Factors affecting the adoption of social media as communication channels in government agencies

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ABSTRACT

Social media has become an integral part of many people's lives around the world. The main use of this communication channel is to connect with social circles. Social media is also widely used for commercial and business purposes. Governments are also attempting to use social media as an alternative to the traditional communication channels. Nonetheless, when the level of use of social media in the government is compared to other fields, e.g. social and commercial sectors, a clear gap becomes apparent. This chapter investigates the issue of adopting social media as a communication channel between citizens and public agencies (including government departments) and considers a wide range of factors that affect the issue from the perspective of public agencies. The purpose of the chapter

is to provide an extensive literature review and propose a framework that organises the critical factors that affect public agencies' efforts while implementing social media and to provide a list of hypotheses to validate and evaluate the significance of these factors. The validation and evaluation of critical factors will hopefully help the decision makers to better understand the concerns and challenges, and thereby enabling them to concentrate on efforts to propose the best practices to overcome the barriers.

KEYWORDS

Adoption, Government 2.0, Government agencies, Implementation, Open government, Public sector, Social media, Web 2.0

INTRODUCTION

The rapid growth of information and communication technologies (ICTs) and the development of the World Wide Web (WWW) in the form of Web 2.0 have received significant attention from researchers, business communities and governments to explore, understand, visualize and enhance new possibilities to promote their products and services. The new possibilities have mainly been considered as a communication channel and are known as 'social media tools', including Facebook[1], LinkedIn[2], Twitter[3], Google+[4], YouTube[5], MySpace[6], Weblogs, microblogs, wikis and many more. Kaplan and Haenlein (2010) noted that the social media tools have been defined as a collection of Internet-based applications established on the foundation of Web 2.0 to allow development, exchange and sharing of user-generated content (UGC).

The use of social media has changed the way we interact on the web, connect to people and present ourselves to the world by disseminating information in a far more convenient way.

In recent years, the use of social media has seen massive growth and has become a noticeable communication channel on the Internet for various activities. The facts and figures below highlight the importance of various social media tools in terms of global use (Jones, 2013).

- The use of social media by businesses to promote business   93%
- Presence on Google+ by various brands   70%
- Attracted and gained customers through social media (Facebook) as a channel   70%
- Attracted and gained leads using Twitter as a communication channel   34%
- Facebook influenced Americans' purchase decisions on the Internet   47%
- Number of active users on social media: Facebook has 1.15 billion, Google has 359 million, Twitter has 215 million and Instagram has 159 million users.

These facts and figures reveal that organisations of all scales can utilize social media tools as two-way communication channels to interconnect with consumers/citizens and boost their corporate identity, growth and relationship.

In the context of the government domain, the use and integration of social media began with the Open Government Initiative in 2008 during the US presidential campaign. The Open Government Initiative is also known as Government 2.0, which emphasizes the following three major principles (Barack, 2011; Deschamps et al., 2012; Mergel, 2013):

1. Transparency
2. Participation
3. Collaboration

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1 https://www.facebook.com
2 https://www.linkedin.com
3 https://twitter.com
4 https://plus.google.com
5 https://www.youtube.com
6 https://myspace.com

Over the past couple of years, the proponents of Government 2.0 in both developed and developing countries have realized the importance of providing and disclosing government services and information via social media tools to enhance efficiency, transparency and government's relationship with the public. Even though the acceptance of social media to communicate with government has the potential to provide better services to citizens, it still faces acceptance and adoption problems. Previous research has found that the successful implementation of e-government services has relied not only on government backing, but also on citizens' satisfaction and willingness to adopt e-government services (Alomari , Woods and Sandhu, , 2012). The satisfaction of end-users (consumers/citizens) towards the adoption, usage and success of social media platforms plays an important role. Therefore, it is very crucial to identify critical factors that influence government's acceptance towards the adoption of social media tools to enhance the successful implementation of e-government services for two-way communication (Coskunçay, 2013; Muylle et al., 2004; Mergel et al., 2009) z.

This chapter aims to investigate and analyse the adoption of social media in government agencies from the government's perspective. The chapter starts by giving a general historical brief about social media and Web 2.0 technologies. In the next section, the factors that influence the adoption and implementation of social media in government agencies are presented as the main focus of this research project. The chapter also attempts to propose a general framework based on the critical factors influencing the government agencies' adoption of social media in the public sector or Government 2.0. The proposed framework categorizes the critical factors as external and internal factors from the government perspective. The government perspective is based on hypotheses covering internal factors (leadership, top management, funding and risks of management, maintenance and engagement, organisation change, policies, corporate culture, learning organisation, information influence, technological capacity/maturity) and external factors (communication, ICT infrastructure, privacy and security concerns, social representation, economic influence, legislation and political influence) and their influence on social media adoption. The use of an organizational-led model will help gather evidence for these critical factors that influence the decisions of governmental agencies regarding the adoption of social media platforms for smooth, open and trustworthy two-way communication. Here, the use of the Technology-Organization-Environment (TOE) model is considered from an organizational perspective, and the implications of critical factors that influence the adoption of social media are discussed, along with findings and suggestions for future research to understand and enhance the way in which government and citizens communicate with each other using social media platforms.

FACTORS AFFECTING THE GOVERNMENT'S ADOPTION OF SOCIAL MEDIA

The adoption and implementation of social media in government agencies encompass a wide range of critical factors which influence the government's decisions. To improve government services and communication and engagement with citizens, government agencies are required to minimize the impact of these critical factors for a successful, reliable, secure and transparent adoption and implementation of social media platforms. Some of the critical factors can be grouped in different categories, as shown in Figure 1.

Figure 1 – Critical Factors Affecting Government's Adoption of Social Media

The following section discusses some of these critical factors which are important when considering social media as a medium of communication for developing what is often referred to as Government 2.0.

Internal Factors: Organizational Influence

Leadership

The leadership in government has a strong influence on the adoption of social media and emerging technologies as a communication channel. The integration of social media and government will only be practical if there is a leadership that can exploit technology in order to enhance communication and

relationships with citizens (Meije, 2012). Leadership is crucial to adopt and take critical decisions, whereas management is concerned with routine decisions (Selznick, 1957). Leadership is one of the fundamental pillars of processes of institutional innovation as it integrates various constraints, including legal and financial resources and the technological resources and political environment required to adopt fast-growing social media platforms. Meije (2012) has highlighted that, similar to Government 2.0, government organisations need to develop Collective Leadership 2.0 to be able to exploit the potential of social media platforms and emerging technologies. Collective leadership is important for governments as it will help to reshape the current hierarchical organisation structure with fixed functions and responsibilities into a collective organisation. Researchers have indicated that a strong leadership with vision is a critical pre-condition to not only adopt Government 2.0 but also to ensure that it is successful (Heeks, 2002; Ke and Wei, 2004). Therefore, the successful adoption of social media by government in both developed and developing countries to enhance communication and the relationship between government and citizens requires strong leadership.

Top Political Management

The integration of government and social media requires leadership from not just a single political leader but also from the top management who can draw social interest and offer their experience and expertise. According to Organisation for Economic Cooperation and Development (OECD, 2003), the strength and consistency of support from top management is one of the most important elements for successful reform. In the context of developing countries, political commitment is an important criterion for any successful reform to materialise (Ndou, 2004). The role of top management is critical for the roadmap of integrating social media and government as they are required to secure funding, provide resources, define clear objectives and plans to achieve milestones and gain approval for strategies and policies for sustainable changes and the adoption of new technologies (Khanh, 2014; Rahman, 2014).

Funding and Risks of Management, Maintenance and Engagement

The management and maintenance of social media accounts is one of the critical factors as it has a significant influence on communication, privacy and security (Joseph, 2012). Depending on the size of the government, it requires dedicated teams to manage social media integration and daily management of online profiles. The lack of a dedicated team means the lack of ownership of critical social accounts; as a result, there will be no one liable for the content and communication that is published. The fundamental shift from traditional websites to social media platforms has made social engagement a crucial factor as traditional websites are no longer the only place where citizens explore and communicate in order to acquire information. The citizens need a natural way of communication and interaction instead of going through memos, surveys or long reports which can kill their interest to follow governmental services. Mergel observed as follows:

> Instead of asking people to come to government, it is government going to the people. People are, for a lack of a better term, hanging out on Facebook, people are hanging out on Twitter. And we want to be sure that our messages can get to people where they want it, when they want it and in the form that they want it. I think it is both a fundamental shift in our approach to that, and also a reaction to just the nature of the technology changing the way people get information (Mergel, 2013, p. 128).

One of the important factors behind the success of Starbuck's social media strategy is its engagement with customers. In 2008, Starbucks launched a new website (http://mystarbucksidea.force.com) to enhance Starbucks' position in the market. It allowed Starbucks customers across the globe to share their ideas, suggestions and even their frustrations. It provided users the ability to see what other customers are suggesting, vote on ideas and analyse the results. Similar to the My Starbucks Idea platform, there have been various open idea platforms, such as the General Mills Worldwide Innovation Network (G-WIN) (http://gwin.force.com/) and Coca-Cola's Where Will Happiness Strike Next? platform (http://www.cocacolacompany.com/topics/innovation), among many others.

However, in the context of open government, an interactive engagement approach has been lacking. Due to the lack of management, maintenance and engagement, most of the open government initiatives

that emerged in developed countries have been targeted by hackers, spammers and people wanting to make political statements rather than constructive development (Kowtko, 2011; Chandramouli, 2011). One of the critical challenges preventing government agencies from having reliable and dynamic management, maintenance and engagement is the lack of funding (Zheng, 2013).

Organizational Change

Like any other ICT project, the transition from a traditional system to a technology-oriented system (i.e. the adoption of social media by governments) often requires organisational change in terms of the structure, culture, people and processes in order to achieve effective outcomes. The traditional communication approach, including email, chat and websites, has been used widely by organisations. Picazo-Vela (2012) discussed the six perceived risks (general context, institutional framework, inter-organisation collaboration and networks, organisation structure and process, information and data, and technology) associated with social media success. The authors highlighted that organisational changes are critical to understand social media objectives, initiation, strategies and responsibilities of individuals to answer citizens; the vision of the IT department; communication standards and appropriate training.

Schwalji and Aradi's (2013) study highlighted that organisational changes are crucial to steer the social media adoption for government services from a smaller stage to a higher stage of maturity. Zheng's (2013) study examined the critical factors and challenges in the context of the Chinese government and identified that Chinese government agencies (as well as government agencies around the globe) need to enhance their organisational capabilities to suit public demands in the social media age. These organisational changes and enhancements are internal factors that range from institutional structural transformation to organisational culture and collaboration across different borders and boundaries to adopt societal changes z.

