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The Government 2.0 Utilization Model and Implementation Scenarios

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Abstract

Although it seems that Government 2.0 will finally deliver the promise of a truly transparent government, many practitioners around the globe (particularly those in the developing world) are reluctant or unable to develop strategies and allocate resources to Government 2.0. As a result, governments around the world ignore or mishandle the opportunities and threats presented by Government 2.0. The primary reason underlying this behavior is the lack of understanding regarding Government 2.0. The purpose of the study is to address this gap in knowledge and understanding by presenting and illustrating fundamental concepts of Government 2.0. A web survey of 200 government website from 40 countries (20 each from advanced and developing countries) and 45 Web 2.0 initiatives across the globe was used to present and illustrate fundamental concept of the Government 2.0. We suggested a three stage Government 2.0 Utilization Model (GUM) starting from information socialization (stage 1), and then moving on to mass collaboration (stage 2), and social transaction (stage 3). Based on the web survey, we also suggested three Government 2.0 implementation scenarios (i.e., standalone, nested, and hybrid implementation). The study will help researchers and practitioners in understanding the Government 2.0 phenomenon and the opportunities presented by it.

Keywords

Social media, Government 2.0, Government 2.0 utilization model, Government 2.0 implementation scenarios, and Government 2.0 relationships

Introduction

Information and communication technologies (ICTs) have fundamentally changed the way governments function. ICTs are the key driver of government modernization and serve as mediating technologies/systems/ to support interaction between governments & citizens and other governmental agencies & businesses. The primary purpose of using mediating technologies in the public sector governance is to bring greater transparency (e.g., letting citizens know what their government is doing with their taxes,) increase citizen participation in public policy making, increase collaboration within the public sector and with businesses, and with the ordinary citizens (Patrice, 2010), and to make the public sector more efficient and transparent (Bertot et al., 2010; Hackney et al., 2007).

One such mediating technology/phenomenon recently receiving much attention is the social media (Chun et al., 2010; Eggers, 2005; Mergel, 2010; Brainard and McNutt, 2010; Bertot et al., 2010; Luna-Reyes and Chun, 2012) and the government driven by social media is called as Government 2.0 (Eggers, 2005). In contrast to its predecessor (i.e., e-Government or government 1.0), which focuses on the information delivery, Government 2.0 is an idea that calls on harnessing the power of Web 2.0 concepts and social media tools/technologies to implement a true open, transparent, and participative government (Bertot et al., 2010; Luna-Reyes and Chun, 2012; Bertot et al., 2012). It is believed that social media and web 2.0 tools can promote an open governance at various levels, including government-to-government (G2G), government-to-citizen (G2C), government-to-business (G2B), and government-to-employee (G2E) relationships (Khan et al., 2012b; Sandoval-Almazan and Gil-Garcia, 2012).

Although it is believed that the Government 2.0 will finally fulfill the promise of a truly transparent government (Chun et al., 2010), many practitioners (particularly ones in the developing countries) are reluctant or unable to develop strategies and allocate resources to Government 2.0. As a result, governments around the world ignore or mishandle the opportunities and threats presented by the Government 2.0 (Luna-Reyes and Chun, 2012). While today governments around the world have widely embraced e-Government initiative (UN, 2010; UN, 2012), and a desire for a more transparent, participatory, and collaborative government is apparent (Executive Office of the President, 2009; The Government 2.0 Taskforce, 2010), there seems to be a lack of understanding regarding Government 2.0. One reason for this is that the current literature does not provide a coherent framework to explain Government 2.0. One exception is the recent study by Lee and Kwak (2012), who suggested an open government maturity model (Lee and Kwak, 2012). The model proposed by Lee and Kwak (2012) is promising, but is developed on a single case study (i.e. the USA case) and mostly focuses on the open data capabilities from the government agency perspective.

Thus, a study is needed that provide a more holistic view of the social media based government from the citizens perspective taking into account several Government 2.0 initiatives and cases. To help address this gap in knowledge and understanding, this article will present and illustrate fundamental concepts of Government 2.0. To do this, this article utilizes a web survey of 200 government websites from 40 countries (20 for each advanced and developing countries) (Chua et al., 2012) and 45 Web 2.0 initiatives from around the world. We suggest a three stage Government 2.0 Utilization Model (GUM) starting from information socialization (stage 1), and then moving on to mass

collaboration (stage 2), and social transaction (stage 3). Based on the web survey, we also suggest three Government 2.0 implementation scenarios (i.e. standalone, nested, and hybrid implementation) and the relationship that Government 2.0 may hold with the citizens. This study will help researchers and practitioners in understanding Government 2.0 phenomenon and opportunities presented by it.

The rest of the article is organized as follows. In the next section is an overview of the Web 1.0, Web 2.0, social media, and social network sites (SNS) (the phenomenon, technologies, and systems at the core of the ICT based governments); followed by some discussion on the e-Government and Government 2.0. Next the methodology employed in this research is discussed followed by the main findings. Finally, the article concludes with the Government 2.0 as global agenda and some closing remarks.

The confusion: Web 1.0, Web 2.0, Social Media, and SNS

Going through the literature, there seems to be some confusion related to the Web 1.0, Web 2.0, Social Media, and SNS (Kaplan and Haenlein, 2010): the platforms at the core of ICT based governments. This section will attempt to clarify this confusion.

At the core of the Internet (the global network of interconnected devices) are several technologies (hardware and software) and one such techniques is the World Wide Web (WWW) or simply the “Web” which is an arrangement of interlinked hypertext documents (i.e., websites) that can be accessed through the Internet (Berners-Lee, 1993). An early version of the Web is called Web 1.0 or a “read-only web” as named by Berners-Lee; the founder of the early Web (Berners-Lee, 1993). At the core of the Web 1.0 are static technologies which allow only one way information flow or communication

and users could only view the content, but could not contribute contents. Thus, making websites based on Web 1.0 as presentational of contents and not generative.

The limitations of the Web 1.0 are seemed to be overcome by the Web 2.0; a term first used to describe web technologies beyond the static pages of earlier web sites (Oreilly, 2007). Unlike Web 1.0, at the core of Web 2.0 is two-way information flow and user generated contents (Kaplan and Haenlein, 2010; Oreilly, 2007; Kietzmann et al., 2011). Thus, this makes the Web 2.0 as presentational as well as being a generator of user generated contents (UGC). The three main characteristics of Web 2.0 that distinguished it from the conventional media/technologies (e.g., print, TV, and Web 1.0) are: sharing, participation, and openness. Sharing let users exchange, distribute, and receive contents (Kietzmann et al., 2011), while its participatory nature allow users engaged in a two way interact through UGC, for example by commenting on it or sharing it (Holly and Brian, 2012). Thus, the user is both the producer and the consumer (Linders, 2012). In other words, in the Web 2.0 context, the end user is not only a user of the application/system/web, but also an active participant by using a variety of tools including, podcasting, blogging, tagging RSS-generated syndication, social bookmarking, social networking, wikis, and other collaborative tools. Finally, due to openness of the Web 2.0, data, information, knowledge, and platform are readily available. According to Holly and Brian (2012, p. 3735), the openness of the Web 2.0 means that, “data, information and applications are open in a way that allows and encourages a deeper level of engagement in which people can tweak, change, use, and build upon existing elements.” The openness of the Web 2.0 also means that, like the Internet, it is not strongly influenced or controlled by a single person, company, or state.

