



**HAL**  
open science

# Theoretical Support for Social Media Research. A Scientometric Analysis

Laura Alcaide Muñoz, Manuel Pedro Rodríguez Bolívar

► **To cite this version:**

Laura Alcaide Muñoz, Manuel Pedro Rodríguez Bolívar. Theoretical Support for Social Media Research. A Scientometric Analysis. 14th International Conference on Electronic Government (EGOV), Aug 2015, Thessaloniki, Greece. pp.59-75, 10.1007/978-3-319-22479-4\_5 . hal-01412236

**HAL Id: hal-01412236**

**<https://hal.science/hal-01412236>**

Submitted on 8 Dec 2016

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

# Theoretical support for Social Media research. A Scientometric Analysis

Laura Alcaide Muñoz and Manuel Pedro Rodríguez Bolívar

University of Granada, Spain  
(*lauraam, manuelp*)@*ugr.es*

**Abstract.** We seek to analyze the research into the field of social media implementation in public administrations, examining the theories that support the use of social media, the main use of this technology for public administrations and the trends and research innovations in this area in the future. In addition, a comparative study will be performed in order to identify differences of research, research gaps and interest on the different domains of this topic into different contexts. To achieve the aims, the scientometric methodology will be applied to a sample of papers published in journals listed in the fields of Public Administration, Information Sciences and Communication. In this sense, the research about social media has not been the same in all areas. Knowledge gaps and research opportunities are identified from these observations, which reveal changes in the research methods applied, reinforcing the development of a theoretical framework so that the application of social media may efficiently contribute to improving management in the public sector.

**Keywords:** social media; scientometric study; research opportunities; theories

## 1 Introduction

The e-Strategies have been the key-elements for Governments in order to perform investment planning on Information Communication and Technologies (ICTs), and to manage social change [1]. In this regards, e-government development has been characterized by a three stage process [2]. The first one is called the era of “direct government” and it is characterized by offering static, limited and basic information, such as links to ministries/departments, archived information, and regional/local government services (unidirectional government-to citizen (G2C) information flows). In the second stage, called “orthodox government”, services tailored to individual needs, more joined-up government services connected government initiatives [3] and opportunities for a ‘mixed economy’ of service provision were promised. In fact, citizen to government interactions -C2G interactions- are present in this stage of development.

Finally, from 2005 to the present time, under the “transformational government”, the government encourages participatory deliberative decision-making and is willing and able to involve the society in a two way open dialogue (Open Government Initiative) [4]. Under this third stage, governments must strengthen their capacity to assess the needs of users (both private and commercial) and involve user groups through the use of second generation web technologies (Web 2.0) in order to listen, to engage users in the design of services and in the production of policies and to forge collective initiatives and interaction [5]. Indeed, social media, particularly internet social networking has profound effects on all facets of social life and has fundamentally altered the nature of social relations [6], changing the nature of political and public dialogue [7].

Continuing interest in the question is reflected in the large number of studies published in this respect in the last years. It draws upon various reference disciplines, including public administration, information science and communication. Since its appearance, social media researchers in public administration have mainly analyzed the usefulness of social media for different purposes such as political campaigns [8], the disclosure of greater volume of information to a wider range of citizens [9] and the citizen coproduction initiatives [10]. The first two of these aspects concern the transparency and

visibility of local government actions, while the second, in addition, favors more participative management.

In order to understand the construction of theoretical support underpinning the question of social media, it is of critical importance to explore its intellectual core, by analyzing the cumulative body of knowledge rather than looking at individual works [11]. Therefore, comprehensive reviews are needed, to integrate contributions and to provide a critical outlook on work in this field, to improve our understanding of e-government and to gain a broad view of the current situation and of possibilities for future research. For this purpose, we propose a scientometric methodology [12] that has been comprehensively tested in the field of information science [13]. This specific approach has been used, among other reasons, as an attempt to understand the identity of a scientific discipline in a particular academic area [14]. In this paper, the underlying assumption of our approach is that the theoretical framework of a scholarly discipline is built upon the high quality body of knowledge published in the leading channels established for this purpose. Nevertheless, to date prior research has not analyzed this item in social media field of knowledge.

To fill this gap, the objective of the present paper is to analyze the research into the field of social media implementation in public administrations, examining the theories that support the use of social media, the research topics that have found in theories a fundamental pillar for building knowledge in the social media area, the relation between the use of theories and field of knowledge as well as the association between the use of theories and the quality of the journal in which research on social media is published. In addition, a comparative study will be performed in order to identify differences of research, research gaps and interest on the different domains of this topic into different contexts. The ultimate objective of this paper is to build fundamental pillar for the research area of social media as well as for assisting researchers in the development and direction of future analysis in the implementation of Social Media in public administrations into different contexts.

