

## **Perceived Risk Factors influencing Citizens Interaction to Enhance the Usage of e-Government Services in Jordan: Pilot Study**

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**Abstract:** *With the imperative of e-Government for better public services, the problem of low-level citizen usage of e-government services has been recognized. The uncertainties of transaction handling and citizens perception toward risk have been identified as some of the major problems causing citizens' hesitance toward taking advantage of e-Government services. This paper explores the elements of perceived risk and citizen's trust, the two most vital factors influencing citizens' interaction with e-Government services. This study develops an integrative research model by extending the extant Trust and Risk Model through the incorporation of citizens' interaction to serve as a mediator. A questionnaire was developed and distributed among the staff of the University of Jordan to test the model. Cronbach's alpha, factor analysis test, and Item-total correlation test were utilized to verify the validity and the reliability of the questionnaire. The results showed that the questionnaire is justified to measure the proposed model.*

**Keywords:** *Perceived Risk, Citizen interaction, e-Government services, Jordan.*

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### **I. Introduction**

Organizations are competing among themselves to survive in the globalization arena. Not only organizations but government sectors of each country also facing challenges and keep on finding the best ways to provide better government services to their citizens. For that government agencies increasingly explore and giving priority for information and communication technology (ICT) to improve, advance the delivery and dissemination of government services and information (Carter, Weerakkody, Phillips, & Dwivedi, 2016; Cordella&Tempini, 2015). In order for public e-Government services efforts to succeed the participation of citizens is crucial ( Al-Yawer& Ahmad, 2018). However, despite the noticeable efforts in this domain, many governments worldwide are still facing the pressing problem of low-level usage of e-Government services by citizens (Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2019; Rana & Dwivedi, 2015). Mohammed, Hasson, Shawkat, and Al-khafaji (2012) stated that citizen participation can encounter many problems, such as citizen's confidence in dealing with e-Government services. Therefore, the reduction of citizens' perceived risks toward online services is the essential basis for using e-Government services (Rifat, Nisha, & Iqbal, 2019). Abu-Shanab and Al-Azzam (2012) confirmed that the gate to e-Government services adoption is trust. If citizens and businesses trusted e-government, then they will use it.

In Jordan, despite the passage of more than fifteen years for the application of e-Government strategy, unfortunately, it failed to increase the interaction of citizens with e-Government services (Al-Hujran, Aloudat, &Altarawneh, 2013; Kanaan &Masa'deh, 2018; Rana & Dwivedi, 2015). Al-Hujran, Al-Debei, Chatfield, and Migdadi (2015) emphasized that more than 85% of Jordanians never used e-government websites and electronic services. Although public investment in e-Government projects is growing substantially each year to enhance governance processes and services, yet citizens and businesses prefer to use traditional methods in a face-to-face fashion rather than using web-based applications to perform their services; for example, citizens have some fear of exposing their personal information or paying over the internet to conduct government transactions (Abu-Shanab, 2014; Alkhwalid, Kamala, &Qahwaji, 2018; Khasawneh et al., 2013). Alzahrani, Al-Karaghoul, and Weerakkody (2017) argued that trust is important in online environments because of the associated risk. Therefore, this paper investigates the factors influencing Jordanian Internet users' perceptions of the risks in interaction with e-Government services.

