Article

A Review of Social Media Use in E-Government

Michael J. Magro

Byrd School of Business, Shenandoah University, 1460 University Drive, Winchester, VA 22601, USA; E-Mail: mmagro@su.edu

Abstract: In the past few years, e-government has been a topic of much interest among those excited about the advent of Web 2.0 technologies. This paper reviews the recent literature concerning Web 2.0, social media, social networking, and how it has been used in the public sector. Key observations include literature themes such as the evolution of social media case studies in the literature, the progress of social media policies and strategies over time, and social media use in disaster management as an important role for government. Other observations include the lack of a tangible goal for e-government, and the idea that significant change is still needed in government culture, philosophy of control, and resource management before broad sustainable success can be achieved in the use of social media.

Keywords: e-government, social media, social networking

1. Introduction

In the past few years, e-government has been a topic of much interest among those excited about the advent of Web 2.0 technologies. E-government is defined in this paper as "the use of ICTs [information and communications technology], and particularly the internet, as a tool to achieve better government" [1]. Government use of technology and the Internet must and will continue to increase in the wake of their citizens' technological adoption, yet there are still many questions and concerns about the progress and future of e-government.

It seems appropriate to review the impact that social networking applications and social media have had on e-government and examine the role played by these new technologies as well as their

implications for the future. This is especially true in light of the fact that the heads of many European governments believe ICT-enabled public services will have a considerable impact on economic growth, inclusion, and quality of life ([2], p. 3), and the extensive use of social media for presidential debates and campaigns in the United States has become a matter of routine [3,4]. Social networking applications and social media, while simple to use, have become instruments of communication, leisure, and change, and should be expected to affect our world for the foreseeable future.

This article contributes to the existing literature body in three ways. First, by offering a timeline-based review, this article allows the reader to better visualize how the use of social media in government has evolved through the last few years, and how the important issues and approaches changed during the timeline. Second, the key findings from the conclusion highlight the lack of a clear goal for e-government and the difficulty inherent in determining the "best" way to use social media in government. Third, the results of this review generated several propositions for future research that can be found in the concluding paragraphs. Testing these propositions will provide deeper insight into both the current state and future direction of social media use in government.

2. Social Media

Social media include social networking applications such as Facebook™ and Google+™, microblogging services such as Twitter™, blogs, wikis, and media sharing sites such as YouTube™ and Flickr™. Social media is considered to be a part of the Web 2.0 movement, which is characterized by user-generated content, online identity creation, and relational networking [5]. Social media has a particularly appealing potential for e-participation. According to Bertot *et al*. (2010):

> Social media has four major potential strengths: collaboration, participation, empowerment, and time. Social media is collaborative and participatory by its very nature as it is defined by social interaction. It provides the ability for users to connect with each [other] and form communities to socialize, share information, or to achieve a common goal or interest. Social media can be empowering to its users as it gives them a platform to speak. It allows anyone with access to the Internet the ability to inexpensively publish or broadcast information, effectively democratizing media. In terms of time, social media technologies allow users to immediately publish information in near-real time [6].

3. Themes in Literature

To examine social media's impact on e-government, articles were reviewed for the last five years that focused on social networking applications and social media activities used by citizens and government to communicate to, or otherwise interact with each other. The time periods were broken down by year. The years 2007 and 2008 were combined because of volume and similar content. Table 1 shows a breakdown of selected articles for each time period as well as key themes (subjects of particular interest) for the time period in question.

Table 1. Articles by year with key themes.