## **2 Background**

The advent of social media using Web 2.0 technologies has opened up unprecedented new possibilities of engaging the public in government work and has changed the public's expectations about how government work should be done [15]. Indeed, social media applications provide channels not just for mass dissemination but also for mass production and collaboration, and have become acceptable information and communication channels in governments [16], playing an important role in implementing open government and in rendering online public services.

In this regard, driven by rising citizen expectations and the need for government innovation, social media has become a central component of e-government in a very short period of time [17]. Nonetheless, the introduction of social media in public administration requires a thorough analysis of theoretical support in relation this role in the innovation of social communication between public administrations and citizens. Indeed, previous research shows that an effective review of theories creates a firm foundation for advancing knowledge [18]. It facilitates development of knowledge and scientific research, closes areas where a plethora of research exists, and uncovers areas where research is needed [19, 20].

In addition, as evidenced previous studies, the implementation of NPM models [21] and the evolution of e-government [22] have been implemented worldwide but in widely varying forms. These differences are due to the bureaucratic structures and legal systems as well as differences in administrative cultures [23, 24]. Therefore, it would be interesting to know whether this theoretical basis differs in relation to the knowledge area or countries that have investigated about social media.

Therefore, with the aim at analyzing the contribution of social media to the sphere of public administrations, and analyze the degree of maturity it would be necessary to undertake scientometric analyses, which seek to help organize the information available to consolidate research and to highlight useful areas for future research. In addition, this analysis could help to know the theoretical underpinnings of the use of social media into the public sector environment.

Nonetheless, to date, scientometric projects in social media in public administrations have not been examined. This absence of comprehensive scientometric studies could mean that an interesting

aspect of social media research has remained unexamined [25], despite the fact that social media, in terms of the use of information technology, has been studied from diverse standpoints. Therefore, it would be interesting to analyze the research published in the main fields of knowledge [26] and thus acquire different perspectives of social media research. Our first research question is:

**RQ1:** How many social media articles have been published in JCR journals in the fields of Public Administration, of Information Science & Library Science and of Communication?

As noted above, scientometric projects seek to identify a discipline, to structure the information available and to highlight potential areas for future research [27]. In this regard, the analysis of the most commonly published questions in the field of social media could inform researchers of the state of the art and highlight research gaps. In addition, the analysis of the use of the one to support research topics and the field of knowledge in which the research is published could be very useful for assisting scholars in future research. In other words, this analysis could be valuable as a tool guiding social media research [28]. Therefore, the following research question is proposed:

**RQ2:** How many articles used theories in order to support their findings?

Journals allow researchers to directly communicate their ideas to a wider audience, become aware of recent developments, learn about seminal works, accumulate references, and preserve the scientific body of knowledge for the future generations of scholars and practitioners [29]. Therefore, in the field of e-government research, it could be interesting to analyze the leading high quality journals which include social media as one of their areas of interest. Accordingly, the third research question addressed is:

**RQ3:** Which journals publish such papers most frequently?

It could be of interest to analyze if the use of theories to support social media research is focused, or not, in concrete countries because it could indicate the different perspective in public management in these countries. In addition, a study of different social media experiences around the world could enhance our understanding of the instruments used to promote the social media implementation in public affairs and thus facilitate a resolution of democratic deficits [30], improving the efficiency, acceptance and legitimacy of political processes. In addition, the different interests of researchers in this field of knowledge could be the result of the universities to which they belong to, and could be a reflection of the concerns of the country in which social media is analyzed by the universities. The following research question is therefore derived:

**RQ4:** What are the countries analyzed when academic researchers used theories in their articles?

Previous research show that social media is a highly multi-disciplinary domain of research [25, 31], so, it is necessary more search to better understand the social media concept. Hence, we think that it could be interesting to analyzed different perspectives in which the social media is to examine, because it is revealed hidden structural characteristics which will help understand the structural differences among theories [28]. In addition, these perspectives may reflect the possibility of publishing in a journal with greater or lesser impact. Similarly, we want to examine whether these differences occasionally to the way in which each knowledge area addresses the problem of research. The following research question is therefore derived:

**RQ5:** Is there any relationship between the use of the theories to support the findings of the studies and the ranking of the journal published? Is there a trend in terms of academic area analyzed?

Also, we propose the following general and specific hypotheses for each area of knowledge.

**H<sub>0</sub>:** *There is a relationship between the use of theories in articles to support the findings and the impact factor of journals where they are published.*

**H<sub>1A</sub>:** *There is a relationship between the use of theories in articles to support the findings and the impact factor of Communication journals where they are published.*

**H<sub>1B</sub>:** *There is a relationship between the use of theories in articles to support the findings and the impact factor of Information Science and Library Science journals where they are published.*

**H<sub>1C</sub>:** *There is a relationship between the use of theories in articles to support the findings and the impact factor of Public Administration journals where they are published.*

To address these research questions, we conducted a descriptive scientometric study [13] of social media articles published in the Journal Citation Report-listed (JCR) international journals in the

areas of “Information Science & Library Science”, “Communication” and “Public Administration”, as described in the methodology section of this paper –Table 1-.