## **II. Literature Review**

### **2.1 e-Government Services**

The e-Government services are a key to enter the government and society to the digital world, and the continued use of the citizen to these services is an indicator of e-Government success. Mohammed, Ibrahim, Shawkat, and Hasson (2013, p:1) defined e-Government as “the use of information and communication technology (ICT) to promote the reach to and delivery of government services to benefit employees, business partners and citizens”. Since the advent of the Internet, governments have been using a variety of customer service channels with different characteristics used for communication, interaction, transaction and distribution of products and services. Besides the traditional channels, like the front desk and phone, citizens have access to a variety of e-services provided by many government agencies. From a government perspective, increased usage of service delivery through the digital channels is expected to improve efficiency, overall costs and customer service (Al-Yawer & Ahmad, 2019; Madsen & Kræmmergaard, 2015). However, despite the noticeable efforts in this domain, Al-Hujran, Al-Debei, Chatfield, and Migdadi (2015) and Chatfield and AlAnazi (2013) stated that there is a significant gap between the supply and the use of e-Government services. Distel (2018) and Rey-Moreno, Felicio, Medina-Molina, and Rufin (2018) confirmed that many European countries have low levels of e-Government usage rates. OECD (2017) refers that the average usage rate of e-Government services by citizens for OECD countries was 36% in 2016. Ospina and Pinzon (2018) observed that in many cases after “initial usage” of e-Gov websites, many users revert to traditional ways for acquiring information and services. Thus, governments should consider the importance of citizen’s awareness of e-Government websites and look into the significant factors influencing the intention of citizens’ interaction to use e-Government websites (Wangpipatwong, Chutimaskul, & Papatarnorn 2008).

### **2.2 Citizen Interaction**

Citizens’ interaction refers to citizen participation with the government initiatives designed to facilitate citizen interaction with e-Government services, which is what some observers perceive to be the primary goal of e-Government (Reddick, 2005). These initiatives attempt to make transactions, such as renewing licenses, paying taxes, and applying for benefits, less time consuming and easier to carry out (Mouakket, 2010). In this way, Tat-Kei Ho (2002) criticizes the external focus of public governance by considering the citizen as a customer and recommends empowerment of the citizens through information technology to consider them as “owners” of services. Where the success of these technological innovations ultimately depends on citizens’ willingness to use them. Faulkner, Jorgensen, and Borg (2017) stated that existing research on the causes of e-Government adoption has relied almost solely on correlational, rather than experimental evidence. However, despite the lack of empirical tests of behavioural interventions to increase citizens’ adoption of e-Government, recommendations to achieve greater uptake have been put forward by both researchers and institutions. For example, the British Government (GOV.UK, 2016) recommends promoting the existence of online service, training staff to educate citizens about using the service, and limiting access to existing non-digital services. Irrespective of the potential merits of these recommendations, Faulkner, Jorgensen, and Koufariotis (2019), and Kurfali, Arifoglu, Tokdemir, and Pacin (2017) stated that governments across the world need to investigate and understand the factors that influence or could encourage citizens to use e-Government services instead of traditional communication. Belanger and Carter (2008), Rehman, Esichaikul, and Kamal (2012), Rana, Dwivedi, Williams, and Weerakkody (2015) claimed that perceived risk by the citizens to deal with government services over the internet are the most common issues to enhance citizens’ interaction in e-Government initiatives otherwise the government’s plan would not be successful.

### **2.3 Perceived Risk**

Risk is typically defined in terms of citizen's belief in the potential for gains and losses (Pavlou, 2003). However, Belanger and Carter (2008) noted that the risk is difficult to measure objectively. Therefore, the literature focuses on users’ risk perceptions (Altarawneh, Omar, & Tahir, 2018a). Perceived risk is defined as "the citizen’s subjective expectation of suffering a loss in pursuit of a desired outcome" (Warkentin et al., 2002, p:160). Putri (2015) and Altarawneh, Omar, and Tahir (2018b) noted that perceived risk is a fundamental concept in consumer behaviour. Perceived risk is composed of behavioural and environmental uncertainty. Behavioural uncertainty exists because online service providers may behave in an opportunistic manner by taking advantage of the impersonal nature of the electronic environment, while environmental uncertainty arises due to the unpredictable nature of Internet-based technology that is beyond the control of the consumer (Pavlou, 2003). In e-commerce perceived risk reduces users’ intentions to exchange information and complete transactions (Pavlou, 2003). Warkentin et al. (2002) suggest that perceived risk will have a synonymous effect on e-Government. In addition to the relationship between risk and intention, research shows that trust reduces risk perceptions (Salam et al., 2003). Literature showed that trust is considered as a highly complex and abstract nature (Kurfali et al., 2017). Thus, trust in e-government has a number of sub-components (Ismailova,

Muhametjanova, & Kurambayev, 2018). Tan & Theon (2001) clarified that trust has two aspects, one is trust of web vendor who provides the service, the other is the trust of internet as the mechanism which enables the service. In the e-Government services context, these aspects of trust transform into the trust of government, the trust of internet (Kurfah et al., 2017).