Guttormsen and Sæbø (2013) observed that the use of social media (Facebook) has been explored in local municipalities and noted that internal and external uses of social media are of comparable importance. The government agencies need to adopt organisational changes in order to ensure that they collaborate dynamically with both internal and external participants. The government sector needs organisational changes in order to allow government servants to utilize the advantages of social media. According to Fyfe and Crookall (Fyfe and Crookall, 2010, p. 9), 'social media are spontaneous and instantaneous. Governments are slow and steady'. Governments are accustomed to formalizing communication in the form of memos and letters which require modifications and approvals. Compared to this formal communication, instantaneous and informal communication can be a challenge in both developed and developing countries and therefore it requires organisational changes to become more agile, answerable and open to the public (Fyfe and Crookall, 2010).

In the context of the Arab region, the 4th edition of the Citizen Engagement and Public Services in the Arab World report by the Mohammad Bin Rashid School of Government identified that the lack of government employee capacity and training is one of the top challenges and is severely affecting citizen engagement with government agencies through social media (Winterstein et al., 2014).

Policies

In order to deploy, implement, exploit and adopt social media as a communication channel, policies play an important role. The policies imposed by the government and private sectors significantly affect the adoption of social media as a communication channel. One of the crucial concerns is that political parties (government agencies) have banned social media sites to ensure that social media is not used as a weapon to organize political rallies. During the previous decade, there have been various countries where social media sites such as Facebook and Twitter were banned to avoid the threat to governmental stability and hinder protesters' ability to organize and disseminate information (Harvey, 2014; Hisham et al., 2014; Canaves, 2011; Kingsley et al., 2013; Liebelson, 2014; Kirkland, 2014). The list of countries that have banned social media platforms occasionally changes due to changes in the political situation; therefore, in some countries such bans have only been temporary. According to Harvey (2014), a policy to ban social media platforms means an attempt to ban a channel that does not fall under the boundaries of a country. Harvey acknowledged that creating policies to regulate Internet and

online platforms is difficult as these regulations are tied to the location. However, due to rapid growth in information and communication technologies, there have been many workarounds to overcome these bans. National social media policies are not limited to the country level as policies play a critical role in local corporations and governments with respect to the adoption of social media. The adoption of social media without any policies or with insufficient policies can trigger uncertainties, offensive contributions, security and legal concerns and unauthorized access.

Corporate Culture / Ethos

Corporate culture or ethos is one of the critical factors as it can be more resistant towards the adoption and usage of social media if organisations are less technologically oriented or based on a hierarchical structure (Kingsley et al., 2013). Organisations have a variety of facets, one of which is culture (Hofstede, 1994). The study by Kingsley et al. (2013) highlighted the significance of culture in the adoption of social media in learning and teaching. Based on the questionnaire survey, it is analysed that over 45% agreed they never use social media tools for teaching and moreover their cultural background does not support exploiting the benefits of social medial tools. The adoption process for new technologies such as social media platforms varies from one individual to another and from one location to another due to demographic characteristics.

Most of the social media platforms use English as their primary language, which causes some corporations in non-English speaking countries to question whether to adopt them. To overcome this issue, many countries develop their own local social media tools (i.e. iWiW.hu in Hungary, CyWolrd.com in South Korea, Grono.net in Poland) to reflect the cross-cultural differences (Veltri and Elgarah, 2009) limited to local presentation. It is crucial for organisations to exploit the opportunities at both the local and cross-cultural levels to enhance the understanding of how to adopt social media services and build strong relationships at the international level. The successful adoption of social media platforms heavily depends on the organisation's approach to understanding cultural influences and reducing its resistance.

Learning Organization

The idea of a learning organisation has been discussed repeatedly for the last few decades, especially in the context of management studies. In recent times, the concept of learning organisations has become an increasingly widespread approach for organisations of all scales. A learning organisation concept helps organisations to recognize that their workforce needs opportunities to learn new skills, technologies and knowledge and apply them to their working environment. The learning organisation can be defined as 'An organisation that is continually expanding its capacity to create its own future' (Garcarz et al., 2003, p 1). By increasing individual capacity and nurturing new ways of thinking, organisations integrate thinking, personal mastery, shared vision and team learning (Garcarz et al., 2003). The lack of a learning organisation can force staff to indicate that they do not want to use social media technologies as they do not possess the required knowledge and skills to integrate such technology into their communication channels. It is important for learning organisations to consider starting with the implementation of social media on a small scale and then evaluating, enhancing and progressing to build the objectives for social media platforms in support of different activities (Estrada, 2013).

According to Gilson et al. (2011), a straightforward switchover of the private sector's organisational learning cannot be applied to governmental departments and agencies. Gilson et al.'s point here is based on Warwick's (1975, p. 204) observation that 'It is not enough to unpack a briefcase with concepts and measures developed in other settings, unload them in a public agency and expect them to encompass all the worthwhile reality to which they are exposed'. Gilson et al. (2011) provide the following components to ensure organisational learning within the context of the organisation's culture:

- Knowledge management (knowledge recognition, capture, collection, storage, dissemination, re-access)
- Organisational learning, motivation and systems
- Learning about efficiency
- Learning about effectiveness

- Strategic leadership.
- Organisational unlearning and policy/organisational crises
- Innovation
- Human resource management
- The political process

The main sources of organisational learning vary from organisation to organisation, and therefore Gilson et al. (2011) highlighted the main sources of organisational learning in government as follows:

- Learning from internal sources and experience
- Learning from citizens and customers
- Learning from partners, rivals and competitors
- Learning from top-down direction and overview
- Learning from critique, advice and media
- Learning from testing interaction, crises and reviews

It is important for organisations to realize that organisational learning is not a one-stop process and it thus requires sustainability for progressive and effective outcomes. Pedlar et al. (1991) observed that best practices to sustain organisational learning are based on strategies, feedback systems, forms of organisational structures, organisational culture and climate and a reward system.

Internal Factors: Information Influence

The adoption of social media by governmental agencies will not only help to save time and cost but will also strengthen the agencies' performance with two-way transparent communication with the public. Despite the solid infrastructure of social media, the rate of social media adoption is still limited. As compared to traditional media for communication, social media platforms allow for disseminating information to the public in real time. The information disseminated or published on social media platforms can result in a negative reaction. Therefore, it is crucial for governmental agencies to review information and content before publishing it to ensure that it is reliable. It is crucial for governments to provide accurate, reliable, up-to-date and prompt information as doing so helps ensure the success of transforming government services through the use of social media (Picazo-Vela et al., 2012).

The exchange or dissemination of information always involves risks of revealing personally identifiable and confidential information. It poses risks to governmental agencies and requires them to take a strategic step to ensure information is secured and protected (Picazo-Vela et al., 2012; Bryer and Zavattaro, 2011). The rapid growth of information and communication technology allows governmental agencies to develop their own platforms or adopt third party tools, such as Facebook, Twitter, Google+ and/or others. The development of their own platforms provides greater control of their information that is collected or stored. However, the use of third party tools means that there is zero or limited control of information (Bryer and Zavattaro, 2011) z. In addition to limited access to data, the availability of data is one of the important aspects that can significantly damage the adoption of social media platforms for communication.

Internal Factors: Technological Capacity / Maturity

The rapid growth of data over the Web has resulted into massive complexity which lacks integration, interoperability, privacy or ease of access for organisations. For any organisation, technological maturity depends on its ability to learn, promote, innovate and re-invent itself and its technological scope (Létourneau, 2014). Létourneau (2014) highlights the importance maturity model to dictate a comprehensive and structural approach in order to analyse the maturity of committed social media platforms to return the innovative potential to the organisations. According to Schwalji and Aradi (2013, p. 18), 'social media maturity is characterized by different levels of organisational visibility and endorsement, dominant usage patterns, usage of certain types of content and varying level of interaction with citizens and other public sector institutions'. Social media maturity thus depends on the

technological maturity to achieve this characterization. Lehmkuhl et al. (2013) have developed a social media (SoMe) conceptual maturity model based on the following five dimensions: strategies, governance, processes and organisation, systems and culture. All of the dimensions are related to internal organisation factors and significantly influence the adoption of social media.

Ragowsky et al. (2014) defined the Organisational IT Maturity (OITM) model to understand the maturity relationship between an organisation and its ICT infrastructure. The use of different factors, such as awareness, willingness and trust, are considered influencing factors as they are influenced by both users' ability to use technology and by the perceived excellence of communication with the IT team. The deployment, application and usage of social media tools differ from organisation to organisation, especially among typical enterprise IT environment systems, due to experience, training and usage.

The importance of assessing the maturity model for the Arab Spring was highlighted in Schwalji and Aradi's (2013) study to increase the participation of the public, force social media to balance national strategies and address new public interests and demands on governmental agencies. Schwalji and Aradi (2013) developed a maturity model focused on public sectors' services in Arab countries during the Arab Spring using social media platforms to interact with citizens based on the following four pillars: visibility and organisational endorsement (i.e. Facebook likes, YouTube dislikes, followers on Twitter); level of activity (i.e. number of posts, Tweets, replies to users, videos); content inclusion (i.e. news, events, policies, services, emergencies, festivals) and nature of interaction (i.e. government to government, government to citizens, citizens to government). The proposed model has been validated based on quantitative empirical data from Facebook, Twitter and YouTube platforms only for public sector educational and employment organisations. The maturity model is based on three stages:

- The first stage is related to initial transparency and citizen participation in passive mode, which mainly focused on a one-way mode of communication to relay organisational activities, events and information.

- The second stage is to enhance transparency, citizen participation and collaboration by providing more information but limited interaction between the public and government entities.

- The third stage provides full transparency, citizen collaboration and participation on open platforms for services, referrals, information and two-way communication based on the quantitative empirical data (based on Facebook, Twitter and YouTube) from various public sector educational and employment organisations.

External Factors: Technological Influence

Communication – A Route or a Barrier for Information/Misinformation

The communication with the public is one of the most important and fundamental tasks for government as it allows the government to convey activities, new services and changes in rules and regulations. The growth of social media has presented opportunities to overcome the insufficiencies in traditional offline and one-way communication between government and citizens (Garvin, 2008; Hand and Ching, 2011; Coskunçay, 2013; Kavanaugh et al., 2012). Although the use of social media offers a two-way communication platform between government and the public, it requires resources, expertise and communication skills to determine accurate, useful and relevant information to be shared on social media to ensure better citizen services. This important challenge has been raised in previous studies (Hand and Ching, 2011; Hofmann et al., 2013; Hofmann, 2014) to identify how governments can successfully set up and run a social network page. For a reliable, strong and long-lasting relationship with citizens, it is very important for government and public administration to publish authentic and relevant information z. The uses of inaccurate or irrelevant information on social media irritates subscribers, fans and followers and often causes them to terminate their relationship with the organisation and remove its posts from their newsfeeds (Chun and Warner, 2010; ETarget, 2011;

Hofmann et al., 2013). Therefore, government's external communication is often observed disapprovingly by the public.