### **3 Research Methodology**

The Scientometric methodology allows scholars to identify the historical roots of a determined field of study [18], to identify prospects for future research, and to decide the right direction in which to focus subsequent research [32]. Therefore, this article not only serves as a synopsis of existing research, but also as an identifier of emerging trends, gaps, and areas for future study.

This tool has been widely used in research field such as Communication about the internet and new media [25, 31], allowing the knowledge of the evolution of this interdisciplinary field, journals taken as a reference by researchers, the input knowledge, research gaps, trends and future opportunities.

All these studies focus on social media in general terms. However, in previous literature, there are no scientometric studies which have analyzed the research into the field of social media implementation in public administrations, examining the theories that support the use of social media, the main use of this technology for public administrations and the trends and research innovations in this area in the future. Therefore, this article tries to cover this gap in the academic literature.

#### **3.1 Sample Selection**

##### **3.1.1 Journals analyzed**

In order to provide a complete review of the current state of research into social media in public sector management context, previous studies have indicated that this topic is one of the main research topics of e-Government [33] and papers about this topic are mainly published in two areas: “Information Science & Library Science” and “Public Administration”. Nonetheless, with the aim of avoiding potential errors in search, we carried out a systematic research, entering the descriptors “social media”, “electronic government”, “e-Participation”, “e-Democracy” into the ISI Web of Knowledge database. This first search enabled us to examine the main academic areas that provide most contributions on this topic and it also provided the articles that would be included in our database.

The results of this search showed that more than 42.53% of the articles on social media were published in journals listed in the fields of “*Information Science & Library Science*”, “*Public Administration*” and “*Communication*”. The rest of papers about social media are published in other areas such as paediatrics or medical analysis, but these areas are not related to the field of public sector management and they also can be considered as residual areas of analysis because none of them concentrated a high volume of papers. Also, papers published in other areas such as Computer Science or Information Systems are also residuals and, mainly, of very technical nature without a clear link to public sector management. Therefore, our study research is focused on papers published in the above mentioned fields.

This study is focused on analyzing journal publications, in the view that they constitute a resource that is often used by academics as a source of new knowledge and as a medium for its disclosure [34], and at the same time, as an indicator of scientific productivity [34]. In addition, with the aim of analysing high quality contributions to the field of social media, we have used objective criteria [35] to select the journals. This way, based on prior research [36], only journals indexed in the Institute for Scientific Information (ISI) in the above-mentioned sample areas for the year 2013 were selected for analysis. Therefore, e-Government, e-Participation or e-Democracy journals were excluded from our analysis if they were not listed in the ISI index. In addition, prior research has indicated that total citations and the impact factor of journals are considered indicators of research quality [37]. Thus, we excluded listed journals of marginal importance, i.e. those with an impact factor of less than 0.25 or with fewer than 50 total citations [39].

We analyzed all journals and articles that met the exclusion-inclusion criteria. In consequence, our sample was comprised of 27 journals listed in the area of Communication, 45 journals listed in the area of Public Administration and 69 journals listed in the area of Information Science & Library Science, indexed in the ISI Web of Knowledge for the year 2013. However, not all of these journals have

published articles on social media. Therefore, Table 1 lists only the journals that, within the sample, have published articles on social media in public administration.

**Table 1.** Articles about social media and journals that are published (chronological evolution)

JOURNALS*/YEAR	2008	2009	2010	2011	2012	2013	TOTAL**
<b>COMMUNICATION</b>							
Journal of Communication	-	-	-	-	4	1	5
New Media and Society	-	1	1	4	11	1	18
Journal of Computer-Mediated Communication	-	-	-	-	-	1	1
Telecommunication Policy	-	-	-	-	1	1	2
International Journal of Press-Politics	1	-	-	-	-	1	2
International Journal of Public Opinion Research	-	-	-	-	1	-	1
Public Relations Review	-	-	-	-	1	4	5
Information, Communication and Society	-	-	-	2	-	2	4
European Journal of Communication	-	-	-	1	1	2	4
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>19</b>	<b>13</b>	<b>42 (38.18%)</b>
<b>INFORMATION SCIENCE</b>							
Scientometrics	-	-	-	-	1	-	1
Government Information Quarterly	-	-	2	2	10	16	30
Journal of Computer-Mediated Communication	-	-	-	-	-	1	1
Information and Management	1	-	-	-	-	-	1
Telecommunication Policy	-	-	-	-	1	1	2
Social Science Computer Review	-	-	-	8	1	8	17
Online Information Review	-	-	-	-	2	1	3
Aslib Proceedings	-	1	-	1	-	1	3
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>11</b>	<b>15</b>	<b>28</b>	<b>58 (52.73%)</b>
<b>PUBLIC ADMINISTRATION</b>							
Journal of Public Administration Research and Theory	-	-	-	-	-	1	1
Policy Studies Journal	-	-	-	1	-	-	1
Public Administration Review	-	-	-	1	-	1	2
International Review of Administrative Science	-	-	-	-	2	-	2
Australian Journal of Public Administration	-	-	1	-	1	-	2
Administration and Society	-	-	-	1	-	-	1
Transylvania Review of Administrative Sciences	-	1	-	-	-	-	1
<b>TOTAL</b>	<b>-</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>10 (9.09%)</b>
<b>TOTAL</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>21</b>	<b>37</b>	<b>43</b>	<b>110</b>

