Research on Trust Model in Online Information of Smart Government

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Abstract--- Online data has acquired significant management importance and has a high value-creating potential for public services. A important problem here is how public entities can adapt their traditional structures and processes to the creative field of internet data to create government trust. On top of that, trust has become the main concern as it involves in creating public trust by using online information in smart government. This study aims to determine the factor of trust in using online information and the related work on trust model in online information. To do this, we have conducted systematic literature review to identify the factors that influence trust in using online information in smart governments and to compare the existing trust models in online information.

Keywords--- Trust Model, Online Information, Smart Government.

I. INTRODUCTION

The use of online information has brought innovation and potential to create value in the cities that are represented by the interconnected citizens, businesses, different modes of transport, communication networks, services and utilities. Also, the online information has continuously disrupted the administrative landscape of public departments around the world . Organizations and public departments have leveraged on new technologies, such as Internet of Things and cloud computing to build a connected and sustainable service delivery, high quality information, efficiency transactions, better decision making and global competitiveness ; ; ; ; . The role of internet data as a source of development and innovation for the development and creation of effective and efficient public tasks and values should be explored by government services. government authorities. AlAwadi and Scholl (2013) proposed that internet government data is designed to improve efficiency in the utilization of public assets and improving public services effectiveness . To date, many works have been done to overcome the challenge faced in smart government to ensure the efficiency of usage that includes legislation and standard data policy ; ; , security protocols , interoperability ; , robust technology infrastructure ; and open data.

However, there has been limited number of works that systematically study to create the public trust on online information. Gaining public trust becomes one of the most urgent issues to cultivate the acceptance of public with government through online information to provide better services and to gain a good understanding of their communities . In order to effectively implement and offer public trust internet data on the smart government, multiple aspects, in specific the development of the new company and organizational model, as well as the development of information infrastructure and decision support systems must also be taken into consideration.

This document consists of four primary parts. The second chapter provides the review methodology following the introduction. In the third chapter you will find and discuss the results. Finally, in the fourth chapter, the conclusion

II. METHODOLOGY

We constructed a review protocol to search for the relevant studies based on Kitchenham systematic review approach. The basic phases of are divided by three phases which are planning, conducting and reporting. In the planning phase, we designed research questions as in Table 1. These research questions are designed to address the organization issues as aforementioned.

Table 1: Research questions and research objectives

RQ1	What are the factors that influence trust in using the online information in a smart government?
RQ2	What are the related model of trust in online information?

The activities of the review protocol are shown in Figure 1. The aim is to ensure that all appropriate studies are obtained for analysis. The review protocol is adopted. ScienceDirect, Springer, Scopus, IEEE Xplore and ACM Digital Library are all the main sources of the empirical research. The research is carried out using search engines. The keywords were used to make sure all appropriate papers are included in the search. (Trust OR Trust Model) AND (Dimension OR Factors OR Element) AND (Online Information OR Public Organization) AND (Approach OR Method OR Framework OR Model) AND (Smart Government) to collect all the relevant papers.

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Figure 1: Review protocol process

We applied inclusion and exclusion criteria as outlined in Table 2 to collect relevant studies. By analyzing the title, abstract, and conclusion of the primary identified studies, we eliminated any unrelated studies. After applying these steps, 51 studies were retained. Furthermore, we accessed and evaluated the articles by checking the content of the articles. Irrelevant studies were rejected at this stage and the relevant studies will be analyzed. Out of 51 articles, there are only 31 articles were considered for further review. The next phase was conducting the comparison analysis and reporting the analysis of the related works.

Table 2: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Papers focusing on trust, trust model in online information and smart government.	Studies not related to the research questions
	Studies unclear
Papers focusing on frameworks, models, methods and approach used in trust model in online information	

III. RESULTS & DISCUSSIONS

We found 31 papers published between 2010 and 2017 that discussed on the topic of trust model in online information to enhance the user acceptance. For each of the papers, we identified the factor of trust followed by the type of contribution, and the domain of application of their approach. The results are presented in Table 3 and Table 4.

