Characterizing Government Social Media Research
Towards a Grounded Overview Model

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Article in proceedings (Post print version)

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Abstract

As research on government social media continues to grow in quantity and scope, this area calls for mapping and systematization, in order to stimulate better-informed studies in the future. This paper draws on a comprehensive review of government social media literature in the e-government and Information Systems (IS) fields to identify research foci and gaps. We propose a research-grounded model that identifies the foci on context, user characteristics, user behaviour, design, management, and effects, and highlight the investigated relationships among them. Based on this analysis, we identify a four-point research agenda for future government social media research.

1. Introduction

Social media initiatives in the public sector are booming. Public agencies throughout the world are pressured by increasing demands of social media presence by citizen users, and are facing the challenges of aligning government needs with features and expectations of well-established social media platforms with expanding user bases.

Research on social media in the public sector has tried to keep up with such developments, with all the challenges associated with trying to capture the essence of a rapidly moving target. Government social media research has thus mushroomed in the last few years, with diverse and shifting foci on e.g. social media strategies, technical features, and user behaviour. Concurrently, there is a growing need for the e-government research field to keep the momentum in its efforts towards theoretical development, grounded on its expanding empirical basis [8].

This study aims at providing a grounded analysis of social media research in the public sector, and at proposing an overview model that can provide a basis for developing a future research agenda. The paper specifically tackles two research questions:

RQ1: What are the current foci and gaps of government social media research?

RQ2: How can we frame relationships between constructs focused on in government social media research?

The next section presents the method adopted for selecting and reviewing all studies on social media in the public sector in the Information Systems (IS) and e-government literature. Section 3 answers RQ1 and RQ2 by presenting the results of the literature review. This section maps the foci of government social media research, and proposes an overview model based on the investigated relationships between categories of research foci. Section 4 discusses the implications of the findings and the proposed grounded model for a future research agenda on government social media. The conclusion section highlights limitations of the study, and identifies venues of future research.

2. Method

2.1. Article selection strategy

A thorough and rigorous analysis of a research field requires a systematic and structured literature review [6,64], and a comprehensive and replicable literature search strategy that includes selecting relevant publication outlets, relevant keywords, and a relevant period of time [16]. Following Bandara et al. [6], this literature review was carried out in two main steps: 1) selecting the relevant sources to be searched, and 2) defining the search strategy in terms of time frame, search terms, and search fields.

We reviewed research on social media in the e-government and Information Systems (IS) bodies of literature by scouting leading journal publications, since they are likely to include the major contributions [64]. To identify leading and high-quality journals, researchers commonly refer to journal rankings [39]. For the IS research outlets, we selected the eight top IS

journals indicated by the Senior Scholar's Basket of Journals of the Association for Information Systems (AIS), in line with Baskerville and Myers [9] and Sidorova et al. [58], using the EBSCO database. For the e-government outlets we selected what can be argued to be the top four journals in the e-government field, namely *Government Information Quarterly*, *Information Polity*, *Transforming Government: People, Process, and Policy*, and *The Electronic Journal of E-Government,* using the latest version of the E-Government Reference Library (EGRL 10.5), a well-established, comprehensive database of 7,237 e-government references, maintained for now a decade at the University of Washington's Information School [55].

In order to identify all articles dealing with social media, we drew on the definition of social media by Kaplan and Haenlein [29]: "a group of Internet-based technologies that allows users to easily create, edit, evaluate and/or link to content or other creators of content" [29:61]. Replicating the strategy of van Osch and Coursaris [49], a team of three researchers performed a search of the following keywords in either title or abstract: social medium, social media, social network site(s), social networking site(s), online social network(s). The search had no start date but had an end date of April 2015. This resulted in a total of 86 items.

The main acceptance criteria for inclusion of an academic paper in this review were that each study would draw on an empirical data analysis, that the term social media or any of the abovementioned terms is used as the core technology analyzed or as part of the core argument [49], and that the study would be situated in a public sector context. This second round of selection resulted in 37 unique research articles. While some overlap between the IS and e-government samples has been expected – IS history does feature a stream of studies set in a public sector context [11,28] – only one article in the IS sample [40] dealt with a social media public sector case.