When we talk about Web 2.0, social media comes into mind. Social media and Web 2.0 are often use interchangeably. However, there is a slight difference between social media and Web 2.0 (Kaplan and Haenlein, 2010). Social media is an application of the Web 2.0 concept. At the core of social media is Web 2.0 concept, in other words, social media is realized based on Web 2.0 concept. Furthermore, Web 2.0 is not a technical standard or an update to the early standard (i.e., web 1.0), but it reflects the changes in the way people use the Web. According to Kaplan and Michael (2010, p. 61) social media is, "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content." Social media consists of a variety of tools and technologies that includes collaborative projects (e.g., Wikipedia and wiki-spaces), Blogs (e.g., WordPress) and microblogs (e.g., Twitter), content communities (e.g., YouTube), social networking sites (e.g., Facebook and Cyworld), folksonomies or tagging (e.g., delicious), virtual game worlds (e.g., World of Warcraft), virtual social worlds (e.g., Second Life), and all other internet-based platforms that facilitate the creation & exchange of UGC. All these social media tools are built on Web 2.0 philosophy, but they differ according to the extent to which they focus on the relationships among social actors, users' identities, conversations among social actors, content sharing, social presence (the ability to know if other users are accessible), reputation management, and the extent to which people can form groups (see figure 1) (Kietzmann et al., 2011)¹. For example, a *social network site* is a type of

¹ More discussion on how social media tools differ can be found in Kietzmann et al., (2011)'s study: Jan H. Kietzmann, Kristopher Hermkens, Ian P. McCarthy, Bruno S. Silvestre, Social media? Get serious! Understanding the functional building blocks of social media, *Business Horizons*, Volume 54, Issue 3, May–June 2011, Pages 241-251, ISSN 0007-6813, 10.1016/j.bushor.2011.01.005.

social media that focuses mainly on social relationships among social actors and YouTube is a type of social media that mainly focus on the sharing of contents (e.g., videos).

Another two terms/concepts usually confused are social media and SNS. A social network service or site is an internet-based platform that is used to build and maintain social relations among people who share interests, activities, backgrounds, or real-life connections. Boyd and Ellison (2007, p. 1-2) defined the SNS as, “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system.”

SNS is an example of the application of social media i.e., all SNS are social media, but not all social media are SNS. For example, Facebook is an SNS (i.e., facilitate online social networking) and is based on Web 2.0 concepts (i.e., social media & UGC), however, Wikipedia is a type of social media (focused more on online collaborative content creation), but not an SNS (i.e., does not facilitate online social networking). Similarly, all SNS are based on Web 2.0, but not all Web 2.0 are SNS and all social media are based on Web 2.0 concept.

To sum up, based on the above discussion, social media can be defined as the following: Social media—an Internet based technologies/tools/concept—allows the creation and exchange of user-generated content while letting users establish (at least one of these)

identity, conversations, connectivity (i.e., presence), relationships, reputation, groups, and share contents (see figure 1).

<Insert Figure 1 here>

From e-Government to Government 2.0

Electronic government or e-Government—the use of ICTs in the governance process—is one of the most widely studied mediating technology/system/phenomena of the late 1900s (Jean and Juri, 2000; Layne and Lee, 2001; Silcock, 2001; Heeks and Bailur, 2007; Khan et al., 2011; Yildiz, 2007; Irani et al., 2007; Zheng et al., 2012; Isfandyari-Moghaddam, 2011; Khan et al., 2012a). Investment in the e-Government, also known as Government 1.0, seems to have enabled government to be more transparent, effective, and efficient, while accelerating socio-political and economic development. However, the e-Government initiative was mostly (at least at its initial stages of development) based on static ICTs and web 1.0 phenomena (see figure 4), thus having limited opportunities for citizens to openly interact with their governments (Chun et al., 2010; Pina et al., 2009). For example, e-Government can be instrumental in keeping citizens connected with the government, but not engaged.

For a promise of a truly open, transparent, and participative government, researchers and practitioners are researching for a more participative inter-mediatory technology/system that provides more opportunities for the citizens/business to openly interact with government. Due to its inherited characteristic (i.e., openness, participation, and sharing) one such intermediary seems to be social media: an emerging medium for interaction between governments, government & citizens, and other governmental agencies & businesses (Sandoval-Almazan and Gil-Garcia, 2012). Government that is driven by

social media is called Government 2.0 (Eggers, 2005), collaborative government (McGuire, 2006; Chun et al., 2012), do-it-yourself government (Dunleavy and Margetts, 2010), government as a platform (O'Reilly, 2010), Open Government (Patrice, 2010), Social Government (Khan et al., 2012b), or we-Government (Linders, 2012). Regardless of the competing labels, the basic idea of Government 2.0 calls on harnessing social media technologies/tool in the governing process (Dadashzadeh, 2010; Mergel, 2010). The Australian Government 2.0 Taskforce (2010) define Government 2.0 as, “Government 2.0 or the use of the new collaborative tools and approaches of Web 2.0 offers an unprecedented opportunity to achieve more open, accountable, responsive and efficient government.” (The definition is available here: <http://www.finance.gov.au/publications/govresponse20report/index.html>). Maio (2009, p. 2) defined Government 2.0 as, “the use of information technology to socialize and commoditize government services, processes and data.” Maio (2009) further suggested that socialization of information can be achieved in three ways: 1) from government to citizen through opening government data to the public for creating public value through aggregation, 2) from citizen to government by incorporating user generated data/information that is relevant to the government processes, and 3) inside government through using internal or consumer collaboration platforms for internal socialization of knowledge (Maio, 2009). And commoditization of government services is archived through the use of consumer media (i.e. social media) to support internal and external government collaboration efforts (Maio, 2009).

How are e-Government & Government 2.0 different?

The end goal of both the e-Government and Government 2.0 is to improve government service delivery and make governments more transparent and efficient; however, e-Government and Government 2.0 can be slightly differentiated in three ways (see Table 1). First, from a technological point of view, e-Government is fundamentally based on the static enterprise and domain specific technologies and Web 1.0 phenomenon, while Government 2.0 is based on the Web 2.0 concept and driven by consumer and commoditised technologies (Maio, 2009). Second, from a strategy point of view, e-Government focuses on an inside-out approach: transforming and employing internal government resources to service citizens, business, and other government agencies; while Government 2.0 is based on an outside-in approach: harnessing external resourcing (e.g., social media collaborative technologies and crowd sourcing) to service citizens, business, and other government agencies. The social media strategy (i.e., outside-in strategy) in public sector can be further classified into push, pull, and networking strategy (Mergel, 2010). The push strategy is used to push contents (e.g., news and updates) to the citizens through social media platforms (e.g., through Facebook updates and Twitter Tweets), and pull strategies is used to funnel the social media users back to the government websites. The networking strategy is focused on two way communication and collaborative content sharing and knowledge creation through social media. Third, in a Government 2.0 settings, the end user is not merely a user of the e-Government services, but also an active participant (Linders, 2012) by using a variety of Web 2.0 tools, including podcasting, blogging, tagging RSS-generated syndication, social bookmarking, social networking, wikis, and other collaborative tools (this concept is discussed later in the Government 2.0 relationship section).

There is a general consensus among scholars that Government 2.0 provides a lot of opportunities for citizens to openly interact with the government and it can be instrumental in connecting the citizens with their governments. Still, many practitioners (particularly the ones in the developing world) are reluctant or unable to develop strategies and allocate resources to the Government 2.0. This is partly because there seems to be a lack of understanding regarding Government 2.0 and the opportunity it holds. The purpose of this article is to fill this gap in knowledge and understanding related to Government 2.0. In the following section, we will discuss the methodology employed in this research followed by the main findings.

<Insert Table 1 here>

Methodology

Web survey

A Web survey of 200 government website² from 40 countries (20 each from advanced and developing countries) was used to look for the extent of Web 2.0 utilization in their governmental institutes (see Table 2). A total of five government agency websites for each country were analyzed. The websites were from the common government agencies in each country i.e., education, environment, finance, health, and justice. The list was originally compiled using a three step comprehensive methodology by Chua, Goh, & Ang (2012) for their study on Web 2.0 applications in the government sector: 1) indentifying countries through the first World Economic Outlook Database 2009 (<http://www.imf.org/external/pubs/ft/weo/2009/01/weodata/index.aspx>) which lists a total of 180 developed and developing countries, 2) searching for the web sites of five

² The list of Websites is available at request

common government agencies in each country through Google, Yahoo! and MSN search engines, and 3) random selection of 40 countries (20 advanced and 20 developing) from the list of 45 eligible countries, with 5 government agency English only website for each country yielding a total of 200 website for the final analysis

<Insert Table 2 here>

The 200 hundred websites were manually searched for the presence of the various Web 2.0 applications during September and October 2012. The prevalence of Web 2.0 applications can be categorised in variety of ways, for example, with respect to its use (de Kool and van Wamelen, 2008; Kietzmann et al., 2011), domains of usage (Osimo), or based on the information related work: information acquisition, dissemination, organization and sharing (Chua, et al., 2012). We used the categorization suggested by Chua, et al., (2012). Based on the Chua, et al., (2012)'s categorization the Web 2.0 use in public sector can be categorized into seven categories: 1) social networking services (e.g., Twitter and Facebook), 2) multimedia sharing services (e.g., YouTube), 3) discussion forums , 4) blogging , 5) wikis , 6) rich site summery , and 7) social tagging services . In order to establish the presence or absence of the Web 2.0 application in the selected websites the seven variables were coded either as “yes” or “no”.

