Social Media Risks and Benefits: A Public Sector Perspective

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Abstract

Social media are becoming an important intermediary for interaction between governments, governments & citizens, and governmental agencies & businesses. This is due to the unique characteristics of social media: openness, participation, and sharing. However, despite rapid adoption, a growing concern and skepticism regarding the use of social media exists in the public sector. The purpose of this study is to investigate empirically the risks and benefits of social media use by public agencies. For this purpose, a research model was developed and tested in a survey of 289 government sector employees from six South Korean government research institutes (GRIs). We found that both risks (i.e., social risk, time, psychological risks, and privacy concern) and benefits (i.e., social connectivity, social involvement, information attainment and entertainment) significantly affect public sector employees’ satisfaction with and intention to use social media. However, the effect of the benefits on users’ satisfaction was stronger compared to the risks. The results of the study have important implications for researchers and policy makers.

Keywords: social media, Social Network Service (SNS), risks and benefits, public sector, government research institutes (GRIs).
Introduction

Because of its popularity and its unique characteristics (namely openness, participation, and sharing), social media are becoming an important intermediary for interaction between governments, governments & citizens, and governmental agencies & businesses (Sandoval-Almazan & Gil-Garcia, 2012). Social media use in the public sector is considered a technological innovation and transforming agent (Chun & Reyes, 2012), and is believed to have opened up unprecedented new possibilities (Lee & Kwak, 2012). Social media has the potential to extend governments services, increase civic participation, solicit innovative ideas from the masses, and improve decision-making and problem-solving (Bertot, Jaeger, & Hansen, 2012; Rice, Moffett, & Madupalli, 2013; Zhang, Johnson, Seltzer, & Bichard, 2010). Social media also provides various opportunities for public relations practitioners to interact with the general public (Curtis et al., 2010). For instance, the use of social media tools can provide information about citizen’s opinions, emotions, intentions, behaviors, and characteristics (Chun & Reyes, 2012). Because of the different inputs made possible by social media, public sector improvement is evident in information sharing, public service provision, and decision making (Chun & Reyes, 2012; Khan, 2013).

Although there are many benefits of social media use in the public sector, it also possesses some risks, which cause concern and skepticism. For example, interacting via social media introduces new challenges related to privacy, security, data management, accessibility, social inclusion, and governance (Bertot, et al., 2012). Some scholars believe that social media tools themselves are ineffective, do little to involve citizens in political discourse (Baumgartner & Morris, 2010) and do much harm to democratization (Shirky, 2011). Other scholars consider social media as unchartered territory and point to governments’ lack of experience and
knowledge regarding implementing social media. (Lee & Kwak, 2012). Furthermore, events such as the WikiLeaks affair have complicated the social media landscape in government.

To make the most of social media use in the public sector, it is worth analyzing the factors associated with the risks and benefits. In this study, the risks and benefits of social media use by South Korean public agencies were empirically examined.

This paper is divided into the following sections. First, some background information on social media is provided. Next an overview of social media in the public sector is presented. Then the research model and hypothesis are discussed. This is followed by the methodology employed and results of the study. We conclude with a discussion.

**Overview of Social Media and SNS**

Social media refers to websites and online tools that facilitate interactions between users by providing them with opportunities to share information, opinions, and interests. Social media consist of a “variety of tools and technologies that include 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.” (Khan, 2013). Social media includes a variety of social networking applications (Magro, 2012), the most famous types being social networking sites or services (SNS). SNS is a platform that is used to build and maintain social relations among people who share interests, activities, backgrounds, or real-life connections.

Broadly speaking, SNS can be categorized into two types: 1) internet-based, and 2) smartphone-based. Internet-based SNSs are generally accessed through e-mail IDs. Facebook, Cyworld, and Google+ are examples of Internet-based SNS. Whereas, smartphone-based SNSs
are accessed through mobile phone numbers. That is, users can only login using mobile phone numbers. KaKao Talk and 1KM, two popular South Korean smart phone-based platforms, are examples of phone-based social network services. It should be noted that internet-based SNS can be accessed through any device connected to the internet (e.g., using a Smart phone or a tablet to access Facebook); whereas, Phone-based SNS can only be accessed from a phone (e.g., in its current formone cannot use Kakao Talk or 1KM through a personal computer). Boyd and Ellison (2007, p. 1-2) defined 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.” Boyd and Ellison’s (2007) definition applies to the Internet-based SNS (Boyd & Ellison, 2007). In this study, we define the smartphone-based SNS as, a smart phone-based service platform that is used to build and maintain social relations among people who share interests, activities, backgrounds, or real-life connections. The objectives of both types of SNS platforms are the same (i.e., to build and maintain social relations), however, the functionalities they possess and the ways they are accessed are different.

**Overview of Social Media in Public Sector**

Public sectors around the world are using social media in their day-to-day activities for different purposes, such as, to disseminate useful information, to foster mass collaboration and to enforce laws and regulation (Khan & Swar, 2013; Osimo, 2008). In the literature, different labels are used to describe the use of social media in the public sector, such as: Government 2.0 (Eggers, 2005), Do-it-yourself Government (Dunleavy & Margetts, 2010), Collaborative Government (Chun, Luna-Reyes, & Sandoval-Almazán, 2012; McGuire, 2006), Government as a Platform (O'Reilly, 2010), Open Government (Patrice, 2010), Social Government (Khan, Yoon, & Park, 2012), and We-Government (Linders, 2012). Whatever the label might be, the
primary purpose of leveraging social media in the public sector is to make governments more transparent, open, and accessible.