TIME PERIOD	KEY THEMES	EXAMPLES OF REPRESENTATIVE ARTICLES
2007–2008	Digital Divide as a barrier	Couldry 2007 [7]; Shi 2007 [8]; Shin 2007 [9]; Carter & Weerakkody 2008 [10]
	Citizen Trust	Chang & Kannon 2008 [11]; Belanger & Carter 2008 [12]; Kolsaker & Lee-Kelley 2008 [13]
	Case Studies (Experimentation)	Breindl & Francq 2008 [14]; Klein 2008 [15]; Heeks & Stanforth 2007 [16]; Best & Kumar 2008 [17]; Osimo 2008 [2]; Zappen *et al.* 2008 [18]; Gibson 2008 [3]; Kes-Erkel & Erkel 2009 [4]; Chan *et al.* 2008 [19]
2009	Identifying Key Issues	Alonso *et al.* 2009 [20]; Freeman & Loo 2009 [21]; Alshawi & Alalwani 2009 [22]; Verdegem & Verleye 2009 [23]; Lean *et al.* 2009 [24]
	Need for Strategy/Policy	Park & Cho 2009 [25]; Fitch 2009 [26]; Bekkers 2009 [27]; Misuraca 2009 [28]
2010	Participation/Digital Divide	Bertot *et al.* 2010 [6]; Ferro *et al.* 2010 [29]; Ochara-Muganda & Van Belle 2010 [30]; Bonson *et al.* 2010 [31]; Millard 2010 [32]
	Prescriptions for Success	Ferro *et al.* 2010 [29]; Ostling 2010 [33]; Parvcek & Sachs 2010 [34]; Dadashzadeh 2010 [35]; Dunleavy & Margetts 2010 [36]; Hrdinova *et al.* 2010 [37]; Taylor-Smith & Lindner 2010 [38]
	Case Studies (Success)	Bianchi & Cottica 2010 [39]; Jaeger & Bertot 2010 [40]; Chun *et al.* 2010 [41]; Huang *et al.* 2010 [42]; Jaeger *et al.* 2010 [43]
2011	Tools of Change	Mourtada *et al.* 2011 [44]; Ngak 2011 [45]; Shirky 2011 [46]; Ghannam 2011 [47]; Harb 2011 [48]; Mergel 2011 [49]
	Disaster Management	Yates & Paquette 2011 [50]; Nakki *et al.* 2011 [51]; Queensland Police Service 2011 [52]; Hariche *et al.* 2011 [53]; Crowe 2011 [54]
	Prescription for Strategy & Policy	Hellman 2011 [55]; Charalabis & Loukis 2011 [56]; Verdegem 2011 [57]; Lampe *et al.* 2011 [58]; Mcnamara 2011 [59]; Mergel 2011 [49]; Njuru 2011 [60]

4. Brief History: 2007–2008

A mere three to five years ago many were wondering what Web 2.0 would bring to e-government. The digital divide was considered "solved" by some in the United States [7], at least judging by the activity put forth to address it. However, measurable portions of the population were still concerned about equal access, and whether they would become "second-class citizens" should they remain disconnected [11].

Fortunately, many understood that simply employing technology for the sake of technology would not result in greater citizen participation [14]. Similar to the "trough of disillusionment" from Gartner's Hype Cycle, some agencies soon found that Web 2.0 technologies can exacerbate false ideas and make small populations seem larger than they really are [14]. As some early Web 2.0 experiments failed and transformative initiatives stalled, early government adopters of technology found there were often more penalties than incentives for their innovative behavior [15].

From the citizens' perspective, research showed that people were positive and willing to interact with government agencies through e-government initiatives, and that they trusted government more than the private sector with their personal information [11].

There were many success stories as well. Socially interactive web sites such as MyBikeLane.com, a site started by citizens to build awareness of illegal parking in bike lanes drew law enforcement participation that helps alleviate the problem [2]. A government-to-citizens site of note is peer-to-patent (peertopatent.org), which is sponsored by the U.S. Patent Office. It garners expert opinions on patent applications which can then serve as evidence for the official patent application [2,18]. The U.S. campaigns of Barack Obama and Howard Dean served to illustrate the power of social media to disseminate a message and develop a movement [3,4]. Early results in England showed that new media had provided a boost to citizen campaigning, as well as forging a closer connection between voters and candidates [3].

Outside of practice, scholars wondered whether e-government could deliver enough validation to warrant the participation government was expecting [7]. The overall attitude was one of wait and see [2,7,11,14].

5. Continued History: 2009

In 2009, the specific issues at stake became clearer. The W3C (World Wide Web Consortium) special interest group on e-government published a paper to identify them. They felt that participation and engagement, accessible data, collaboration between government entities, multi-channel delivery, and identification and authentication were the areas e-government would need to master to have success [20].

Participation and engagement were the primary goals of most e-government social media projects, but pursuit of them sometimes led to unforeseen consequences. As an example, one local government (Los Angeles County in the United States) found success with social media, using Google mashups, but at the cost of loss of control and authenticity of their message [21]. In the end, the authors prescribe caution and acknowledge that to overcome the baggage of social media will require new policies and more resources [21].

 Some suggested that social media had the potential to promote a positive perception of government through dissemination of information and by providing a platform for citizen and government interaction. As an example, a successful social media strategy implemented in Seoul is hypothesized to increase trust in the government through its continued operation [25].

The idea of formulating new policies for social media utilization rings true for many. The use of social media for non-personal purposes has been described as a "frontier-like" environment with a lack of clear rules, and a lack of control [26]. In such an environment, the established rules likely do not apply, and may in fact be harmful. Realization began to dawn that the increased use of the Internet and social media demanded a dedicated, specific policy response from government entities that had designs on using it [61].

In 2009, the jury was still out on the use of social media in government. There were numerous success stories, but they were still tinged with caution. It was understood that government use of social media could create more participation, or it could create individualized and ignorant citizens incapable

of commitment and characterized by lack of concern [62]. Still, there was a recognition that power was shifting from institutions to networks [62].