Source: Authors

\* NOTE: This table shows only those journals that have published articles about social media in public administration.

\*\*NOTE: There are two journals –*Journal of Computer-Mediate Communication* and *Telecommunication Policy*– that are classified in Communication and Information Science, so they appear in both areas.

### 3.1.2 Articles selected

In determining the articles to be included in the sample, we analyzed all the articles published in the journals that met the above-described criteria for inclusion. To do this, we first examined the title and the keywords of each one [36]. If the keywords offered were generic, we then read the abstract, to obtain a better view of the article. If doubts remained, we then read the introduction to identify the research goals and to determine the main factors analyzed. As a result, we obtained a database composed of 107 articles published during the period 2000-2013, although the first article that we have found was published in 2008 (see Table 1).

### 3.1.3 Collection and data encoding

In order to achieve our research goals, each of the articles included in our database was manually examined and catalogued, using MS Excel software, by the journal title, the country in which the study was carried out, the main topic addressed, the principal methodology used, and the theories used by the author to support the knowledge.

In order to determine the research topics analysed in each study, we based our initial classification on the topics used in previous public administration research [40]. However, since e-government and social media are research fields that have only recently appeared to a considerable degree in conferences, journals and books, we encountered some research topics that could not be classified under any of the descriptions offered in previous studies, especially for issues related to

improving e-democracy, promoting citizens' participation in public affairs, the supply of public services through the internet, increasing access to information through greater transparency, and enhanced accountability [33]. In consequence, we included some new additional categories –see Table 2-.

To determine these new research topics, we carried out an exploratory content analysis of each of the articles in the sample [40]. Keywords are derived from the literature review. During this phase of the study, QSR NVivo v.10 software was used to automate the coding of the articles [41]. This coding was conducted using the random tags option of the software, which enabled us to obtain a hierarchical concept structure to group and adapt this published research on e-government.

In this encoding phase, the researchers held several meetings to decide the labels to be assigned and the topics to be included (see Table 2). Subsequently, each of the articles incorporated in the study sample was encoded separately, and any disagreements concerning the definition of the categories to be analyzed were discussed and resolved.

#### 4 Analysis of the results

**RQ1:** How many social media articles have been published in JCR journals in the fields of Public Administration, of Information Science & Library Science and of Communication? **RQ3:** Which journals publish such papers most frequently?

Public administration have adopted different Web 2.0 tools, which have attracted the interest of researchers and scholars, and this has been reflected in a gradual increase in the number of studies published in international journals since 2011 (see Table 1).

In this sense, most of these articles were published in *Information Science & Library Science* journals (52.73%), followed closely by *Communication* journals (38.18%), while the rest (9.09%) are set out in *Public Administration* journals. At this regard, 81.03% of the articles (47) are published in two journals in *Information Science & Library Science –Government Information Quarterly (GIQ)* (51.72%; 30/58) and *Social Science Computer Review (SSCORE)* (29.31%; 17/58)-. Meanwhile, in the case of *Communication* journals, table 1 show that 42.86% of the articles published correspond to a single journal, *New Media and Society*, which accounts for 18 of the 42 article included in this knowledge are. Finally, in the case of *Public Administration*, there is no exist clear preference for published articles about social media.

**RQ2:** How many articles used theories in order to support their findings?

Regarding theories, there are 66.36% (71/107) published articles that do not use theories to support their findings, only 33.64% (36/107) of the articles use theories –see Table 4-, and these are varied to analyze the same topic, which seems to be a common indicator of research topic of social media, regardless of where it is analyzed [30] –see Table 2-. Similarly, the same theory is used to analyze different research topics.

Hence, it appears the social media is still far removed from establishing its theoretical foundations. In this sense, we can observe that Innovation Diffusion Theory is used for explaining the studies' findings about different research topics in the field under study, such as disclosure information, delivery public services and e-campaign, or Cognitive Dissonance Theory is used for supporting the empirical findings about e-campaign and democracy and participation. Similarly, communication researchers used Habermas Theory for analyzing disclosure information and democracy and participation phenomena. On the other hand, communication and information science academics used Democratic Theory and Gatekeeping Theory for finding evidence about democratic and participation and disclosure information, respectively.