**Social Media-based Government Models**

Like e-government maturity models (Andersen & Henriksen, 2006; Khan, Moon, Park, Swar, & Rho, 2011; Layne & Lee, 2001), social media-based government models are also emerging (Khan, 2013; Khan & Swar, 2013; Lee & Kwak, 2012; Mergel & Bretschneider, 2013). For example, Lee and Kwak (2012) have developed an open government maturity model for social media-based public engagement that consists of five levels. The authors suggest there is a logical sequence for increasing social media-based public engagement, and public agencies should focus on achieving one maturity level at a time. While Lee and Kwak’s (2012) study deals with open data capabilities from the government agency perspective, Khan and Swar (2013) suggested a three-stage model of social media utilization in the public sector from the citizen’s perspective. Similarly, Mergel and Bretschneider (2013), suggest a three-stage adoption process for social media use in the public sector whereby government use of social media evolves from informal experimentation by a few entrepreneurs to an organized agency wide form of communication medium involving clearly outlined strategy and policies of social media use. Recently, some contextual models for social media-based government have been proposed. For example, Schwalji and Aradi (2013), suggest a three-stage model for social media-based engagement from an Arab perspective: Table 1 provides a summary of the social media-based government models.

<Insert Table 1 about here>
Social Media Strategy in Public Sector

Though literature on social media strategy in the public sector is limited, it is growing. For example, Khan (2013) argued that unlike e-government inside-out strategy (i.e., utilizing ICTs to transform and employ internal government resources to provide services), social media–based government is based on an outside-in approach where government agencies harness external resourcing and expertise (e.g., social media tools and crowd sourcing phenomenon) to service their customers. Similarly, Mergel (2010) suggest that social media strategies in the public sector can be classified into push, pull, and networking strategies. Through the push strategy the public sector pushes contents (e.g., news and information) to the citizens through social media channels, and pull strategies are employed to funnel the social media users back to the public websites. Through this networking strategy the public sector establishes two way communication and collaboration with the citizens through social media channels. Literature on social media strategies with respect to cultural values is also emerging. For example, in a recent comparative study between the US and South Korean government agencies, Khan, Young, & Park (forthcoming) found that social media strategies differ according to cultural values. The authors argue that governments in a collectivist culture (e.g., South Korea) use social media to promote their collective public agenda (e.g., re-tweeting common content to reinforce their collective agendas regardless of their main administrative functions). Social media use in governments of individualistic cultures (e.g., the USA) are found to be more individualistic (e.g., they only re-tweeted those messages that specifically fit the purpose of their department).

Literature shows that researchers have identified different benefits of social media use in the public sector and have come up with different models and strategies to adopt social media in the public sector (Bertot, et al., 2012; Chun, et al., 2012; Dunleavy & Margetts, 2010; Eggers,
2005; Khan, et al., 2012; Lee & Kwak, 2012; Linders, 2012; McGuire, 2006; O'Reilly, 2010; Patrice, 2010; Sandoval-Almazan & Gil-Garcia, 2012). However, systematic research regarding the assessment of the risks and benefits associated with social media in the public sector is lacking. Thus, public sector practitioners may often refer to findings from the private sector, which can be misleading due to the different nature of the private and the public sector. Therefore, this study empirically examines the risk and benefit factors that affect the satisfaction level of social media use in the public sector.

**Social media Risks and Benefits in Public Sector**

Because social media are a worldwide phenomenon with two-thirds of the global online population visiting social sites (Kuzma, 2010), and because social media possess potential benefits and risks for the public sector, researchers recently began studying a variety of social media-related issues and trends. For example, Curtis et al. (2010), through the Unified Theory of Acceptance and Use of Technology (UTAUT) model, examined nonprofit public relations practitioners’ adoption of social media tools and its credibility. Curtis et al. found that social media tools are becoming beneficial methods of communication for public relations practitioners and further suggested that organizations with defined public relations departments are more likely to adopt social media and use them to achieve organizational goals. Curtis et. al also suggested practitioners are more likely to use social media if practitioners find them credible.

Kavanaugh et al. (2012), through an exploratory study, revealed that local governments use social media while lacking knowledge of its costs and benefits, information about their actual audience, mechanisms for monitoring activity, ways to handle responses, and assessment of the effect of their social media communication on the public.
To improve transparency, openness, and public participation with the government, the Obama administration in 2009 directed Executive agencies to issue the open government initiative (Snead, 2013). In response to the initiative, many agencies have adopted social media to increase public participation and to disseminate information. In this regard, Snead (2013) conducted an exploratory study to examine the Executive agency use of social media. Snead (2013) found that the public does interact and participate with the use of social media to stay informed about government activities. Snead (2013) made further suggestions to improve user participation, such as using fewer types of media, providing links to agency social media sites at the top or near the top of an agency’s website home page, providing feedback mechanisms for internally-produced agency social media applications, posting statistics regarding media usage and participant comments, and nominating a person from the agency who would be dedicated to engaging with the public. Bertot et al. (2012) examines the existing regulatory framework and the ways in which it applies to social media use by the U.S. federal government, highlighting opportunities and challenges agencies face in implementing them, with possible approaches for addressing the challenges. Furthermore, Picazo-Vela, Gutierrez-Martinez, & Luna-Reyes (2012) argued and empirically examined the perceptions of risks, benefits and strategic guidelines involving social media applications in the public sector. The authors analyzed how the government use of social media may result in improved communication and citizen participation, more transparency, and transfer of best practices among government agencies. They further suggested that good social media implementing strategy is needed to realize its benefits and avoid risks, and that social media implementation highlights the importance of updating laws and regulations and of promoting changes in government culture and organizational practices.
To maximize the benefits of social media use in the public sector it has become important to assess the risks and benefits associated with it. In this regard this study empirically examines the risks and benefits associated with social media use in the public sector.