2.2. Analysis strategy

The 37 articles have been analyzed and discussed by the research team in their entirety, in order to identify common themes among the foci of each study.

Since any immediately relevant super-ordinate analysis model related to public sector social media research was not available, we chose a form of grounded content approach [12,59]. Content analysis provides "a relatively systematic and comprehensive summary or overview of the dataset as a whole" [66]: it operates by observing repeating themes and categorizing them using a coding system. Categories can be elicited in a grounded way (built up from the

data) or come from some external source (for example a theoretical model). In this study, we identified common repeating themes in the full text of the 37 selected papers. We grouped them to provide a two-tier classification scheme that was recorded in a tabular form, and used the classification scheme to build a model of the literature.

At the first level, six categories of foci have emerged from the analysis:
1. Social media *design*, including studies focusing on the "front end" features of government social media initiatives, such as the level of sophistication of social media features, and social media content generated by public agencies;
2. Social media *management*, including studies focusing on the "back office" activities of government social media initiatives, such as social media strategy, governance structure, and organizational capacities of public agencies engaged in social media activities;
3. *User characteristics*, including studies focusing on user demographics (e.g. age, gender) and attitudes (e.g. trust propensity);
4. *User behaviour*, including studies focusing on observed behaviour on government social media platforms, such as user content generation and networking activities;
5. *Context*, including studies that focus on factors external to the organization, such as macro-economic variables, national policies, or the digital divide;
6. Social media *effects*, including studies focusing on impacts of government social media on e.g. citizen engagement, or politicians' empowerment.

Furthermore, within each of the six categories, all studies were scanned to identify specific topic areas tackled by each article. The topic areas were first inductively drawn from a comparison and grouping of the articles, and then refined to ensure comprehensiveness and mutual exclusivity of the topic areas through discussion between the two authors of this study. Refinement was completed when the resulting framework of topic areas for each of the six categories reached theoretical saturation. Theoretical saturation refers to the state where the inductively derived topic areas can comprehensively account for the data and "incremental learning is minimal because the researchers are observing phenomena seen before" [20:545]

In assigning an article to a topic area and to a category, the focus was put on each study's main research question and main unit of analysis (not on each article's intended audience, nor on the studies' implications for stakeholders). When a study focused on the relationship between two focus categories (e.g.

the impact of context on user behaviour [2]), it was classified according to which category it treats as independent variable (i.e. in the case of [2], context).

3. Findings

3.1. Government social media research foci

The number of studies focusing on each of these six dimensions is illustrated in Figure 1.
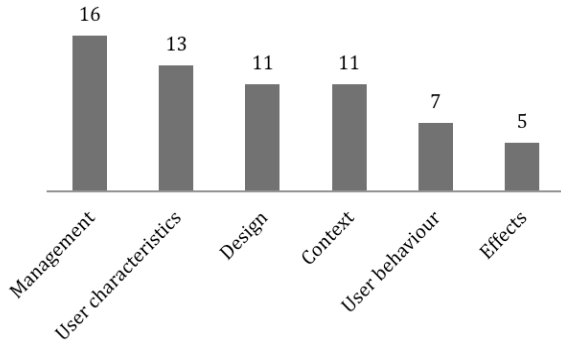
Figure 1. Distribution of government social media research foci (N=37)

Data shows that the dominant focus in government social media research is on management, while the least focused on area is the one of effects.

Within this distribution, it is interesting to observe that, overall, the dominant focus of research is on the "supply side" of the social media phenomenon, meaning processes, structure and behaviour of government organizations, as opposed to a "demand side" focus on social media users. This is illustrated by the combined foci on social media management and design (n=27) being more prominent over foci on user characteristics and behaviour (n=20).

