sabatier and Jenkins-Smith (1993) developed a framework that emphasises the importance of external players advocating for policy changes. This framework enhances the importance of the role of non-political and external stakeholders, like media, in the creation of new public policies. Nowadays, the increasingly pervasive affirmation of social media in society has partly replaced what was the role of the media and has helped renew the theme of participation in the public policy cycle.

In public policy studies, scholars have always discussed the issue of participation: who should be involved in public policy formulation and implementation, when, and how (Jann and Wegrich 2006). Still, the answers to these questions remain varied, despite the interest in this topic continuing and the demand for citizens and stakeholders to be involved increasing. In this regard, it should be emphasised that the theme of co-

production has been pointed out as one of the main topics in public administration over the last decade, because the delivery of many public services depends on the active participation of citizens. However, the theme of co-production or, more generally, of citizen participation still requires in-depth analysis and definition. In particular, Bryson, Quick, Slotterback & Crosby (2012) highlighted the fact that it is not possible to develop a single public participation process or theory since its design depends on different elements — above all, the context and the purposes of the participation. Nevertheless, analysing the relevant literature on this topic, it emerges that studies are either concentrated more on the stage of decision-making than on agenda setting, or the two are not distinguished and are considered as the same process under the name of decision-making or of the new concept of interactive decision-making (Edelenbos and Klijn 2005).

Resuming the work by Jann and Wegrich (2006), the authors highlight that 'actors within and outside government constantly seek to influence and collectively shape the agenda' (2006: 45–46). The study of the relationship between social media and the public policy cycle is not new in the literature, although it is possible to state that because of the growing importance of social media it deserves further attention.

The first studies concerning the influence of the media on the policy cycle began as early as the 1930s, in relation to the clear use of the media by the dictators Mussolini and Hitler in order to influence the political positions of their citizens (Lazarsfeld et al. 1944). Subsequently, other researchers developed theories to explore the influence on the policy process.

More recently, the literature has focused attention on the role of social media in strengthening the interactions of citizens and/or external stakeholders with politicians and bureaucrats. In this regard, Ceròn and Negri (2016) explored how the interactions favoured by social media have led to numerous debates on social policy and positive attitudes towards the ability to deepen political policies, for example policy agendas and policy implementation. They studied the role played by social media analysis in promoting interaction between politicians, bureaucrats, and citizens. They showed how in the 'Big Data' world, the interactions recorded online by social media users can be useful for policymakers along the policy cycle. Analysing the interactions on Twitter regarding two Italian case studies, they have shown how social media data can provide valuable information to policymakers.

Scholars discuss how online citizen-to-government and citizen-to-citizen interactions encourage discussions on social and political matters and positively affect citizens' interest in political processes, including policymaking, and can provide valuable information to policymakers. Social media, therefore, lead to a remodelling of the principal–agent relationship in which some actors (the principals) use whatever actions are available to provide incentives for some other actors (the agents) to make the decisions that the principals most prefer. They make clearer, albeit with different limits, what the principals expect from the agents and, with regard to the choices already made, to express a consumptive judgement.

In representative democracy, principals are the citizens and agents are the elected members of central government and local governments (Kaskarelis 2010). This is why in this paper the Italian mayors were interviewed regarding the perceived influence of social media on policymaking processes.

Italian Context

The empirical setting of this study is Italy because of the peculiar characteristics of Italian local governments. The Italian legislative framework provides four administrative government layers: central government, regions, provinces or metropolitan areas, and local governments. Of these, local governments are the nearest administrative level to the citizens and they are in charge of several public functions in the fields of territorial planning, social services, primary school education, elderly care, municipal police services, sports and cultural facilities and waste collection.

Indeed, Italian mayors are among the strongest in Europe, elected directly by citizens since 1993 (Budd and Sancino 2016). They have a strong political role within the municipality, as well as being the legal representatives, nominating the municipal board autonomously and presiding over them.