Several studies have revealed the importance of perceived risk and trust for the user in the e-Government services to enhance the information system success (Akkaya, Obermeier, Wolf, & Krcmar 2011; Al-Adawi, 2012). However, they confirmed that the trust in internet, and trust in the government have a significantly positive effect on continued use of information systems. Akkaya et al. (2011), and Rana et al. (2015) referred that the specific barriers to the use of e-Government services were lack of trust in public authority and fear of using the Internet to conduct transactions. Al-Adawi (2012) confirmed that the consequences of trust in internet and government are proposed to be reduced perceived risk and enhanced intentions to adopt e-Government services. Although some studies have assessed e-Government services, the proposed model in this study narrows the research gap by proposing the main aspects that effect on user behaviour to continue the use of e-Government services.

## **2.4 Research Model and Hypotheses Development**

Previous studies have employed several theories or models in order to build users' trust to continue the use of technologies. The model for this study (Figure 1) is a revision and extension of the trust and risk model which is developed by Belanger and Carter (2008), following an extensive literature review so as to end up with a model to examine the influence of citizens' trust on the intention of interaction to use e-Government services.

### **2.4.1 The Trust and Risk Model**

The Trust and Risk Model (TRM) (Belanger & Carter, 2008) is important to examine the trust and perceived risk in e-Government use. Belanger and Carter (2008) argued that potential users tend to adopt an electronic system if they perceive the system will ensure secure and private data transmission. They introduced the concept of perceived risk and trust. According to them, disposition to Trust will affect a potential user's risk perception that eventually will influence system adoption. Several studies have been addressed the trust and risk model in e-Government services. Akkaya, Wolf, and Krcmar (2012) conducted a study to explore the use of e-Government, determinants of perceived risk using a sample of 1002 citizens of Germany. The finding of the study showed that the high risk-averseness of the German nation hinders the current and future adoption of e-Government services substantially. Zarei, Amanati, and Ghapanchi (2018) examined in their study the factors that influence the adoption of public expenditure management. The findings of their study showed that the trust of the e-treasury system explained the adoption of electronic treasury system among top budget managers. Another study conducted by Nugroho and Haryani (2016) attempted to describe the influence of perceived risks on the usability of IoT in public services. The findings revealed that the enhance trust of citizen can increased adoption of e-Government services. TRM has two main components: Trust of Government (TOG) and Trust of the Internet (TOI).

TOI can be given as the belief of e-Government users regarding internet's reliability in providing accurate information and secure transactions (Carter & Belanger, 2005). The ease and speed of the procedures provided by e-Government services may lead to increased citizens' desire to interact with e-banking services (Shahzad, Xiu, Khan, & Wang, 2018). However, the loss of transactions or lack of interest from employees may lead to a preference for using the traditional method of providing government services (Lee, Warkentin, & Johnston, 2016). Therefore, e-Government literature concluded that the TOI has a strong influence on intention of citizen's interaction (Liu & Carter, 2018).

TOG is defined as "one's perceptions regarding the integrity and ability of the agency providing the service" (Carter & Belanger, 2005). TOG is e-Government users' perception regarding the integrity and ability of the government providing the service. Therefore, the citizen's intention to interact with e-Government services is increasing when they have trust in government and its agencies (e.g. Carter et al., 2016; Kurfah et al., 2017).

### **2.4.2 Citizens Interaction, Perceived Risks, and Usage of e-Government Services**

Studies on perceived risks and usage of e-Government services have shown a positive relationship results in the past (e.g., Jaradat, Moustafa, & Al-Mashaqba, 2018; Lee, Warkentin & Johnston, 2016). These studies also mentioned that increase citizens' trust in the e-Government may increase the intention of citizen interaction to use e-Government services. The less risk of the use of e-Government services will increased citizens' interaction. Therefore, citizens Interaction can serve as a Mediator in the Relationship between Perceived Risks and usage of e-Government services. Figure 1 showed the proposed model of study.