Moreover it is striking to observe that, within this focus on the supply side, most of the studies concentrate on processes related to the back office of social media implementation, represented by the management category (n=16), with the focus on front-end features and design being secondary (n=11). Effects of social media adoption and use in the public sector appear to be under-investigated, with only five studies focusing on them.

Table 1 lists all studies in the article sample focusing on the topic areas within the categories.

Table 1. Research foci on topic areas in government social media (N=37)[1]

Context	User characteristics	User behaviour	Design (front end)	Effects
Macro-economic factors [2,52]	Age [30,61], [63]	Content generation (posts, comments, etc.) [1,25], [32,42], [60]	Features sophistication [1,15,37], [46,60], [54,65]	Citizen engagement [21,53]
E-readiness/digital divide [15,67]	Education [52,63]	Networking (re-tweeting, etc.) [17,26]	Content generation (government posts, etc.) [50,61,68], [41]	Politicians' empowerment [25,26]
Institutional/political/legal context [38,48,52]	Race [52,63]		**Management (back office)**	Citizen empowerment [40]
Benchmarking pressure [44,67]	Gender [56,61,63]		Strategy [31,35], [43,46], [51,53], [33]	
Policy objectives [14]	Institutional role (e.g. politician/non politician) [56]		Governance structure [21,47], [52], [10,67]	
Level of citizen participation [67]	Trust propensity [63,67]		IT capacity [48,67]	
			HR capacity [67]	

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[1] When focusing on a relationship between two categories, studies are categorized according to the category they focus on as independent variable, except for studies focusing on "Effects".

The majority of studies focusing on contextual factors in government social media investigate the role of policy-related factors – such as policy objectives, the benchmarking pressures, the digital divide – and of elements of the political system, such as levels of citizen participation, and the institutional context. Only two studies focus on more classic macro-economic factors, such as GDP [2], and household income levels [52]. On the contrary, the majority of studies on user characteristics focus on traditional socio-demographic items, such as age, education, and gender, relatively neglecting more articulated user characteristics, such as institutional role [56], or trust propensity [63,67]. Within the category of user behaviour, most studies look into user-generated content as sources of data; on the other hand, despite recent authoritative calls for further focus on social media networking activity [13,27], only two studies investigate networking behaviour among government social media users.

Studies on government social media design mainly focus on social media features sophistication, often adopting a maturity model approach [1,15,54]. These studies often attempt at building quantitative measures of social media adoption progress, such as a "sophistication index" [1,15], or an "interactivity score" [46]. It is interesting to observe the presence of such studies, in the light of the existing debate over the usefulness and contribution of maturity models in e-government research. While there is a well-established tradition of maturity models in e-government research [5,24,34,36,45,57,62] – that these study replicate in the social media realm – maturity models have increasingly been subject of well-argued critiques [7,19,22,23] that point out their shortcoming in assuming a linear, quantifiable development of IT adoption in the public sector.

Within the management category, studies are balanced between, on the one hand, focusing on strategy – that is, how governmental agencies behave creating social media strategies that best meet their needs – and, on the other hand, focusing on characteristics of social media governance structure, such as the degree of administrative centralization [21], or the creation of social media monitoring task forces [10].

The limited focus on social media effects is reflected in the few topic areas that these studies touch upon. Social media is mainly investigated as impacting citizen engagement and empowering politicians.

3.2. A grounded model of government social media research

Reviewing the foci of studies on government social media draws on identifying concentrations and gaps of studies investigating one or more issues among the six categories we identified in this review. However, a number of studies (n=12) focus not only on singling out these categories, but also on the relationships between them. These studies hypothesise and investigate the interplay between the six categories as constructs. Singling out these relationships provides an insight into the backbone of the social media phenomenon in the public sector, as tackled by the existing research.

The 12 studies have been analysed and classified focusing on the relationship between the six categories as independent and dependent variables constructs. A list of the classified studies is provided in Table 2, where constructs in the rows are treated as independent variables, and constructs in the columns as dependent variables.

