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Research paper



A Model on Multiple Perspectives of Citizens' Trust in using Social Media for E-Government Services

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Abstract

The lack of trust has a critical role in discouraging citizens to use social media for e-government services. Therefore, developing trust is an essential need for making citizens' comfortable to participate in government social media services. Majority of previous studies on the relationship with trust between government and people have been conducted on e-government websites. Those studies are quite narrow in terms of their scope to address multiple aspects of citizens trust. On the contrary, the context of using social media for e-government services has not received much attention by previous researchers. This study proposes an integrated model of trust from multiple perspectives with an objective to identify those factors that can influence citizens' trust in context of using social media as a technology for e-government services. The constructs in the proposed model were integrated from the trust literature and Technology Acceptance Model (TAM). The findings reveal individual characteristics, government factors, risk factors and social media characteristics as multiple antecedents of citizen's trust to use social media for e-government services. A research instrument was developed and validated to examine the proposed model. A pilot study was conducted, and the instrument was refined based on its results.

Keywords: *antecedents of trust; citizens trust, e-government; government social media; trust factors*

1. Introduction

In recent years the development of e-government services has migrated from static websites to social media, which is considered as part of Web 2.0 platform. Contrary to static government websites based on one-way interaction, social media provides more interactive features for citizens to understand e-government and serves as a two-way dialogue channel between government and public [1, 2]. Government organizations in different countries have started using social media to build closer ties with citizens and increase their participation in government services [3]. The statistics from the latest survey of United Nations reflect that irrespective of the development or region, 152 countries out of 193 (four out of five) offer social networking features on their national portals[4]. However, the efforts of government organizations and the potential value of social media for e-government services cannot be displayed without addressing citizens trust to participate in these services [1, 3].

Trust is a major concern that develops citizens willingness to participate with government and use its online electronic services [5, 6]. The literature has confirmed the significant role of trust in citizens' adoption of e-government service [7, 8]. However, there is limited prior focus on how to generate citizens' trust to participate in electronic government services [8]. In addition, majority of previous studies have been conducted on e-government websites. There are very limited studies in context of using social media as a technology for e-government services [1]. Despite of increased popularity in using social media by governments across the world, its acceptance among citizen's is still a serious issue and has not gained much attention in previous studies [9]. Though trust has been highlighted as an essential determinant for citizen-government engagement on social media [3, 10]. However, there is lack of studies to examine those factors that can influence citizen's trust to use social media for e-government services. There is a missing gap of research to provide a comprehensive model that integrates multiple perspectives of citizens trust that may influence their behavior to participate in government social media services. Based on the above discussion, this can be argued that winning citizens trust could be the first step to increase the level of citizens' participation in e-government services. Therefore, it is very important to identify those factors that can generate citizens' trust in context of using social media for e-government services. The investigation of citizens' trust enabling factors will enhance a better understanding of this problem. In addition, the results would also help to suggest valuable solutions to government organizations in policy making for successful implementation of government social media services. Therefore, this study will focus on two objectives. Firstly, to propose a model by identifying those factors that can influence citizens' trust from multiple perspectives in context of using social media for e-government services. Secondly, developing and validating a research instrument to empirically examine the proposed model. This study is organized as follows: The next section discusses the methodology of this study, followed by the findings from previous studies about citizens' trust aspects. The next section presents the research model and the developed instrument of this study. The pilot study and its results will be presented followed by a discussion section. Finally, the last section presents conclusion and limitations of this study.

2. Methodology

A literature review was carried out by searching through different electronic databases: that are ACM, Science Direct, IEEE, Scopus, Springer link, Taylors and Francis and Google Scholar. These

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databases provide the high impact full-text journals and conference proceedings, covering the fields of information systems in general and particularly on e-government and social media services. The Keywords were chosen in respect of factors Influencing Citizens Trust which include: "Trust Factors", "Citizens Trust", "e-government", "government social media", "social networking services". Initially 291 articles were identified through database searches. To conduct the review, a detailed analysis of each paper was carried out. The abstracts were read carefully to extract most relevant papers having a discussion of factors that may influence citizens trust to participate in government social media services. The duplicate studies, short papers and the articles based on implementation issues, strategies or challenges of government organizations were excluded from this study. Thus, 32 articles were selected which were more relevant about trust factors influencing citizen's behavior. The reference lists of selected articles were also scanned to identify any further relevant articles that were not found in the initial search. Thus, total number of 36 articles were found to meet the objectives of this study.