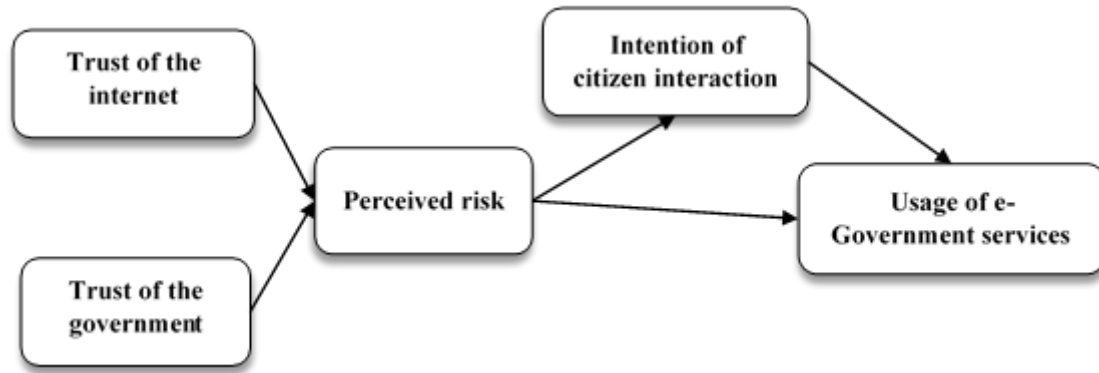


Figure 1. Conceptual Model

### III. Research Method

#### 3.1 Instrument development

The quantitative approach that utilized the survey method is employed for data collection in this study. The questionnaire design relies on three criteria, namely, the manner by which the questions are written, planning for the classification of variables, and the appearance of the questionnaire (Hair et al., 2015). This study uses a six-section questionnaire. Section one includes the questions related to demographic factors. Section two relates to the state of trust of the Internet which includes four items adapted from Lee, Kim, and Ahn (2011). Section three relates to the trust of government which includes five items adapted from Belanger and Carter (2008) and Colesca (2009). Section fourth relates to perceived risk which includes four items adapted from Verkijika and De Wet (2018). Section fifth includes four items related to the citizen interaction which were adapted from Mouakket and Al-hawari (2012), and Andalib and Danaee, (2013). The last section relates to the usage of e-Government services which includes four items adapted from Deng et al. (2010), and Tan, Lee, and Hsu (2015). Moreover, Sekaran and Bougie (2016) confirmed that the questionnaire language is important for approximates the level of understanding of the respondents. Given that the majority of the Jordanians are communicating in Arabic language, questionnaire items of the study have been translated into Arabic language.

#### 3.2 Pilot study

A pilot study before the final data collection is useful to ensure the consistency and accuracy of the responses (Hair et al., 2015). In this study, the questionnaires were distributed among lecturer and administration staff are working in the University of Jordan. Among the 100 questionnaires distributed only 86 were validated.

The descriptive statistics of the sample showed that 70.9% of the respondents were male and 29.1% were female. Respondents aged between 38 and 47 years formed the largest age group and represented 32.6% of the sample. The majority of respondents were postgraduate degree (Master and Ph.D.) and represented 59.3% of the sample. All the respondents are using the internet daily. Nevertheless, respondents clearly indicated their lack of experience in e-Government activities and also revealed that their access to e-government services was significantly less frequent than their access and usage of the Internet in general. The details are shown in Table 1.

Table 1. Sample profile

Measure	Frequency	Percentage (%)
<b>Gender</b>		
Male	61	70.9
Female	25	29.1
<b>Age</b>		
18–27	7	8.1
28–37	14	16.3
38–47	28	32.6
48–57	20	23.3
58 or Above	17	19.8
<b>Education Level</b>		
High school	6	7.0
Some college	9	10.5
University undergraduate	20	23.3
Master	24	27.9
Ph.D.	27	31.4
<b>Access to Internet</b>		
Dally	68	100.0
<b>Use e-Government Services</b>		

Measure	Frequency	Percentage (%)
To a Great Extent	43	50.0
Somewhat	22	25.6
Very little	21	24.4

#### IV. The Findings of Pilot Study

The SPSS v25 was used to analysis the pilot study. Several tests (including Cronbach’s alpha, factor analysis test, and correlation coefficient test) were executed for measuring the reliability and validity of the questionnaire.