The processing of user-generated content is one of the critical challenges as it requires governments to identify, characterize and filter the content published by citizens in various formats, such as text, pictures, video and audio elements. Joseph (2012) observed that the communication risks are classified into the following three different categories that can harm or expose government agents or agencies:

- **Omission:** Critical information is not included in a message or tweet published online.

- **Misinformation:** The facts and figures are inaccurate; inaccuracy can be unintentional or intentional.

- **Compromise:** Important and confidential data is leaked from within a government agency on a social media platform.

Chun and Warner (2010) noted that a distributed architecture of a government collaborative tagging system underlines the relationships of a tag to semantic, social, pragmatic and contextual reference frames to enhance the capability to filter, determine and search new, dynamic and hidden resources. Such capability helps to recommend the most relevant government information based on various linked resources.

Kavanaugh et al. (2012) examined the importance and challenges in exploiting rapidly growing user-generated content on social media. With the massive amount of information on social media platforms, government needs to be able to act in a more effective and reliable way to control both routine and critical/emergency situations. Based on qualitative approach (Focus groups with 25 participants as 15 female and 10 male), it is identified that information factors (communication type and behaviour, information quality, privacy and security concerns) and organisational factors (policies, legal management and maintenance, funding) are critical to influence individual participation (Kavanaugh et al, 2012). The processing of user-generated content and the integration of a collaborative tagging system requires government to define strategies and polices prior to adopting social media. However, due to lack of knowledge and lack of organisational engagement to understand social media strategies, it requires deep research to define strategies and also understand the perspectives (Kaplan and Haenlein, 2010; Heath et al., 2013). Social media as a route to transparent and open communication has raised privacy and security concerns. Such concerns influence the decision to adopt social media as a communication medium used by governments as well as citizens.

ICT infrastructure

For organisations of any scale, ICT infrastructure is one of the building blocks towards the adoption of any type of technology, including social media platforms. It helps employees to access and utilize a wide range of tools, services and resource for various activities and communication (Kingsley et al., 2013). According to Kingsley et al (2013) the availability, accessibility and performance of ICT infrastructure are crucial factors towards the adoption of technology and tools. With the rapid growth of social media, it is important for organisations to realize the importance of integrating social media tools with existing infrastructure. Government organisations need to integrate social media tools with business applications in such a way that fully supports the processes, goals and outcomes. Sivarajah and Irani (2013) highlighted the technical risks posed to the technological infrastructure of an organisation due to the use of ICT. One of the potential risks is the discontinuation of existing social media platforms. This not only raises challenges for management to replace existing infrastructure but also to ensure appropriate training and resources (software, hardware, technical support, network bandwidth). In addition, new technology and platforms also result in security and privacy concerns. Therefore, government organisations are required to ensure that adopting or upgrading infrastructure will also provide the same level of service, reliability, privacy and data security.

Given the rapid development in technological modernization, skills in using a particular domain can swiftly become outdated. Therefore, organisations should consider education and training for employees with respect to new infrastructure and services. The lack of training resources and

inadequate knowledge may result in a decrease of engagement with citizens and lead to an increasing risk of failures.

Privacy and Security Concerns – Legal and Political

Privacy concerns have been one of the major obstacles to influence government's decision to adopt social media. There are various privacy, security and data accuracy issues in the context of social media tools, ranging from personally identifiable information to the security of confidential government data and the level of accuracy of data available to the public (Bertot, 2010a; Sandoval-Almazán et al., 2011). These concerns can severely damage the government's reputation. In today's tech-savvy world, spam and phishing have become a commonplace activity on the Internet. According to a research report conducted by NextGate (NextGate, 2013), social media spam has increased by 335% during the first half of 2013. Social spam has a significant impact as it has the potential to damage organisations' / governments' social appearance and turn fans and followers into antagonists. A social spam is not limited to one user; it can be seen by potentially all of the fans and followers as well as their followers. Across the different types of social media platforms, social media spam has utilized different distribution mechanisms, including spammy apps as well as link-based and text-based mechanisms (NextGate, 2013). The link-based spam takes the form of a URL which can take the user to the spammer's website or some other inappropriate website. Text spam includes phishing attacks trying to obtain personal information. The use of spam is increasing rapidly as 5% of all social media apps are spammy; 20% of all spammy apps are found on a brand-owned social media account; 15% of all social media spam uses a link redirecting to spammy content, pornography or malware; and one in seven social posts contain spam.

Thomas (2011) discussed four major components (i.e. credentials, engagement, monetization and external) in the abuse of social media. Thomas (2011) suggested that attackers targeting the social media platforms require the following three components: (1) they try to get access to social profile account credentials; (2) apply a mechanism to engage with fans and followers (3) and then post link-based or text-based content to direct fans and followers to external web space to generate profit..

Considering the sensitive nature of government's social media accounts, active monitoring, management and maintenance of online social profiles are required to ensure that such accounts are free from spammers and are not misleading fans and followers through spammy messages and apps. Moreover, such accounts require social spam analysis strategies, such as using blacklists to identify links; using passive social media accounts to act as a spam trapper and manually identifying spam tweets/posts in trending topics (Thomas, 2011; Gao et al., 2010; Stringhini et al., 2010). The security risks restrict government from utilizing certain features offered by social media, such as integrating social media badges to divert users to social media without their intention (Hofmann, 2014). The marketing ads on the government's social media profile, e.g. on its Facebook page, highlight the privacy concerns since they often feature ads contrary to the message or theme of the page (Magro, 2009). Thomas (2011) observed that the following two strategies have been designed to prevent abuse in social networks: 1) identifying abusive links before they can be distributed and 2) identifying fraudulent accounts at the time of registration. The challenge of securing social media from spammers will never end and it requires active research and strategies to counteract new methods employed by spammers.

In today's technologically oriented world, government's most realistic goal is not only to mitigate the disclosure of confidential data but also to overcome the network threats via social media. To maintain the privacy of confidential data and thus citizens' trust, government requires legal policies, standards and strategies to deploy best practices.

External Factors: Social Influence

Social Representation

Due to rapid growth in ICT, a large number of social media platforms have been developed. The representation of government agencies on all leading social media platforms is crucial to build a strong

relationship with citizens. The fact that there are now over 1.15 billion users on Facebook, 359 million users on Google, 215 million users on Twitter and 150 million users on Instagram suggests that it is important to maintain social representation on all of the leading social media channels if you want to be in touch with citizens (Jones, 2013). The representation on multiple platforms means government agencies want to reach as many citizens as possible on the social platforms they use on a daily basis. The social representation across different social platforms is a critical challenge as it requires additional resources, careful consideration and consistency of information, events, facts and figures, policies and major press releases across all the social platforms. The lack of appropriate social representation can damage the relationship with citizens. According to Mergel (2013), this social media factor can be called a 'push strategy', where an investment in additional resources means active two-way communication across all major social platforms. It is very crucial for top management to understand the scope of representation to fulfil citizens' expectations by increasing interaction and engagement with social media users.

In recent times, though the creation of online representation is a relatively easy process, the regular management and maintenance such representation requires has been a major concern. The appropriate management and maintenance of all social media accounts can reflect the true usefulness of social media platforms. It provides opportunities for government to interconnect, communicate, respond, share and update fans and followers in a professional manner and motivate them and their circle to enthusiastically adopt such services.

Environmental Influence

The environmental influence, such as community interest and successful trending stories, has a critical influence on the adoption of social media for communication and interaction (Hisham et al., 2014). The environmental influence can be considered an institutional factor (Teo et al., 1997) or as external pressure (Soliman and Janz, 2004). This external factor incorporates the pressure from external communities and forces them to adopt new technologies. It reflects the concept of resource dependency theory (Pfeffer and Salancik, 1978), wherein an organisation's efficiency is trained and controlled by the extent to which resources significantly critical for survival are measured by forces in its external environment (Nah and Saxton, 2012).

Hisham et al. (2014) discussed community interest and successful trending stories as influencing factors towards the adoption of social media platforms to observe, understand and explore feasible opportunities. The community interest has been observed to be a crucial factor in social media adoption. The rapidly growing use of social media by users of all ages shows the need for government agencies to also be able to adopt and exploit social media as a communication channel.

Bayo-Moriones and Lera-López (2007) observed that three different factors, i.e. competitive pressure, activity sector and geographical market, have been discussed with respect to the adoption of ICT. The competitive pressure and activity sector can be linked with successful trending stories at both the national and international level. The higher the level of environment dependency, the greater the level of adoption will be exploited by government. Therefore, an organisation in a competitive environment is more likely to invest in ICT and adopt various technologies, including trending social media platforms, for various activities. It not only helps to strengthen the performance but also ensures success in a more open approach.

Economic Influence

For organisations of all scales, the economic factor is one of the crucial factors to justify the budget requirement for workforce (technical and supporting teams), equipment or outsourcing services through the implementation of social media tools. Although the deployment and implementation of social media platform costs are lower compared to traditional information management and communication systems, it requires appropriate, dedicated and authenticated resources (Kuikka, 2011) to ensure a smooth, reliable and progressive outcome. The initiative and adoption of social media requires economic support; without such support, there will be a lack of competitive and dedicated resources to design and develop strategies, training and support, management and maintenance (Beneito-Montagut et al., 2013).

In a case study on two European countries (Beneito-Montagut et al.,2013), lack of time, staff and budget were all undisputed factors that critically damaged the adoption of technology. Governmental agencies are experiencing budget cuts which severely affect the adoption of emerging social media platforms and other emerging technologies that require dedicated efforts. In developing countries, the economic factor is one of the most critical factors due to limited budget. Limited budgets restrict governmental agencies from acquiring appropriate infrastructure and resources. In addition to budget requirements for the adoption and development of social media platforms, it is fundamental to sustain infrastructure and technology. In order to ensure the sustainability of infrastructure and technology, organisations of all scale are required to secure budget for telecommunication network costs, maintenance costs of software and hardware and salaries for dedicated staff and support teams.

Legislation and Political Influence

The adoption of social media by government organisations to communicate with the public sector can be significantly influenced by legislation and the political situation. According to Akomode et al. (2002: pp. 45), 'the concept of e-government is radically changing the way the public sector is doing business, new legal issues continue to arise'. Government adoption of emerging technology and social media requires regulations and legislative acts to deal with the changes that are caused by social media platforms. The regulations and legislation may vary, including electronic signatures, data protection, preventing crimes and social account hacking as well as the freedom of information act (Al-Shafi and Weerakkody, 2010). The legal and technical risks in terms of technology may expose governmental agencies to serious liabilities. Therefore, government requires legislative acts to be designed, developed and implemented to ensure a reliable and safe way of communication.

