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A QUALITATIVE STUDY OF THE ADOPTION AND USE OF TWITTER: AN OMAN PUBLIC SECTOR (12)

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Abstract

This research in progress paper aims to explore, and understand how Twitter is adopted, used and diffused in the public sector of a developing country, Oman. For this purpose, the theoretical foundations of the conceptual framework to be applied to this research study are provided. A concluding section draws the paper to a close. The contributions of this research to academia, industry and policymakers are also provided.

Keywords: Oman, e-government, Twitter, Techno stress, Institutional theory, Online Social Networks

1.0 Introduction

The rapid development of Information and Communication Technologies (ICTs) in the 21st century has changed society. ICTs, for those unfamiliar to the nature of the technologies comprise three forms: the artefacts or devices used to communicate or convey online information ; the activities and practices in which people engage to communicate or share information; and the social agreements or organizational forms that develop around the devices and practices (Lievrouw and Livingstone 2006). ICTs have transformed countries functioning of their social and work activities such that they have been recognised as important for economic development and growth (Margetts 2006; OECD 2015). As a result, there has been a significant rise in the availability of ICTs around the globe, including in developing countries (Avgerou and Li 2013). Particularly in developing countries due to their developmental potential (Walsham and Sahay 1999). It has been argued that ICTs could have tremendous administrative 'potential' for governments and the public sector in general (Heeks 2001). This 'potential' is considered to be a natural extension of the technological revolution that has accompanied the knowledge society, which is known as electronic (e) government.

A recent phenomenon causing changes in public and private sector organizations and society alike, are Online Social Networks (OSN) in the form of, for instance, Facebook, Twitter and LinkedIn (Mansour 2012). Research has indicated that there is still a need to understand the use and adoption of Twitter for other purposes other than to provide a voice for citizens for political engagements. Magro (2012) provided a timeline of e-government research and OSN where recommendations were made for research in the areas of objectives and strategy, categorization of e-government applications, and policy-making. Finally, Twitter use is still growing as online platforms and applications such as, Twitter and Facebook's use and adoption are being realised by organizations and society alike, which warrants further research into its adoption and use. This motivated us to understand and explore the adoption and use of OSN in a country, which led to the formation of the aim: **To explore, and understand how Twitter is adopted, used and diffused in the public sector of a developing country, Oman**.

The contribution of this research for academia is considered to be an understanding and explanation for the adoption, use and diffusion of OSN in a developing country, which in the case of Oman and for e-government research is amiss. For industry, this study understands and explains how public sector organizations in the Gulf region utilise OSN. OSN are provided by high speed internet products and services that are offered by usually, private sector internet service providers, web developers and other private sector organizations; hence this research explains of the outcomes of the high speed internet services. For policymakers, this research explains and understands the adoption and use of implemented policies and strategies by the public sector. To inform readers, the next section provides the theoretical foundations of this study, which is followed by a conclusion.

2.0 Theoretical Background

2.1 Understanding Twitter

Twitter is a microblogging services medium developed in March 2006, with more than 319 million active users as of 4th quarter of 2016 and continues to grow (Statista 2016). Users of Twitter can tweet about any topic within the 140-characters limit and can follow other users to receive their tweets instantly, but not require them to follow back. Being a follower on Twitter allow user to receive all the messages (called tweets) from those the user follow. Common practice of responding to a tweet has

evolved into well-defined markup culture, for example RT stands for retweet, '@' followed by a user identifier address the user, and '#' followed by a word represents a hashtag. This well-defined markup vocabulary combined with a strict limit of 140 characters per posting conveniences users with brevity in expression. The retweet feature allows users to spread information of their choice beyond the reach of the original tweet's followers. Once retweeted, a tweet gets retweeted almost instantly on next hops, signifying fast diffusion of information after the 1st retweet (Kwak et al. 2010).