The theme of using social media closely touches on the relationship between the public sector and citizenship: the Italian context appears to be of particular interest also as it has emerged from various studies that Italians have a huge distrust of public sector organisations (Eurispes 2018). A research study carried out by the University of Modena and Reggio Emilia (Montanari 2011) investigated the use of social media by medium and large municipalities. There are 709 Italian municipalities that have more than 15,000 inhabitants. Those who participated in the research by answering the online questionnaire were 206, which is 29% of the reference population.

The Italian municipalities that responded declared that they had invested in social media to achieve a multiplicity of objectives. The objectives most pursued were given as:

- to increase interactions between the municipality and citizens (89% of responses);
- to reach the younger target population (86%);
- to improve the timeliness of communications to citizens (63%);
- to reach population targets otherwise difficult to reach, such as citizens domiciled abroad (54%);
- to reduce communication costs incurred by the municipality (45%).

To date, the presence of Italian municipalities in social media continues to grow, as demonstrated by the ICityRate 2018 annual report, according to which the trend of municipalities that choose to use social media is on the rise (Dominici and Fichera 2018). In 2018, among the provincial capitals, there were 99 municipalities that had at least one social account, up from 94 in 2017, and only 8 did not yet have a social account. According to the same research, the social networks most used by the municipalities (Facebook, Twitter, and Instagram) are also those that are most frequented by citizens. There are also municipalities that are experimenting with YouTube on the wave of online video success.

With regard to citizens and social media in the Italian context, at least 35 million Italians visited a social networking platform every day in 2018 (Tecchia 2019), a value in line with the data from most developed countries. For these reasons, it is appropriate to investigate the opinion of Italian mayors regarding the influence of social media.

Methods

To investigate social media's influence on the policy cycle, we designed a web-based survey divided into two main sections (see also the questionnaire in the Appendix 1). In the first section, we asked a set of questions about the profiles of the mayoral respondents: age, gender, geographical area of municipality, and size of municipality. In the second section, we asked the mayors to express on a seven-point Likert scale what they thought about the influence of social networks in the policymaking steps just listed above.

The questionnaire was pilot-tested by ten municipalities and we talked with four mayors in order to ensure that the questions were understandable. We ran the main survey between June and September 2016, ensuring full confidentiality of responses and with the patronage of an association of municipalities (ANCI Lombardia).

These factors led to an acceptable response rate. Questionnaires (mail surveys) were sent to the total population of Italian mayors (7978; ISTAT,[1] 2016). There were three follow-up rounds for non-respondents. By September 2016, 1129 had responded — a response rate of 14.01%. Generally, regular mail surveys without a telephone follow-up/pre-contact obtain response rates that typically vary between 6% and 16% (Harzing 1997; Giacomini 2016; Giacomini et al. 2018; Carini et al. 2018).

Similar to Weijters, Cabooter, & Schillewaert's work (2010), which showed support for using a 7-point scale among respondents with more cognitive ability, mayors were asked to evaluate the influence of social media through four questions based on the Likert scale from 1 to 7. The decision to administer a short questionnaire was made in the hope of obtaining a higher number of answers, considering the difficulties that are often encountered in obtaining answers from the top management of organisations (Bednal and Westphar 2006).

An initial descriptive analysis was carried out to evaluate the quality of the data and to represent, through graphic models, the possible existence of relationships between the variables of interest.

To evaluate the existence of homogeneous patterns of behaviour of the municipalities with respect to the social media influence, a k-means model (KM) was developed. KM is a partitioning cluster method proposed by MacQueen (1967). It is an iterative algorithm based on the minimization of within-cluster variations, that is related to the distance from the center of a cluster of all elements belonging to that cluster. At the beginning, elements are randomly assigned to a k clusters, at each iteration of the algorithm they could be reassigned to other clusters to minimize the within-cluster variation. Cluster affiliations can change in the course of the clustering process and they vary according to the pre-specified number of clusters (k).