**Research Model and Hypotheses**

To test social media risks and benefits in the public sector, we constructed a research model as shown in Figure 1. Literature shows that a variety of risks and benefits factors have been examined in different fields and contexts. In terms of online behavior, researchers have gone to great lengths to examine the tradeoff between benefits and risks (Bhatnagar & Ghose, 2004). This study examines the risks and benefits factors that are more applicable to the public sector domain. The risk factors adopted are based on the Featherman and Pavlou (2003) study on e-services adoption and the perceived risk. Risks associated with social media in the context of the public sector are measured with four constructs: time risk, psychological risks, social risks, and privacy risk; which are the most common risks associated with social media. Benefits associated in this study were adopted using various literature sources (e.g. Tsaoussis, 2011; Wellman, Witte, & Hampton, 2001). This study measured four constructs of benefits: social connectivity, social involvement, information attainment, and entertainment in the context of public sector use of social media. The Independent constructs incorporated were satisfaction with SNS and use intention.

**Risks of Social Media**

Risk is defined as a “combination of uncertainty plus seriousness of outcome involved” (Bauer, 1967, p. 23) and according to Featherman and Pavlou (2003) risk is defined as a common thought of uncertain feeling regarding the possible negative consequences of using a product or service. Risk has been examined and defined across different field of studies. With regard to social media, risk can be defined as the possible threat or damage or insecurity of
using the social media services. For example, Webber, Li and Szymanski (2012, P.3) defines social media risk as “the likelihood that a negative social media event will happen (multiplied by) the impact that negative event will have if it does happen”. Goo et al. (2011) reveals that SNS adoption is influenced by perceived risk which creates an uncertain feeling pertaining to negative outcomes in using SNSs. It is more likely that risks associated with social media inversely affect the satisfaction of social media usage. Many studies addressing risk associated with IT adoption are found in the literature, but this study specifically focuses on the risks factors that are applicable to social media use in the public sector. The risk factors considered were time, psychological, social and privacy.

**Time Risk.** Social media possess a wide variety of addictive activities toward which people tend to engage and devote considerable time. This is potentially a concern in workplaces causing employees to be unproductive in their work. According to research released by Ipsos (2013) social network users spend on average 3.6 hours per day socializing online(Ipsos, 2013). Considering the standard eight working hours a day in the public sector, forty five percent of the time is spent on social media. According to Qualman(2012), twenty three percent of Facebook users check Facebook five times or more daily. Once addicted to social media, users tend to spend more time browsing and socializing on social network sites. This affects the user’s productivity in the workplace. The use of social media that can cause a lack of productivity in the workplace can be considered a waste of time. This tends to influence negatively the satisfaction level of social media usage. Generally, the public sector working environment is more relaxed and as there is often no tough employee monitoring mechanism. Public employees seem to spend more time on activities in which they are interested. It is more likely that employees who are addicted to social media use can spend a lot of time using it. Based on this discussion the
following hypothesis proposed.

**H1: Time Risks associated with social media will negatively affect social media Satisfaction**

**Psychological risk.** Featherman and Pavlou (2003, p.455) cite Mitchell’s (1992) psychological risk as, “the risk that the selection or performance of the producer will have a negative effect on the consumer’s peace of mind or self-perception”. In the context of social media, psychological risk can be defined as the concern or uncertainty by a user of social media that the usage of social media results in loss of self-esteem contributing to a negative effect on feelings and peace of mind. The reason people use social media is to connect, interact and share information with other users. Therefore, social media work as a social lubricant to establish social interactions with others (Forest & Wood, 2012). The information posted or shared in social media becomes public, which exposes users to possible attack through negative remarks from other users. Such negative remarks lead to low self-esteem contributing to a negative effect on feelings and peace of mind which in turn has a negative influence on the satisfaction level of social media users. The use of social media services can cause the users to worry, be frustrated, or feel incompetent (Go et al. 2011). In the public sector context also, once an organization starts sharing information and interacting with citizens through social media, the social media platform becomes vulnerable to people posting negative remarks. Social media also becomes a platform where citizens can raise their issues and complaints of government actions. This tends to affect the satisfaction of social media usage in the public sector. This context leads to the proposal of the following hypothesis.

**H2: Psychological Risks associated with social media will negatively affect social media Satisfaction**
Social risk. Social risk is defined as, “a potential loss of one’s social group as a result of adopting or using service in social media, looking foolish or untrendy” (Featherman & Pavlou, 2003, p. 455). According to Go et al. (2011) social media users are viewed as having an individualistic character spending more time interacting online than meeting people face to face. This kind of behavior by social media users might lead to them losing out socially. Friends and colleagues of social media users who are not in favor of social media may perceive users less highly. When the public sector adopts social media and it becomes a platform to share government information and interact with citizens some groups of people may not support the adoption of social media. This can be mainly because people have different attitudes towards social media and some simply do not favor social media. Other people may not have access to the Internet and hence be unable to retrieve information shared through social media or may simply not know how to use social media. This tends to have a negative impact on the satisfaction level of social media users in the public sector. Due to this reasoning the following hypothesis is proposed.