2.2 E-Government and OSN/Social Media (SM) Research

OSN are being utilised globally, but more so within the developing countries where countries such as, Saudi Arabia have an estimated 82% of the citizens using OSN. This is closely followed by India and Brazil at 81% and United Arab Emirates (UAE) at 79%. On the other end of the spectrum, lower users of OSN were from developed countries such as, United States of America (USA) at 45%, United Kingdom (UK) at 40% and Germany at 33% (Accenture 2014). Within the Middle East region including the Gulf countries, OSN have become very prominent within the e-government research domain due to their imperative role in the so called 'Arab Spring' of 2011. It is widely believed and suggested that OSN led to the public uprising of the Arab world (Al-Debei et al. 2013; Al Omoush et al. 2012; Salim and Mourtada 2012).

In the context of this study, Oman, 46% of government institutions are using some sort of social media and 54% of them are not using any sort of social media at all (Al-Badi 2014). A subsequent study of the adoption of OSN within Omani public sector organizations found that half of the government agencies do not use social media to reach their users. Furthermore, the study stressed that these government agencies are still utilizing classic communication channels to provide services to their citizens, which leads to a reduction in the quality of such services (Al-Wahaibi et al. 2015).

This phenomenon is being extensively researched in Arab countries where interest is focused on the central role that OSN have played in the political information sharing and exchange of information in Arab countries (Lotan et al. 2011; Stepanova 2011). However, what has also been learnt is that OSN can promote exclusion due to governments not providing the required infrastructure for access to the internet and for the provision of OSN. For example, not creating new organizational units to manage newly created e-participation channels, and also to analyse the large quantities of both structured data (e.g., citizens' rankings and ratings) and

unstructured data (e.g., citizens' postings in textual form) that will be created by them (Charalabidis and Loukis 2011). What is also essential to note is that OSN in many cases is not a replacement of e-government but rather used as an additional way of complementing current available government communication tools (Mergel 2013).

2.3 Technostress and ICTs

Public and private sector's organizations have adopted ICTs that have resulted in an increase of their productivity and services as well as a level of technology dependency that was not evident prior to the provision of online products and services (Colombo et al. 2013). Further, adopting these technologies has led many organizations to alter their structure, business processes, which have led to diverse interactions amongst and between individual, society and organizations (Morton 1995). This has led to employees constantly expecting to update their knowledge and adhere to the adoption of a rapidly changing technological world (Ragu-Nathan et al. 2008).

With this in mind and as the development pace of these technologies grow; individuals are under pressure to keep up with it by renewing their knowledge and technical skills, as well as to overcome the pressure that they are facing to keep their high productivity, and to meet the high expectation set by their employer. The adoption and use of e-government and OSN in public sector organization is contributing to this anxiety among employees. As a result many public sector organizations are seeing signs of technostress among their employees caused by the use and update use of ICT (Coklar and Sahin 2011; Hobbs 2002; Wang et al. 2008).

For those unfamiliar to the term, "technostress" is used to describe the fear caused by adopting computers as "a modern disease of adaptation caused by inability to cope with the new computer technologies in a healthy manner" (cited in Lee et al. 2012,p.2). Furthermore, technostress is viewed to be as a "state of arousal observed in certain employees who are heavily dependent on computers in their work" (Arnetz and Wiholm 1997 cited by Kumar et al. 2013 , p. 1). A more recent definition has been offered where technostress is defined as "a condition resulting from the inability of an individual to adapt to the introduction of and orientation of employees to a new technology" (Yu et al. 2009, p. 418).

In an organizational context, technostress can be described as the stress which the employee faces as the result of "application multitasking, constant connectivity, information overload, frequent system upgrades and consequent uncertainty, continual

relearning and consequent job-related insecurities, and technical problems" (Tarafdar et al. 2010, p. 303), resulting from the adoption and use of ICT in organization.

For Information Systems, Tarafdar et al. (2010) identified 3 categories for stressors (stressors represent factors that cause stress), Role stressors (that are due to role), Task stressors (which is due to task), and Technology stressors (which is due to the use of ICT). In this research we will be focusing technostress on technology stressors in the context of the adoption and use of OSN.