In the context of government, legal factors such as enabling or disabling constitutional and legislative frameworks, policies, rules and regulations, and mechanisms that simplify or discourage public participation also have a strong impact on building government's will towards the adoption of social media platforms. The success of the adoption of e-government is dependent on the government's role to ensure a legal framework for their operations (OECD, 2007). Government agencies must ensure recognition and clarification of all of the requirements for agencies implementing social media platforms. In various governmental agencies, laws made before the social media platforms existed can severely hinder the development and adoption of social media services. Governmental agencies must identify these legislative barriers and implement ways to reduce and remove them so that they can progress towards the adoption of technology based on the legislative framework.

Gilson et al. (2011) considered the political process as one of the most persistent influences in governmental organisations that influence organisational learning. In recent years, political factors such as modernization (high income per capita, high Internet speed, social media penetration), electoral pressure (to promote political activities) and transparency/democracy (direct communication) have significantly influenced the world's leaders to adopt social media platforms to communicate with both local and international audiences (Barbera and Zeitzoff, 2014). Therefore, it is argued that social media is an important political tool and world leaders are thus likely to adopt it to maximize power and ensure their survival in office (Barbera and Zeitzoff, 2014). These political factors highlight the risks for political leaders because political leaders working in democracies must be extremely sensitive to media and campaign coordination due to the risks of damaging their reputation (Howard, 2005; Shirky, 2011).

Awareness

The marketing and awareness campaign is very crucial to increase awareness about the importance of communication over social media platforms. According to Chordrie et al. (2005, pp. 565), 'the importance of e-government services is exploited and their benefits emphasised to the citizens' in such a campaign. The lack of awareness might prevent citizens from adopting social media as a communication channel with government agencies. Government agencies must promote their involvement with social media platforms to attract audiences and their participation (Al-Shafi and Weerakkody, 2010).

Schwab (2014) suggested the following best practices to enhance the awareness of using social media:

- Consistency: Government organisations should be consistent in their strategy.
- Deliberation: Government organisations should be deliberate in establishing their presence on social media platforms.
- Discipline: Government organisations should be disciplined to ensure frequent usage and maintaining the awareness.
- One point: Government organisations should ensure they get everyone on the same page about social media strategy.
- Evaluation: Government organisations should evaluate their practices regularly.

The government's interaction with citizens to increase awareness of its social media presence will not only help to motivate citizens but will also boost their confidence in adopting social media platforms. The lack of awareness to engage and communicate with citizens through social media platforms reflects a social issue in the e-government domain rather than merely a technical issue. It means that the use of high technology by government agencies is not sufficient for government agencies; they also need to understand the approaches to socializing in order to create awareness and motivate citizens. In addition, it is very important to use workshops and seminars to raise awareness among both employees and citizens.

Table 1 below tabulates factors that are relevant to social media adoption in e-Government. These factors form the bases of the four constructs (organisational influence, technological influence, legal and political influence and social influence) and also the derived hypotheses shown in Figure 2.

Factor	Description	References
Organisational Influence – Leadership	Integration of social media and government will only be practical if there are leaders that can exploit technology in order to enhance communication and relationships with citizens.	(Meije, 2012; Heeks, 2002; Ke and Wei, 2004)
Organisational Influence – Top Political Management	Top management who can draw social interest and provide benefits with their experience and expertise.	(Hofmann et al., 2013; Ndou, 2004; Khanh, 2014; Rahman, 2014)
Organisational Influence – Funding and Risks of Management, Maintenance and Engagement	Management and maintenance of social media accounts is one of the critical factors as it has a significant influence on communication, privacy and security.	(Mergel, 2013; Joseph, 2012; Kowtko, 2011; Chandramouli, 2011; Zheng, 2013; My Starbucks idea; General Mills Worldwide Innovation Network (G-WIN); Where Will Happiness Strike Next? from Coca-Cola; Challenges and Wants from Unilever
Organisational Influence – Organisational Change	A government often requires organisational change, including changes in organisational structure, culture, people and processes, in order to achieve an effective outcome.	(Picazo-Vela, 2012; Sandoval-Almazán et al., 2011; Schwalji and Aradi, 2013; Zheng, 2013; Guttormsen and Sæbø, 2013; Fyfe and Crookall, 2010; Winterstein et al., 2014)
Organisational Influence – Social Media Policies	Influence of policies (governmental / institutional policies) towards the adoption of social media platforms.	(Kingsley et al., 2013; Hisham et al., 2014)
Organisational Influence – Corporate Culture / Ethos	Administrative culture, organisational culture.	(Kingsley et al., 2013; Laurenson, 2014; Veltri and Elgarah, 2009; Bertot et al., 2010)
Organisational Influence – Learning	Opportunities to learn new skills, technologies and knowledge.	(Gilson et al., 2011)

Organisation		
Information Influence	The information disseminated or published on social media platforms can result in a negative reaction; therefore, it is crucial for governmental agencies to review information before publishing it to ensure it is reliable.	(Picazo-Vela et al., 2012; Bryer and Zavattaro, 2011)
Technological Capacity / Maturity	Organisation's ability to learn, promote and re-invent itself, including its technological scope and innovation.	(Lehmkuhl et al., 2013; Létourneau, 2014)
Technological Influence - Communication – A Route or a Barrier for Information / Misinformation	The communication with the public is one of the important tasks for government to convey activities, new services, changes in rules and regulations.	(Garvin, 2008; Hand and Ching, 2011; Coskunçay, 2013; Kavanaugh, 2012; Hofmann, et al., 2013; Hofmann, 2014; Joseph, 2012; Chun and Warner, 2010; Kavanaugh et al., 2012; Kaplan. and Haenlein, 2010; Heath et al., 2013)
Technological Influence on Privacy and Security Concerns – Legal and Political	Privacy, security and data accuracy concerns have been one of the major obstacles to influence many governments' decision to adopt social media.	(Bertot, 2010a; Sandoval-Almazán et al., 2011; Thomas, 2011; Gao et al., 2010; Stringhini et al., 2010; Hofmann, 2014; Magro, 2009; Azmi et al., 2012; Winterstein et al., 214; Borenstein, 2008; Al-Jenaibi, 2013)
ICT Infrastructure	The ICT infrastructure ranges from software to hardware, network devices, technical teams and support, network bandwidth and high availability.	(Kingsley et al., 2013; Sivarajah and Irani, 2013)
Social Influence – Social Representation	The social representation across different social platforms is a critical challenge as it requires additional resources, careful consideration and consistency of information, events, facts and figures, policies and major press releases across all the social platforms.	(Jones, 2013; Mergel, 2013)
Environmental Influence	This external factor incorporates the pressure, community interest, successful trends, stories from external communities and forces to adopt new technologies.	(Hisham et al., 2014; Nah and Saxton, 2012)
Economic Influence	Budget requirement to implement, support, manage and run social media platforms.	(Kuikka, 2011; Beneito-Montagut et al, 2013)
Legislation and Political Influence	In the context of government, legal factors such as enabling or disabling constitutional and legislative frameworks, policies, rules and regulations and mechanisms that simplify or discourage public participation also have a strong impact on building government's will towards the adoption of technology such as social media platforms.	(OECD, 2007; Barbera and Zeitzoff, 2014)
Awareness	The marketing and awareness campaign is very crucial to increase awareness about the importance of communication on social media platforms.	(Choudrie et al., 2005; Al-Shafi and Weerakkody, 2010)

Table 1: Social Media Adoption Factors for e-Government

A FRAMEWORK FOR EFFECTIVENESS OF SOCIAL MEDIA

Current development models and theories for e-government and Open Government Initiatives are more applicable in the context of Western countries than that of developing countries (Harrison et al., 2011) where adoption of emerging technologies has always been a challenge. Compared to developed countries, developing countries are lagging behind in the development and adoption of social media platforms and other emerging technologies. The underlying causes are the critical influencing factors from both governments' and citizens' perspectives as discussed above.

Very limited research studies have thoroughly investigated the challenges and barriers that governmental agencies are facing when implementing social media as part of their E-Government systems. Some of the existing work relates to studies conducted by Mergel (2012; 2013) to identify these challenges in The United States of America context and by Sivarajah (2012) to identify them in the context of the UK. These authors have broadly identified the following three generic categories of the factors that impact the governments' and citizens' decision to adopt social media as a mode of communication: organisational, technological and social factors. Nonetheless, within each of these categories, the specific factors can be context-dependent. In a study by Zheng (2013), the author examined the critical factors and challenges using a qualitative and inductive approach in the context of the Chinese government. The author revealed the need to enhance organisational capabilities in order to meet public demands in this social media age. The study was limited to a single government agency with a focus on micro blogging as a social medium to disclose government information, provide public services, respond to crises and engage in stand-in communications between government and citizens. Therefore, while Zheng's research lacks generalizability, it highlights the importance of organisational changes as critical factors towards the successful adoption of social media for government services. Sandoval-Almazán and colleagues (2011) explored the Mexican state's use of social media. Their findings revealed that only 400, 000 out of 100 million citizens are participating on social media. In addition, the use of Twitter has been discontinued by 20% of Mexican states. Authors in (Picazo-Vela, 2012) discussed the six perceived risks (general context, institutional framework, inter-organisation collaboration and networks, organisation structure and process, information and data, and technology) associated with social media success. With limited data from different participants who are social media users, only 250 public servants from Central Mexico are working in information technology. In Hofmann and colleagues' (2013) study, the use of social media (Facebook) by local government in largest cities in Germany has been explored. Based on a coding scheme derived using data from literature and interviews with experts, it is analysed that public administration scarcely make use of the social media as a communication channel. The identified results has been limited to few cities hence lack the generalization but demand a deeper study to understand and identify management barriers towards social networks use by government / public administration.

Hisham and colleagues (2014) focused on the context of a local government in Australia and provided insights into management drive and social media policies which fostered the adoption of social media policies. The policies and guidelines in an organisation are the biggest challenges as they dictate how social media should be adopted and who should be able to use it, as well as how strict we should be with it (Hisham et al., 2014).. The successful trending stories of adopted social media services can have a significant impact on the adoption of social media platforms. These will provide best practices that will help support organisations who are planning to adopt these platforms to observe, understand and explore feasible opportunities (Hisham et al., 2014).

Given these arguments and conclusions, our research project attempts to fill this gap through the development of a comprehensive conceptual framework that identifies the efforts and challenges faced by government agencies in implementing social media. This research seeks to contribute on both the theoretical and empirical level towards enhancing the understanding of the role and significance that social media can play in the field of E-Government. On the theoretical level, the project proposes a new conceptual model that comprehensively identifies the factors that impact the adoption of social media as a communication channel. The product framework is hoped to help the decision makers in government agencies to better understand and therefore make better decisions regarding the implementation of

social media technologies. The proposed model can guide the governmental agencies to identify the potential opportunities and risks associated with implementing social media technologies as part of the E-Government system.

Over the past few decades, various technological theories and models have been used to scrutinize critical factors that influence the adoption of emerging technologies. These technology acceptance theories can be divided into two broad categories or levels: the individual level and the organizational level.