Web 2.0 initiatives

In addition, a web survey of existing innovative social media initiatives in the public sector from around the world was used. Particularly, we used a list of exclusive Web 2.0 initiatives in public sector compiled by Osimo (2008). However, the original list was updated by adding more recent initiatives and by eliminating the initiatives that were no longer active, accessible, or have moved to another internet domain. The updated list,

used in this study, consisting of 45 Web 2.0 initiatives from around the world is shown in the Table 3. These initiatives could be classified mainly into 6 domains of government activities, namely, regulation, cross-agency collaboration, knowledge management, political participation and transparency, service provision, and law enforcement (Osimo, 2008). Each initiative was assessed based on a coding scheme covering four dimensions/variables: 1) citizens' engagement, 2) mass collaboration, 3) social transaction, and 4) Web 2.0 complexity. The variables reflect the previous research on the social media use in public sector that categorized social media use in public sector as informational, collaborative, and limited transactional (Brainard and McNutt, 2010; Bonsón et al., 2012; Sandoval-Almazan and Gil-Garcia, 2012; Khan et al., 2012b). *Citizens engagement* refers to the extend citizens are engaged with the governments through the Web 2.0 initiates. *Mass collaboration* measured the ability to establish/poster mass collaboration with the citizens. *Social transactions* assessed the extent to which the Web 2.0 applications were used to carry out online transactions with the citizens and the *Web 2.0 complexity* assessed the technological complications of the social media/Web 2.0 initiatives. The variables were coded as: 1) low, 2) medium, and 3) high to access the four dimensions of the Web 2.0 initiatives in public sector.

<Insert Table 3 here>

Finally, to establish a link between Web 2.0 utilization and existing e-Government infrastructure, the Web 2.0 initiatives were framed against the 2012 UN (United Nations) e-Government readiness index (UN, 2012) for the respective countries (see Table 2). The aim was to establish a link between the existing e-Government accomplishment (e.g., in terms of e-Government development index) and the Web 2.0 initiatives.

We used an inductive approach: the target websites and cases were observed and evaluated as explained above; and usage patterns and regularities were detected leading to the Government 2.0 conceptualization (Figure A), GUM model (Figure 2), Government 2.0 implementation scenarios (Figure 3, 4, and 5), and the relationship it can hold with the citizens, as discussed in the next section.

Results

General statistics

Of the 45 Web 2.0 initiatives, 20 (44%) were informational-collaborative (i.e., it provided useful information while fostering mass collaboration), 11 (24%) were pure informational (i.e., it only provided useful information), 8 (17.5%) were informational-collaborative-transactional (i.e., it provided useful information and foster mass collaboration while providing online transaction opportunities), 3 (6.6%) were informational-transactional (i.e., it provided useful information and transaction opportunities), 1 (2.2%) was as neither informational or collaborative, nor transactional (e.g., the use of social media by secret service agencies), and 2 (4.4%) could not be classified. When measured from the information dimension (i.e., to what extent the Web 2.0 initiatives provided useful information), 39 (86.6%) were highly informational, 4 (8.8%) were medium informational, and 2 (4.4%) were of low informational in nature (Mean=2.7; Standard Deviation=0.57). Similarly, from collaboration dimension (i.e., to what extent the Web 2.0 initiatives foster mass collaboration), 26 (57.7%) were highly collaborative, 2 (4.4%) were medium collaborative, 17 (37.7%) were low collaborative (Mean=2.2; Standard Deviation=0.97). Furthermore, from transactional point of view (i.e., to what extent the Web 2.0 initiative foster social transaction), 5 (11%) were highly transactional, 6 (13%)

were medium transactional, 34 (75.5%) were not transactional (Mean=1.4; Standard deviation=0.69).

Furthermore, 17 (35.5%) of the 45 Web 2.0 initiatives were of high complexity, 14 (29.2%) were of medium complexity, and 12 (25%) were of low complexity. Also, most of the informational Web 2.0 initiatives were of low technological complexity (i.e., required limited existing backend e-Government infrastructure, technical, and managerial capabilities to realize such initiatives); collaborative Web 2.0 initiatives were of medium-to-high technological complexity, and transactional Web 2.0 initiatives were of high technological complexity (i.e., required well established existing backend e-Government infrastructure, technical, and managerial capabilities to realize such initiatives).

In addition, all seven categories of Web 2.0 applications (i.e., social networking services, multimedia sharing services, discussion forums, blogging, wikis, rich site summery, and social tagging services) could be found in public sector. However, some were more prevalent than others. The most popular Web 2.0 applications were RSS services followed by multimedia sharing services, blogs, discussion forums, social tagging services, social networking services, and wikis.

Conceptualizing Government 2.0

Based on the inductive approach, social media use in public sector can be conceptualized as shown in the Figure A. In the middle of the Figure A is the social media pipe (i.e., social media tools) connecting producer and consumer (or prosumers i.e., government agencies, citizens, and businesses) where the government services are co-produced that flows in both directions making government and citizen partners in the delivery of public services (Linders, 2012) (the concept of the co-production is explained later in the article).

Leveraging social media pip/tools co-production of services occurs mainly in three stages/ways (i.e., information socialization, mass collaboration, and social transaction) dependant on the existence of e-Government infrastructure, Web 2.0 complexity, and prosumers engagement as shown in the left side of the Figure A (the stages are explained, in detail, in the GUM model's discussion section below). The figure also shows the extent to which Government 2.0 is implemented (i.e., standalone, nested, and hybrid) and the type of the relations it holds with the citizens. The implementation scenarios and relationships are explained later in details.

<Insert Figure A here>

Government 2.0 utilization model (GUM)

In order to fully understand usage of social media tools/technologies in the governmental process, we need to understand the GUM model shown in figure 2. The model shows different stages/levels of Web 2.0/social media use in the public sector dependent on the existence of e-Government infrastructure and Web 2.0 complexity plotted on the X-axis and citizens' engagement and Web 2.0 utilization intensity plotted on the Y-axis. The e-Government infrastructure is used here in a broader sense, for example, it may include physical infrastructure (such as, computers, networks, and software), technical and managerial capabilities (e.g., technological skills and capabilities), and laws and policies concerning e-governance. The Web 2.0 complexity (plotted on the X-axis) refers to the technological complications of the social media use at different stages, for example, using social media tools at the initial stage is not as complex as it is in the transaction stage (i.e., the stage 3). The Web 2.0 utilization (on the Y-axis) refers to the extent in which Web 2.0 and social media tools (discussed earlier) are incorporated in the governance. Similarly,

citizens engagement refers to the extent citizens are engaged with the governments, for example, citizens engagement at the initial stage is low and it is high at mass collaboration and transaction stages of the Government 2.0.

Overall, social media use in the public sector can be categorised into three stages: *information socialization*, *mass collaboration*, and *social transaction stage*. *Information socialization stage* is instrumental in keeping citizens engaged and informed through social media channels (e.g., podcasting, blogging, tagging, RSS-generated syndication, social bookmarking, social networking, and wikis, etc.) and requires little existing e-Government infrastructure to initiate. The *mass collaboration stage* is helpful in establishing mass collaboration with citizens and cross-agency collaboration utilizing a variety of social media tools, while social transactions are carried out in the *social transaction stage* i.e., stage 3 and requires existing e-Government infrastructure, high level prosumers engagement, and complex Web 2.0 portals/tools. The GUM stages are explained (with examples) below in detail.