In order to analyse whether there is an influence of some characteristics of the municipality with respect to the probability of belonging to these patterns of attitude, a chi-square test of independence (χ^2 test) was initially conducted. It is a preliminary test to assess if there is a significant association between the considered variables and it is based on the expected frequencies of a contingency table. Subsequently, only for the relevant factors detected with the χ^2 test, the intensity of the detected relationships was studied through logistic regression models. Logistic regression is a mathematical

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[1] ISTAT is the Italian National Institute of Statistics (Istituto Nazionale di Statistica).

modelling approach designed to describe the probability for the dependent variable to be equal to the reference modality. It uses the logistic function $f(z) = \frac{1}{1-e^{-z}}$ to describe the relationship between k continuous or discrete explanatory variables X_i (in our case age, gender, size, geographical area) and a dichotomous dependent variable Y (in our case the cluster belonging). The logistic model is:

$$z = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k$$
$$Y = \frac{1}{1-e^{-(\alpha+\beta_1 X_1+\beta_2 X_2+\ldots+\beta_k X_k)}}$$

Results and Discussion

Mayors were queried with respect to three potential influences of social media on the policy cycle stages, grouped as proposed by Knill and Tosun (2008):

1. agenda setting;
2. policy formulation and adoption;
3. implementation and evaluation.

It has to be remembered that the following data refer to perceptions of mayors, with all the limitations related to the detection of subjective perceptions that that entails (Giacomini et al. 2018). In the first sub-paragraph the overall results are shown, while in the second sub-paragraph the results of a more analytical analysis using logistic regression are reported. See Appendix 2 for the N distribution of the responses and a synopsis of the findings.

As shown in Fig. 1, the influence of social media is considered modest but not negligible. In fact, a total average value of 3.15 has been found, which, decomposed, shows an increasing value with the advance of the policy cycle: 2.71 for the agenda-setting phase, 3.13 for the decision-making phase, and finally 3.60 for the evaluation phase. A first important result: the influence of social media grows in the final phases of the policy cycle.

The data must be disaggregated in relation to the independent variables listed above.

The first independent variable value taken into consideration is age. As already noted in the literature, the influence of social media decreases with increasing age. In particular, the gap is evident between under-35 s and over-50s. This result is not surprising and reflects the demographics of social media users (Duggan and Brenner 2013). The phases in which a more marked difference with respect to age are set is the agenda setting and the evaluation.

Detailed analysis of data on the size of the municipalities also reveals relevant indications. The influence of social media on all the phases of the policy cycle analysed increases in step with size, in particular with regard to the evaluation stage. It therefore appears that social media play a more important role in larger local governments where the citizen-elected relationship is less close.
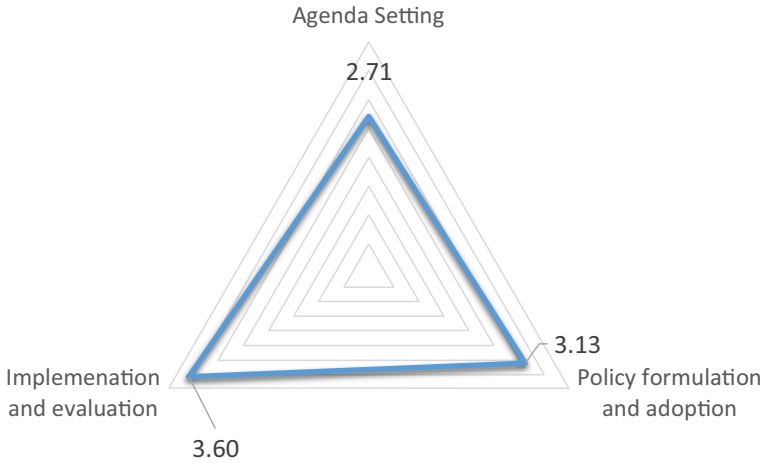
Fig. 1 Social media influence on the policy cycle stages

As far as the geographical area is concerned, there is a greater influence of social media in the south and in the centre. Also, in this case the difference is detected with reference to all three stages of the policy cycle taken into consideration.