**H3: Social Risks associated with social media will negatively affect social media Satisfaction**

Privacy risk. Privacy is defined as, “the claim of individuals, groups, or institutions to determine for themselves when, how and to what extent information about them is communicated to others” (p. 7) (Westin 1967). Privacy risk can be defined as “potential loss of control over personal information, such as when information about you is used without your knowledge or permission” (Featherman & Pavlou, 2003, p. 455). Privacy risk in the SNS context is associated with identity fraud and the disclosure of personal data of users by SNS to third parties (i.e., information privacy) of the SNS users (Acquisti & Gross, 2006; Young & Quan-Haase, 2009).
In SNSs the distinction between who is able to see, obtain, and use the user data becomes blurred and the personal data may cause additional security problems like phishing, information leakage, and stalking (Houghton & Joinson, 2010). The use of social media raises the issue of information management such as personally identifiable information, security of government data and information, and accuracy of publicly available data (Bertot, et al., 2012).

Due to privacy risks, organizations in the public sector which adopts social media tend to be more concerned about their information being shared through social media. According to Shin (2010) a lack of trust and security management led to privacy risks in the SNS context. Furthermore, the author claims that the inability to control access to information posted without adequate identification processes, and identity theft led to privacy risks. This might have a negative effect on the satisfaction of social media use in the public sector. Therefore the following hypothesis is formulated.

\[ H4: \text{Privacy Risks associated with social media will negatively affect social media Satisfaction} \]

**Benefits of Social Media**

Benefits in terms of social media are defined as the providing of advantages through social media usage that promote and enhance well-being. Social media possess huge benefits as described in the introduction section. Due to the benefits of SNSs, executives, decision makers and consultants are trying to identify different ways in which firms can make profitable use of social media (Kaplan & Haenlein, 2010). Social media in the context of the public sector are believed to provide various opportunities for public relations practitioners while interacting with the general public in their everyday lives (Curtis, et al., 2010). The benefits associated with social media positively affect the satisfaction of social media usage. This study through the literature
review considers benefits in terms of social connectivity, social involvement, information attainment and entertainment.

**Social connectivity.** The evolution of these new Internet media have become an important means of maintaining work and social connections in everyday life, crossing the social worlds of work, home, and geography (Haythornthwaite, 2005). SNSs support the maintenance of existing social ties and the formation of new connections (Ellison, Steinfield, & Lampe, 2007). According to Tsaoussi (2011), SNSs have greatly increased the connectivity of the online space. Due to this benefit, people use SNSs as a medium to meet old friends, maintain relationships or even meet new friends, strengthening overall social connectivity among social media users. Meeting new friends online helps in obtaining emotional support that is not available offline and also helps knowing existing friends better and maintain better relationships (Shu & Chuang, 2011).

In the case of the public sector, social media helps to connect government with citizens and other organizations. Connecting with citizens helps to strengthen the government-citizens relationship. This better relationship helps a government to create a better image of itself among citizens. These features of social media are believed to have a positive influence on the use of social media. On the pretext of this discussion, the following hypothesis is proposed.

**H5:** Social connectivity due to social media will positively affect social media satisfaction.

**Social involvement.** Social involvement also known as social engagement or social participation is one’s degree of participation in a community or society. The Internet increases the social capital through social integration (Wellman, Q., Witte, & Hampton, 2001). Social capital refers to the resources accumulated through the relationships among peoples (Coleman, 1988). SNSs help people with mutual interests to share knowledge and ideas (Koh & Kim, 2011).
Online platforms also enable participants to exchange advice, information and support through interactions promoting social support (Drentea & Moren-Cross, 2005; Wellman & Frank, 2001). This participation and engagement is useful in collective social activities like helping people to improve interpersonal relationships, get along with others more easily in real life, avoids people being isolated, and helps to overcome loneliness. The use of social media by the public sector is a recent trend. Due to the benefits of social media the public sector wants to share and disseminate information to the public and also wants to interact with citizens on various issues through social media. This approach is considered as a new means of social involvement between governments and citizens. As more citizens get engaged with the public sector through social media, governments can consider it a gain in social capital. These benefits of social involvement in the public sector positively affect the satisfaction of social media use. This phenomenon leads to the formulation of the following hypothesis.

H6: Social involvement due to social media will positively affect social media Satisfaction

Information attainment. Information attainment in the social media context is defined as the act of attaining and finding interesting and unique information easily on SNSs. This interesting and unique information can also be shared among the SNS users. Information attainment helps to build multiple weak ties which reduces social costs and extends the pool of information searching, and enhances trust among people (Shu & Chuang, 2011).

SNSs are helpful in finding various work-related information easily. According to Kelly (2008), one of the factors that motivate people to engage in SNSs is to seek information about their subjects of interest. Literature reveals that information and knowledge sharing is an essential motivation for the usage of SNSs. In the public sector social media acts as a medium to
receive vital information on various contexts from citizens, which otherwise can be difficult to obtain. Social media for example can be a good medium to receive feedback, concerns and complaints from citizens regarding government actions. This can be very useful information for governments, provided it is used positively to improve government services. These benefits of information attainment positively affect the satisfaction of social media usage in the public sector. Based on this observation the following hypothesis is proposed.

\[ H7: \text{Information attainment due to social media will positively affect social media Satisfaction} \]

**Entertainment.** Entertainment is defined as the act of providing amusement, enjoyment, fun and relaxation. Entertainment in the virtual community can be derived through playing or interacting with others (Dholakia, Bagozzi, & Pearo, 2004). Whitty and McLaughlin (2007) reveal three forms of online entertainment using the internet (a) computer-based entertainment, (b) to facilitate offline entertainment, and (c) to obtain information about the entertainment world (Whitty & McLaughlin, 2007). All these forms of entertainment are well supported by SNSs.