<Insert Figure 2 here>

Stage 1: information socialization (We talk)

At stage 1 i.e., information socialization stage, public sector employs Web 2.0 and social media tools mostly for informational and participatory purposes. Social media is used by public sector as an informational and participatory channel to increase citizen's awareness and enable them to monitor and participate in government activities (Osimo, 2008). In other words, the government information is socialization (Maio, 2009). In essence, this stage is similar to the e-Government initial stage of development (Layne and Lee, 2001). However, unlike the e-Government initial stage and open government initial

stage proposed by Lee and Kwak (2012), in the Government 2.0 initial stage, the communication is two way and provides opportunities for citizens to openly interact with government and readily respond to the information provided.

The information and participatory uses of social media were found to be as simple as merely incorporating social media tools in the existing government website (e.g., providing discussion opportunities, incorporating Facebook like button, and RSS feeds in the Websites) and establishing dedicated social media pages (e.g., Facebook fan page or twitter account) to delivery day-to-day information/news to the citizens. Or they were as complex as establishing advance social media based informational government portals for informational and participatory purposes (such as, www.chicagocrime.org, <http://openlylocal.com/>, and <http://www.farmsubsidy.org/>).

The simple informational and participatory use of social media was prevalent in most of the countries under study and requires limited existing e-Government infrastructure and financial resources (e.g., the government only rely on existing social media technologies/tools). This brings a huge advantage to the developing or least developed countries that lack resources (e.g., financial and technical) to establish an online presence and connect to citizens using social media tools.

However, developing advance social media based informational and participatory government portals (such as, <http://maplight.org/> and <http://www.data.gov/about>) requires expertise, financial resources, and existing e-Government infrastructure (as it is only observed in advanced economies). The School Information Service (SIS) initiative by the

Ministry of Education of Singapore is a good example, of the advanced social media based government portals to keep citizens informed. The SIS (<http://app.sis.moe.gov.sg/schinfo/index.asp>) allows parents and students to keep track of the nationwide school by getting instant access to a variety of information such as basic school information, school location, contact details, and school achievements. Other examples include, US Department of Justice's "justice blog" (<http://blogs.justice.gov/main/>) related to judicial matters; Danish Ministry of Education's blogs where policy makers and students interact on a range of educational topics; and the UK government's blog (<http://www.theyworkforyou.com/>) where citizens can keep tabs on the UK's Parliament and Assembly members related to their activities, debates, and written answers.

Socialization of information is used, for example, to put a human face on the government; provide easy channels to citizens for political participation and deliberation (Kim and Park, 2012; Aharony, 2012); disseminating tutorial and training materials to citizens and government employees (Khan et al., 2010); or use it to in natural disasters or diseases crisis (FEMA, 2010). Particularly, the socialization of information is useful in situation where the immediate delivery of information/news is crucial, such as disseminate news and information about public safety and in crisis management situations (e.g., weather, traffic, diseases, and nature or man-made disasters) (Huang et al., 2010; Hughes and Palen, 2009). There are several examples related to the public sector use of social media to disseminate news and information in crisis situations. For example, social media as an information channel in the California wildfires in 2007, the New England ice storm in

2008, the Sichuan earthquake in 2008, and the Twitter use by San Francisco's 311 call center (Khan et al., 2012).

Stage 2: mass collaboration (We talk and collaborate)

Stage 2 of Government 2.0 is mostly focused on enabling mass social collaboration and crowd sourcing. At this stage, government and the citizens not only talk, but collaborate also. Social media and Web 2.0 are used to foster collaborations between the government and government & citizens and other governmental agencies & businesses at different levels. Particularly, mass social collaboration was found to be instrumental in crowd sourcing, regulation, law enforcement, and cross-agency collaborations (see Table 3). The mass collaboration stage goes beyond merely incorporating social media tools into government websites and requires harnessing dedicated tools, expertise, and existing e-Government infrastructure (see figure 1).

The collaborative use of social media was visible at different levels, such as, collaboration between government and citizens and cross agency collaboration. For example, the Peer-To-Patent (www.peertopatent.com) initiative by the Patent and Trademark Office (USPTO) of the United States is a good example of mass government and citizen social collaboration in reinforcing regulations. Under this initiative, the patent examination process is opened to the public and citizens are invited to help in assessing the claims of pending patent applications, thus it improves the process for reviewing patents. Similarly, Korean government agencies have developed a number of smart phone apps to foster mass collaboration between the government and citizens in the areas such as tourism (http://english.visitkorea.or.kr/enu/HD/event/enu_20120925/enu.html) and law enforcement. For example, the Korean government's smart phone app enables mass

collaboration in reporting illegal car parking, waste disposal, energy misuse, and reporting other inappropriate behaviour. Using these apps, the government provides services to citizens (G2C) (e.g., travel information apps) and at the same time citizens also provide services to the government (C2G) (reporting illegal car parking) from any place, anytime, and anywhere, making both parties as co-producers (Linders, 2012) (this type of dynamic citizen-to-government relation is discussed later in this article). Another example, of the mass collaboration enabled by social media is the “WikiProject United States” (http://en.wikipedia.org/wiki/Wikipedia:WikiProject_United_States), a collaborative project for sharing information and resources to improve Wikipedia's coverage of topics related to the United States.

Intellipedia (<http://en.wikipedia.org/wiki/Intellipedia>) — a secret wiki-based platform of the United States intelligence community — is a good example of cross-agency collaboration to harmonize an intelligence community in its efforts in fighting terrorism/crimes with limited effects from hierarchical filtering, information silos, and information bottleneck (McConnell 2007; Osimo, 2008). Yet another example of social collaboration is the e-petition (<http://epetitions.direct.gov.uk/>)—launched by the office of the Prime Minister in the United Kingdom— an online collaborative tool for launching a petition, view, or sign petitions submitted by other people. Similarly, another good example of mass collaboration is the “apps for democracy” (<http://www.appsfordemocracy.org/application-directory/>): A U.S. government initiative to engage the public in developing new applications for democracy. The aim of these mass collaborative efforts is to foster citizen participation in policy making by crowd sourcing and expertise mining. For more examples, refer to the Table 3.

Stage 3: social transaction (We talk, collaborate, and serve)

The Social transaction stage takes Government 2.0 beyond information sharing and collaboration by enabling transaction carried out through social media channels. At this stage, using Web 2.0 platforms, government and citizens talk, collaboration, and transect. Social media is used to provide online service to the citizens. The Social transaction stage is mostly observed in advanced economies where e-Government readiness is high, such as South Korea, the Netherlands, the United Kingdom, Denmark, and the United States (UN, 2012). In the real sense, a true social transaction stage has yet to be realized i.e., social media integrated public services are still limited (e.g., using Facebook to provide tangible services to citizens such as renewing drivers licence and paying partaking tickets). However, governments around the world seem to be committed in slowly harnessing social media to deliver some services. For example, the U.K. government use a Web 2.0 based website (www.gov.uk) to provide simple, one-stop access to government services online (e.g., services related to housing, tax, driving test, passport, births, deaths, marriages and care).

The Delaware state government through its “social media hub” (<http://www.visitdelaware.com/socialmediahub/>) provide a variety of tourism related service (e.g., hotel info, weather updates, travel guide, event calendar, maps, attractions, videos, and pictures, etc.) to citizens by integrating several Web 2.0 and social media tools, including Twitter, Facebook, YouTube, Blogs, Flickr, and Google maps into a single platform. “Fixmystreet” is yet another example of using social media for service delivery (<http://www.fixmystreet.com/>), where citizens use an interactive portal to report a problem related to their locality (e.g., fly tipping, broken paving slabs, or street lighting)

which is then forwarded to the council to fix the problem. A more ambitious use of social media and Web 2.0 for public service provisioning is the SMARTiP initiative (<http://www.smart-ip.eu/>)—a joint initiative by five EU member states and including five cities— aims to establish platforms for the co-production of citizen-centric services through user-generated content, social media and Web 2.0 applications. For example, the initiative will provide an effective tool to inform citizens of traffic condition and to reduce traffic jams and engage citizens to monitor environmental services, including air quality, open spaces, and waste management.

All cases presented here are examples of socialization of information and services from government to citizens, citizens to government, and inside government (government to government and government to employees) (Maio, 2009). A summary of the three stages is presented in the Table 4.