Theories at the Individual Level of Adoption

Theories and models examine the individual's behavioural intention to adopt technology; these models include the Technology Acceptance Model (TAM) (Davis et al., 1989), the Theory of Planned Behaviour (TPB) (Ajzen, 1985), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), the Theory of Planned Behaviour (TPB) as an extension of TRA (Ajzen, 1991) and the Diffusion of Innovations (DOI) (Moore & Benbasat, 1991). These theories and models have been considered in both developed and developing countries.

TAM has widely been used in theories to clarify the behaviour of end users. The TAM theory postulates two main constructs, perceived usefulness (PU) and perceived ease of use (PEOU), to explain a user's initial attitude towards the adoption of technology (Davis et al., 1989). In 2000, TAM was extended to TAM2 by Venkatesh and Davis. Their extension provides more determinants of PU, such as subjective norm, image (IMG), job relevance (JR), output quality (OQ) and result demonstrability (Venkatesh & Davis, 2000). Both PU and PEOU are hidden variables that relate to individual characteristics and the intention-to-use attitude. However, in the context of social networking platforms/social network sites, which are generally based on the concept of developing human relationships as opposed to traditional task-oriented systems, these two perception constructs are insufficient for explaining individuals' attitudes to use (Kwon & Wen, 2009). Therefore, for relationship-oriented systems, it is important to understand the role of social and emotional factors such as PEOU determinants and their impact on system adoption (Venkatesh, 2000; Venkatesh et al., 2003). The UTAUT theory, on the other hand, postulates the following four core constructs: performance expectancy, effort expectancy, social influence and facilitating conditions as direct determinants. Gender, age, voluntariness and experience are variables that serve as the key modifiers that affect the constructs (Venkatesh et al., 2003). Other models (including UTAUT) offer additional constructs together with the TAM model, but a broad assessment of these models suggests that similar constructs can be analysed in each of these models, such as usability (perceived ease of use of TAM, technical complexity of DOI, effort expectancy of UTAUT, etc.) (Kanat & Özkan, 2009).

Theories at the Organisational Level of Adoption:

Theories and models that exploit the adoption of technology by organisations examine the adoption through large aggregates, such as companies, business units, departments and governments (Fichman, 1992; Ozturk, 2010; Hisham et al., 2014). The theories have been useful for understanding technology acceptance and individual behaviour because validation and analysis helps leaders, top political management, designers, developers and supporting teams to implement best policies and practices.

Innovation Diffusion Theory (IDT)

The Innovation Diffusion Theory (IDT) proposed by Everest Rogers (1983) is the process by which a few members of a social system initially adopt an innovation and then, over time, more and more individuals adopt it until most of the members have made the switch (Rogers, 1983; Gulati & Williams, 2011). Rogers (1995) differentiated five types of adopters for innovation diffusion, namely innovators, early adopters, early majority, late majority and laggards. Rogers also identified five characteristics of innovation that influence the rate of diffusion (1983). These characteristics are relative advantage, computability, complexity, observability and trialability. The IDT model has been used for improvements in a variety of fields, such as agriculture and organizational environments (Tornatzky &

Klein, 1982). However, in the context of information systems, Moore and Benbasat (1991) adopted the IDT by refining a group of hypotheses that could be used to examine the individual perspective towards adopting technology. They added two additional factors to the original IDT model's five factors, namely image and voluntariness of use (Moore & Benbasat, 1991).

IDT can be applied to both individuals and organisations and is mainly affected by four elements, the innovation itself, communication channels, time and the social system. In a study by Gulati and Williams (2011), the adoption of social media platforms (Facebook, YouTube and Twitter) by candidates in U.S. Congress was investigated by exploiting IDT. They found that geographic proximity contagion and propensity to adopt campaign innovation technologies were important to the adoption of social media in a campaign. In addition, they found that the candidate's age has strong influence on the use of YouTube. IDP does have several limitations, however. For example, it was not developed to be openly applied to the adoption of new behaviours. In addition, it does not substitute a participatory and individual attitude for the adoption of social media platforms (DOI, 2013; Valente, 2010).

The Technology-Organization-Environment (TOE) Model

The TOE model, which was first introduced by Tornatzky and Fleischer (1990), has been a supportive tool for examining and understanding how organisations adopt technological innovations. The TOE framework exploits three elements:

- **The environmental context** (i.e., external forces, such as regulations and macroeconomic developments, competitors and access to resource supplied by others);
- **The organisation context** (i.e., size, scope, top management, centralized system, reinforcement, management structure and its complexity, human resource and its quality and resource availability); and
- **The technological context** (i.e., internal and external technologies relevant to an organisation) to influence technological adoption.

The TOE model is similar to Roger's (1995) IDT in the context of the organisation level. The three adoption predictor groups identified by Rogers were the characteristics of the leader (i.e., the attitude of the leader towards accepting change), internal characteristics of the organisation (i.e., size, scope, top management, centralized system, reinforcement, management structure and its complexity, human resource and its quality and resource availability) and the external characteristics of the organisation (Ozturk, 2010).

Over the years, TOE has been used to study various topics, such as the electronic–data interchange (Kuan & Chau, 2001), electronic business (Zhu, Kraemer, & Xu, 2003), enterprise resource planning software (Pan and Jang, 2008), e-government development (Srivastava & Teo, 2007) and innovation assimilation in e-business (Zhu, Kenneth, & Xu, 2006), with mixed constructive and nonvalidated results. Table 2 lists a few of these studies based the TOE model (Pudjianto & Hangjung, 2009). From the literature review, it is clear that most of the studies on the TOE framework have investigated technology adoption and diffusion in various research contexts but have not investigated and/or analysed the adoption of social media as a communication channel in the public sector. Table 2 below summarises the studies on the IDT and TOE framework available in the literature.

Theory	Constructs	Authors
IDT	Constituency, the strategic environment, organisational attributes and personal characteristics	Gulati and Williams, 2011
IDT	Relative advantage, computability, complexity, observability and trialability and individual	Rogers, 1983; Agarwal and Prasad,

	perceptions	1997
TOE framework	Technological context, organisational context and environmental context	Ozturk, 2010
TOE framework: Determinants of E-business and diffusion	IS infrastructure, IS expertise, organisational compatibility, expected benefits of e-business, competitive pressure and trading partner readiness	Hsiu-Fen Lin, 2014
TOE Framework: determinants of the adoption of ERP	IT infrastructure, technology readiness, size, perceived barriers, production and operations improvement, enhancement of products and services, competitive pressure and regulatory policy	Pan and Jang, 2008
TOE framework: IT diffusion	IT infrastructure, government regulation and promotion and IT management	Zhang et al, 2007
TOE framework: E-government development	ICT infrastructure, technology development, human capital, public institutions and macro economy	Srivastava and Teo, 2007
TOE framework: Web services adoption	Security concerns, reliability, deployability, firm size, firm scope and technological knowledge, perceived benefits, competitive pressure, regulatory influence, dependent partner readiness and trust in web service provider	Lippert and Govindranajulu, 2006
TOE framework: Innovation assimilation in e-business	Technology readiness, technology integration, size, global scope, managerial obstacles, competition intensity and regulatory environment	Zhu et al, 2006
TOE framework: Determinants of e-commerce use	Technology resources, perceived benefit, lack of organisation compatibility, financial resources, firm size, external pressure, government promotion and legislation barriers	Gibbs and Kraemer, 2004
TOE Framework: EDI Adoption	Perceived direct benefits, perceived financial cost, perceived technical competence, perceived industry pressure and perceived government pressure	Kuan and Chau, 2001

Table 2: Brief Taxonomy of Existing Theories

As discussed above, a wide range of theories have identified constructs and relationships that influence the adoption of social medial platforms on both the individual and organisational levels. Therefore, this study utilizes the TOE model to examine social media adoption at the organisational level from the governmental perspective. The proposed framework as shown in Figure 4 will examine and predict governmental intentions to use social media platforms as a communication channel to communicate with citizens.

Our proposed framework for assessing the effectiveness of the use of social media in e-government is shown in Figure 2, where a number of hypotheses act as validation models for assessment and provide key practice indicators for the e-government adopters.

Figure 2: A Framework for the Adoption of Social Media in Government Agencies

Figure 2 shows the proposed framework based on the TOE model to examine the adoption of social media platforms in governmental agencies. The TOE framework has been identified as a supportive organisational-led approach in various studies (Zhu et al., 2003; Lin, 2006; Lippert & Govindrajulu, 2006; Scott, 2007; Borgman et al., 2013) for examining and understanding how organisations adopt technological innovations to compete and enhance their performance and efficiency. TOE considers both technological and non-technological aspects and is therefore seen as the perfect model for examining the adoption of technology at the organisational level. As discussed above, critical factors that influence the adoption of social media platforms as alternate communication channels with citizens are categorized as either internal or external factors. To examine and understand the risks, impact and benefits of the adoption of social media platforms, external and internal factors are further categorized into different types of critical factors and linked to independent constructs from the organisational, environmental and technological context of the TOE model for deeper examination and analysis.

The organisational construct plays an important role in the adoption of tools and technologies. The organisational context in the TOE framework can be exploited to understand various organisations' internal critical factors, such as leadership, top management, funding, management and maintenance, organisational changes, policies, corporate culture and learning concepts.

Hypothesis # H1 (Internal):

- **H1a:** Strong and positive leadership will help governmental agencies efficiently and effectively adopt social media platforms as a communication channel to communicate with citizens.

- **H1b:** A strong and positive top management will help governmental agencies adopt social media platforms as a communication channel to communicate with citizens.

- **H1c:** For the successful adoption of social media platforms, government organisations need funding for and management and maintenance of the adopted technology.

- **H1d:** An organisational change will positively influence governmental agencies towards adopting social media platforms as a communication channel to communicate with citizens.

- **H1e:** For the successful adoption and use of social media platforms, governmental organisations require a strong set of policies and regulations to put into practice.

- **H1f:** Corporate culture/ethos plays a critical role in the successful adoption and use of social media platforms, and therefore governmental organisations need to balance corporate culture.

- **H1g:** A learning organisational culture will positively influence governmental agencies to adopt social media platforms as a communication channel to communicate with citizens.

The environmental construct plays an important role in influencing organisations to adopt social media platforms and thereby enhance communication with end users. Critical factors, ranging from social representation to environmental influence, economical influence to legislation and political influence and awareness, can positively or negatively impact how governmental organisations infer the demand for innovation and its ability to capture resources towards the adoption of technology. The environmental, social, economic, legal and political risks surrounded by the environmental construct may expose governmental agencies to critical liabilities and therefore are more likely to influence government decisions to adopt social media tools.

Hypothesis # H2 (Internal and External):

- **H2a:** The validated and authenticated relay of information over social media platforms will positively influence the governmental agencies to enhance the social media platform integration as a communication channel to communicate with citizens.