The differences are minimal for what concerns gender. In all three phases analysed, a very slight superior influence emerged from female mayors, but it is statistically irrelevant, as also emerges from the cluster analysis below.

Cluster Analysis

The use of cluster analysis has led to the definition of three clusters. As can be seen from Fig. 2, which shows the averages for the social media influence on the phases of

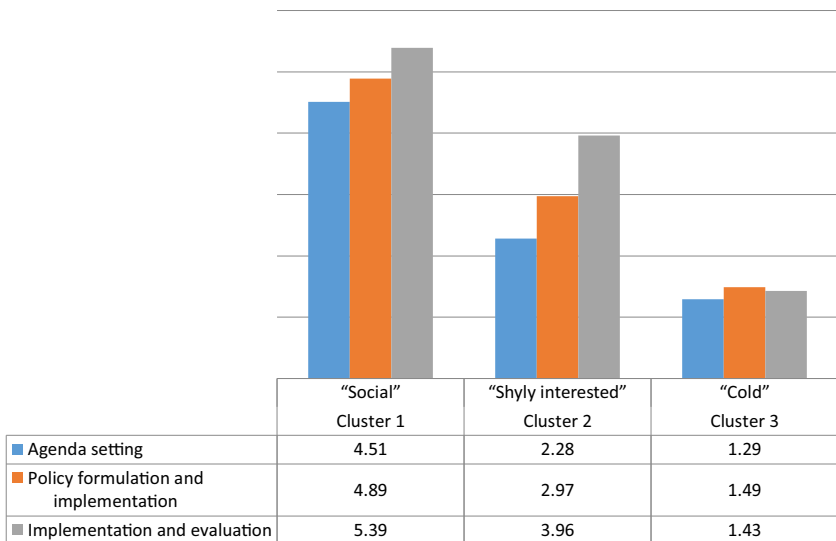|	"Social" Cluster 1	"Shyly interested" Cluster 2	"Cold" Cluster 3
■ Agenda setting	4.51	2.28	1.29
■ Policy formulation and implementation	4.89	2.97	1.49
■ Implementation and evaluation	5.39	3.96	1.43

Fig. 2 Emerging clusters observing the different influences of social media

the policy cycle, the three clusters define three levels of influence. As shown in the Appendix 2, the three clusters have an almost identical size.

It is interesting to note that there are three very clear levels of influence: cluster 1 can be defined as that of 'social' mayors, who see a strong influence of social media in all three phases of the policy cycle. The second cluster includes mayors who see a significant but limited influence of social media, particularly in the phase of evaluation. We could define them as 'shyly interested'. Finally, there are the 'cold' mayors, who in any of the three policy-cycle phases considered that social media have a limited role.

The three clusters, well outlined, are interesting even if seen with respect to independent variables. Indeed, the relative majority of the younger mayors is placed in the 'social' cluster. The same applies to the larger municipalities (over 15,000 inhabitants) that are divided into social and shyly interested clusters. Hence, the age of the mayor and the size of the city are very significant variables in the perceived influence of social media on the policy-cycle process.

As far as geographical area is concerned, there is a greater influence of social media at the centre and, above all, in the south compared to the north. Gender is again not significant.

Chi-Squared Test and Logistic Regression

So far we have looked at the relationship existing between the social media influence and the other four independent variables (age, size, geographical area, gender) (Tables 1 and 2).