<Insert Table 4 here>

Government 2.0 implementation scenarios

There are several ways in which Government 2.0 can be realized. Based on the web survey, three main ways in which Government 2.0 is implemented were observed: Standalone Government 2.0, Nested Government 2.0, and Hybrid Government. Standalone Government 2.0 is mostly observed in the developing and least developed countries where e-Government is not yet fully functional; nested government is observed in the countries having established e-Government infrastructure; and hybrid government is an advanced form of Government 2.0 relying heavily on a variety of technologies including Web 2.0 and is mostly often observed in the advanced economies listed on top

of the UN's e-Government readiness index. Below is an explanation of each of the scenarios in detail.

Scenario 1: standalone government 2.0

In the standalone implementation scenarios, informational Government 2.0 (i.e., stage 1) can be implemented directly under traditional government settings (i.e., paper based government) (see figure 3). This unlikely scenario reflects the countries around the world (e.g., Zimbabwe, Rwanda, and Fiji) where e-Government is not yet fully implemented (UN, 2012) and who can take full benefit of social media in establishing online presence and initiating two way communications with citizens. For example, governments with limited resources and access to the internet can use social media channels (e.g., Facebook fan pages and Tweets) to disseminate/provide/link information, news, and events to the public. Implementing a standalone Government 2.0 may require limited resources, such as, a couple of computers with Internet access and some skilled employees to manage the social media related communication. However, in this scenario Government 2.0 cannot move beyond the simple informational stage, to manage public relations and public service announcements, because higher stages of Government 2.0 (e.g., social collaboration and transaction) are conditioned on existing eGovernment infrastructure. For example, to move beyond the informational stage, governments need eGovernment infrastructure and social media expertise to support mass collaboration (stage 2) and transaction (stage 3) carried out through social media. Still, governments in development or least developing countries with limited eGovernment infrastructure may leverage social media to establish some sort of online presence and two communications.

<Insert Figure 3 here>

Scenario 2: nested government 2.0

Scenario 2 is the most likely scenario where Government 2.0 is realized under the umbrella of e-Government (Figure 4). This scenario was mostly observed in the developing and transitional economies (e.g., Estonia, India, Pakistan, Kazakhstan, Lithuania, Poland, South Africa, and Thailand). Under this scenario, governments funnel existing eGovernment infrastructure and capabilities to leverage social media tools in the day-to-day governance. By utilizing/leveraging existing e-Government infrastructure, Government 2.0 is implemented either partially (e.g., in the case of developing countries): implementing information socialization or mass collaboration stages, or it is implemented in full swing: implementing information socialization, mass collaboration, and transactional stages (e.g., in the case of transitional economies). Government 2.0 is partially implemented in the developing countries by merely incorporating social media technologies (e.g., RSS feeds and discussions features) into their existing eGovernment websites or by establishing visible social media presence (e.g., through using dedicated Facebook and Twitter pages/accounts). For example, social media tools are used to disseminate government information/news, increase awareness, or increase political participation and deliberation (e.g., through comments, and feedbacks, and political blogs). In the full swing implementation scenario, governments go beyond mere social media presence and use social media tools for internal and external collaborations and service provisioning.

<Insert Figure 4 here>

Scenario3: hybrid government 2.0

Hybrid Government 2.0 is the ideal scenario where all governments will eventually evolve to and where some have already reached (Figure 5). This type of government is observed in advanced economies, such as South Korea, the Netherlands, the United Kingdom, Denmark, and the United States who has already made significant achievement in the e-Government (UN, 2012) and mobile or m-Government. Hybrid Government 2.0, from a conceptual point of view, can be defined as a flavor (or subset) of ICT based government (e.g., e-Government & m-Government) that harness social media tool/technologies to establish an open, transparent, and participative government (see Figure 5). Under the umbrella of traditional government (i.e., paper-based government), the hybrid government 2.0 incorporates social media technologies in the governance process by leveraging the existing e-Government infrastructure and mobile technologies.. Hybrid Government 2.0 uses a variety of advance social media tools for informational and participatory purposes (such as www.chicagocrime.org, <http://openlylocal.com/>, and <http://www.farmssubsidy.org/> initiatives), collaboration purposes (e.g., Peer-To-Patent initiative: www.peertopatent.com), and transactional purposes (e.g., U.K's government one-stop portal: www.gov.uk). In fact, under the umbrella of traditional government, it is a blend of eGovernment (Static ICTs and Web 1.0), Government 2.0 (Web 2.0 and social media), and mobile government (e.g., mobile and smart phones).

<Insert Figure 5 here>

Relationships in government 2.0

The main mandate of government is to provide services to citizens, business, and governments. In the e-Government literature, this role of government is manifested in the form of G2C, G2B, and G2G (Silcock, 2001; Layne and Lee, 2001). However, in the age

social media and Web 2.0, government relations with its citizens should be realized differently. Alongside G2C, G2B, and G2B relationships, Government 2.0 also holds citizens-to-government (C2G) relationships (Linders, 2012): with a different set of relationships with the citizens where the roles of government and citizens are interchangeable. Unlike e-Government, in social media based governments, citizens are becoming active service providers to government and are not merely passive receivers of government services, thus making government and citizen partners in the delivery of public services (Linders, 2012). This kind of mutual production of services by governments and citizens is called citizen coproduction (Linders, 2012): a coproduction of public services on an unprecedented scale. However, it must be noted that the concept of coproduction per se is not new; it has been historically present, for example, in form of teacher's aides, school crossing guards, and auxiliary policemen where general public has helped in public service delivery {Levine, 1984 #43}. Mainly, two types of C2G relationships were observed during the web survey: informational and service relationships.

C2G informational relationship

In this relationship, citizen serves as informational source to government. For example, in the stage 1 of the Government 2.0, in G2C relations, governments provide informational services i.e., relaying on the social media to reach out to the citizens in the form of tweets, Facebook fan pages, wikis, and blog postings. In the meantime, C2G relationship is also active. For example, using these social channels citizens also provides informational services to the governments whenever and wherever needed (e.g., inform of feedback and exert opinion, or reporting crimes and natural disasters using Web 2.0 tools).

C2G service relationship

Due to the power of Web 2.0, citizens may take the role of service provider and the government as a receiver (Linders, 2012). A classic example of the C2G relationship observed is the “MyBikeLane” initiative (<http://www.mybikelane.com/>)—a Web 2.0 based site launched by a New York citizen— to report illegal car parking. A similar citizen-initiated system for reporting illegal car parking in disability parking spaces is “Caughtya” (<http://www.caughtya.org/>). These kinds of citizen initiatives (or free services providing by citizens) helps government in law enforcement through mass collaboration. Another example of C2G service relationship is the “Apps for America 2” (<http://sunlightlabs.com/contests/appsforamerica2/>): A U.S. government initiative where citizens are invited to developed apps for the government to support the [Data.gov](http://data.gov) initiative (Open Government Initiative for President Obama's administration). This makes citizens and government as co-producer of the public service provided through social media and gives birth to a new form of relationship i.e., C2G.

Concluding remarks

This article attempted to foster an understanding of Government 2.0 by presenting a Government 2.0 utilization model, its implementation scenarios, and the relationships Government 2.0 holds with the citizens (i.e., C2G). We categorised social media use in the public sector into three stages: information socialization, mass collaboration, and social transaction stage. We also discussed three main ways in which Government 2.0 can be implemented: standalone Government, nested Government, and hybrid government. However, it must be noted that the Government 2.0 is not an isolated phenomenon rather a flavour (or subset) of ICT based-government (e.g., e-Government & m-Government)

that harness social media tool/technologies to establish an open, transparent, and participative government. The three implementation scenarios presented reflect the flexible nature of the Government 2.0 when it comes to its implementation: Government 2.0 can be implemented in several ways dependant on the resource availability (i.e., ICT infrastructure, technical, and managerial capabilities).

Overall, based on our observation and results of the previous studies (Brainard and McNutt, 2010; Sandoval-Almazan and Gil-Garcia, 2012), similar to that of e-Government's developmental process (Andersen and Henriksen, 2006; Layne and Lee, 2001; Khan et al., 2011), currently Government 2.0 initiative seems is in its initial stages of development, i.e., it is mostly informational (Brainard and McNutt, 2010; Bonsón et al., 2012) and collaborative (Sandoval-Almazan and Gil-Garcia, 2012; Khan et al., 2012b) and limitedly transactional in nature. It was observed that governments from around the world use social media tools and channels to disseminate information, foster mass collaboration, enforce laws, and execute regulation. Government 2.0 was found to be useful in increasing participation, transparency, and collaboration (Chun et al., 2010; Mergel, 2010). Particularly, the developing and least developed countries can leverage social media tools by establishing online presence and initiating two way communications (stage 1) with the citizens with little or no cost.