6. Continued History: 2010

In 2010 there was an explosion of research on social media and e-government. The increased focus shed light on some new problems and the first few detailed prescriptions for success were revealed.

In Europe, social media and Web 2.0 were in use but were not being used to their potential. Engagement and participation were lacking. The government lagged far behind the general public in making use of social media. Many began to realize that a new approach was needed, not just new technology. Government was urged to utilize the everyday technologies the people were already using. Changes in leadership and policy were necessary to utilize social media to the fullest [31-32].

Localized problems in national e-governments were identified, and several common issues came to the forefront. E-participation was still low all over the world. An analysis of 27 European countries' e-government offerings in 2009 showed less than 50% utilization of online offerings in most countries, and less than 20% in many [29]. In Africa, where the digital divide is severe, e-government was seen to exacerbate the separation, resulting in social exclusion to the disadvantaged [30]. And in the U.S., as of 2009, 25% of households were still without Internet access [63]. In short, the digital divide still exists all over the world. Even in places like the U.S. and Europe with a high percentage of the population online, a digital and cultural divide is still present within and among various communities which prevents full migration of public services to the worldwide web [29].

As in the past, some agencies still expected the mere use of social media technologies to increase participation, but as one author pointed out, digital technologies have historically not saved us from ourselves; in fact they can amplify existing trends. Web 2.0 will never be the answer if government doesn't adapt to the changing times [33]. Put another way, traditional government activity has followed a model of constraint and information hoarding. This approach stifles e-participation and government innovation. An information sharing paradigm needs to be adopted if any success is to occur [34].

Prescriptions began to emerge regarding how to utilize social media in e-government:

Dadashzadeh (2010) suggests that a different approach is needed for government to successfully invest in social media. In this case, government would do well NOT to follow the lead of the corporate sector, which often haphazardly implements social media simply for the sake of using it. Government social media use should be planned, fair, promote engagement, and promote transparency [35].

Focusing on process and technology, Dunleavy and Margetts (2010) stress that E-government in the digital era needs to focus on simplification and collaboration rather than dis-integration. It should produce client-focused services that are efficient, and move to embrace electronic delivery of everything [36].

Ferro and Molinari (2010) state that an evolved e-government approach should involve Information and Communication Technology (ICT) tools, enabling conditions, and institutional changes [29].

Hrdinova *et al.* (2010) proposed a framework of 8 elements that must be addressed for a successful social media policy: employee access, account management, acceptable use, employee conduct, content, security, legal issues, and citizen conduct [37].

Taylor-Smith and Lindner (2010) held workshops and derived a framework for e-participation that was built on easy-to-use, entertaining, and user-friendly technology incorporating citizen content-sharing through maximum outreach (multi-channel, multi-media, cross-media) that is focused on individual or personal relevance for the participants [38].

Success stories included the Kublai initiative in Italy, which is an online community that allows creative young citizens to participate in economic development projects to improve their communities. The site successfully promotes openness and transparency, while providing coaching and mentoring to its participants [39]. The Barack Obama administration's use of social media in the U.S. continued beyond the campaign, promoting transparency and openness in government [40].

Asian governments overall seemed to avoid the use of social media. Those few governments that did used it for disseminating information, education, and tourism—in other words, usage was sparse and not interactive [64].

Despite the trickle of success stories, there was still some doubt regarding whether social media could ever be useful in government. As one author pointed out:

Social media supports the increased reliance on human networks, the need for rapid interactive communications, the need to blur what is private and public, and the need for engaging multimedia. Whether government can use social media will depend upon how well government can see, understand, and attend to these needs. Social media is about fast, interactive communications. How will bureaucracies adapt to the increased pressures for timely responses? A very different question is how can social media provide us a way to do things in way that we have not done before? [65].

7. Continued History: 2011

As 2011 arrived, the perspective changed from one of cautious pessimism to a jolting revelation of the power of social media in the hands of citizens worldwide.

An analysis of participation in the first generation of e-government initiatives worldwide revealed limited usage of early e-government offerings. Increased use of social media was suggested as the solution to low participation, eventually leading to a generation of broader, deeper, and more advanced e-participation [56]. The potential of social media continued to be touted, especially for use by rapid-response agencies in government.

Some agencies discovered the problems inherent in utilizing mainstream for-profit social media offerings. For example, trust becomes an issue when ads on a government Facebook page undermine or run contrary to the message or goal of the page. Also, privacy on Facebook has been a problem for years. Citizens may not know the difference between the social media source and the government agency using it [55]. Additional concerns include accessibility to the disabled, which does not appear to be a priority to social media vendors, and the limitations of the format and/or design can prevent government agencies from reaching particular groups of citizens [50].