Table 1   Data disaggregated considering the independent variables

Indipendent variables	Policy cycle stages		
	Agenda setting	Policy formulation and implementation	Implementation and evaluation
Age			
Up to 35 years	2,39	3,43	4,14
36–50	2,83	3,29	3,76
Over 50 years	2,56	2,96	3,39
Size			
Up to 5000 inhabitants	2,58	3,01	3,39
5001–15,000 inhabitants	2,83	3,24	3,89
15,001–100,000 inhabitants	3,34	3,71	4,44
Over 100,000 inhabitants	3,67	3,92	4,70
Geographical area			
North	2,48	2,90	3,33
Centre	2,84	3,45	3,98
South and Island	3,39	3,60	4,14
Gender			
Man	2,70	3,13	3,60
Woman	2,78	3,18	3,63

Table 2 Distribution in the clusters considering the independent variables

	Social	Shyly interested	Cold
Age			
Up to 35 years	46%	34%	20%
From 36 to 50 years	38%	32%	30%
Over 50 years	27%	35%	38%
Area			
North	26%	34%	40%
Centre	34%	40%	26%
South and Island	50%	27%	23%
Size			
Up to 5000 inhabitants	32%	29%	39%
From 5001 to 15,000 inhabitants	33%	40%	27%
From 15,001 to 100,000 inhabitants	42%	50%	8%
Over 100,000 inhabitants	67%	33%	0%
Gender			
Female	34%	33%	33%
Male	33%	34%	33%

First we checked if the distributions of the four explanatory variables were independent — i.e. whether they belonged to one of the clusters. In Table 3 we report the results of the chi-square independence tests conducted separately for each variable. We reject the null hypothesis of independence when p value is less than 0.05. From the analysis of the results, it is clear that age, size, and geographic area are not statistically independent from the cluster subdivision, while the gender variable is statistically independent from it; therefore, gender is not considered in the following analysis.

Below we have considered the three identified clusters separately, and for each of them we have estimated a logistic regression model to evaluate the impact of each explanatory variable on the probability to belong to the considered cluster. In the comments we highlighted the coefficient estimations that are statistically significant, distinguishing the degree of significance by the p value associated with it: ** — very significant where p value <0.01; '*' — significant where $0.01 \leq$ p value <0.05; '.' — small significance where $0.05 \leq$ p value <0.1; "— not significant where p value ≥ 0.1.

Table 3 Chi-square independence tests conducted separately for each variable

X^2		Degrees of freedom	p value
Age	22.382	4	<0.001
Size	58.614	6	<0.001
Geographical area	62.516	4	<0.001
Gender	0.129	2	0.937

In the first logistic regression we tested the influence of the age, size, and geographical area variables compared to belonging to cluster 1. Looking at Table 4, we note that only a few factors are considered statistically significant. To comment on the results we have to define the reference case, a small municipality in the centre of Italy governed by a mayor aged between 36 and 50 years. The probability of belonging to the 'social' cluster increases for the municipalities of southern Italy, while it decreases for the municipalities of northern Italy or for the municipalities whose mayor is over 50 years old.

In the second logistic regression, we analyse the probability of belonging to cluster 2. We note that only three modalities of the explanatory variables were significant (Area: south and islands, Size: 5.001–15.000, Size: 15.001–100.000). The age variable, in this case, does not seem to influence membership in cluster 2.

The latest logistic regression model refers to cluster 3 'Cold'. From the results shown in Table 4, we note that in this case at least one modality for each of the three variables considered is statistically significant for the estimation of the probability of belonging to cluster 3.