- **H2b:** The government's social representation on social media platforms will have a positive influence on enhancing their communication with citizens and the adoption of social media platforms.

- **H2c:** The electoral pressure, competent environment among different government agencies will positively influence the government agencies to adopt and enhance the use of social media platforms to communicate with citizens.

- **H2d:** Learning from the surrounding environment will have a positive influence on the government towards the adoption of social media for government services to communicate with citizens.

- **H2e:** Economic conditions will have a positive influence on the government towards the adoption of social media for government services to communicate with citizens.

- **H2f:** The legal and political risks surrounded by the environmental construct may expose governmental agencies to critical liabilities and therefore are more likely to influence government decisions to adopt social media tools.

- **H2g:** An appropriate legislative act and its strong implementation will positively influence governmental agencies to adopt social media platforms as a communication channel to communicate with citizens.

- **H2h:** The government's approach to increasing awareness on social media platforms will enhance its communication with citizens and have a positive influence on the adoption of social media platforms.

The technological construct highlights the importance of existing technologies and the integration of new emerging technologies for the organisations. The lack of appropriate infrastructure, its misuse, lack of expertise and vulnerability to security attacks require deeper investigation, particularly regarding their influence on government agencies' adoption and use of social media. The existence and integration of technology and its infrastructure, the appropriate use of the technology to communicate and relay information and maintaining security acts to be motivate to adopt social media tools by organisations of all scales. Employees with relevant skills, technical knowledge and competence and a trustworthy approach to communicating with citizens are more likely to influence government decisions to adopt social media (Pudjianto & Hangjung, 2009).

Hypothesis # H3 (Internal and External):

- **H3a:** Social media maturity depends on the technological maturity that can be achieved by different levels of organisational visibility and endorsement, dominant usage patterns, usage of certain types of content and varying level of interaction with citizens and other public sector institutions.

- **H3b**: The use of social media offers a two-way communication platform between a government and its public, but it requires resources, expertise and communication skills to determine true, useful and relevant information that should be shared on social media to produce better citizen services.

- **H3c:** The ICT infrastructure is one of the building blocks for the adoption of any type of technology, including social media platforms.

- **H4d:** To ensure successful adoption of social media platforms, government organisations are required to ensure that adopting or upgrading their infrastructure will allow them to maintain their current level of service, reliability, privacy and data security.

The TOE framework has been identified as a supportive approach to examining and understanding how organisations adopt technological innovations to compete and enhance their performance and efficiency. As discussed above, the TOE-based framework (surrounded by three major constructs—technology, organisation and environment) influences the adoption of social media tools. The proposed model will help to identify both internal and external critical factors based on these constructs that are responsible for shaping the adoption of social media as a communication channel. The majority of the research studies in this area to date appear to have significant limitations and a lack of generalizability. The limitations of these studies are described as follows:

- Both quantitative and qualitative research approaches have a significant impact on the testing, analysis and validation of the hypothesis. The analysis of data collected from only one city, one group or one organisation might reflect different views than other cities, groups or organisations. Therefore, a generalised analysis is crucial that includes a diverse range and calibre of people on a wider scale to understand the influence of the various discussed factors on the adoption of social media as a communication channel.
- Both quantitative and qualitative research approaches have been considered during a single time period. However, data collected from government agencies may feature different responses at different times. This can have a huge impact on the testing and validation of hypotheses.
- The statistical analysis phase is crucial to understand and build a relationship between critical factors and their influence on the adoption and intention to use the social media. Statistical analysis is a massive field that provides a large number of approaches to data analysis. In the literature, the following approaches have been considered: structural equation modelling (SEM), partial least squares (PLS), regression and Cronbach's alpha.

The validation and analysis of the hypotheses discussed above for each of the critical factors that influence the adoption of social media platforms for two-way interaction with citizens will be carried out based on quantitative and qualitative approaches. A quantitative approach will be utilized to collect primary data. A survey questionnaire will be used to explain the phenomena by collecting data and analysing those using statistical methods. In the context of governmental agencies, different governmental organisations will be considered, and study samples will consist of leaders, top management and decision makers, IT staff and officers and non-IT junior and senior staff. The samples that will be considered will include authorities and critical business decisions to reflect the related critical factors that influence social media adoption, such as leadership, top management, funding, infrastructure, training, awareness, maintenance, policies, social, cultural, economic privacy and security. To validate the hypotheses and capture a generalized analysis, the following approach will be employed:

• **Consideration of Participants with Different Groups**: To validate the hypotheses and generalize the analysis, it is important to conduct surveys and questionnaire with participants from different groups. In the context of governmental agencies, to examine social media adoption, different governmental organisations and participants will be targeted.

• **Random Data Collection:** The participants' responses are of great importance. Therefore, a change in response may result to fail the hypothesis. To ensure the validity of the collected data, data will be collected from the same participants at random intervals. Gaps in the collection of data might show whether they have changed their opinions regarding the adoption and use of social media platforms.

CONCLUSION

Web 2.0 and its applications have been widely used to facilitate quick and easy communication and messaging to keep citizens and agencies informed of governmental activities. In addition to these basic tools, emerging Web technology has a lot to offer to fulfil the human needs which are the foundation for how we observe a product and make decisions about the product (Hassenzahl, 2003; Peedu and Lamas, 2011). The social media tools can be used by E-government to publish jobs and advertisements, promote services and events, seek feedback and cooperation from the public and collaborate with citizens and geographically diverse agencies to increase the usage of e-services and enhance the

transparency of and trust in government. The critical factors and hypothesis discussed above will play a significant role in understanding and analysing the adoption of social media in government agencies.

REFERENCE

Agarwal, R. & Prasad, J. (1997). The role of innovation characteristics and perceived voluntariness in the acceptance of information technology. *Decision Sciences*, *28*(3), 557–588.

Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, *50*, 179–211.

Ajzen, I. (1985). *From intentions to actions: A theory of planned behaviour*. Edited by Khul, J. and Beckmann, J. Springer-Verlag, and Berlin Heidlberg. New York Tokyo.

Ajzen, I., and Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

Akomode, J., Taleb-Bendiab, A., Evangelidis, A. and Taylor, M. (2002). *UML approach to risk assessment modelling for eGovernment*. Academic Conferences Limited.

Al-Jenaibi, B. N. A. (2013). Use of social media in the United Arab Emirates: An initial study. *Global Media Journal, Arabian Edition*, *1*(2), 3–27.

Alomari, M.K., Woods, P., and Sandhu, K. (2012). Predictors for E-government adoption in Jordan: Deployment of an empirical evaluation based on a citizen-centric approach. *Information Technology & People, 25* (2), 207–234.

Al-Shafi, S., and Weerakkody, V. (2010). *Factors affecting e-Government implementation and adoption in the State of Qatar*, European and Mediterranean Conference on Information Systems.

Barbera, P., and Zeitzoff, T. (2014). *The empirical determinants of social media adoption by world leaders and its political consequences*. Working Paper (Available Online: https://files.nyu.edu/pba220/public/barbera-zeitzoff-apsa-2014.pdf>

Bayo-Moriones, A., and Lera-López, F. (2007). A firm-level analysis of determinants of ICT adoption in Spain. *Technovation*, *27*(6–7), 352–366.

Beneito-Montagut, R., Shaw, D., Anson, S., and Brewster, C. (2013). *Governmental social media use for emergency communication*. Proceedings of the 10th International ISCRAM Conference – Baden-Baden, Germany.

Bertot, J. C., Jaeger, P. T., and Grimes, J. M. (2010). Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. *Government Information Quarterly, 27*(3), 264–271

Bertot, J. C., Jaeger, P. T., Munson, S., and Glaisyer, T. (2010a). Engaging the public in open government: The policy and government application of social media technology for government transparency. *IEEE Computer*, *43*, 53–59

Borgman, H. P., Bahli, B., Heier, H., & Schewski, F. (2013). Cloudrise: Exploring cloud computing adoption and governance with the TOE framework. *46th Hawaii International Conference on System Sciences*, Wailea, HI, USA.

Bryer, T. A., and Zavattaro, S. M. (2011). Social media and public administration. *Administrative Theory & Praxis*, *33*(3), 325–340.

Canaves, S. (2011). China's social networking problem. *IEEE Spectrum*, 48(6), 74–77.

Chandramouli, R. (2011). Emerging social media threats: Technology and policy perspectives. Second Worldwide Cybersecurity Summit (WCS), vol., no., pp. 1, 4.

Chang, A.-M., and Kannan, P. (2008). *Leveraging Web 2.0 in government*. IBM Center for the Business of Government.

Choudrie, J., Weerakkody, V. and Jones, S. (2005). Realising e-government in the UK: Rural and urban challenges. *Journal of Enterprise Information Management*, *18*, 568–585.

Chua, Lee, and Goh, D.H. (2010). Resource discovery through social tagging: A classification and content analytic approach. *Online Information Review*, *33*(3), 568–83.

Chua, A. Y., Goh, D. H., and Ang, R. P. (2012). Web 2.0 applications in government web sites: Prevalence, use and correlations with perceived web site quality. *Online Information Review*, *36*(2), 175–95.

Chun, S. A., and Warner, J. (2010). Finding information in an era of abundance: Towards a collaborative tagging environment in government. *Information Polity*, *15*(1), 89–103.

Coskunçay, D. F. (2013). Identifying the factors affecting users' adoption of social networking. International Journal of Human Computer Interaction (IJHCI), 4(1), 1–18.

Davis, F., Bagozzi, R., and Warshaw, P. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science* (35:8), 982–1003.

Deschamps, R., McNutt, K., and Zhu, W. (2012). *Environmental scan on social media use by the public sector*, s.l.: Graduate School of Public Policy, University of Regina

DOI. (2013). Diffusion of Innovation Theory, Behavioural Change Model. Boston University School of Public Health. Available online: http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/SB721-Models/SB721-Models4.html>

Ely, R. J. (1994). The effects of organizational demographics and social identity on relationships among professional women. *Administrative Science Quarterly*, *39*(2), 203–238.

Estrada, L. (2013). *Overcoming the obstacles to social media adoption, learning & development*. Available online: http://www.astd.org/Publications/Blogs/L-and-D-Blog/2013/04/Overcoming-the-Obstacles-to-Social-Media-Adoption>

ETarget. (2011). *The social break-up*, Exact. Available online: http://www.exacttarget.com/resources/SFF8.pdf, Accessed July 2014>

Fichman, R. G. (1992). Information technology diffusion: A review of empirical research, *The Thirteenth International Conference on Information Systems*, Dallas, Texas.

Fyfe, T., and Crookall, P. (2010). Social media and public sector policy dilemmas, IPAC. *The Institute of Public Administration of Canada*. Available Online: http://www.mikekujawski.ca/ftp/SocialMediaPublicSectorPolicyDilemmas.pdf>

Gao, H., Hu, J., Wilson, C., Li, Z., Chen, Y., and Zhao, B. Y. (2010). *Detecting and characterizing social spam campaigns*. In Proceedings of the 10th ACM SIGCOMM conference on Internet measurement, ACM, New York, NY, USA, PP. 35–47.