The success stories analyzed in 2011 exploded in both number and impact. Disaster management served to spotlight social media's versatility and availability to both citizens and government. The tragedy of the Haiti earthquake served as the catalyst for the first time U.S. agencies used social media (the earthquake occurred in 2010, but much of the analysis was not published until 2011) as the main knowledge-sharing and coordination tool. Wikis and collaborative workspaces resulted in faster decision cycles and more complete knowledge resources. Social media was found to enable effective knowledge management in a dynamic emergency environment, through establishing coordination methods with various external aid agencies, and how knowledge is transformed in order to be better utilized by individuals and decision makers [50]. The Centers of Disease Control and Prevention in the U.S. used Twitter to disseminate information about the spread of disease, and found that people passing along the message through the Twitter network amplified the spread of the information. Furthermore, people passed along their own information which made its way back to CDCP which then investigated claims and added new disease outbreaks to their database, eventually sending it back through the Twitter feed [51]. The Queensland Police Service in Australia demonstrated the power of social media during a disaster, when Queensland was hit by a series of tropical cyclones resulting in mass flooding and a disaster-declaration over 90 percent of the state [52]. The Police Service began actively using Facebook, Twitter, and YouTube in May of 2010. The first storm hit on December 25, 2010, followed by a series of flash floods on January 10, 2011. In the 24-hour period following the floods, their Facebook likes increased from 17,000 to over 100,000 and maintained those numbers throughout the crises. The agency used Facebook, Twitter and YouTube to disseminate disaster-related information and communicate with citizens for the duration of the disaster. In the aftermath, the agency garnered praise from government, citizens, and media for their service during the situation [52].

The series of uprisings in the Middle East known as the "Arab Spring" have been coordinated to varying degrees using Facebook and Twitter. A report produced by the Dubai School of Government stated, "Social media tools have merged online and offline identities, while playing an arguably critical role in dramatic changes sweeping the Arab region," finally concluding that the growth of social media in the Middle East and the shift in usage trends have played a critical role in mobilization, empowerment, shaping opinions, and influencing change [44]. The Occupy Wall Street movement in the U.S. was successfully organized and coordinated using social media such as Facebook and Twitter. It now has a budget and has spread to cities all over the U.S. as well as other countries [45].

The prescriptions for social media use in government continued, particularly with regard to the use of mainstream for-profit social tools such as Facebook and Twitter. One article which is similar to many others directs governments to prepare a good written strategy for social media and stick to it, then consider alternative platforms to the mainstream for-profits that offer better accessibility and either controllable or absent ad strategies [55]. Another study looking at Australia, New Zealand, Singapore and Hong Kong, found that even in 2011 65% of organizations (including government organizations) have no policy regarding social media use by employees; almost 50% of these do not monitor social media regularly [59].

8. Discussion and Recommendations

Scholarship on social media and e-government has progressed along a pathway of discovery during the time frame of this review. For example, early case studies from 2007–2008 split between documenting successes with tentative prescriptions for future progress, and failed implementations serving as illustrations on what not to do [2-4,14-19]. Case studies seemed to diminish in number in 2009, then pick up again in 2010 with far more success stories than failures. The pattern appears to follow that of a trial phase (*i.e.*, experimentation), an analysis phase (see what happened), and then a new trial (apply what was learned and try again).

Another discernible pattern centers around social media policy, which emerged strongly in 2009 and remained a constant theme during all time periods. Early literature hardly mentions it, but in 2009 it was the central theme, and many of the articles during that time period were focused on the key issues that should drive policy, and the need for social media policy and strategy. In 2010 the prescriptions for success were made up of various pieces of policy and strategy, just waiting to be combined. In 2011 many policy prescriptions and examples were put forth based on what had been learned in the recent past.

Some broader issues emerged from this review. The digital divide is a major barrier to e-participation. While the private sector broadband providers will continue to slowly gather the disconnected minority, it should be recognized that the public sector is in the best position in regards to both authority and funding to address this problem. Therefore, the burden of erasing the digital divide falls mostly upon the shoulders of the governing entities. It is obviously not something that can be quickly remedied due to the complexity of the problem (the myriad of reasons people are not online) and the size of the population that needs help, but addressing the digital divide should be a continuous agenda item for governments at all levels until it ceases to be a significant barrier to e-government.

The benefit of social media use for government response agencies was demonstrated emphatically through various cases, such as the Queensland disasters and the Haiti earthquake. Law enforcement agencies that have a need to contact the public quickly and efficiently should be investigating social media as an effect method to disseminate crucial information for situations such as criminal activity in an area or on campus, for evacuation instructions in case of a fire or natural disaster, and for community outreach to promote safety in neighborhoods.