**RQ4:** What are the countries analyzed when academic researchers used theories in their articles?

In this sense, the main studies on social media focus on analyzing this phenomenon in countries of United States of America and Europe, followed distantly by Australia (Table 3). In addition, these studies are usually carried on for universities of their countries. Hence, it seems likely that these countries will be able to initially invest heavily in research institutions, attract top faculty and provide research support to further research in this area. This in turn facilitates the production of more scholarship in those selected countries, resulting in an hegemony of a few elite scientific nations [30].





THEORIES / RESEARCH TOPICS*	DISCLOSURE INFORMATION			DELIVERY PUBLIC SERVICES			REGULATORY ASPECTS			SOCIAL MEDIA IN GENERAL TERMS			ORGANIZATIONAL THEORY			E-CAMPAING			DEMOCRACY AND PARTICIPATION			
	COM	IS	PA	COM	IS	PA	COM	IS	PA	COM	IS	PA	COM	IS	PA	COM	IS	PA	COM	IS	PA	
Merkl-Kelsen's Theory									2.7% 6.7%													
New Media Theory																			2.7% 5.9%			
New Public Management Theory					5.4% 11.8%																	
Political Communication Theory																			5.4% 11.8%			
Political engagement gateway Theory																					2.7% 6.7%	
Post-Habermasian Theories		2.7% 6.7%																				
Priming Theory																	2.7% 6.7%					
Principal- Agent Theory			2.7% 25.0%																			
Public Sphere and Representation Theories																					2.7% 6.7%	
Social Information Processing Theory																2.7% 5.9%						
Social Network Theory						2.7% 25.0%															2.7% 5.9%	
Social-Technical Systems Theory											2.7% 6.7%											
Software Platforms and Ecosystems Theory					2.7% 6.7%																	
Strategic Business Alignment Approach														2.7% 6.7%								
Two step flow of communication																						2.7% 6.7%
Transactions Cost Theory						2.7% 25.0%																
Wicked problems Theory					2.7% 6.7%																	

Source: Own Elaboration

\*NOTE: There are articles that support their findings on more than one theory.

\*\*NOTE: This percentage is based on the total of articles with theory.

\*\*\* NOTE: This percentage is based on the total of articles in each area.

**Table 3.** Countries and theories used

COUNTRIES	THEORIES	ARTICLES*
<b>AFRICA</b>		<b>2</b>
Algeria – Libyan – Mauritania – Morocco – Somalia – Sudan – Tunisia	- Political Communication Theory	1
Egypt	- New Public Management Theory	1
<b>ASIA</b>		<b>5</b>
South Korea	- Priming theory - Framing theory - Agenda-setting Theory - Mediatization Theory	1 1 1 1
Bahrain – Iran – Iraq – Jordan – Kuwait – Oman – Saudi Arabia – UAE – Yemen	- Political Communication Theory	1
<b>AUSTRALIA</b>		<b>3</b>
	- Lasswell's policy sciences - Communication in Society - Post-Habermasian Theories	1 1 1
<b>EUROPE</b>		<b>12</b>
European Union Countries	- Development Theory - Democratic Theory	1 1
Finland	- Equalization and Normalization Theory	1
Greek	- Inglehart's Postmaterialist Theory	1
Holland	- New Public Management - Strategic Business Alignment Approach	1 1
Slovenia	- Merkl-Kelae's Theory	1
Sweden	- Habermas Theory - New Media Theory - Social Network Theory	1 1 1
United Kingdom	- Democratic Theory - Public Sphere and Representation Theories	1 1
<b>SOUTH AMERICA</b>		<b>1</b>
Colombia	- Social Information Processing Theory	1
<b>UNITED STATE OF AMERICA</b>		<b>28</b>
	- Cognitive Dissonance Theory - Commodity Theory - Communication Privacy Management Theory - Convergent Culture - Democratic Theory - Domestication Theory - Exemplification Theory - Galbraith's Information Processing Theory - Gatekeeping Theory - Habermas Theory - Informal Learning theory - Diffusion Innovation Theory - Interorganizational Networks Theory - Theory of Affordances - Political Communication Theory - Political engagement gateway theory - Principal Agent Theory - Socio-Technical Systems Theory - Software Platforms and Ecosystems Theory - Transactions Cost Theory - Two step flow of communication - Wicked Problems Theory	2 1 1 1 2 1 1 1 2 2 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Source: Own Elaboration

\*NOTE: There are articles that support their findings on more than one theory and country

On the other hand, the USA and European academics used a variety of theories to analyze and support studies on social media. However, we can observe that in the case of Arab World studies are focused on production, dissemination, procession and effects of information both through media and interpersonally, within a political contest, thus researchers usually used Political Communication Theory. It seems to be that academics are trying to analyze if it is producing social and political changes towards greater democracy and transparency of information in these countries. Hence, these articles deal with the studies of information media, the analysis of speeches by politicians and those that are trying to influence the political process, and formal and informal conversations among members of the public, among other aspects.