3. Findings

Previous studies have classified antecedents of trust in different ways. Gefen, Karahanna [11] classified them as calculative-based, institution-based, and knowledge-based trust. Kim, Ferrin [12] also investigated antecedents of trust in context of citizens transection on e-commerce websites and classified them as cognition-based trust, affect-based trust, experience-based and personality-oriented. Later, Kim [13] argued that initial trust can be built only by cognition-based trust, institutional based trust and personality-based trust and does not require previous experience. Based on previous studies Mou and Cohen [14] claimed that in majority of studies inclusion of vendor related factors, technology related factors, individual factors and risk concerns were found common to be considered in relationship with trust in government institutions and their online services. In context of e-government, majority of previous researchers have viewed antecedents of trust in terms of government and technological factors.[15, 16]. There are some studies that have mentioned perceived risk as an important perspective of citizens trust to use e-government websites [17-19]. Similarly, individuals' aspects such as their psychological disposition to trust has also been found important to influence their trust behavior to use e-government websites [20, 21]. There are very few studies that have addressed multiple perspectives of citizens trust in e-government services. For example Beldad, Geest [22] classified determinants of citizens trust in online environment as internet user based, organization based, and web based. In a recent study Alzahrani, Al-Karaghouli [8] categorized antecedents of trust in e-government in terms of technology, government factors, risk factors and individual aspects. However, those studies were limited on e-government websites which are based on general technological characteristics of internet. The focus of this study is in context of using social media as a technology to provide e-government services, contrary to the previous studies where Internet was used as a tool to provide services from government websites [8, 23]. As mentioned by Beldad, Geest [22] the characteristics of any technology have strong influence to trust in using that technology. Social media has more interactive features, involves a variety of information from various sources and is likely to be more sensitive and risky than e-government websites. Previous studies have highlighted trust as an essential determinant for making citizens comfortable in using social media for e-government services. [6, 10, 24]. For example Park, Kang [3] emphasized the importance of trust in encouraging citizens to interact with government organizations through social media. Another study by ALotaibi, Ramachandran [10] also reflected the significant impact of trust towards citizen's intention to use government social media services. Though previous studies have emphasized the need to build citizens trust on government social media services [2, 3]. However, there is very little understanding about the factors which can influence citizens trust to participate in these services. Thus, this can be argued that there is a need to investigate these factors to fill this literature gap. In this study antecedents or factors of citizens' trust are derived from previous literature and are categorized into multiple perspectives which are individual characteristics, government factors, risk factors and social media characteristics as illustrated in Fig. 1. These perspectives are with associated factors derived from the literature are discussed in this section.

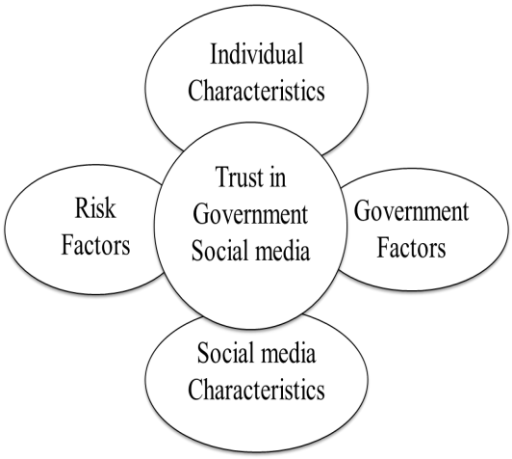

Fig. 1: Antecedents of Trust

3.1. Individual Characteristics

The citizens' characteristics and their beliefs influence their trust on other party [8, 22]. Disposition of trust refers the tendency to trust on other people/technologies. Some people have the tendency to trust on new innovations easily without having much knowledge about them, whereas some need to have complete information to place their trust on a new system. Many researchers have highlighted disposition of trust as an important contributor towards citizens trust in e-government [8, 24, 25]. Bélanger and Carter [25] stated that high level of disposition of trust increases trust and low level of disposition to trust decreases trust in initial phases of using a new system. Using social media for e-government services is still in the initial phases of development, therefore disposition of trust can have some impact on citizen's trust in using these services. This leads to the following hypothesis:
H1: Individual's disposition to trust influences their trust to use social media for e-government services.