Garcarz, W., Chambers, R., and Ellis, S. J. (2003). *Make your healthcare organisation a learning organisation*. Radcliffe Medical press ,Abingdon.

Garvin, P. (2008). Government sociability. *Searcher*, *16*(10), 46–49.

Gilson, C., Dunleavy, P. and Tinkler, J. (2011). *Organizational learning in government sector organizations: Literature review*. A report to the National Audit Office from LSE Public Policy Group, http://www.nao.org.uk/wp-content/uploads/2009/02/n0809129_Literature_review.pdf

Gibbs, J. K., & Kraemer, K. L. (2004). A cross-country investigation of the determinants of scope of e-commerce use: An institutional approach. *Electronic Markets*, *14*(2), 124–137.

Gulati, J., & Williams, C. B. (2011). Diffusion of innovations and online campaigns: Social media adoption in the 2010 US congressional elections. *Available at SSRN 1925585*.

Guttormsen, C., and Sæbø, O. (2013). Municipalities 'like' Facebook: The use of social media in local municipalities. Organizational Change and Information Systems, Lecture Notes in Information Systems and Organisation, *Springer Berlin Heidelberg*, *2*, 157–166.

Hand, L.C., and Ching, B.D. (2011). You have one friend request: An exploration of power and citizen engagement in local governments' use of social media. *Administrative Theory & Praxis*, *33*(3), 362–382.

Harrison, T. M., Guerrero, S., Burke, G. B., Cook, M., Cresswell, A., Helbig, N., Hrdinová, J., and Pardo, T. (2011). Open government and e-government: Democratic challenges from a public value perspective. In Proceedings of the 12th Annual International Digital Government Research Conference: Digital Government Innovation in Challenging Times, ACM, New York, NY, USA, 245–253

Harvey, K. (Ed.). (2014). *Encyclopedia of social media and politics*. SAGE Publications.

Hassenzahl, M. (2005). The thing and I: Understanding the relationship between user and product. In *Funology* (pp. 31–42). Springer Netherlands.

Heath, D., Singh, R., Ganesh, J., and Kroll-Smith, S. (2013). *Exploring strategic organizational engagement in social media: A revelatory case*. In Thirty-Fourth International Conference on Information Systems, pp. 1–15. Milan

Heeks, R. (2002). *Government in Africa: Promise and practice, IN-Government working paper series, Institute for Development Policy and Management*, University of Manchester, Manchester, UK, pp. 1–26

Hisham, M., Sharif, M., Troshani, I., and Davidson, R. (2014). Adoption of social media services: The case of local government organizations in Australia. Handbook of Research on Demand-Driven Web Services: Theory, Technologies, and Applications. *IGI Global*, 2014. 287–303.

Hofmann, S. (2014). *Just because we can - Government's rationale for using social media*. Proceedings of the European Conference on Information Systems (ECIS), Tel Aviv, Israel.

Hofmann, S., Rackers, M., Beverungen, D., and Becker, J. (2013). *Old blunders in new media? How local governments communicate with citizens in online social networks*. 46th Hawaii International Conference on System Sciences (HICSS), pp. 2023–2032.

Hofstede, G. (1994). *Cultures and organizations: Software of the mind*. McGraw-Hill, New York.

Howard, P. N. (2005). Deep democracy, thin citizenship: The impact of digital media in political campaign strategy. *The ANNALS of the American Academy of Political and Social Science*, *597*(1), 153–170.

Hsiu-Fen Lin. (2014). Understanding the determinants of electronic supply chain management system adoption: Using the technology–organization–environment framework. *Technological Forecasting and Social Change*, *86*, 80–92.

Jeong, C. H. I. (2007). *Fundamental of development administration*. Selangor: Scholar Press. ISBN 978-967-5-04508-0

Jones, K. (2013). The growth of social media v2.0, Infographic, *Search Engine Journal* http://www.searchenginejournal.com/growth-social-media-2-0-infographic/77055/

Joseph, R.C. (2012). E-Government meets social media: Realities and risks. *IT Professional*, *14(*6), 9–15.

Kanat, I. E., and Özkan, S. (2009). *Explaining citizen adoption of government to citizen services: A model based on theory of planned behaviour (TBP)*. European and Mediterranean Conference on Information Systems, pp. 1–12.

Kaplan, A. M. and Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of social media. *Business Horizons*, 53(1), 59–68.

Kavanaugh, A. L., Fox, E. A., Sheetz, S. D., Yang, S., Li, L. T., Shoemaker, D, J., Natsev, A., and Xie, L. (2012). Social media use by government: From the routine to the critical. *Government Information Quarterly*, *29*(4), October 2012, 480–491

Ke, W., and Wei, K. (2004). Successful E-Government in Singapore: How did Singapore manage to get most of its public services deliverable online?. *Communications of the ACM, 47,* 95–99

Khanh, N. T. V. (2014). The critical factors affecting E-Government adoption: A conceptual framework in Vietnam. Computers and Society.

Kingsley, J., Adu-Manu, Sarpong, K., and Clement, Y. (2013). A conceptual framework for the Adoption of Social Network Technologies (SNTs) in Teaching – Case of Ghana. *International Journal of Computer Science Issues* (IJCSI); Sep. 2013, *10*(5), 70.

Kirkland, A. (2014). *10 countries where Facebook has been banned, XIndex*. Available Online: http://www.indexoncensorship.org/2014/02/10-countries-facebook-banned/>

Kowtko, M. (2011). *Securing our nation and protecting privacy*. IEEE Long Island Systems, Applications and Technology Conference (LISAT), pp. 1, 6

Kuikka, M. (2011). *Determining the challenges of organizational social media adoption and use*. 19th European Conference on Information Systems.

Kuan, K. K. Y., & Chau, P. Y. K. (2001). A perception-based model for EDI adoption in small businesses using a technology-organization-environment framework. *Information & Management, 38*(8), 507–521.

Kuzma, J. (2010). Asian government usage of Web 2.0 social media. *European Journal of ePractice* (9):1–13.

Kwon, O., and Wen, Y. (2010). An empirical study of the factors affecting social network service use. *Computers in Human Behavior*, *26*(2), 254–263

Lehmkuhl, T., Baumol, U., and Jung, R. (2013). *Towards a maturity model for the adoption of social media as a means of organizational innovation*. 46th Hawaii International Conference on System Sciences (HICSS), pp.3067-3076.

Létourneau, P. (2014). *Analyzing collaborative maturity to better integrate social technologies*, Ellicom. Available Online: http://ellicom.com/blogue/collaborative-learning/analyzing-collaborative-maturity-to-better-integrate-social-technologies/?lang=en#.VBnXe_ldWnE>

Liebelson, D. (2014). *MAP: Here are the countries that block Facebook, Twitter, and YouTube. Mother Jones*. Available online: http://www.motherjones.com/politics/2014/03/turkey-facebook-youtube-twitter-blocked>

Lin, C. Y. (2006). The adoption of innovative information technologies by logistics service providers in Taiwan, *International Journal of the Information Systems for Logistics and Management*, *1*(2), 89–97.

Lippert, S. K., & Govindarajulu, C. (2006). Technological, organizational, and environmental antecedents to web services adoption. *Communications of the IIMA*, *6*(1), 146–158.

Magro, M. J., Ryan, S. D., Sharp, J. H., and Ryan, K. A. (2009). *Using social networking for educational and cultural adaptation: An exploratory* study. In Americas Conference on Information Systems, San Francisco, California August 6th–9th.

Meije, A. J., Koops, B. J., Pieterson, W., Overman, S., and Tije, S. T. (2012). Government 2.0: Key challenges to its realization. *Electronic Journal of e-Government*, *10*(1), 59–69.

Mergel, I., Schweik, C., and Fountain, J. (2009). *The transformational effect of Web 2.0 technologies on government*. Available at SSRN: http://ssrn.com/abstract=1412796>

Mergel, I. (2012). The social media innovation challenge in the public sector. *Information Polity* 17 (3)PP281-92.

Mergel, I. (2013). Social media adoption and resulting tactics in the U.S. federal government, *Government Information Quarterly*, 30, 123–130.

Moore, G. C., and Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, *2*, 192–222.

Muylle, S., Moenaert, R., and Despontin, M. (2004). The conceptualization and empirical validation of web site user satisfaction, *Information & Management*, *41*(5), 543–560.

Nah, S., and Saxton, G. D. (2012). Modeling the adoption and use of social media by nonprofit organizations. *New Media & Society*, 1461444812452411.

Ndou, V. (2004). E-government for developing countries: Opportunities and challenges. Electronic Journal of Information Systems in Developing Countries, 18, 1–24.

NextGate. (2013). Research Report - 2013 State f Social Media SPAM. *A Publication of NextGate* Accessed: July, 2014, http://nexgate.com/wp-content/uploads/2013/09/Nexgate-2013-State-of-Social-Media-Spam-Research-Report.pdf>

Obama, B. (2011). Transparency and Open Government. [Online] Available at: http://www.whitehouse.gov/the_press_office/TransparencyandOpenGovernment [Accessed 17 July 2014].

OECD (2003). The case for e-government: Excerpts from the OECD report "The e- Government Imperative". *OECD Journal on Budgeting*, 52(1), 62–96.

OECD. (2007). *Implementing E-Government in OECD countries*: *Experience and challenges*. OECD.

Omari, A. (2013). Technology adoption in the Arabian Gulf countries. The Case of E-Government. *International Journal of Computer Science, Engineering and Information Technology*, *3*(3), 1–8.

Ozturk, A. B. (2010). *Factors Affecting Individual and Organizational Rfid Technology Adoption in the Hospitality Industry* (Doctoral dissertation, Oklahoma State University).

Pan, M., & Jang, W. (2008). Determinants of the adoption of enterprise resource planning within the technology-organization-environment framework: Taiwan's communications, *Journal of Computer Information Systems*, *48*(3), 94–102.

Peedu, G. and Lamas, D., (2011). *inu Viljandi: A case study on the effects of introducing web 2.0 features in eGovernment services on the overall user experience perception*. In Proceedings of the 5th International Conference on Theory and Practice of Electronic Governance (ICEGOV '11) Elsa Estevez and Marijn Janssen (Eds.), pp. 305–308.

Picazo-Vela, S., Gutiérrez-Martínez, I., and Luna-Reyes, L. F. (2012). Understanding risks, benefits, and strategic alternatives of social media applications in the public sector. *Government Information Quarterly*, *29*(4), 504–511,

Pfeffer, J. and Salancik, GR. (1978). *The external control of organizations*. New York, NY: Harper.

Pudjianto, B. W. & Hangjung, Z. (2009). Factors affecting e-government assimilation in developing countries, *4th Communication Policy Research, South Conference*, Negombo, Sri Lanka.