The findings of the factor analysis of the twenty-two items were utilized to measure the proposed model (including trust of internet (TOI), trust of government (TOG), perceived risk (PR), citizen interaction (CI), and usage of e-Government services (UGS)) showed that four items were allocated in TOI factor with loading values (0.760 to 0.857) and accounted for 66.3% of the total variance. Five items in TOG factor explained almost 54.3% of the total variance and had loading values (0.507 to 0.839). PR factor explained almost 55.7% of the total variance and had factor loadings (0.565 to 0.869) on five items. Four items in the CI factor explained almost 58.2% of the total variance and had loading values (0.695 to 0.871). Finally, four items allocated in the UGS factor had almost 48.3% of the total variance and factor loading values (0.699 to 0.770) as shown in Table 2.

Furthermore, Cronbach's alpha coefficients for all factors used in the instrument were acceptable, with a range from 0.796 to 0.886. While the Item-total correlation test for the five factors shaping the proposed model showed a moderate relationship. It was 0.516 to 0.835 for TOI, 0.522 to 0.777 for TOG, 0.507 to 0.785 for PR, 0.507 to 0.785 for CI, and 0.574 to 0.829 for UGS as summarized in Table 2.

**Table 2.** Summarized the Findings of the Pilot Measurement Questionnaire

Variables and items description	Mean	Factor loading Value $\geq .50$	Item-total correlation Value $\geq .45$	Cronbach's alpha Value $\geq .70$
<b>Trust of the Internet</b>				
TI1: The Internet has enough safeguards to make me feel comfortable using it to transact personal	3.37	.822	.712	.857
TI2: I feel assured that legal and technological structures adequately protect me from problems on the Internet.	3.30	.857	.733	
TI3: In general, the Internet is now a robust and safe environment in which to transact with state government agencies	3.36	.760	.635	
TI4: I expect my use of the e-Government services will increase in future	3.26	.851	.723	
<b>Trust of the Government</b>				
TG1: I think I can trust Jordanian state government agencies	3.17	.884	.817	.886
TG2: Jordan e-Government portal is trustworthy to deliver governmental services to its users.	3.20	.790	.684	
TG3: I trust the benefits provided by the Jordan e-Government portal.	3.27	.922	.839	
TG4: I trust Jordanian state government agencies keep my best interests in mind.	3.32	.912	.825	
TG5: In my opinion, Jordanian state government agencies are trustworthy.	3.12	.631	.507	
<b>Perceived Risks</b>				
PR1: I believe that there could be negative consequences from using an e-Government service.	3.08	.869	.751	.796
PR2: I feel it is unsafe to interact with an e-Government service.	3.01	.704	.506	
PR3: I feel that the risks outweigh the benefits of using an e-government service.	3.41	.565	.479	
PR4: I feel I must be cautious when using an e-Government service.	3.20	.668	.518	
PR5: It is risky to interact with an e-government service.	3.22	.806	.641	
<b>Citizens' Interaction Intentions</b>				
CI1: I intend to use the e-Government portal and/or Ministry's website(s) for gathering government services information	3.31	.828	.699	.833
CI2: I would not hesitate to provide information to an e-Government portal and/or Ministry's website(s)	3.20	.871	.767	
CI3: I intend to use government services provided over the e-Government portal and/or Ministry's website(s)	3.17	.834	.661	
CI4: Interacting with the government services over the e-	3.33	.695	.536	

Government portal and/or Ministry's website(s) is something that I would do				
<b>Usage of e-Government services</b>				
EGS1: I would like to continue using e-Government services in the future	2.59	.864	.770	.879
EGS2: I will continue using e-Government services than use any alternative means.	2.47	.854	.739	
EGS3: I will continue using the portal of Jordanian e-Government services even if I encounter some problems	2.48	.860	.755	
EGS4: I will strongly recommend others to use the e-Government portal and/or Ministry's website(s)	2.53	.807	.699	