Trust characteristics of individuals are also related to their cultural background. Xin, Techatassanasoontorn [26] argued that difference in culture has a strong influence on perception and development of citizens trust. Hofstede [27] identified five dimensions of cultural variation which are Power distance, Uncertainty Avoidance, Individualism vs. Collectivism, Masculinity vs. Femininity and Long term vs. Short term orientation. Among other dimensions, uncertainty avoidance has been found a more significant dimension to influence trust [26]. Srite and Karahanna [28] refer to uncertainty avoidance as the level of risk tolerated by individuals when they are in uncertain situations. Doney, Cannon [29] described a close relationship of culture and trust and justified a positive relationship of uncertainty avoidance in all of trust building processes. Uncertainty avoidance being mostly cited in relationship with trust has importance in this study due to the novel nature of using social media for e-government services. At the initial stage to use social media for government services, citizen's may have uncertainties about its functioning and uncertainties about faithful conduct of government organizations and social media technologies. They may perceive it risky to participate with government organizations by using this technology. Therefore, the relationship between uncertainty avoidance and trust in using government social media services warrants further investigation.

Based on the above discussion the following hypothesis is proposed:
H2: There is a direct effect of Uncertainty Avoidance on individual's trust to use social media for e-government services.

3.2. Government Factors

Trust in government and its institutions plays a significant role in citizens' adoption of e-government services [5, 8]. Previous studies have identified three distinct trust beliefs for the assessment of trustworthiness which are: Ability, integrity and benevolence [30]. Ability represents competencies or skills of government organizations to develop and use government social media services. Benevolence based trust is the belief that government organizations are concerned about citizen's interest and not just for their own interests. Integrity implies to government's honesty and promise keeping practices towards citizens [30, 31]. The researchers like, [11, 24] and Bélanger and Carter [25] have also confirmed Ability, Benevolence and Integrity as important attributes of perceived trustworthiness. Therefore, this can be argued that these government factors should directly affect citizen's trust in using social media for e-government services. This discussion leads to the following hypothesis:
H3: The ability of government organizations influences individual's trust to use social media for e-government services.
H4: The benevolence of government organizations influences individual's trust to use social media for e-government services.
H5: The integrity of government organizations influences individual's trust to use social media for e-government services.

3.3. Risk Factors

There is a strong correlation between risk and trust in using online government services [8]. Security and privacy have been identified most significant factors in context of using online government services [19, 32]. In context of social media privacy concerns are defined as a possible loss of privacy due to information disclosure to others on social media platforms. Security is another considerable risk that negatively effects individual's disclosure of information in social media services. Therefore, this study also considers security and privacy as antecedents of trust in using government social media services and proposes the following hypothesis:
H6: Privacy risk in using social media for e-government services influences individual's trust in these services.
H7: Security risk in using social media for e-government services influences individual's trust in these services.

3.4. Social Media Characteristics

According to Park, Choi [33], governments must understand the characteristics of social media technologies and utilize them appropriately to gain citizen's trust in government social media services. Structural assurance is an important technological factor that leads to the Institution based trust. Structural assurance represents that account and privacy settings and policies are designed and in place in the technology to keep user's information safe [30]. In context of using social media, government organizations post a lot of information about their services and other activities so there might be a need of structural assurance to attract citizens to participate. Therefore, the following hypothesis is proposed in this study:
H8: Structural assurances influences individual's trust to use social media for government services.
Information quality has been identified as an important antecedent to influence trust in using online services [23].Since there are variety of information on social media generated by multiple users. Therefore, this can be argued that reliable, relevant and timely information on government social media services can affect citizen's trust in using them. These arguments generate the following hypothesis:
H9: Information quality influences individual's trust to use social media for government services.
Perceived Ease of Use and perceived Usefulness are two main constructs in the TAM. Davis [34] stated that both of these perceptions shape the intention to use, which in turn shapes the actual use of the technology. Gefen, Karahanna [11] identified perceived ease of use as an antecedent of trust, trust as an antecedent of PU and a direct link of trust with user's intention to use online services. Similarly, Belanche, Casaló [35] also supported the significant relationship of perceived ease of use with usefulness and Trust in e- government services. This study also considers the significant relationships of TAM constructs with trust and intention to participate in government social media services. Therefore, the following hypothesis are proposed:
H10: Perceived ease of use influences individual's trust to use social media for e-government services.
H11: There is a direct effect of perceived ease of use on perceived usefulness to use social media for e-government services.
H12: Perceived ease of use influences individual's intention to use social media for e-government services.
H13: There is a direct effect of individual's trust on perceived usefulness to use social media for e-government services.
H14: Perceived usefulness influences individual's intention to use social media for e-government services.

4. Research Model and Instrument

This section presents the research model and the first version of the developed instrument.