Ragowsky, A., Licker, P., and Gefen. D. (2014). *Organizational information technology maturity: Antecedent factors and consequent outcomes*. In Proceedings of the Sixteenth International Conference on Electronic Commerce (ICEC '14). ACM, New York, NY, USA.

Rahman, S., Rashid, N., Yadlapalli, A., and Yiqun, L. (2014). *Determining factors of E-Government implementation: A multi-criteria decision-making approach*. Pacific Asia Conference on Information Systems (PACIS), Proceeding Paper 302.

Rogers, E. M. (1983). *Diffusion of innovations* (3rd ed.). New York: The Free Press.

Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: The Free Press.

Sandoval-Almazán, R., Gil-Garcia, J. R., Luna-Reyes, L. F., Luna-Reyes, D., and Díaz-Murillo, G. (2011). The use of Web 2.0 on Mexican state websites: A three-year assessment. *Electronic Journal of e-Government*, *9*, 107–121.

Schwab, C. (2014). *Using social media to build brand awareness: Tips for IMPACT and beyond*, Charles SCHWAB. Available online: http://advisorservices.schwab.com/public/advisor/tools_resources/advisor_insights/using_social_media_to_build_brand_awareness_tips_for_impact_and_beyond.html>

Schwalji, W., and Aradi, W. (2013). *An Arab Open Government Maturity Model for social media*, Tahseen Consulting.

Scott, J. E. (2007). An e-transformation study using the technology–organization–environment framework, *20th Bled eConference, eMergence: Merging and Emerging Technologies, Processes, and Institutions*, Bled, Slovenia.

Selznick, P. (1957). *Leadership and administration.* New York: Harper Collins.

Sivarajah, U., and Irani, Z. (2013). A theoretical model for the application of Web 2.0. In E-Government, European, Mediterranean & Middle Eastern Conference on Information Systems, Windsor, United Kingdom.

Sivarajah, U., and Irani, Z. (2012). Exploring the application of web 2.0 in e-Government: A United Kingdom context. In Transforming Government Workshop.

Soliman, K. S., and Janz, B. D. (2004). An exploratory study to identify the critical factors affecting the decision to establish Internet-based interorganizational information systems. *Information & Management, 41*(6), 697–706.

Solis, B. (2010). *Engage: The complete guide for brands and businesses to build, cultivate, and measure success in the new web*. Wiley.com.

Srivastava, S. C., and Teo, T. S. H. (2009). Citizen trust development for e-government adoption and usage: Insights from young adults in Singapore. Communications of the Association for Information Systems, 25 (31), 359–378.

Srivastava, S. C., & Teo, T. S. (2007). E-government payoffs: Evidence from cross-country data. *Journal of Global Information Management (JGIM)*, *15*(4), 20-40.

Stringhini, G., Kruegel, C., and Vigna, G. (2010). *Detecting spammers on social networks*. In Proceedings of the 26th Annual Computer Security Applications Conference. ACM, New York, NY, USA, 1–9.

Thomas, K. (2013). *The role of the underground economy in social network spam and abuse* (Doctoral dissertation, UNIVERSITY OF CALIFORNIA, BERKELEY).

Tornatzky, L. G., & Klein, K. J. (1982). Innovation characteristics and innovation adoption implementation: A meta-analysis of findings. *IEEE Transactions on Engineering Management*, *29*, 28–45.

Tornatzky, L. G. & Fleischer, M. (1990). *The processes of technological innovation*. Lexington, MA: Lexington Books.

UAE, (2014). United Arab Emirates Population 2014, World Population Review. Available online: http://worldpopulationreview.com/countries/united-arab-emirates-population/>

Valente, T. W. (2010). *Social networks and health: Models, methods, and applications*. New York: Oxford University Press.

Veltri, N. F., and Elgarah, W. (2009). *The role of national cultural differences in user adoption of social networking*. Proceedings of the Southern Association for Information Systems Conference, Charleston, SC.

Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly* (27:3), 425–478.

Venkatesh, V. and Davis, F. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 2000*, *45(*2): 186–204.

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, *11*(4), 342–365.

Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425–478.

Winterstein, D., Yagan, G., Ataya, L., Trabulsi, P., Al-Assi, R., Shaaban, H., Bukattara, S. (2014). Citizen Engagement and Public Services in the Arab World, The potential of Social Media, 4th Edition, Mohammeed Bin Rashid School of Government, <Available Online: http://www.mbrsg.ae/getattachment/e9ea2ac8-13dd-4cd7-9104-b8f1f405cab3/Citizen-Engagement-and-Public-Services-in-the-Arab.aspx>

Zhang, C., Cui, L., Huang. L., & Zhang, C. (2007). Exploring the role of government in information technology diffusion, organizational dynamics of technology-based innovation: Diversifying the research agenda. *IFIP International Federation for Information Processing*, *235*, 393–407.

Zheng, L. (2013). Social media in Chinese government: Drivers, challenges and capabilities. *Government Information Quarterly*, *30*(2013), 369–376.

Zhu, K., Kraemer, K. L., & Xu, S. X. (2003). Electronic business adoption by European firms: A cross-country assessment of the facilitators and inhibitors. *European Journal of Information Systems, 12*(4), 251–268.

Zhu, K., Xu, S., & Dedrick, D. (2003). Assessing drivers of e-business value: Results of a cross-country study. *24th International Conference on Information Systems*, Seattle, Washington.

Zhu, K., Kenneth, K. L, & Xu, S. (2006). The process of innovation assimilation by firms in different countries: A technology diffusion perspective on e-business. *Journal of Management Science, 52*(10), 1557–1576.

Further Reading

Ahlqvist, T., Bäck, A., Halonen, M., and Heinonen, S. (2008). *Social media roadmaps*. Helsinki: Edita Prima Oy.

Agarwal, P. R. (2012, February). *Semantic Web in comparison to Web 2.0. In Intelligent Systems, Modelling and Simulation (ISMS),* 2012 Third International Conference on (pp. 558–563). IEEE.

Alawadhi, S., Kesan, J. P. and Skoric, M. M., (2014). *Introduction to social media and social networking and government minitrack*. 47th Hawaii International Conference on System Sciences (HICSS), pp. 2220, 2220

Bonsón, E., Torres, L., Royo, S., and Flores, F. (2012). Local e-government 2.0: Social media and corporate transparency in municipalities. *Government Information Quarterly*, *29*(2), 123–132.

Budak, C., Agrawal, D., and El Abbadi, A. (2011, March). *Limiting the spread of misinformation in social networks*. In Proceedings of the 20th international conference on World Wide Web (pp. 665–674). ACM.

De Kool, D., and Van Wamelen, J. (2008, April). *Web 2.0: A new basis for e-government?. In Information and Communication Technologies*: From Theory to Applications, 2008. ICTTA 2008. 3rd International Conference on (pp. 1–7). IEEE.

DiMaio, A. (2009). *Government 2.0: A gartner definition*. Retrieved July, 1, 2011.

Gotze, J., and Pedersen, C. B. (Eds.). (2009). *State of the eUnion: Government 2.0 and onwards*. AuthorHouse.

Joseph, R. (2009). A theoretical framework for Government 2.0 in developing and emerging economies. *Issues in Information Systems*, *10*(2), 349–354.

Khasawneh, R. T. and Abu-Shanab, E. A., (2013). EGovernment and social media sites: The role and impact. *World Journal of Computer Application and Technology*, *1*(1), 10–17.

Landsbergen, D. (2010, June). Government as part of the revolution: Using social media to achieve public goals. In *Proceedings of the 10th European conference on e-government* (pp. 243–250).

McDermott, I. E. (2007). All a-twitter about Web 2.0: What does it offer libraries?. *Searcher*, *15*(9).

Macintosh, A., and Whyte, A. (2008). Towards an evaluation framework for eParticipation. transforming government. *People, Process and Policy*, *2*(1), 16–30.

Taylor-Smith, E., and Lindner, R. (2010, May). *Social networking tools supporting constructive involvement throughout the policy-cycle*. In Proceedings of 2010 4th International Conference on Electronic Democracy, Centre for E-Government.

Veljković, N., Bogdanović-Dinić, S., and Stoimenov, L. (2012). Building EGovernment 2.0 – A step forward in bringing government closer to citizens. *e‑government* 1 (1989).

KEY TERMS AND DEFINITIONS

Government 2.0:

What is meant by Government 2.0 is the transformation of the governing system into a system that welcomes the use of innovative mechanisms alongside old ones; that makes changes in workers' or service providers' ways of thinking and that enhances the processes that allow the government to function in a more transparent, cooperative and interactive way. This will allow the public to get access to the information and services distributed on the government's website more effectively and quickly. The term 'Government 2.0' is drawn from Web 2.0, which means the technological tools that enable people to discuss and share information over the Internet.

Open government:

Open government could be defined as the governing policy that gives the public the right to access the government's documents and discussions to enable people to supervise the proceedings of the government effectively. The ultimate objective of open government is to oppose any effort by the state to consider its documents top secret.

Web 2.0:

Web 2.0 was introduced by Sir Tim Berners-Lee who defines it as a 'collaborative medium', i.e. a place where people can get together to share what they read and write. There is a difference between Web 2.0 and Web 1.0.

Social media:

This term refers to websites and applications that allow users to post and share different kinds of information or images, as well as allowing them to join social networking.

Adoption:

Adoption is the decision to apply or follow an idea, technique or process. The adoption of new technologies is a reasonable process advised by institutional consultants to provide an outline for checking relationships within a particular environment, organisation, structure and approach.

Public sector:

They are the organisations which the government (or local government) own and control. Their aim is to supply people with public services. Most of the time, these services are delivered for free.

Organisational change:

This term refers to an organisation which is taking transformational measures. It is the process in which either the strategies of the organisation or one of its key sections go through changes. Other terms used to describe organisational change include 'reorganisation', 'restructuring' and 'turnaround'.

Technological maturity:

This term refers to technology that has been utilised for a long time where the majority of its primary errors and intrinsic problems have been conquered or reduced through further innovation. Technological maturity can be verified if it is user-friendly for both skilful and non-skilful users.

ICT infrastructure:

This is the infrastructure that provides various technologies to boost the performance of organisations. The technologies provided through an ICT infrastructure are very important for mechanics to carry out their daily tasks and are vital for delivering reliable services. An ICT infrastructure covers hardware, software, networking and implementation.

Environment influence:

This term refers to external conditions or settings related to where individuals live or work.

Policy:

This is a strategy that aims at directing decision makers to achieve reasonable results. It is a document that includes what organisations intend to do and it is used as a procedure or code of behaviour. Polices are normally adopted by the highest administrative body of the organisation, such as the Board of Directors, while procedures and codes are produced and followed by highly-placed managerial officers. They can be very helpful in decision making.

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