**RQ5:** Is there any relationship between the use of the theories to support the findings of the studies and the ranking of the journal published? Is there a trend in terms of academic area analyzed?

In this regard, Table 4 shows that the articles are usually published in first quartile journals (top journals), regardless the use, or not, of theories to support their findings. As there is not clearly perceived a certain trend in publishing articles that support their findings with theories, we performed a regression analysis to confirm or not this research question. Furthermore, we do not know if there is a trend based on a specific academic area.

**Table 4.** Articles with and without theories, and quartiles of journals

QUARTILES JOURNALS	ARTICLES WITH THEORIES	ARTICLES WITHOUT THEORIES
JOURNALS IN FIRST QUARTILE	30 – 83.34%	49 – 69.01%
JOURNALS IN SECOND QUARTILE	3 – 8.33%	9 – 12.68%
JOURNALS IN THIRD QUARTILE	3 – 8.33%	13 – 18.31%
<b>TOTAL</b>	<b>36 – 33.64%</b>	<b>71 – 66.36%</b>

Source: Own Elaboration

The results of this regression analysis are showed in the table 5. They show that there is a positive and not statistically significant relationship between use of theories in articles and the impact factor of journals, in general terns ( $r = 0.1167$ ;  $\rho > 0.10$ ), i.e. it seems to be that when the articles used theories are more likely to be published in journals with higher impact factor. However, this is not a behavior that extends to all analyzed subjects. In the case of *Communication* subject, this relationship is positive and statistically significant ( $r = 0.370$ ,  $\rho < 0.05$ ), thus, the findings made in the studies under this area of knowledge are usually supported by theories if they would be published in high-impact journals. In the case of *Information Science and Library Science* area, the relationship is negative and not statistically significant ( $r = -0.019$ ;  $\rho > 0.10$ ), therefore, under this area of knowledge the articles published in high-impact journals do not have to be supported by theories. Finally, in the case of *Public Administration* area, the relationship is positive but not statistically significant ( $r = 0.050$ ;  $\rho > 0.10$ ), which leads us to conclude that there are more options to publish an article in a top *Public Administration* journal, when it takes a theoretical framework to support its findings.

## 5 Conclusions and discussion

According to our results, there are an increasing number of papers published in JCR journals about the use of social media in public administrations and it is growing in the last years (RQ 1). In fact, social media in public administrations has mainly attracted the attention of researchers in the last three years. It is a reflection of the increasing incorporation of these technologies in the social life of people and the need of public administrations of implementing these technologies in the public affairs.

**Table 5.** Hypothesis test results

HYPOTHESIS	SPEARMAN CORRELATION	Significance
<i>H<sub>0</sub></i> : There is a relationship between the use of theories in articles to support the findings and the impact factor of journals where they are published	$r = 0.116$ N = 107	0.234
<b>COMMUNICATION</b>		
<i>H<sub>1a</sub></i> : There is a relationship between the use of theories in articles to support the findings and the impact factor of Communication journals where they are published	$r = 0.370$ N = 42	0.016
<b>INFORMATION SCIENCE AND LIBRARY SCIENCE</b>		
<i>H<sub>1b</sub></i> : There is a relationship between the use of theories in articles to support the findings and the impact factor of Information Science and Library Science journals where they are published	$r = -0.019$ N = 58	0.889
<b>PUBLIC ADMINISTRATION</b>		
<i>H<sub>1c</sub></i> : There is a relationship between the use of theories in articles to support the findings and the impact factor of Public Administration journals where they are published	$r = 0.050$ N = 10	0.890

Source: Own Elaboration

Nonetheless, the research about social media implementation, and similarly their use in public administrations, has not been the same in all fields of knowledge (RQ 1) or in the journals in which they are published (RQ 3). Indeed, whereas the electronic participation has been the main research theme published in the communication and information science fields of knowledge –mainly in the journals of GIQ and SSCORE-, the delivery of public services is increasingly being the key theme in the public administration area –no preference for publishing in a particular journal in this field exists-. This result highlights the different perspective of the fields of knowledge analyzed in this paper, and it also reflects the concerns of social media in its implementation in public administrations. In fact, results indicate that the electronic participation has been the first concern of public administrations in implementing these new technologies. It seems that governments have tried to take advantage of Web 2.0 technologies as other channels for a wider representation of the government actions or the elected political party into the Internet.