Unlike the e-Ggovernment maturity model (Layne and Lee, 2001) and the open government maturity model suggested by Lee and Kwok (2012) that follow a stage-based progression, the GUM stages are not mutually exclusive nor follow a stage-based progression i.e., all the stages can occur (or can be found) at same time in any order. For

example, in some advanced countries (such as South Korea, the Netherlands, the United Kingdom, Denmark, and the United States) all three utilization stages can be observed at the same time, while in other countries (particularly in the developing ones) the informational or collaboration stage were dominant. Given that the existing e-Government infrastructure (i.e., physical infrastructure, technical and managerial capabilities) and social media tools are available, practitioners can choose to implement any stage of the Government 2.0 regardless of the current or previous stages. However, as a natural process, the Government 2.0 implementation may follow a stage-based progression starting from the stage 1 and move on toward a higher stage (i.e., stage 3), due to the incremental maturity/development of e-Government and social media diffusion and know-how (and skills) in the public sector. Also, the higher government 2.0 stages are dependent on e-Government, technical, and managerial capabilities. For example, the social transaction stage cannot be implemented without a sound back-end e-Government infrastructure to support the transactions carried out (with citizens) through social media. Similarly, we observed that unlike the e-Government initial stage (Layne and Lee, 2001) and open government initial stage (Lee and Kwak, 2012), the Government 2.0 initial stage is two way in nature and provides opportunities for the citizens to openly interact with government and readily respond to the information provided.

Considering the lack of Government 2.0 initiative in the developing countries, like e-Government (Jaeger, 2003), the nations around the world may need a global agenda to promote Government 2.0 at international levels. For example, the initial development of e-Government (though the term “e-Government” was not known at that time) was promoted by G-7 Ministerial conference on the Information Society held in Brussels on

Feb. 25-26, 1995; where commitments were made to develop specific projects to promote e-society that included online government related projects. The e-Government initiative or agenda was raised more formally in the follow-up G8 meetings in Japan (Okinawa, July 2000), Italy (Genoa, July 2001), and in the World Summits on the information society in Geneva Switzerland in 2003 and in Tunis (Tunisia) in 2005 (Utsumi, 2007). Another example of promoting e-Government agenda was during the “E-leaders Conference: The Future of e-Government-agenda 2020” held in the Netherlands on March 2-7, 2008. These initiatives led to e-Government development in many countries. A similar level of commitment is needed to promote a global Government 2.0 agenda. In fact, there are certain initiatives at national and international levels to promote Government 2.0, for example, the Government 2.0 Taskforce of Australian government and US President Barack Obama’s efforts to open government through *Open Government Partnership* (OGP) initiative (Harrison et al., 2011). These initiatives are either at national level or limited only to eligible nations (for example in case of OGP). A global agenda and partnership is needed to promote Government 2.0 initiative at a global level, both in developed and developing countries alike. Particularly, developing countries lacking resources may largely benefit from implementing Government 2.0 initiative, which is almost free of cost at the initial stages of implementations (e.g., Social media tools, are easy to use and are available free of charge, and can be employed to connect with citizens).

The study has some implications for policy and research. From the policy maker’s point of view, the finding of the study will be instrumental in understanding the Government 2.0 phenomenon and the opportunities it holds for the public sector. For example, the

Government 2.0 utilization model and the implementation scenarios presented in the study is an easy yet comprehensive way to understanding the social media-based governments. We also discussed the C2G relationships that citizens can hold with the Government 2.0. Building on this knowledge, policy makers may put together policies and procedures for using social media in the governance process in accordance to their existing capabilities and needs.

In this study, we only focused on the use of and opportunities related to social media in the public sector, however, this does not mean that social media use in the public sector does not hold risks and challenges (Kaplan and Haenlein, 2010). Risks and challenges associated with social media use in public sector should be handled carefully (Chun et al., 2010). Future empirical studies are needed to access the risk and reward of social media in public sector systematically. For example, using the results of this study, researchers may access stage-based risks and rewards of the Government 2.0, because the risks and rewards of social media use in the public sector at the initial stage (i.e., collaboration stage) might be different than the risks and rewards in the transactional stage (i.e. stage 3). Similarly, the risks and rewards may vary at different implementation scenarios presented in this study, such as, the risks and rewards of the hybrid government settings V.S., standalone case. The study may also help researchers to indentify stage-based skills and capabilities needed to implement Government 2.0, particularly in indentifying the Internet skill issues in the developing world (James, 2011; Mbatha et al., 2011). For example, skills and capabilities needed to implement informational government 2.0 may be different than skills needed to implement a collaborative and transactional government 2.0. While the GUM model presented in this study is helpful in understanding social

media use in public sector from the citizen's perspective and the open government model presented by Lee and Kwok (2012) dealt with the social media from the public sector's perspective, future research is needed to investigate social media use in the public sector from the private sector's perspective.

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Table 1. e-Government V.S. Government 2.0

	e-Government	Government 2.0
Technology	Static enterprise and domain specific technologies; Web 1.0 phenomenon;	Consumer and commoditised technologies; Web 2.0 & Social Media;
Strategy	Inside-Out	Outside-In
Service Focus	Citizens as Receivers	Citizens as Active Participants

Table 2. List of the countries selected for the analysis

Developed Countries	E-government Development Index	Developing Countries	E-government Development Index
Australia	0.8390	Brunei	0.6250
Canada	0.8430	Estonia	0.7987
Denmark	0.8889	Fiji	0.4672
Finland	0.8505	India	0.3829
Singapore	0.8474	Jamaica	0.4552
Iceland	0.7835	Kazakhstan	0.6844
Ireland	0.7149	Latvia	0.6604
Japan	0.8019	Lithuania	0.7333
South Korea	0.9283	Mauritius	0.5066
Malta	0.7131	Montenegro	0.6218
New Zealand	0.8381	Pakistan	0.2823
Norway	0.8593	Papua New Guinea	0.2147
Singapore	0.8474	Philippines	0.5130
Slovakia	0.6292	Poland	0.6441
Slovenia	0.7492	Rwanda	0.3291
Sweden	0.8599	South Africa	0.4869
Switzerland	0.8134	Sri Lanka	0.4357
The UK	0.8960	Swaziland	0.3179
The USA	0.8687	Thailand	0.5093
The Netherlands	0.9125	Zimbabwe	0.3583

Table 3. The existing social media initiatives in the public sector

Domain of activity	Examples	Internet Address
Regulation; Mass Collaboration;	Census mash-ups; Gapminder; Peer-to-Patent;	http://www.gcensus.com/faq.php ; www.gapminder.com ; www.peertopatent.com
Law Enforcement; Mass Collaboration;	Aboliamoli.eu; Caughtya; Chicagocrime; Mybikelane; Police using YouTube; illegal car parking	www.aboliamoli.eu ; www.caughtya.org ; www.chicagocrime.org ; www.mybikelane.com ; www.youtube.com ; Korean Govt. Smart phone Aps
Cross-agency Collaboration; Mass Collaboration;	Alaska State agencies database; CAISI wiki; Intellipedia; WikiProject United States; e-petition; Apps for Democracy;	http://wikis.ala.org/godort/index.php/alaska ; www.caisi.ca ; http://en.wikipedia.org/wiki/Intellipedia ; http://en.wikipedia.org/wiki/Wikipedia:WikiProject_United_States http://epetitions.direct.gov.uk/ ; http://www.appsfordemocracy.org/application-directory/ ;
Knowledge and Human Resource Management;	Census mash-ups; Ganfyd; Gapminder; OpenGorotto; US agencies recruiting online;	http://www.gcensus.com/faq.php ; www.ganfyd.org ; www.gapminder.com ; http://open-gorotto.jp/ ; http://chronicle.com/wiredcampus/index.php?id=1830 ;
Political Participation and Transparency; Public sector Information;	Change; Chicagocrime; Commentonthis; Davosconversation; Farmsubsidy; Gapminder; Maplight.com; Theyworkforyou; WebCameron;	www.change.org ; www.chicagocrime.org ; www.commentonthis.com ; www.davosconversation.org ; www.farmsubsidy.org ; www.gapminder.com ; www.maplight.com ; www.theyworkforyou.com ; www.webcameron.org.uk ;