Due to these benefits people often use social media to entertain themselves. Public sector use of social media can be exciting due to the entertainment features it supports. Work related to social media in the public sector such as posting and gathering information, and interacting with citizens can possibly be viewed as entertaining work by public sector employees. The entertaining nature of the job can influence the satisfaction level of social media use in the public sector. This leads us to propose the following hypothesis.

\[ H8: \text{Entertainment due to social media will positively affect social media Satisfaction} \]
Satisfaction and Use Intention of Social Media

Legris et al. (2003, p. 192) describes satisfaction “as the sum of one’s feelings or attitudes toward a variety of factors affecting the situation” (Legris, Ingham, & Collerette, 2003). Accordingly in terms of social media satisfaction this can be defined as the fulfillment of one’s wishes, and expectations, or the pleasure derived from the use of SNSs. User satisfaction is a frequently measured construct for Information System Success (Rai, Lang, & Welker, 2002). According to Bhattachurjee (2001) satisfied users form a use intention, while dissatisfied users discontinue the use (Bhattachurjee, 2001).

Understanding the SNSs’ use intention is an important matter in both academia and industry (Chang & Zhu, 2012). The proposed model assumes that the public sector assesses the risks and benefits of social media usages, which affect the SNSs’ satisfaction level. The satisfaction level affects the intention of social media use in the public sector. Based on this understanding the following hypothesis is proposed.

\textit{H9: Satisfaction with social media will positively affect social media use intention}

Methodology

A survey instrument consisting of 43 items was developed. Where appropriate, the items were adopted from previous research (Carter & Bélanger, 2005; Ellison, et al., 2007; Featherman & Pavlou, 2003; Gefen & Straub, 2000; Shu & Chuang, 2011; Wixom & Todd, 2005) and were reworded to fit into the context of the current study. Given the lack of reliable items to measure social media benefits, the items were developed to assess four definitional properties of social media benefits: entertainment, social involvement, information attainment, and social connectivity (Ellison, et al., 2007; Featherman & Pavlou, 2003; Shu & Chuang, 2011). Part of the items to measure entertainment, social involvement, and information attainment were adopted from Shu & Chuang (2011). Items to measure social connectivity were constructed based on the
study by Ellison et al., (2007). Items for measuring social media risks (i.e., social risk, time, and psychological risks) were adopted from Featherman and Pavlou (2003). And items to measure privacy concerns were adopted from Tsoi & Chen (2011). Items to measure user’s satisfaction were adopted from Wixom and Todd (2005). The items to measure service use intentions were adopted from Gefen & Straub (2000) and Carter & Bélanger (2005).

Procedure

The original English version of the instrument was translated into the Korean language with the help of a research assistant. To remove ambiguity and to prevent misinterpretations, three Management Information system (MIS) Professors, who are proficient in both English and Korean, were asked to give their judgments on the questionnaire. Based on their recommendation, the questionnaire was reworded (mostly grammatical errors were corrected) and a final version of the questionnaire was constructed. Later, an online version of the questionnaire was distributed to the target sample for a full study on April 24, 2013.

Subjects

The subjects of the study were 289 government sector employees who were working in six government-funded research and planning institutes (GRIs) namely, Korea Institute of Industrial Technology, Electronics and Telecommunications Research Institute, Korea Forest Research Institute, Korea Research Council for Industrial and Technology, Korea Institute of Energy Technology Evaluation and Planning, Korea Institute of Science and Technology Evaluation and Planning. GRIs refers to institutions that are funded by the Government, but legally independent, whose primary purpose is research and study. Especially in developing countries with limited resources in science and technology, GRIs are recognized as the last resort to advance science and technology development (Yim & Kim, 2005). In South Korea (hereafter
‘Korea’), since 1960s, the GRIs have played a pivotal role in both technological development and human capital formation (Lee et al., 1991; Seong, 2012). After the 1980s, even when private R&D counterparts were at the center of industrial development, the GRIs continued to make contributions to rapid technological upgrading in Korea (Kim & Yi, 1997). Currently, two research councils, Korea Research Council of Fundamental Science and Technology (KRCF) and the Korea Research Council for Industrial Science and Technology (ISTK), overarch 26 GRIs under the supervision of the Ministry of Science, ICT and Future Planning (MSIP). The KRCF supports 13 GRIs in basic research while the ISTK oversees the other 13 GRIs in applied research for industries. As of 2012, the two research councils have over 10,000 employees on their payrolls and their R&D budget totals 6 billion US dollar - 40.4% of the total government R&D budget (KISTEP, 2013).

The respondents were selected through a non-probability convenient sampling method and were asked to click on a web link embedded in an invitational email message, which linked to an online survey created with Google DOCS. To complete the survey, respondents were offered incentives in the form of an electronic coffee-coupon worth 6 dollars.

Results

Descriptive Statistics

In our sample, 54.7% respondents were female and 45.3% were male. Almost half of respondents, 49.5%, were between the ages of 31 and 40, 13.9% were 40 years of age or above and 36.6% of the respondents were 30 years of age or below. Naturally, GRI employees are well educated, with almost 98% having completed undergraduate studies, 51% having completed master studies, and 20% having earned a doctorate. In terms of area of expertise, one third were from engineering fields, one third were from social science disciplines, 18% came from the natural sciences, and 12.8% came from a humanities background. In terms of rank or position, the
majority of the respondents were general office workers, followed by 33.4% from Assistant Manager level. Six percent had the position of manager and 3.1% had the position of General Manager. Out of the respondents, 37.4% were using three SNS and 21.1% were using two SNS. The most frequently used SNS identified was Kakao-talk used by 81% of the respondents followed by Facebook used by 15% of the respondents. Almost all respondents, 95.1%, reported that using SNS mainly via Smartphones. In terms of the SNS access locations, 46.4% reported that they access SNS while on the move, 27% said they access SNS at home, and 24.2% reported SNS access at the office. The usage frequency of SNS (i.e., times logging-in) was as follows: 11 times per day (38.4%), 2-5 times per day (35.6%), and 6-10 times per day (18.7%). When asked if their organization had any policy related to the SNS usage, 62% said there was no SNS policy, 28.4% said it was allowed, and 6.6% said SNS access was not allowed inside their organization.