Table 2. Studies focusing on the relationship between categories (n=12)

IV \ DV	Context	User characteristics	User behaviour	Design	Management	Effects
Context			[2]	[15] [38]	[44] [48] [52]	
User characteristics			[56]		[52]	[26] [25]
User behaviour	[63]				[17]	
Design						
Management						[53]
Effects						

The relationships listed in Table 2 can also be illustrated as a model linking the six constructs with each other. The resulting model is illustrated in Figure 2. The arrows indicate the relationships between constructs that have been tackled by existing government social media studies. Missing arrows between constructs indicate that the relationship has not been investigated in the current body of government social media research.
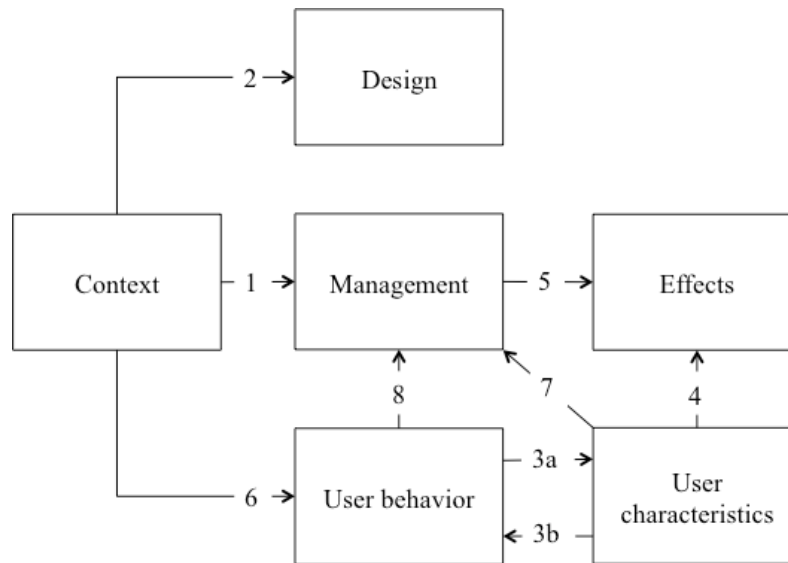
Figure 2. A grounded model of government social media research

Below we outline the investigated relationships between constructs, based on the empirical studies analysed. The relationships are ranked in decreasing order of focus, from the most investigated to the least investigated ones, reflecting the ranking numbers on the arrows in Figure 2.

1 – Impacts of context on social media management.

Studies on context as independent variable include foci on the impacts of classic socio-economic variables, such as household income levels, on public authorities' social media adoption [52], but also more complex contextual factors, such as the influence of the presence of best practices among government social media on an agency's social media strategy [44]. A number of studies on the impacts of context on government social media management focus on the local level of government, looking at local and central government influence on local authorities' social media strategies [48], and at the relationship between both form/level of government and local authorities' social media adoption [52].

2 – Impacts of context on social media design.

Two studies focus on the impact of context on social media design. Bonsón et al. [15] investigate the impact of national e-readiness on government social media sophistication. Leston-Bandeira & Bender [38] investigate the impact of different political institutional contexts on the level of activity of the parliament on social media.

3a + 3b – Mutual impacts between user characteristics and user behaviour.

The user characteristics involved in the interplay with observed user behaviour are both institutional (politician role), and value-related (user trust propensity). Warren et al. [63] investigate both whether a higher level of trust propensity is positively related to a higher level of online coordination of civic activities and, vice-versa, whether a higher level of online coordination of civic activities is positively related to a higher level of trust propensity. On the other hand, Segaard & Nielsen [56] analyze the difference between politicians and non-politicians in user posting and commenting behaviour on Twitter.

4 – Impacts of user characteristics on social media effects

Studies focusing on the impacts of user characteristics on social media effects concentrate on the institutional role of social media users, such as politicians. Social media use by politicians is investigated focusing on its effects on visibility [26], and power [25].