	Openlylocal;	http://openlylocal.com/
	Twitter Use;	Twitter use by 34 Korean 40 US Ministries ³
	Youth discussion forums;	http://www.youth.gov.au/ayf/Pages/Default.aspx
	School Information Service;	http://app.sis.moe.gov.sg/schinfo/index.asp
	JusticeBlog;	http://blogs.justice.gov/main/
	Data.gov	http://www.data.gov/
Service Provision;	Socialmediahub;	http://www.visitdelaware.com/socialmediahub/;
	Delaware State portal;	www.delaware.gov;
	Gov.UK;	www.gov.uk;
	Fixmystreet;	www.fixmystreet.com;
	Katrina help;	http://katrinahelp.info/;
	Netmums;	www.netmums.com;
	PatientOpinion;	www.patientopinion.com;
	Ratemyteachers;	www.ratemyteachers.com;
	San Francisco bus Passes;	http://www.skot9000.com/muni/;
	Self-help groupsEquip;	http://www.equip.nhs.uk/;
	UK floods;	http://www.edparsons.com/?p=504;
	UtahNationalParks;	http://davidfletcher.blogspot.com/2006/12/state-parks-in-tagzania.html;
	Schools Appeals;	www.schoolappeals.org.uk;
	SMARTiP;	http://www.smart-ip.eu/;

³ The data for this analysis came from a study carried out by Khan et al., (2012): Khan, G. F., Ho Young Yoon, Park, H. W.(2012), Social Media Use in Public Sector: A comparative study of the Korean & US Government Agencies, accepted for presentation at ATHS panel during the 8th International Conference on Webometrics, Informatics and Scientometrics & 13th COLLNET Meeting, 23-26 October 2012, Seoul, South Korea. Available at: <http://collnet2012.ndsl.kr/wsp/submission/submitted.jsp>

Table 4. Summary of the Government 2.0 Utilization Model

Government 2.0 Stages	Main Focus	Citizens Engagement/ Web 2.0 Utilization	e-Government Infrastructure/ Social Media Complexity
Information Socialization	<ul style="list-style-type: none">- Political participation and transparency;- Public sector information;-Public relations and public service announcements;-Keeping citizens informed;-Keeping citizens engaged ;	Low	Low
Mass Collaboration	<ul style="list-style-type: none">-Establishing mass collaboration channels through social media;- Instrumental in crowd sourcing, regulation, law enforcement, and cross-agency collaboration;- Knowledge and human resource management;	Medium to High	Medium to High
Social Transaction	<ul style="list-style-type: none">-Service provisioning through Web 2.0 and social media;	High	High