2.4 Institutional Theory, Regimes and E-Government

When considering E-government an online service or product is not the only issue of importance, the foundations that it is built on also need to be recognised. This led to the consideration of the institutional theory, where "the evolution of e-government is viewed to be a process of institutionalization" (Yang 2003, p. 437). The government is in fact seen to be "learning to govern online" (Mahler and Regan 2002). Institutions in turn are "multi-faceted, durable social structures, made up of social elements, social activities, and material resources (Scott 2001). Through the lens of institutional theory, there is an appreciation of the influence of context on ICTs and of the impact of other factors on their design and implementation for the provision of e-government (Luna-Reyes and Gil-García 2011). Institutional theory is largely more of an integrative approach that recognizes the importance of the context in which ICT are embedded, which helps to understand the influences of various factors on their selection, design, implementation, and use (Fountain, 2001, Gil-Garcia, 2005).

To study an e-government initiative, using institutional theory an investigation of the people-system interactions and the various historical processes as the social practices unfold is required, which, as an approach is similar to the interpretivist tradition (e.g.,Walsham 1995).

Institutional theory has been applied to the study of ICT in government settings where studies have drawn on previous disciplinary efforts particularly from sociology, economics, and political science (2007). A framework established using institutional theory is the Technology Enactment Framework (TEF) of Fountain (2001 (see Figure 1). In the framework, technology enactment focuses on the intersections between institutions, bureaucratic structures, and information technologies. The basic logic of TEF is that "objective technologies" are shaped by organizational forms and institutional arrangements to become "enacted technologies." Fountain (2001) explains that the enacted technology can be understood as the perception, design, and

use of objective technologies such as, the Internet and different pieces of hardware and software. (Cid and Gil-García 2004) propose that at the organizational level enacted technologies can be characterized as the features of the technology that are actually in place (they are included in the existing information system or systems) in contrast to all the features that could be potentially included (objective technology), but were not selected. The enacted technology produces certain organizational results or outcomes in terms of efficiency, effectiveness, and transparency, among others (Refer to Figure 1). Organizational forms include structural characteristics such as centralization, formalization and communication channels (Gil-García 2005). Other bureaucratic characteristics of the organizations are also included in this construct (Fountain, 2001). In contrast, institutional arrangements are laws, regulations, and other cognitive, cultural, or socio-structural constraints found in government contexts (ibid). The enacted technology and the subsequent organizational results also have an impact on the organizational forms and the institutional arrangements (ibid). Therefore, the TEF acknowledges the recursive nature of the relationships between organizations, institutions, and ICT.

For this research, the TEF will be used as follows: The provision of an online product or service and essential infrastructure by a government-E-government (Objective Information Technologies) leads to the offering of Twitter. Twitter is then the enacted technology that affects the organizational forms. The organizational forms are the main units of analysis for this study as we consider the adoption and use of and Technostress issues associated with Twitter, which in turn, affects the institution and provides a different outcome to a world.

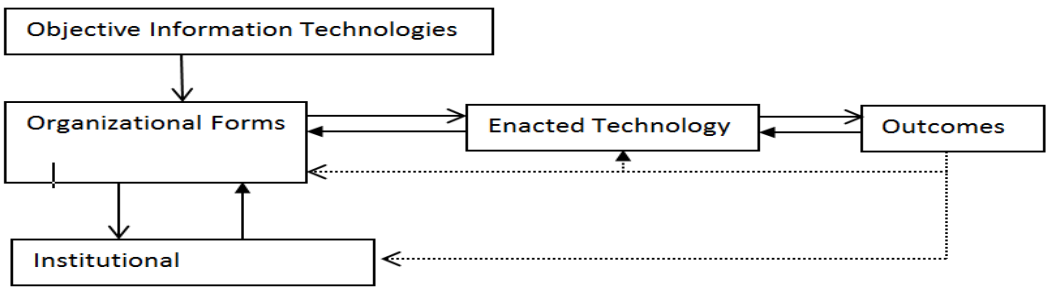

Figure 1. The Technology Enactment Framework. Source: Fountain (2001).

Within the context of e-government, institutional theory can help in identifying the challenges when implementing an e-government project.