The "best" way to use social media in government is a nebulous and subjective problem that does not lend itself to a single set of guidelines for every task, country, agency, citizen, and government. A successful strategy for any particular application is not likely to be immediately discovered through simply following a previously successful implementation, no matter how similar the circumstances. The most practical advice may come in the form of a warning: some believe that success with social media can not be sustained under the current structure of governments worldwide [56]. They propose that sustained success can only come when governments create new organizational units to manage newly created e-participation channels, and also to analyze the large quantities of both structured data (e.g., citizens' rankings and ratings) and unstructured data (e.g., citizens' postings in textual form) that will be created by them. The personnel of these new units must have specialized skills concerning the new electronic modes of communication, and also be immersed in a quite different culture from the dominant 'law enforcement' and regulatory culture of government agencies [56]. In other words, the

culture and control structure of government has got to change. Releasing those long held anchors will be a daunting task which is not likely to occur either quickly or easily.

This study is limited by the selection of literature examined, and the governments and countries covered by extant literature. While an attempt was made to identify and review all relevant scholarly publications on social media and e-government within the time frame, selection and identification are limited by electronic indexing and collection formats. The inclusion or exclusion of some publications in the databases and search engines used surely influenced the articles examined. Additionally, scholarly work does not evenly cover all governments' use of e-government or social media, therefore the scholarly record is not complete for all uses of social media in government in all places in the world. Examination of the scholarly record is limited in that sense.

9. Conclusion

In the design of expert systems a method called "backward-chaining" is sometimes used to model the steps needed to solve a problem. Backward-chaining involves starting with the ultimate goal in mind, then working backward through intermediate steps to find a solution path. If backward-chaining were to be used to map the future for e-democracy, what would the ultimate goal be? Would it be to empower every citizen to have access to any available government information in a form best suited to be consumed in their current situation? Would it be to bestow the ability on every government agency to engage in meaningful interaction with, and enjoy direct participation from every citizen under their jurisdiction? Would it be for each government agency to have instant access to the information and activities of every other government agency that influences or is influenced by that agency? Is it all of the above? It is more than all of this?

Conspicuously absent in e-government literature is a statement of what it should ultimately be. Instead there exist mostly a collection of desirable intermediate steps. We may need to come to grips with the idea that we continue to move forward, but we cannot identify the goal that lies ahead. Yet we somehow expect the path to be true, and to be able to recognize when we have arrived.

While we don't know the goal, we have a good grasp of some of the intermediate steps, or pieces that seem to lead toward a beneficial end result. For example, we recognize that we need to be able to translate social media-driven e-participation into the act of governing, and we acknowledge we don't yet know how to do it [66]. Also, we admit that it is desirable for democratic governments, at least to some extent, to have media policies that promote openness, transparency, and make government available to all, yet in practice we often do not even strive for this [67]. We further realize that we need to react in some way to citizen feedback from the social networking and socially interactive channels we currently have, yet it is understood that very few government agencies employing social media are actually affected by citizen feedback [66].

In the spirit of looking forward, here are some untested propositions regarding social media in e-government for future researchers to consider:

1. Citizen feedback through e-government use of social media does ***not*** result in governmental change. If true for a particular agency, how can this maxim be reversed? Is change resulting from citizen feedback a valid objective for all agencies? What are the criteria that should be used to determine when change should occur?

2. Governmental entities using social media do not have an agreed-upon long-term goal for the interaction they seek with citizens. If true, do they even realize it? Are there conflicting long-term goals, or are there only short-term objectives? Is there a consensus on the short-term objectives, or are those also in disagreement?

3. The use of social media in e-government differs by social culture and form of government. What forms of government are most likely to seek citizen feedback? What forms are most likely to request citizen reporting of criminal activity? What types of social cultures are less likely to participate in e-government?

Furthermore, future research on social media in e-government is needed in the areas of objectives and strategy, categorization of e-government applications, and policy-making. For objectives and strategy, research is needed on the long-range plans for citizen participation and involvement. Such planning will help shape future strategy and fill the vacuum caused by the current lack of definitive goals and objectives. Regarding the categorization of applications, being able to classify social media functionality and projects according to an accepted standard will improve the available knowledge base by standardizing the vocabulary. This is important since governments all over the world are currently working on similar e-government initiatives. The ability to easily find similar projects would be a great advantage to those that follow others. Finally, more work on social media and e-government policies is still needed since the use of these technologies is changing rapidly. Government regulations have been traditionally slow to catch up with the information age. As the objectives and strategies for government use of social media solidify over time, policy makers must keep pace. To do otherwise is to risk directionless progress, potential legal difficulties, and the expense of starting over.

References

1. Organisation for Economic Co-operation and Development (OECD). *OECD e-Government Studies: The e-Government Imperative*; OECD Publishing: Paris, France, 2003.

2. Osimo, D. Web 2.0 in government: Why and how? JRC Scientific and Technical Reports. European Commission, Joint Research Centre, Institute for Prospective Technological Studies: Seville, Spain, 2008. Available online: ftp://ftp.jrc.es/pub/EURdoc/EURdoc/JRC45269.pdf (accessed on 20 November 2011).