5 – Impacts of social media management on effects

This relationship is surprisingly under-investigated. The only study by Sandoval-Almazan & Gil-Garcia [53] provide a rich insight into the effects of the transformation of social media strategies over time on citizen engagement in both online and offline political activism.

6 – Impacts of context on user behaviour

Classic macro-economic variables, such as GDP, are investigated as context factors affecting social media user activity [2].

7 – Impacts of user characteristics on social media management

Similarly, factors such as users' education level and race, are investigated in relation to local authorities' social media adoption [52].

8 – *Impacts of user behaviour on social media management*

Interestingly, there is a focus, although scarce, on the feedback impacts of user behaviour on the strategies of government social media. An interesting study by Chatfield et al. [17] investigates how citizens' use of Twitter increased the reach of government's Twitter tsunami early warnings.

4. Discussion: a research agenda

Drawing on the mapping of the body of research of government social media carried out through the classification in categories and topic areas, and on the analysis of the relationships between categories and constructs, we identify four items for a future research agenda.

1. Increase focus on users (the "demand side")

The mapping of foci of government social media research highlights a number of gaps. The first one concerns the unbalanced focus on the "supply side" of government social media provision, at the expenses of the "demand side", that is the focus on users.

Within the focus on government social media users, future research should further explore the variety of social media user characteristics, to include features that go beyond the traditional socio-economic ones. This includes, for instance, incorporating the role of user culture – e.g. user perceptions of power distance and hierarchy, the notion of *guanxi* in China [67] – and users' physical abilities.

2. Expand studies to international context

While governments' use of social media is an international phenomenon, it is also necessary to expand future studies to international context in order to identify more contextual variables that do not exist in western countries, where most current research were conducted in. Studying the relationship among these newly found contextual variables and other constructs in the conceptual model could bring more insights into the studies of government social media.

3. Investigate social media effects

It is striking to observe that government social media research features a limited focus on social media effects, considering the wide array of areas on which government social media can be hypothesized to have impacts on. These could include not only a classic focus on impacts on efficiency and effectiveness of government action, but also a more comprehensive view that includes, for instance, impacts on government capabilities, interactions, orientations, and value distribution, drawing on the existing body of research present in previous e-government impact studies [3,4,18].

4. Explore relationships among constructs

Last, it is striking to observe that in most studies the different categories of foci of government social media are investigated in isolation, without tackling the dynamics of the relationships between the constructs that these categories point to. Future studies should focus more on building relationships among various constructs related to government social media.

In particular, relationships related to user characteristics and behaviour seem to be weak in current studies, and should be paid more attention to. The lack of studies on impacts of social media design and management on user behaviour is striking to observe, especially considering the increasing need that public agencies have for understanding the relationship between government social media initiatives, and the way they empirically affect citizens as users. A more systematic and coherent conceptual model could be built up in future research, based on further studies on relationships among variables.

5. Conclusion

This study has provided three contributions: 1) a mapping of research on social media in a public sector context in the IS and e-government literature; 2) a grounded overview model of social media government research; 3) a research agenda for future government social media studies.

The model provides a structure for understanding the shape of the field of government social media research and provides the basis for refining research agendas for the future.

Limitations of this background study concern, firstly, the extent and rigor of the literature review: further e-government and IS outlets should be included in future mapping (e.g. the journals: *The International Journal of E-Government Research, Information, Communication and Society; Social Science Computer Review;* the conferences proceedings of: EGOV, dg.o., ICEGOV). Secondly, our proposed model represents a framing proposal grounded on an analysis of the literature, rather than an empirically tested model.

Our proposed grounded overview model calls for further research to test the relationships between constructs in different settings, and thus expand the body of knowledge on social media in the public sector in a more systematic fashion. In particular, we call for future work on government social media to include, refine, and validate the model by further

exploring relationships among constructs, by increasing focus on the user side of the government social media phenomenon, by investigating social media effects, and by expanding the scope of its international context.

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