On the other hand, this new field of research needs grounded theories to support social media application into public administrations (RQ 2). Our review indicates that several different theories have been called to be applied in the application of social media in public administrations. But which one of them prevails? Many of them are embedded from other areas of study. In this regards, is social media a field of knowledge that need a deep analysis of theories or can it embedded theories from other fields of knowledge? Why? Does your application depend on contextual factors or training of research? All these

questions remain currently without appropriated answer. Therefore, future research could undertake theoretical studies on this issue.

In addition, the main studies on social media focus on analyzing this phenomenon in countries of USA, Europe and Australia. However, it is increasingly common that the main university of these countries invest in research about Arab World and developing countries (RQ4). These studies are focused on political affair and public debate, which are theories used in political science about processes and effects of the media communication in a political context.

Finally, the regression results show that there is relationship between use of theories in articles and the impact factor of journals, specially, in *Information Science and Library Science* subject (RQ5). It appears that the social media concept has a higher theoretical support in this area, although this phenomenon is a relatively new one [31], because it brings in revolutionary paradigms for information science research and practical use. So, a main research question to be answered by future research could be: are there journals classified inside certain academic areas that are more attracted to articles based on theoretical foundations?, i.e., when you base your research on theoretical foundations, is it more likely to publish your research in journals cataloged in certain areas with higher theoretical roots?

To conclude, the review presented in this paper provides a comprehensive summary of the research into social media within the fields of Communication, Information Science and Public Administration, highlighting the main research topics and theories used. Explanations and clarifications are given whenever possible. Knowledge gaps and research opportunities are identified from these observations, which reveal changes in the research methods applied, reinforcing the development of a theoretical framework so that the application of social media may efficiently contribute to improving management in the public sector. Nonetheless, future research could analyze other journals different from those included in the sample selection of this paper such as, for example, those not listed in the ISI index or those included in other different fields of knowledge, with the aim of completing the whole picture of social media regardless its link to public sector management.

## Acknowledgements

This research was carried out with financial support from the Regional Government of Andalusia (Spain), Department of Innovation, Science and Enterprise (Research Project No. P11-SEJ-7700).

## References

1. Anthopoulos, L., Fitsilis, P.: Trends in e-Strategic Management: How do Governments Transform their Policies?. *International Journal of Public Administration in the Digital Age (IJPADA)*, 1(1), 15-38 (2014)
2. Taylor, J. A.: The Information Polity: Towards a two speed future?. *Information Polity: The International Journal of Government & Democracy In The Information Age*, 17(3/4), 227-237 (2012)
3. United Nations: E-Government Survey 2010. Leveraging e-government at a time of financial and economic crisis. New York: United Nations (2010)
4. Peedu, G.: Enhancing Public Service User Experience in Information Society. Master Thesis. Estonia: Tallinn University (2011)
5. OECD: Denmark: Efficient e-Government for Smarter Service Delivery, *OECD Publishing*. (2010) Available at <http://dx.doi.org/10.1787/9789264087118-en>.
6. Li, D.: Online social network acceptance: a social perspective. *Internet Research*, 21(5), 562-580 (2011)
7. Osimo, D.: *Web 2.0 in Government: Why? and How?*. Institute for Prospective Technological Studies, Joint Research Centre, European Commission. Luxembourg: Office for Official Publications of the European Communities (2008)
8. Williams, C. B., Gulati, G. J.: Social networks in political campaigns: Facebook and the Congressional elections of 2006 and 2008. *New Media & Society*, 15(1), 52-71 (2013)
9. Bonsón, E., Torres, L. Royo, S., Flores, F.: Local e-government 2.0: Social media and corporate transparency in municipalities. *Government Information Quarterly*, 29 (2): 123-132 (2012)
10. Linders, D.: From e-government to e-government: Defining a typology for citizen coproduction in the age of social media. *Government Information Quarterly*, 29(4), 446-454 (2012)
11. Holsapple, C.W.: The pulse of multiparticipant systems. *Journal of Organizational Computing and Electronic Commerce*, 18 (4), 333-343 (2008)
12. Neufeld, D., Fang, Y., Huff, S.: The IS identity crisis. *Communications of the Association for Information Systems*, 19, 447-464 (2007)
13. Cocosila, M., Serenko, A., Turel, O.: Exploring the management information systems discipline: a scientometric study of ICIS, PACIS, and ASAC. *Scientometrics*, 87(1), pp. 1-16 (2011)