2.5 Adoption, Use and Diffusion Theories

To consider the wider application of an OSN in society, the citizen aspect is also crucial, which led to the research team to consider the use of the classic theories of acceptance, use and diffusion of technologies (shown in Figure 2 below). Classic theories include the Technology Acceptance Model (TAM). TAM predicts two constructs- perceived ease of use and perceived usefulness- which determine the actual usage of innovation. As the application of TAM increased and innovations of ICT occurred, an extended TAM or TAM2 was then developed to include other determinants that were key determinants of perceived usefulness and intention constructs usage (Venkatesh and Davis 2000). Along with TAM, the Theory of Reasoned Action (TRA) is applicable that we also considered being important for this research. This is due to TRA determining an individual's behaviour intentions from his/her actual behaviour, and this behaviour intention is determined by the attitudes of the individual and subjective norms. Therefore, to assess whether Twitter is being used we needed to determine whether individuals were using more due to for instance, their own experiences, or was it due to the influence of friends and family. The Decomposed Theory of Planned Behavior (DTPB) model is an extension of the Theory of Planned Behaviour (TPB), which was introduced by Ajzen in (1991) to examine technology adoption in the context of behaviour and social influence. The theory typically combines the belief structures into unidimensional constructs, which was useful for this research. The process of identifying the mentioned theories was important when forming the conceptual framework. This process was also viewed to be significant for building a deeper understanding of the factors that might influence ICT adoption (D'MacRedie and Mijinyawa 2011).

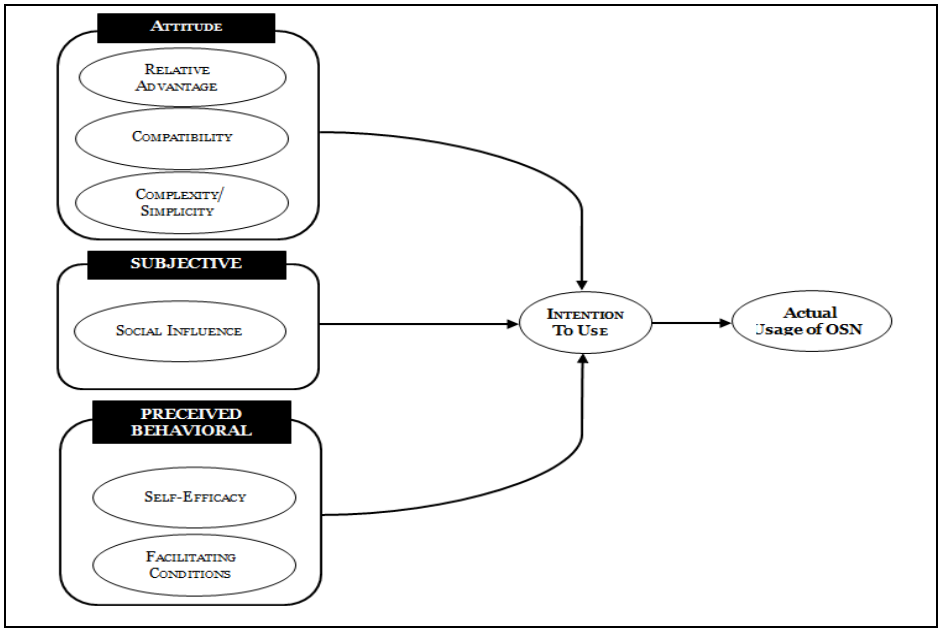

Figure 2. Preliminary Conceptual Model (PCM).

Having identified and discussed the theoretical foundations guiding this research in progress, the next section concludes this study.

3.0 Conclusion

This research in progress paper aims to explore, and understand how an OSN, Twitter, is adopted, used and diffused in the public sector of a developing country, Oman. To fulfil the aim, a qualitative approach and the data collection tools of observations, interviews and a multiple case study strategy will be used. A limitation could be that perspectives of organizations not considering Twitter could be discounted as at this point, organizations that have adopted Twitter have agreed to participate.

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