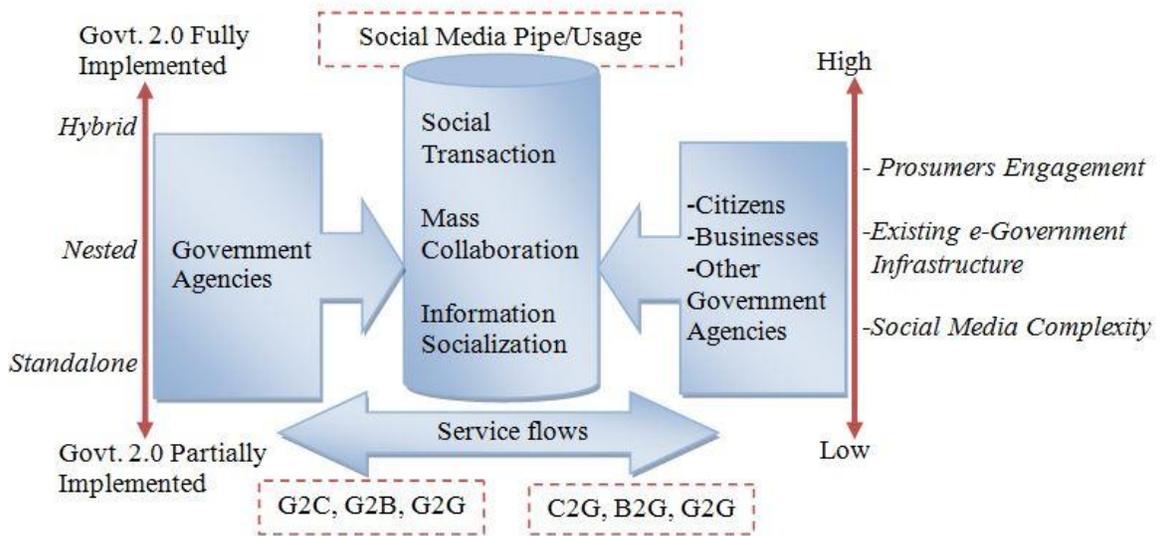


Figure A: Conceptual Model of Social Media Use in Public Sector

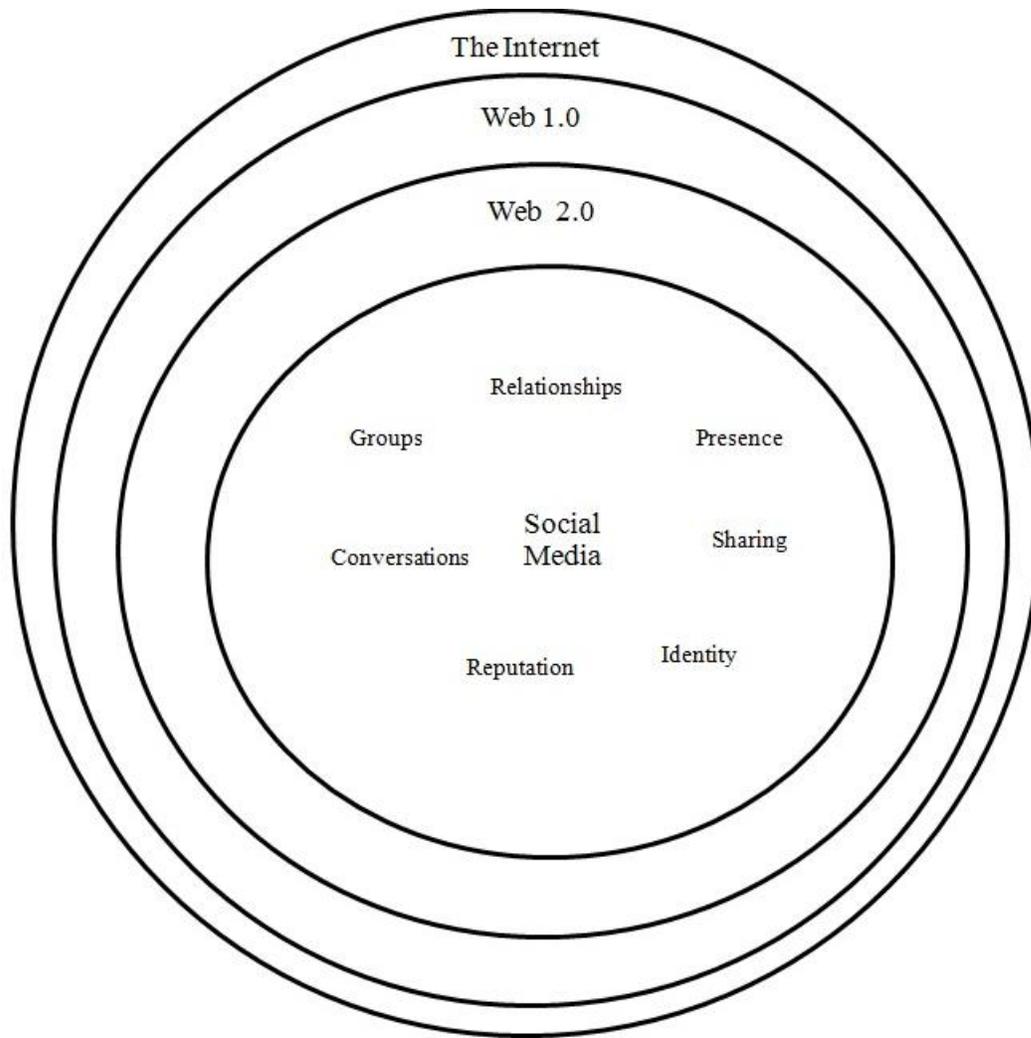


Figure 1. Web 1.0, Web 2.0, and Social Media



Figure 2. Government 2.0 Utilization Model

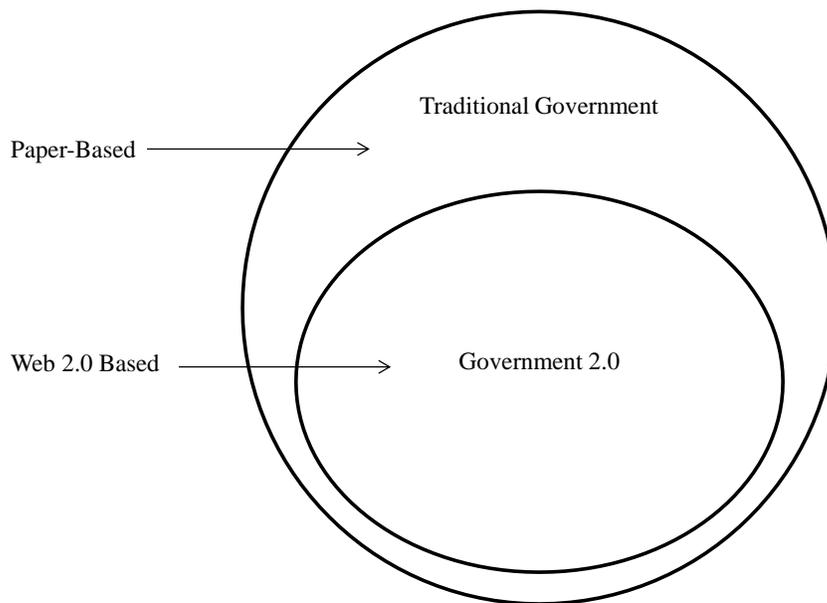


Figure 3. Standalone Government 2.0

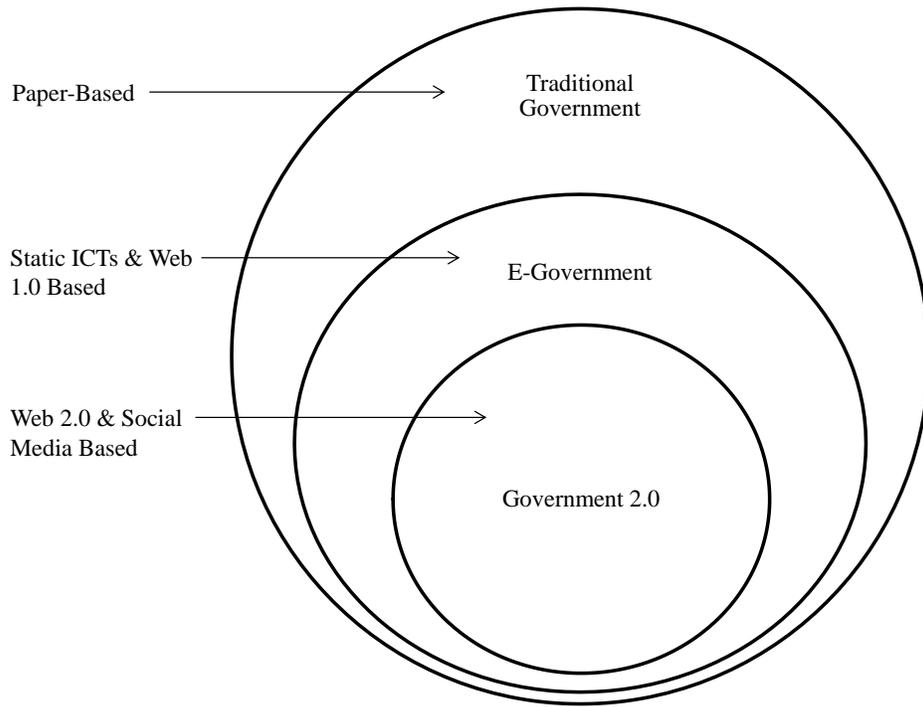


Figure 4. Nested Government 2.0

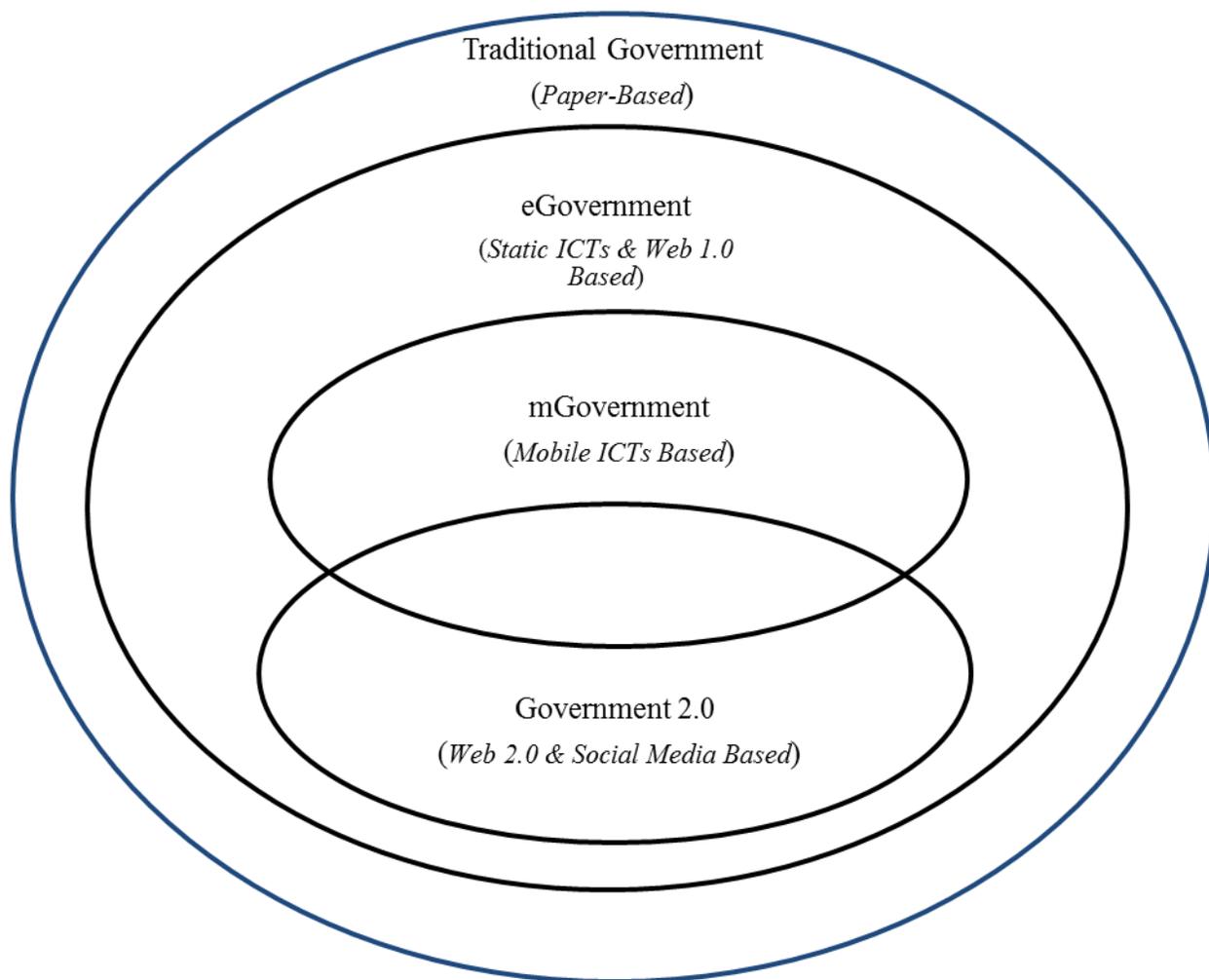


Figure 5. Hybrid Government