4.1. Research Model

An integrated model has been developed to provide a holistic view of influential factors on citizen's trust leading towards their intention to participate in government social media services as illustrated in Fig. 2. The proposed model is based on existing theories and literature review of previous studies. Based on causal relationship, the factors with strong theoretical and empirical support are included in this study. The importance of Technology Acceptance Model (TAM) in relationship with trust has been consistently acknowledged in previous studies around the context of e-commerce [11, 13] and e-government websites[15, 35]. This study integrates TAM with multiple antecedents of trust in context of using social media for e-government services. The antecedents of trust are classified in to four perspectives which are Individual characteristics, government factors, risk factors and social media characteristics as illustrated in Fig. 2. Structural assurances represent institutional-based trust to participate in government social media services [11, 33]. Similarly, benevolence, ability and integrity represent cognition-based trusts which are built through the processes of observations and perceptions about trustee [33]. Perceived ease of use PEOU, is a construct of TAM representing cognitive based trust as the first impression to use government social media services. Perceived Usefulness is another construct of TAM representing cognitive based trust as the effectiveness of government social media services. Similarly, Information quality, Uncertainty avoidance and perceived risk about the security (protection) and privacy of information in using social media services also represent cognition-based trust [36]. Lastly, Disposition to trust is based on psychological disposition to trust on others, represents personality-based trust [11, 36]. The relationship of citizens trust towards their usage of online services has been validated in previous studies including the context of e-commerce [11] and e-government websites [7, 8, 20]. Thus, this study also considers in determining the impact of trust towards citizens intention to participate in government social media services and proposes the following hypothesis:
H15: Individual's trust influences their intention to use social media for e-government services.

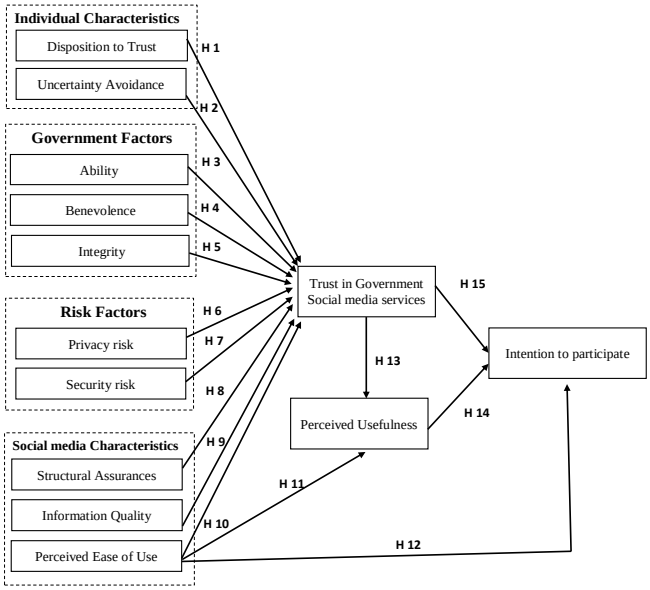

Fig. 2: Proposed Model

In Fig. 2. there are 13 constructs including 10 exogenous constructs and 3 endogenous constructs. All these constructs are measured with more than one indicator. The exogenous constructs identified as antecedents or factors of trust are categorized into four groups which represents different perspectives of citizens' trust. There are two constructs representing individual characteristics of citizens trust in using government social media services (Disposition to Trust and Uncertainty Avoidance), Three constructs are associated with government factors (Ability, Benevolence and Integrity), Two constructs are representing the risk factors in using social media for e-government services (Privacy risk, Security risk) and three constructs represent social media characteristics (Structural Assurances, Information Quality and Perceived Ease of Use). Each of these constructs are hypothesized to influence Trust in using social media for e-government services. These hypotheses are explained in the previous section. The endogenous constructs in the model are Perceived Usefulness, Trust and Intention to participate in government social media services.

4.2. Research Instrument

The factors in the model of this study are constructed based on the existing theories and literature review of empirically validated studies in different contexts of online services. To test the conceptual model an instrument was developed. The items or indicators of the instrument are adopted or adapted from previous empirical studies. Each factor has more than three indicators/items as recommended by Cronbach [37]. Table 1 illustrates the number of indicators for each factor with their references.

5. Pilot Study

In this study a pilot study was conducted through an online Survey Questionnaire. To ensure that the measured trusts were based on direct experience with the object, only the responses from the citizens who have previously used internet and social media applications were included in the survey. Thus, 47 valid responses were collected for this study. This section presents the research model and the first version of the developed instrument.