**Assessment of Measurement model**

We performed structural equation modeling (SEM) analysis to test the reliability and validity of the measurement items. Specifically, due to the latent nature of the constructs used, a Smart PLS (partial least square method) software package (Ringle, 2005) was used for data analysis. PLS is a structured equation modeling technique that can analyze structural equation models (SEMs) involving multiple-item constructs. PLS analysis was performed in two steps: (1) a test of the measurement model: an estimation of internal consistency (composite reliability), and determination of the convergent and discriminant validity of the instrument items; and (2) assessment of the structural model through SEM.

**Test of Measurement Model (Reliability and Validity Test)**

Composite reliability measures, as indicated in Table 2, were robust and well above the recommended level of 0.70 (Nunnally, 1978). The average variance extracted (AVE) is also
depicted in Table 2. All AVE values were well above the accepted level of 0.50 (Fornell, 1981). AVE indicates the reliability of the construct and allows the evaluation of discriminant validity. To indicate satisfactory discriminant validity, the AVE of the construct should be greater than the variance shared between the construct and other constructs in the model. The discriminant validity of the measurement scales is depicted in Table 3; the square roots of the AVEs were greater than the off-diagonal elements in their corresponding row and column in all cases, supporting the discriminant validity of our scales. Convergent validity is demonstrated when items load highly (loading > 0.50) on their associated factors. Convergent validity was also fully demonstrated as all item loaded highly (Loading > 0.50) on their associated factors. Furthermore, the factor loading of each item on its respective construct was highly significant, as the values of t-statistics were between 3.35 and 88.18.

Assessment of the Structural Model

Results of the structural model carried out through SEM are shown in Table 4 and Figure 2, where the independent variables were Risks (i.e., social risk, time, psychological risks, and privacy concern) and Benefits (i.e., entertainment, social involvement, information attainment, and social connectivity) associated with SNS, and the dependent variable were the SNS satisfaction and use intention. Out of eight independent variables used in the model, six had a significant effect on User satisfaction (See Figure A). Physiological Risk had a moderately significant negative effect on SNS satisfaction (β = -0.180, p < 0.05), thus supporting H2. In simple words, it means that as Physiological Risk associated with SNS increase, the satisfaction with SNS decreases proportionally. Interestingly, Social Risk associated with SNS had a weak significant
positive effect on SNS satisfaction ($\beta = 0.172$, $p < 0.05$), thus rejecting hypothesis 3. In other words, the positive effect of Social Risk on SNS satisfaction shows that the more users are concerned about the social risks associated with SNS the more they are satisfied with its use. As expected, Privacy Risk had a moderately significant negative effect on SNS satisfaction ($\beta = -0.120$, $p < 0.01$); supporting hypothesis 4. To put it simply, this means that as the Privacy Risk associated with SNS increases, the satisfaction with SNS decreases proportionally. Time Risk associated with SNS was not significant; rejecting hypothesis 1.

Social Connectivity had a moderately significant positive effect on SNS satisfaction ($\beta = 0.199$, $p < 0.001$), thus supporting H5. In simple words, it means that the more people feel socially connected through an SNS, the more they are satisfied with the SNS. Information Attainment had a moderately significant positive effect on SNS satisfaction ($\beta = 0.285$, $p < 0.001$), thus supporting H6. Meaning that the more people attained information due to SNS usage the more they are satisfied with it. As expected, Entertainment had a moderately significant positive effect on SNS satisfaction ($\beta = 0.335$, $p < 0.001$); supporting hypothesis 7. To put it simply, this means that as people feel more entertained through SNS usage, the satisfaction with SNS increases proportionally. Social Involvement was not significant. Overall, the Risks and Benefits accounted for 56% of variance in SNS satisfaction (see Table 4). Finally, SNS satisfaction had a moderate positive effect on SNS Use Intention ($\beta = 0.380$, $p < 0.001$); supporting H9. SNS satisfaction accounted for 14% variance in SNS Use Intention.

Overall, the Risks and Benefits accounted for 56% of variance in SNS satisfaction (see Table 4). Finally, SNS satisfaction had a moderately positive effect on SNS Use Intention ($\beta$
=0.380, p < 0.001); supporting H9. In addition, SNS satisfaction accounted for 14% variance in SNS Use Intention.

Discussion

The purpose of this empirical study was to investigate the risks and benefits of social media use by public agencies. Findings of the study will help public sector agencies identify and handle social media risk and benefits. For example, we found that both risks—social risk, time, psychological risks, and privacy concern—and benefits—social connectivity, social involvement, information attainment and entertainment—associated with social media significantly affect public sector employees’ satisfaction and intention to use social media. However, and interestingly, when it comes to comparing risks and benefits of social media in the public sector, we found that the effect of the benefits on users’ satisfaction was stronger than the effect of the risks. In other words, public sector employees are more satisfied with the benefits provided by social media when compared to the dissatisfaction caused by the associated risks.

Another interesting finding is that, in some instances, risks associated with social media increase satisfaction associated with it. For example, social risk had a positive effect on SNS satisfaction. This means that the more users are concerned about the social risks associated with SNS, the more they are satisfied with its use. This may be due to public sector employees being well aware of the social risks associated with social media use and having proper personal risk mitigation strategies in place. Another possible explanation is that in Korea, a collectivist and uncertainty avoiding society, communication through social media tools (e.g., Kakao Talk) happens mostly with close associates, mitigating the feelings of social risk.