3. Gibson, R.K. New media and the revitalisation of politics. *Representation* **2008**, *45*, 289–299.

4. Kes-Erkul, A.; Erkul, R.E. Web 2.0 in the process of e-participation: The case of organizing for America and the Obama Administration. National Center for Digital Government working paper. National Center for Digital Government Working Paper Series **2009**, *1*, 1-19. Available online: http://scholarworks.umass.edu/ncdg/32/ (accessed on 26 November 2011).

5. Magro, M.J.; Ryan, S.D.; Sharp, J.H. Using social networking for educational and cultural adaptation: An exploratory study. *J. Inf. Technol. Educ*. **2009**, *10*, 1–16.

6. Bertot, J.C.; Jaeger, P.T.; Grimes, J.M. Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. *Gov. Inf. Q*. **2010**, *27*, 264–271.

7. Couldry, N. New media for global citizens? The future of the digital divide debate. *Brown J. World Aff*. **2007**, *14*, 249–261.

8. Shi, Y. The accessibility of Chinese local government web sites: An exploratory study. *Gov. Inf. Q.* **2007**, *24*, 377–403.

9. Shin, D. A critique of Korean National Information Strategy: Case of national information infrastructures. *Gov. Inf. Q.* **2007**, *24*, 624–645.

10. Carter, L.; Weerakkody, V. E-government adoption: A cultural comparison. *Inf. Syst. Front.* **2008**, *10*, 473–482.

11. Chang, A.; Kannon, P.K. Leveraging Web 2.0 in government. E-Government Technology Series, IBM Center for the Business of E-Government: Washington, DC, USA, 2008. Available online: http://www.businessofgovernment.org/sites/default/files/chang_fall08.pdf (accessed on 24 November 2011).

12. Belanger, F.; Carter, L. Trust and risk in e-government adoption. *J. Strateg. Inf. Syst.* **2008**, *17*, 165–176.

13. Kolsaker, A.; Lee-Kelley, L. Citizens' attitudes towards e-government and e-governance: A UK study. *Int. J. Public Sector Manag.* **2008**, *21*, 723–738.

14. Breindl, Y.; Francq, P. Can Web 2.0 applications save e-democracy? A study of how new internet applications may enhance citizen participation in the political process online. *Int. J. Electron. Democr.* **2008**, *1*, 14–31.

15. Klein, P. Web 2.0: Reinventing democracy. *CIO Insight Magazine* **2008**. Available online: http://anthonydwilliams.com/wp-content/uploads/web2_reinventingdemocracy.pdf (accessed on 26 November 2011).

16. Heeks, R.; Stanforth, C. Understanding e-Government project trajectories from an actor-network perspective. *Eur. J. Inf. Syst.* **2007**, *16*, 165–177.

17. Best, M.L.; Kumar, R. Sustainability failures of rural telecenters: Challenges from the Sustainable Access in Rural India (SARI) project. *Inf. Technol. Int. Dev.* **2008**, *4*, 31–45.

18. Zappen, J.P.; Harrison, T.M.; Watson, D. A New Paradigm for Designing e-government: Web 2.0 and Experience Design. In *Proceedings of the 9th Annual International Digital Government Research Conference*, Montreal, Canada, 18–21 May 2008; pp. 17–26.

19. Chan, C.M.L.; Lau, Y.; Pan S.L. E-government implementation: A macro analysis of Singapore's e-government initiatives. *Gov. Inf. Q.* **2008**, *25*, 239–255.

20. Alonso, J.M.; Ambur, M.A.; Amutio, M.A. Improving access to government through better use of the Web. W3C Interest Group Note 12 May 2009. Available online: http://www.w3.org/TR/2009/NOTE-egov-improving-20090512/ (accessed on 28 November 2011).

21. Freeman, R.J.; Loo, P. Web 2.0 and E-government at the Municipal Level. In *Proceedings of 2009 World Congress on Privacy, Security and Trust and the Management of e-Business*, Saint John, NB, Canada, 25–27 August 2009; pp. 70–78.

22. Alshawi, S.; Alalwany, H. E-government evaluation: Citizen's perspective in developing countries. *Inf. Technol. Dev.* **2009**, *15*, 193–208.

23. Verdegem, P.; Verleye, G. User-centered e-government in practice: A comprehensive model for measuring user satisfaction. *Gov. Inf. Q.* **2009**, *26*, 487–497.

24. Lean, O.K.; Zailani, S.; Ramayah, T.; Fernando, Y. Factors influencing intention to use e-government services among citizens in Malaysia. *Int. J. Inf. Manag.* **2009**, *29*, 458–475.