Table 4 Logistic regression model for the three clusters

Estimate		Std.error	p value
CLUSTER 1- SOCIAL			
Area: north	−0.59	0.18	0.001**
Area: south and island	0.44	0.21	0.033**
Size: 5.001–15.000	0.09	0.16	0.60
Size: 15.001–100.000	0.34	0.22	0.13
Size:>100.000	1.24	0.65	0.0058
Age:<36 years	0.35	0.25	0.150
Age:>50 years	−0.52	0.14	<0.001**
CLUSTER 2-SHILY INTERESTED			
Area: north	−0.20	0.18	0.26
Area: south and island	−0.65	0.22	0.002**
Size: 5.001–15.000	0.49	0.16	0.002**
Size: 15.001–100.000	0.92	0.21	<0.001**
Size:>100.000	0.32	0.63	0.60
Age:<36 years	0.10	0.26	0.70
Age:>50 years	0.14	0.13	0.29
CLUSTER 3-COLD			
Area: north	0.93	0.22	<0.001**
Area: south and island	0.24	0.26	0.35
Size: 5.001–15.000	−0.61	0.17	<0.001**
Size: 15.001–100.000	−1.97	0.38	<0.001**
Size:>100.000	−14.93	403.08	0.97
Age:<36 years	−0.57	0.30	0.057
Age:>50 years	0.39	0.14	0.005**

** — very significant; '*' — significant, '.' — small significance; "— not significant

Table 5 Sensitivity and accuracy of the adaptation of the models studied

	Sensitivity	Accuracy
Logistic regression Cluster 1	0.89	0.68
Logistic regression Cluster 2	0.95	0.68
Logistic regression Cluster 3	0.83	0.68

In Table 5 we show two indices to evaluate the goodness of the adaptation of the models studied to the data based on the confusion matrix: sensitivity, i.e. the ability to correctly predict the municipalities that actually belong to the cluster, and accuracy or the mere proportion of correct classifications. Both proposed indices should tend to 1. Sensitivity shows that the three models are able to correctly classify the municipalities that actually belong to the cluster considered. Accuracy takes on discrete values, very close to 70% of the theoretical maximum.

Conclusions and Future Development

As noted by Holzer and Yang (2005) more than a decade ago, the rapid growth of information technology and its increasing role in governing communications and exchange of information at all levels has revolutionised the state–citizen relationship, bringing new opportunities and new responsibilities. The presence of social media in social, cultural, and civic life has grown so explosively that it can be hard to recall what communications were like just a decade ago, prior to the advent of mobile devices, and the rise of YouTube, Facebook, Pinterest, Twitter, and other tools. This applies in general and in the specific field of public engagement and public accountability with heavy repercussions on public governance mechanisms. Policymakers, especially politicians, have always been interested in knowing citizens' preferences, particularly in terms of measuring their satisfaction and receiving feedback.

The results of the present work are relevant for two reasons: they measure the current perception of mayors towards social media and they differentiate, in terms of the policy-cycle phase and the characteristics of the mayor and the municipality analysed, the importance of social media. The current level of perceived influence of social media is considered rather low in light of the growing literature in recent years highlighting the increasing importance of social media.

The noticeable difference highlighted in the different phases of the policy cycle shows how the perception of Italian mayors sees a limited role for the opinions expressed by citizens on social networks during the agenda-setting phase. Then the margins of growth appear in this field, considering that the growth of stakeholder engagement, hoped for by many parties, could be brought about by a greater use of social media. Social media is therefore seen as still more useful in terms of accountability than the possibility of being tools capable of encouraging the engagement of citizens from the beginning of the policy cycle.

The constant growth of social media cannot be considered marginal by the public sector world, especially municipalities and mayors, considered the public sector

organizations (PSOs) closest to the citizens. Yang and Holzer (2006) stressed that governments should seek to improve citizen participation in order to also increase public trust. Worldwide, there is a growing inclination to voice distrust for governments that are considered ineffective and even inefficient.

While the top-down relationship between public administrations and social media has been the object of the recent study, the bottom-up side of this stream has been largely overlooked (Goncalves et al. 2015).