While benefits associated with social media are attractive, the risks associated with it are distracting. Most organizations usually focus on the benefits of social media and, while they may be aware of the risks associated with it, do not take concrete steps to mitigate risks (Webber, et al.,
Social media risks need to be properly managed. For example, Webber et al., (2012) suggested a four-step approach to the social media risk management process: a) identifying social media risks, b) assessing and prioritizing those risks against limited resources, c) mitigating and managing those risks to reduce the impact on the organization, and d) evaluating emerging risks against mitigation efforts. The public sector can also use this four-step approach to manage the social media risks identified in this study. For example, to manage the social media risks, public sector organization might do the following: have a sound social media strategy, train employees on legal issues, and limit access to selected social media tools (eGovernment Resources Centre, 2010).

Apart from the risks and benefits associated with social media, one of the important aspects of social media in any organization is the enactment of a sound social media policy and strategy. While SNS use was pervasive in the institutions we surveyed, a majority of the respondents (62%) reported that their organization had no SNS policy. This finding is consistent with previous research that exposed a lack of sound social media policy and strategy. For example, Kiron, Palmer, Phillips, & Berkman (2013) conducted a survey of 2,545 business executives from 99 countries and 25 industries, and found that one of the major barriers to using social media tools is the lack of an overall strategy related to social media. Even though, in our study, we did not look specifically into the policy and strategy issues related to social media in the public sector, we believe that an important issue has been identified that needs to be thoroughly addressed in the future research.

This study develops and tests a risk-benefit model, partially validating past research on social media in the public sector (Picazo-Vela et al., 2012; Linders, 2012; Mergel and
Bretschneider, 2013). Policymakers and practitioners might look to our study as a guide to gauge the risks-benefits of social media in the public sector.

The study has some limitations to acknowledge. Because we surveyed social media use in only a handful of government-funded agencies in Korea, the generalization of the results may be limited. Also, we focused on the risks and benefits of SNS services, not all social media. Social media includes a variety of different tools and applications (e.g., blogs, wikis, and content communities) and the risks and benefits associated with these may be perceived differently. Future research is needed to look into a broader range of social media applications.

Another limitation stems from the quantitative nature of the findings. For example, the study does not provide in-depth qualitative information to understand the perception of the employees towards SNS use. Future studies grounded in a qualitative approach may investigate the relation between the existence of a formal SNS policy and employees’ satisfaction. We found that risks associated with social media increase satisfaction. Even though the finding is interesting and the “social risk” construct was statistically robust (with a composite reliability of 0.89 and Cronbach’s Alpha of 0.83), some researchers and policymakers may find these results perplexing. Thus, a future study is needed to further explore this finding.

A final limitation involves the choice of constructs. We have adopted the risks and benefits constructs on the basis of experts’ opinions on suitability and relevance to the public sector setting. For this reason, some of the constructs might have been missing from this study. Social media use in the public sector is in an early stage and more relevant constructs might appear with the advancement of social media usage. Future research can examine other risk and benefit constructs to measure social media satisfaction.
Conclusion

In this study, we empirically investigated the risks and benefits of social media use by public agencies. We found that both risks and benefits associated with social media significantly affect public sector employees’ satisfaction and intention to use social media. Overall, public sector employees were more satisfied with the benefits provided by social media when compared to the dissatisfaction caused by the risks associated with it. We also found that a formal social media strategy has not yet found its way into the organizations we investigated. Even though, the study has several limitations, we believe that findings of the study will help practitioners identify and handle social media risk and benefits related issues in the public sector.
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Kon Sang Lee (sklee@koreatech.ac.kr)
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Sandoval-Almazan, R., & Gil-Garcia, J. R. (2012). Are government internet portals evolving towards more interaction, participation, and collaboration? Revisiting the rhetoric of e-


Appendix

Figure 1 Proposed Research Model
Figure 2 Updated Model
Table 1: Summary of social media based government models

<table>
<thead>
<tr>
<th>Social Media based government model</th>
<th>Description</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Government Maturity Model</td>
<td>Consist of five levels of social media maturity, suggesting practitioners to achieve one level at a time.</td>
<td>Lee and Kwak (2012)</td>
</tr>
<tr>
<td>Social Media Utilization Model</td>
<td>Consist of three stages of utilization for citizen’s engagement in social media starting from stage 1 (information socialization) and moving to stage 3 (social transaction).</td>
<td>Khan (2013)</td>
</tr>
<tr>
<td>Adoption process for social media</td>
<td>Consist of three stages social media adoption process, evolving from informally experimentation to wide form of communication medium involving strategy and policies for social media use.</td>
<td>Mergel and Bretschneider (2013)</td>
</tr>
<tr>
<td>Social media based engagement</td>
<td>Consist of three stages for social media engagement, moving from one way communication stage to service delivery and accessibility stage.</td>
<td>Schwalji and Aradi (2013)</td>
</tr>
</tbody>
</table>
### Table 2 Latent Construct Reliability