Table 3: Trust Factor Metrics

Reference	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]	[32]	[33]	[34]	[35]	factor considered in
Supporting system	x	x								x	x						x					x		6
Participation																		x						1
Individual motivational							x																	1
Knowledge & experience		x		x		x	x			x	x													6
Word of mouth	x	x	x								x	x		x	x	x					x			9
Reputation	x	x	x			x				x			x	x	x				x				x	11
Ease of use		x								x	x		x										x	5
Usefulness										x			x											2
Website design													x			x					x	x		3
Reliability															x				x					2
IT Quality	x	x	x	x					x		x								x					7
Technology			x	x					x															3
Risk						x																		1
Culture					x																			1
Brand																	X					x		2
Privacy	x		x	x							x								x			x		6
Security	x		x	x										x		x			x			x		7
Domain						e-commerce					e-health				Social network & commerce						Tourism	Cohesion (housing)	Cohesion (migrant)	

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Based on Table 3, "Reputation" is the most considered influencing factor of trust towards online information, which accounts for 11 studies. This is followed by "Word of mouth" in nine studies and "Security" and "IT Quality" in seven studies. This analysis also identified the factors addressed by more than 5 studies (frequency of factors) in the literature.

These are : reputation, word of mouth, security, IT quality, supporting system, knowledge & experience, privacy and ease of use. However, it is interesting to note that there are two factors that have minimum frequency, for example risk and culture. This indicates that the factor is still underexplored in the literature.

Table 4: Related Works in Trust Model

No	Model	Domain	Method and data (empirical)	Purpose	Findings	Source
1	Consists of internal and external factors affecting user trust beliefs formation	Online shopping	Conceptual	Intention to visit website	Developing long-lasting trustful relationship with users is crucial.	[36]
2	Trust as mediating variable and has relation with navigation functionality, perceived security and transaction cost.	Commerce and Tourism	Survey (n=340)	Customer loyalty	Customer satisfaction influence trust and has significantly effect on loyalty.	[37]
3	Integration of perceived of risk to TAM model. Trust as independent variable.	Banking	Survey	Behavioural Intention to use	A well-designed web will be minimizing the perceived risk	[38]
4	Trust as independent variable and has direct relation with public activities.	Social media	Survey (n= 502)	Public engagement	online civic engagement is required to enhance the trust among public	[39]
5	TAM model and trust and flow is classified as mediating variables.	Mobile banking	Survey (n= 200)	Behavioural Intention to use	Both trust and flow experience should be taken into mobile service providers consideration in order to facilitate user adoption and usage of mobile banking service	[40]
6	Trust (mediating variables) classified as trust in members and trust in website.	Social media	Survey (n= 360)	Customers' purchase intention	Trust in other members influence members' purchase behaviour.	[41]; [42]
7	Trust can be mediating and moderating variable of privacy concerns.	Social media	Survey (n= 718)	Online self-disclosure behaviours	Trust plays central role in online disclosure of social network.	[43]
8	Trust as mediating variables.	e-Banking	Survey (n= 202)	Willingness to adopt e-banking	Traditional service quality at the bank still required in promoting the e-banking.	[44]
9	Perceived of communication (Gratification theory)	Health	Survey (n=4551)	Internet usage	Trust in online health information was also found to be a significant predictor of online health activities.	[45]
10	Trust as independent variables and it is classified as trust in the website, the vendor, the auction initiator and group members.	Online shopping	Survey (n= 454)	Purchase intention	A safe, user-friendly shopping environment and satisfaction can enhance the decision making process in online shopping.	[46]
11	Model of trust for expanding the banking service in a developing country.	Mobile banking	Survey (n= 1077)	Adoption and usage	The adequate use and construction of arguments disclosed by banks about how secure MB can be is also a factor that banks need to observe.	[47]
12	Model of trust for cultural exchange	Tourism	Survey (n= 1094)	Engagement activities	Networking technology and community involvement are used to generate trust in geographically dispersed communities.	[48]
13	Model of trust for health resource among older adults	Health	Survey (n= 1450)	Internet usage, usefulness, and trust in the internet	Website design features has influence on trust among older adults.	[49]
14	Personalized service offers	Social media	Survey (n= 137)	Click through rate	Trust-building marketing strategies that transfer trust from another website or signal trust with informational cues can offset this negative effect	[50]
15	Use the theory of reasoned action (TRA)	Health	Survey (n= 264)	Actual behaviour	Trust in website had a similar affect on risk and attitude.	[51]
16	Elaboration likelihood model	Mobile banking	Survey (n= 240)	Adoption and usage	service providers need to employ differentiated strategies to build users' initial trust	[40]
17	Meta analysis on trust relationship with e-vendor website	e-commerce	Review	Purchase intention	The trust is important determinant for repeating purchase	[52]
18	Based on Theory of Planned Behavior (TPB), Theory of easoned Action (TRA) and Theory Acceptance Model (TAM)	e-commerce	Conceptual	Purchase intention	-	[18]
19	Based on Theory Acceptance Model (TAM)	Mobile shopping	Survey (n= 600)	Behavioural intention to ues	application of mobile content and service will become one niches for mobile commerce	[53]