25. Park, J.; Cho, K. Declining relational trust between government and publics, and potential prospects of social media in the government public relations. In *Proceedings of EGPA Conference 2009 The Public Service: Service Delivery in the Information Age*, St. Julian's, Malta, 2009. Available online: http://www.egpa2009.com/documents/psg1/ParkCho.pdf (accessed on 24 November 2011).

26. Fitch, K. Making friends in the Wild West: Singaporean public relations practitioners' perceptions of working in social media. *Prism* **2009**, *6*, 1–14.

27. Bekkers, V. Flexible information infrastructures in Dutch e-government collaboration arrangements: Experiences and policy implications. *Gov. Inf. Q.* **2009**, *26*, 60–68.

28. Misuraca, G. Futuring e-government: Governance and policy implications for designing an ICT-enabled knowledge society. In *Proceedings of the 3rd International Conference on Theory and Practice of Electronic Governance*, Bogota, Colombia, 10–13 November 2009; pp. 83–90.

29. Ferro, E.; Molinari, F. Framing Web 2.0 in the process of public sector innovation: Going down the participation ladder. *Eur. J. ePractice* **2010**, *9*, 20–34.

30. Ochara-Muganda, N.; Van Belle, J. A proposed framework for E-Government knowledge infrastructures for Africa's transition economies. *J. e-Government Stud. Best Pract.* **2010**, *303226*, 1–9.

31. Bonson, E.; Torres, L.; Royo, S.; Flores, F. Local E-Government 2.0: Social media and corporate transparency in municipalities. *Gov. Inform. Q.* **2012**, *March*. Available online: http://www.aeca.es/pub/on_line/comunicaciones_xvicongresoaeca/cd/18f.pdf (accessed on 20 November 2011).

32. Millard, J. Government 1.5—Is the bottle half full or half empty? *Eur. J. ePractice* **2010**, *9*, 35–48.

33. Ostling, A. ICT in politics: From peaks of inflated expectations to voids of disillusionment. *Eur. J. ePractice* **2010**, *9*, 49–56.

34. Parvcek, P.; Sachs, M. Open Government—Information Flow in Web 2.0. *Eur. J. ePractice* **2010**, *9*, 57–68.

35. Dadashzadeh, M. Social media in government: From eGovernment to eGovernance. *J. Bus. Econ. Res.* **2010**, *8*, 81–86.

36. Dunleavy, P.; Margetts, H. The Second Wave of Digital Era Governance. In *Proceedings of the 2010 Annual Meeting of the American Political Science Association*, Washington, DC, USA, 2–5 September 2010; pp. 1–32.

37. Hrdinova, J.; Helbig, N.; Peters, C.S. Designing social media policy for government: Eight essential elements. Center for Technology in Government: Albany, NY, USA, 2010. Available online: http://www.ctg.albany.edu/publications/guides/social_media_policy/social_media_policy.pdf (accessed on 28 November 2011).

38. Taylor-Smith, E.; Lindner, R. Social Networking Tools Supporting Constructive Involvement Throughout the Policy-Cycle. In *Proceedings of 2010 4th International Conference on Electronic Democracy, Centre for E-Government*, Danube-University, Krems, Austria, 7 May 2010.

39. Bianchi, T.; Cottica, A. Harnessing the unexpected: A public administration interacts with creatives on the web. *Eur. J. ePractice* **2010**, *9*, 82–90.

40. Jaeger, P.T.; Bertot, J.C. Transparency and technological change: Ensuring equal and sustained public access to government information. *Gov. Inf. Q.* **2010**, *27*, 371–376.

41. Chun, S.A.; Shulman, S.; Sandoval, R.; Hovy, E. Government 2.0: Making connections between citizens, data and government. *Inf. Polity* **2010**, *15*, 1–9.

42. Huang, C.; Chan, E.; Hyder, A.A. Web 2.0 and Internet social networking: A new tool for disaster management? – Lessons from Taiwan. *Med. Inf. Decis. Mak.* **2010**, *10*, 1–5.

43. Jaeger, P.T.; Paquette, S.; Simmons, S.N. Information policy in national political campaigns: A comparison of the 2008 campaigns for president of the United States and prime minister of Canada. *J. Inf. Technol. Polit.* **2010**, *7*, 67–82.

44. Mourtada, R.; Salem, F. Civil Movements: The Impact of Facebook and Twitter. Arab Social Media Report, May, 2011. Available online: http://www.dsg.fohmics.net/En/ Publication/Pdf_En/DSG_Arab_Social_Media_Report_No_2.pdf (accessed on 29 November 2011).

45. Ngak, C. Occupy Wall Street Uses Social Media to Spread Nationwide. CBS News, 7 October 2011. Available online: http://www.cbsnews.com/8301-501465_162-20117291-501465.html (accessed on 30 November 2011).