<table>
<thead>
<tr>
<th>Latent Construct</th>
<th>AVE</th>
<th>Composite Reliability</th>
<th>Cronbachs Alpha</th>
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</thead>
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<tr>
<td>Entertainment (ET)</td>
<td>0.62</td>
<td>0.87</td>
<td>0.79</td>
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<tr>
<td>Information Attainment (IA)</td>
<td>0.60</td>
<td>0.90</td>
<td>0.87</td>
</tr>
<tr>
<td>Privacy Risk (PR)</td>
<td>0.70</td>
<td>0.87</td>
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</tr>
<tr>
<td>Psychological Risk (PSYR)</td>
<td>0.79</td>
<td>0.88</td>
<td>0.81</td>
</tr>
<tr>
<td>Satisfaction (SAT)</td>
<td>0.80</td>
<td>0.94</td>
<td>0.92</td>
</tr>
<tr>
<td>Social Connectivity (SC)</td>
<td>0.45</td>
<td>0.83</td>
<td>0.76</td>
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<tr>
<td>Social Involvement (SI)</td>
<td>0.62</td>
<td>0.92</td>
<td>0.90</td>
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<tr>
<td>Social Risk (SR)</td>
<td>0.80</td>
<td>0.89</td>
<td>0.83</td>
</tr>
<tr>
<td>Time Risk (TR)</td>
<td>0.72</td>
<td>0.89</td>
<td>0.81</td>
</tr>
<tr>
<td>Use Intention (UI)</td>
<td>0.92</td>
<td>0.97</td>
<td>0.96</td>
</tr>
<tr>
<td></td>
<td>ET</td>
<td>IA</td>
<td>PR</td>
</tr>
<tr>
<td>--------------------------------</td>
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<td>------</td>
</tr>
<tr>
<td>Entertainment (ET)</td>
<td>0.79</td>
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<td></td>
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<tr>
<td>Information Attainment (IA)</td>
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<td>0.01</td>
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<td>Psychological Risk (PSYR)</td>
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<td>Time Risk (TR)</td>
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<tr>
<td>Use Intention (UI)</td>
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<td>Independent Variable</td>
<td>Dependent Variable</td>
<td>Beta</td>
<td>t-statistics</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------</td>
<td>-------</td>
<td>--------------</td>
</tr>
<tr>
<td><strong>Risks</strong></td>
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<tr>
<td>Time Risk</td>
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<td>0.089</td>
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<tr>
<td>Physiological Risk</td>
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<td>Social Risk</td>
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<tr>
<td>Privacy Risk</td>
<td>SNS Satisfaction</td>
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<td>Benefits</td>
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<tr>
<td>Social Connectivity</td>
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<tr>
<td>Social Involvement</td>
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<td>0.033</td>
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<tr>
<td>Information Attainment</td>
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<td>0.285</td>
<td>5.593</td>
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<tr>
<td>Entertainment</td>
<td></td>
<td>0.335</td>
<td>5.422</td>
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<tr>
<td><strong>SNS Satisfaction</strong></td>
<td>Use Intention</td>
<td>0.380</td>
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<td><strong>Control Variables</strong></td>
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<tr>
<td>Age</td>
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<td>1.190</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>-0.040</td>
<td>0.988</td>
</tr>
</tbody>
</table>
Research Instrument

Social Connectivity
Connecting Old Friends & Colleagues
I use SNS to keep in touch with my old friends & Colleagues
SNS can help me contact distant friends & Colleagues
Making New Connections
I use SNS to meet new people
I use SNS to make new friends and colleagues
SNS can help me find friends & Colleagues sharing the same interests as mine
Maintaining relationship
SNS can help me maintain ties with friends & Colleagues
SNS can help me stay connected with friends & Colleagues whom I usually do not have time to contact

Social Involvement
SNS can help me improve my interpersonal relationships
SNS can help me participate in more social activities
SNS can help me get along with people more easily in real life
SNS can help me avoid being isolated
SNS can help me escape loneliness
SNS can help me increase my social involvement
SNS can help me know more people in real life

Information Attainment
Acquisition
SNS can help me find interesting and unique information
SNS makes it easier for me to get information
SNS helps me find information about things of interest (e.g. school related, work related, family related, and community events)
Sharing
SNS helps me share information easily
SNS helps me share interesting and unique information
SNS helps me share information about things of interest (e.g. school related, work related, festivals, and community events) (added)
Entertainment
SNS are interesting websites
SNS can entertain me
SNS make me happy
SNS can bring me out of a depression

Perceived Risks
Psychological Risk
PSYR1: SNS will not fit in well with my self-image or self-concept.
PSYR2: The usage of SNS would lead to a psychological loss for me because it would not fit in well with my self-image or self-concept.

Social Risk
SR1: Using SNS will negatively affect the way others think of me
SR2: My signing up and using an SNS would lead to a social loss for me because my friends & Colleagues would think less highly of me

Time Risk
SNS are time-consuming
Using SNS is a waste of time
It is risky to consider the investment of my time involved to set up and use SNS.
It is risky to have the possible time loss from having to set-up and learn to use SNS.

Privacy Risk
I am concern about my privacy while I am using the SNS
I do not feel comfortable with the privacy setting of my profile in SNS
I am not comfortable with giving personal information on SNS.
I feel that the privacy of my personal information is not protected by SNS.

Satisfaction
Overall, the information I get from SNS is very satisfying
I am very satisfied with the information I receive from SNS
All things considered, I am very satisfied with SNS
Overall, my interaction with SNS is very satisfying

Behavioral Intention to use Social Media
I intend to use SNS in the next twelve months.
I predict to use SNS in the next twelve months.
I plan to use SNS in the next twelve months.

______________________________

¹Research suggests (Jung, 2012) that Kakao Talk started as a free smart phone-based messenger service, but with time it evolved into a SNS platform by adding a variety of services, such as photo based Kakao story, marketing platform for mobile games, and an app market. Kakao Talk, therefore in its current form, can be regarded as a kind of smart phone-based closed SNS.