The studies are summarized in Table 4. The Technology Acceptance Model (TAM) has proven to be a reliable model that explains technology system acceptance. Also, it is found that trust is an important determinant whether the users decide to use online services and/or to adopt the online services. In recent years, there have been a lot of research concerning online service i.e. commerce, banking, tourism, and health. However, smart government is the next level of government in which variety of applications of newly rising technology and innovating activities. In this respect, research for understanding the trust factors and intention to use online information is still very limited.

IV. RELATED MODEL OF TRUST IN ONLINE INFORMATION

Many work was carried out to develop the internet data trust model. For instance, a work examined factors that influence the build-up of end-user confidence in on-line shopping settings. They classified the elements according to inner and external variables which impact on the development of the end user trust. The external factors mean variables indirectly linked to the online service, while the inner elements only include those linked to a specific online service.

Next,[37] examined factors that affect trust and the relationship between trust and the customer loyalty of tourism products and services to shopping online. They have used a structural equation modeling to assess the navigational function, the safety and transaction cost viewed (as exogenous factors), trust and satisfaction (as mediating factors), and allegiance as a dependent variable. Their findings demonstrate that the price of the transaction is positive, but does not have a important influence on trust. Trust and satisfaction are connected with customer loyalty.

Another study of online information in online shopping domain was conducted by . They focused on building trust in virtual communities. The degree on how communities trust online shopping websites is examined by assessing the communities' intentions to get online information and purchasing information from these websites. In their study, trust of a website refers to trust towards information provided by vendors. The relationships between trust dimensions and trust in members were identified. Results show that in building trust in virtual communities, trust in members plays a more important role in fostering trust in the vendor that further affects communities' intention to get information form the virtual communities. It suggested that online forum would help the virtual communities, in which member provides topic- or interest-oriented information in its online community. In relation with trust on online information provided by vendor and members, proposed conceptual model that the behaviors of member have significant effect in purchasing intention on online shopping.

In the domain of online banking or e-commerce, the extended TAM model was shown by . The online information provided in the bank website is the key determinant of trust of e-commerce. Zhou[40] has examined the impact on mobile banking users ' usage behavior. 55] suggested in a consumer assessment the trustworthness of e-banking and subsequent implementation conduct a model that recognized the connection between e-banking website's digital attribute and structural certainty (the size and reputation and quality of traditional services at the industry).

V. CONCLUSION

An analysis of methods and model of trust model has been conducted. A list of existing works related to trust model has been presented in Table 4. Based on the analysis of existing works, work that analyzes trust factor and attention to use online information in smart governments is yet to be conducted. Moreover, most of the works in trust model focus on the industry services. There are model and method involved in various domains, which are commerce, banking, tourism, and health. The finding indicates that there is no outstanding work of trust model of online information in smart governments. For future work, we plan to develop a new trust model to enhance user acceptance using online information in smart government.

VI. ACKNOWLEDGEMENT

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