46. Shirky, C. The political power of social media. *Foreign Aff.* **2011**, *January/February*, 1–9.

47. Ghannam, J. Social media in the Arab world: Leading up to the uprisings in 2011. Center for International Media Assistance: Washington, DC, USA, 2011. Available online: http://www.hirondelle.org/wp-content/uploads/2011/03/SocialMediaintheArabWorldCIMA 2011.pdf (accessed on 20 November 2011).

48. Harb, Z. Arab revolutions and the social media effect. *M/C–A Journal of Media and Culture* **2011**, *14*, No. 2. Available online: http://journal.media-culture.org.au/index.php/mcjournal/ article/viewArticle/364 (accessed on 14 February 2012).

49. Mergel, I. The Use of social media to dissolve knowledge silos in government. In *The Future of Public Administration, Public Management, and Public Service Around the World: The Minnowbrook Perspective*; O'Leary, R., Kim, S., Van Slyke, D.M., Eds.; Georgetown University Press: Washington, DC, USA, 2011.

50. Yates, D.; Paquette, S. Emergency knowledge management and social media technologies: A case study of the 2010 Haitian earthquake. *Int. J. Inf. Manag.* **2011**, *31*, 6–13.

51. Nakki, P.; Back, A.; Ropponen, T. *Social Media for Citizen Participation: Report of the Somus Project*; Publication 755; VTT Technical Research Center: Espoo, Finland, 2011. Available online: http://www.vtt.fi/inf/pdf/publications/2011/P755.pdf (accessed on 22 November 2011).

52. Queensland Police Service. Disaster management and social media—A case study. Queensland Police Service: Queensland, Australia, 2011. Available online: http://www.police.qld.gov.au/ Resources/Internet/services/reportsPublications/documents/QPSSocialMediaCaseStudy.pdf (accessed on 12 February 2012).

53. Hariche, A.C.; Loiseau, E.; Mac Erlaine, R. Web-Enabled Social Cohesion: Harnessing Participation. In *Proceedings of the International Conference on Social Cohesion and Development*, Paris, France, 20–21 January 2011; pp. 1–32.

54. Crowe, A. The social media manifesto: A comprehensive review of the impact of social media on emergency management. *J. Bus. Contin. Emerg. Plan.* **2010**, *5*, 409–420.

55. Hellman, R. The Cloverleaves of Social Media Challenges for e-Governments. In *Proceedings of eChallenges e-2011 Conference*, Florence, Italy, 26–28 October 2011; pp. 1–8.

56. Charalabis, Y.; Loukis, E. Transforming government agencies' approach to e-participation through efficient exploitation of social media. In *Proceedings of the 2011 European Conference on Information Systems*, Helsinki, Finland, 9–11 June 2011; pp. 1–12.

57. Verdegem, P. Social media for digital and social inclusion: Challenges for information society 2.0 research and policies. *TripleC* **2011**, *9*, 28–38.

58. Lampe, C.; LaRose, R.; Steinfield, C.; DeMaagd, K. Inherent barriers to the use of social media for public policy informatics. *Public Sector Innov. J.* **2011**, *16*, 1–17.

59. Mcnamara, J. *Social Media Strategy and Governance: Gaps, Risks and Opportunities*; University of Technology Sydney: Sydney, Australia, 2011; Available online: http://79.170.44.76/amecks.com/wp-content/uploads/2011/10/social-media-strategy-and-governance-report-UTS.pdf (accessed on 11 February 2012).

60. Njuru, J.W. Perspectives of Kenyan students in the United States on e-government and citizen participation. *J. Glob. Aff. Public Policy* **2011**, *1*, 1–34.

61. Margetts, H.Z. The Internet and public policy. *Policy Internet* **2009**, *1*, 1.

62. Moriera, A.M.; Moller, M.; Gerhardt, G.; Ladner, A. E-Society and E-Democracy. Paper presented at the eGovernment-Symposium 2009, Berne, Switzerland, 2009.

63. U.S. Census Bureau. Section 24: Information and Communications; Table 1156; U.S. Census Bureau: Washington, DC, USA, 2011; p. 724. Available online: http://www.census.gov/prod/2011pubs/11statab/infocomm.pdf (accessed on 14 February 2012).

64. Kuzma, J. Asian government usage of Web 2.0 social media. *Eur. J. ePractice* **2010**, *9*, 69–81.

65. Landsbergen, D. Government as part of the revolution: Using social media to achieve public goals. *Electron. J. e-Government* **2010**, *8*, 135–147.

66. Bertot, J.C.; Jaeger, P.T.; Munson, S.; Glaisyer, T. Social media technology and government transparency. *IEEE Comput.* **2010**, *43*, 53–59.

67. LaPaze, R.E. Friending the Government: Why US Government Social Media Websites do not Function as Public Spheres and What Can be Done to Promote Civic Participation. Master's Thesis; George Mason University: Fairfax, VA, USA, 2011.