The theme of the benefits of using social media during the policy cycle must, however, be analysed considering all the aspects related to it. Indeed, it is true that much of the literature underlines enormous advantages, in particular that the diffusion of social media facilitates the interactions of politicians and bureaucrats with citizens and external stakeholders (Bertot et al. 2012). However, the critical issues must also be remembered: these platforms are not necessarily suited to public participation in governance and implementing social media tools without changing organisational culture, procedures, or rules can be harmful (Knox 2013). Furthermore, the information conveyed by the PSOs via social media is not always reliable and there are no accountability obligations with respect to the use of social media (Giacomini in press). It is fundamental, therefore, to develop contributions aimed to help practitioners design effective social media strategies to reach their audience and to exploit the informative value of the comments posted online by citizens (Mergel 2013).

The analysis of the results, jointly with the characteristics of the mayors and the involved municipalities, returns a more in-depth analysis that allows us to hypothesise some trends in the coming years. The younger mayors and those from the larger municipalities are those who already perceive a stronger influence of social media in all three phases of the policy cycle taken into consideration. This result is relevant, as usually the big cities anticipate the trends that then spread to all municipalities, and the greater influence of social media on younger mayors makes it possible to hypothesise that the overall importance of social media is bound to grow and not decrease. The clear distinction between mayors in the three clusters also highlights the need to provide training for mayors on the topic of social media, as well as opportunities for mayors to have in-depth meetings on the topic. The now unavoidability of these tools is clear from the literature and from what is happening in both the private and public sectors, even more so in a country with a very low level of trust in public organisations. Action must be taken, considering that over one-third of mayors do not recognise the impact of social media.

As with any piece of research, this paper has limitations. The results are exploratory and may reflect the specific country, type, and size of public sector organisations where the analysis was performed.

Starting from the results obtained, it is advisable to proceed with in-depth analysis of different case studies, belonging to the three different clusters obtained, in order to deepen the dynamics and processes that influence the importance of social media throughout the policy cycle. Furthermore, it is necessary to study the vision of civil servants with respect to the influence of social media (Knox 2013). While it is useful to understand this application from the view of mayors, it is vital to understand it from the civil servants' point of view as well, especially in light of the complexity of the politics–administration dichotomy. Finally, the same analysis could be proposed again in other countries in order to assess whether the influence of administrative culture plays a role with respect to the influence of social media on policy cycles.

Compliance with Ethical Standards

Appendix 1

Section 1

- Size of the municipality
- 0–5000 inhab.
- 5001–15,000 inhab.
- 15,001–100,000 inhab.
- Over 100,000 inhab.
- Geographical area
- North
- Centre
- South and Islands
- Gender
- Female
- Male
- Age
- 18–35
- 36–50
- Over 50

Section 2

We ask you to indicate from 1 (min.) to 7 (max.) the influence of social media in the following phases of the policy cycle:

- agenda setting;
- policy formulation and adoption;
- implementation and evaluation.

Appendix 2

N Distribution of the Responses

	Cluster 1	Cluster 2	Cluster 3	All dataset	Cluster 1	Cluster 2	Cluster 3	All dataset
Age								
<36 years	38	28	17	83	10%	7%	5%	7%
36–50 years	178	151	138	467	48%	40%	37%	42%
> 50 years	157	197	241	568	42%	52%	58%	51%
Total	373	376	369	1118	100%	100%	100%	100%
Area								
North	186	244	279	709	50%	65%	76%	63%
Centre	66	67	32	165	18%	18%	9%	15%
South and Island	121	65	58	244	32%	17%	16%	22%
Total	373	376	369	1118	100%	100%	100%	100%
Size								
0–5.000	244	227	301	772	65%	60%	82%	69%
5.001–15.000	77	93	60	230	21%	25%	16%	21%
15.001–100.000	44	52	8	104	12%	14%	2%	9%
>100.000	8	4	369	12	2%	1%	0%	1%
Total	373	376		1118	100%	100%	100%	100%
Gender								
Female	55	52	53	160	15%	14%	14%	14%
Male	318	324	316	958	85%	86%	86%	86%
Total	373	376	369	1118	100%	100%	100%	100%

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