Table 1: Research Instrument

Perspectives	Factors	No. of indicators	References
Individual characteristics	Disposition to Trust	5	[25, 38, 39]
	Uncertainty Avoidance	4	[26, 28]
Government factors	Ability	4	[30, 31]
	Benevolence	4	[30, 31]
	Integrity	4	[30, 31]
Risk factors	Security risk	4	[40, 41]
	Privacy risk	4	[22, 38]
Social media characteristics	Structural Assurance	4	[30]
	Information Quality	5	[23]
	Perceived Ease of Use	6	[41, 42]
Dependent variables	Perceived Usefulness	6	[42, 43]
	Trust in Government social media services	5	[38]
	Intention to Participate	5	[7, 20]
TOTAL		60	

5.1. Instrument validity

In this study the instrument was validated by sending the instrument to three experts in the field of information systems. According to Lynn [44] there should be minimum of three experts to determine the content validity of an instrument. The experts were asked to rate each item based on their relevancy and simplicity on the four-point scale as: 1. Not relevant and Not simple, 2. Somewhat relevant and Somewhat simple, 3. Quite relevant and Quite simple, 4. Highly relevant and Very simple. To obtain Content Validity Index of all items (I-CVI), each with a score of 3 and 4 by the experts was divided by the number of experts. Polit and Beck [45] recommended that the acceptable value of CVI is 1.00 if there is a panel of three to four experts in any study. The CVI value obtained in this study with a rating of 3 or 4 by all experts has a full score of (1.00) for both Item-Level Content Validity (I-CVI) and Scale-level Content Validity (S-CVI), thus showing that the instrument is at recommended level of content validity.

5.2. Instrument Reliability

In this study Cronbach alpha was used to test the internal consistency of the survey instrument items as it has been widely adopted by many researchers. According to Hinton, McMurraay [46] there are four cutoff values to measure reliability: i.e. excellent reliability (0.90 and above), high reliability (0.70 - 0.90), moderate reliability (0.50 - 0.70) and low reliability < 0.50. To measure the reliability of the research instrument SPSS 24 was used to test the internal consistency for each construct's items individually. Based on the results some indicators were deleted to increase the value of Cronbach alpha. The new version of the research instrument has 56 indicators. The values of Cronbach alpha present that out of 13 constructs, 3 possessed excellent reliability (Information quality (.912), perceived usefulness (.921), intention to participate) (.928), 7 constructs have high reliability (Ability (.785), Benevolence (.800), Integrity (.782), Uncertainty avoidance (.731), Structural assurances (.836), perceived ease of use (.878), Trust in government social media services (.888)) and the remaining 3 constructs have moderate reliability (Disposition to trust (.629), Privacy risk (.659), Security risk (.624)).

6. Discussion

This study proposes a model of citizens' trust in context of using social media for e-government services. The proposed model extends the previous models, which examined trust in contexts of e-commerce, e-government or social media services. The factors in the proposed model are mainly extracted from existing related models and from the literature of trust in context of e-government services. There are many distinct features in this model as compared with previous models. Firstly, this model presents an integrated view of multiple perspectives of citizens' trust such as individual characteristics, government factors, risk factors and social media characteristics. The constructs in the model were selected from previous studies where their relationships have been validated in different domain of online services. The model of this paper is proposed in context of using social media for e-government services which is a new contribution as there is hardly any thorough study in this context.

Secondly, this study also illustrates the steps of developing a research instrument to examine the proposed model. The items of the instrument are adopted or adapted from previous empirical studies. The content validity was performed by sending the instrument to experts. The experts validated the relevancy and simplicity of items. Based on their suggestions the wordings of some items were revised in the questionnaire. Furthermore, a pilot study was conducted, and data was collected and analyzed from 47 respondents through an online survey. Based on the results of the analysis, some items of the instrument were deleted to increase the value of Cronbach's alpha. Finally, based on the results of the pilot study the instrument was validated and the reliability of the variables was refined. This decreased the number of the indicators from 60 to 56.

7. Conclusion

While majority of previous studies were conducted on e-government websites, this study proposed a model of citizens' trust in context of using social media as a technology for e-government services. The model includes factors from multiple perspectives which are individual characteristics, government factors, risk factors and social media characteristics. In addition, a questionnaire was developed to measure the importance of the various factors on trust and consequently its impact on citizens' intention to participate in government social media services. The first version of the questionnaire has 60 indicators. However, after analyzing the data of the pilot study, only 56 indicators were remained. The final version of the questionnaire will be used in the future to conduct a survey with larger sample size. This will help to provide a comprehensive understanding and predicting the level of citizens' trust in accepting social media as a technology for e-government services.

The limitation of this paper is its restriction to focus on factors associated only with citizens' trust perspective. This paper does not cover government organizations, policy maker's perspective regarding their social media plans, strategies or any other associated challenges in social media implementation and maintenance issues. In addition, the relationships between various trust factors with each other is also not covered in this paper.

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