14. Straub, D.: The value of scientometric studies: An introduction to a debate on IS as a reference discipline. *Journal of the Association for Information Systems*, 7 (5), 241-245 (2006)
15. McDermott, P.: Building open government. *Government Information Quarterly*, 27(4), 401-413 (2010)
16. Mergel, I.: Social media adoption and resulting tactics in the U.S. federal government. *Government Information Quarterly*, 30 (2), 123-130 (2013)
17. Bertot, J. C., Jaeger, P. T., Hansen, D.: The impact of policies on government social media usage: Issues, challenges, and recommendations. *Government Information Quarterly*, 29 (1), 30-40 (2012)
18. Peng, T. Q., Zhang, L., Zhong, Z. J.: Mapping the landscape of Internet Studies: Text mining of social science journal articles 2000-2009. *New Media & Society*, 15 (5), 644-664 (2012)
19. Webster, J., Watson, R. T.: Analyzing the past to prepare for the future: Writing a literature review. *MIS Quarterly* 26(2), 13-23 (2002)
20. Woolcock, M.; Narayan, D.: Social Capital: Implications for Development Theory, Research, and Policy. *The World Bank Research Observer*, 15(2), 225-249 (2000).
21. Rodríguez Bolívar, M.P., Caba Pérez, M. C., López Hernández, A.M.: Cultural contexts and government digital reporting. *International Review of Administrative Science*, 72(2), 269-290 (2006)
22. Rodríguez Domínguez, L., García Sánchez, I. M., Gallego Álvarez, I.: Determining factors of e-government development: A worldwide national approach. *International Public Management Journal*, 14(2), 218-248 (2011)
23. Rodríguez Bolívar, M.P.; Alcaide Muñoz, L., López Hernández, A. M.: Determinants of Financial Transparency in Government. *International Public Management Journal*, 16 (4), 557-602 (2013)
24. Rodríguez Bolívar, M.P.; Navarro Galera, A., Alcaide Muñoz, L.: Governance, Transparency and Accountability: An International Comparison. *Journal of Policy Modeling*, 37(1), 136-174 (2015)
25. Khan, G. F.: Social media-based systems: an emerging area of information systems research and practice. *Scientometrics*, 95, pp. 159-180 (2013)
26. Tomasello, T. K., Lee, Y., Baer, A. P.: New media research publication trends and outlets in communication, 1990-2006. *New Media & Society*, 12 (4), 531-548 (2010)
27. Khan, G. F., Moon, J., Park, H. W.: Network of the core: mapping and visualizing the core of scientific domains. *Scientometrics*, 89(3), 759-779 (2011)
28. Serenko, A., Jiao, C.: Investigating information systems research in Canada. *Canadian Journal of Administrative Sciences*, 29(1), 3-24 (2012)
29. Nabatchi, T.: Addressing the Citizenship and Democratic Deficits: The Potential of Deliberative Democracy for Public Administration. *American Review of Public Administration*, 40 (4), 376-399 (2010)
30. Coursaris, C. K., Van Osch, W.: A scientometric analysis of social media research (2004-2011). *Scientometrics*, 101(1), pp. 357-380 (2014)
31. Löfstedt, U.: E-Government –Assessment of current research and some proposals for future direction. *International Journal of Public Information Systems*, 1(1), 39-52 (2005)
32. Rodríguez, M. P., Alcaide, L., López, A. M.: Trends of e-government research. Contextualization and research opportunities. *The International Journal of Digital Accounting Research*, 10, 87-111 (2010)
33. Rodríguez, M.P., Alcaide, L., López, A. M.: Scientometric Study of the Progress and Development of e-Government Research During the Period 2000-2012. *Information Technology for Development*, DOI: [10.1080/02681102.2014.927340](https://doi.org/10.1080/02681102.2014.927340)
34. Gordon, M. D.: Citation Ranking versus Subjective Evaluation in the Determination of Journal Hierarchies in the Social Sciences. *Journal of Society for Information Science*, 33 (1), 55-57 (1982)
35. Forrester, J. P., Watson, S. S.: An assessment of public administration journals: the perspective of editors and editorial board members. *Public Administration Review*, 54(5), 474-482 (1994)
36. Rodríguez Bolívar, M. P.; Alcaide Muñoz, L.: Comparative Scientometric Analysis in Social Media: What Can We Learn? And What Is Next?, in Reddick, C. G. and Anthopoulos, L. (Eds.) *Information and Communication Technologies in Public Administration. Innovations from Developed Countries*, pp. 97-124.
37. Garfield, E.: Citation analysis as a tool in journal evaluation. *Science*, 178 (6), 471-479 (1972)
38. Vocino, T., Elliott, R. H.: Journal Prestige in Public Administration: A Research Note. *Administration and Society*, 14 (1), 5-14 (1982)
39. Plumber, T., Radaelli, C. M.: Publish or perish? Publications and citations of Italian political scientists in international political science journals, 1990-2002. *Journal of European Public Policy*, 11(6), 1112-1127 (2004)
40. Lan, Z., Anders, K. K.: A paradigmatic view of contemporary public administration research: An empirical test. *Administration and Society*, 32 (2), 138-165 (2000).
41. Krippendorff, K.: *Content analysis: An introduction to its methodology*. USA: Sage Publications, Inc. (1980)
42. Fraser, D.: *QSR Nvivo. NUDIST Vivo. Reference Guide*. Malaysia. QSR International Pty. Ltd. Melbourne Australia (2000)