## V. Discussion and Conclusion

Despite the increasing provision of public services electronically, the adoption of these services by citizens is still limited especially in developing countries. Therefore, it is necessary to understand in more detail which factors help increase the intention to use these e-Government services not only from a theoretical perspective, but also from managerial and empirical perspectives. To explore this issue, this study has extended the TRM model by integrated the revised model with citizen interaction as a mediator.

As a result, from the analysis of the pilot study, 22 items of five factor showed good reliability and validity. Factor analysis results showed that all items in the measurement scale tests had item loading value greater than 0.50. Moreover, the result of the reliability test of each subscale of all measurement scales using the Cronbach's alpha showed high values greater than 0.7 and the item-total correlation value greater than 0.45. Therefore, these results justified using the questionnaire and the measurement scale to collect the data.

The results of the tests are expected to show the significant impact of the TRM constructs along with the intention of citizen interaction that is added to the model on citizen usage of e-Government services. It is believed that the research model developed in this study can serve as a foundation for future research on citizen adoption of e-Government services in order to increase the existing low-level citizen usage of e-Government services in Jordan.

## References

- [1]. Abu-Shanab, E. (2014). Antecedents of trust in e-Government services: an empirical test in Jordan. *Transforming Government: People, Process and Policy*, 8(4), 480-499.
- [2]. Abu-Shanab, E., & Al-Azzam, A. (2012). Trust Dimensions and the adoption of E-government in Jordan. *International Journal of Information Communication Technologies and Human Development (IJICTHD)*, 4(1), 39-51.
- [3]. Akkaya, C., Obermeier, M., Wolf, P., & Krcmar, H. (2011). Components of trust influencing e-government adoption in Germany. In *Electronic Government* (pp. 88-99). Springer Berlin Heidelberg.
- [4]. Akkaya, C., Wolf, P., & Krcmar, H. (2012). Factors influencing citizen adoption of e-government services: a cross-cultural comparison (Research in progress). In *2012 45th Hawaii International Conference on System Sciences* (pp. 2531-2540). IEEE.
- [5]. Al Hujran, O., Aloudat, A., & Altarawneh, I. (2013). Factors influencing citizen adoption of e-government in developing countries: The case of Jordan. *International Journal of Technology and Human Interaction (IJTHI)*, 9(2), 1-19.
- [6]. Al-Adawi, Z. (2012). Citizen's Trust in e-Government : A Conceptual Model. *New Marketing Research Journal*. 99-116.
- [7]. Al-Hujran, O., Al-Debei, M. M., Chatfield, A., & Migdadi, M. (2015). The imperative of influencing citizen attitude toward e-government adoption and use. *Computers in human Behavior*, 53, 189-203.
- [8]. Alkhwaldi, A., Kamala, M., & Qahwaji, R. (2018). Analysis of cloud-based e-government services acceptance in Jordan: challenges and barriers. *Journal of Internet Technology and Secured Transactions-JITST*, 6(2), 556-568.
- [9]. Altarawneh, W. S., Omar, H., & Tahir, S. (2018a). The influence of Middle East crisis on the flow of tourists to Jordan. *International Research Journal of Social Sciences*, 7(11), 1-7.
- [10]. Altarawneh, W., Omar, H., & Tahir, S. (2018b). Role of perceived risks to tourists in building their future intention: a conceptual model. *International Journal of Humanities and Social Science Invention (IJHSSI)*, 7(8), 83-90.
- [11]. Al-Yawer, H., & Ahmad, R. (2018). The Concept of User Participation in the Development Process of E-government System. *3(8)*, 44-49.
- [12]. Al-Yawer, H., & Ahmad, R. (2019). Overcoming the Challenges to Develop the Future of E-government in Iraq: A Systematic Literature Review. *International Journal of Engineering & Technology*, 8(1.5), 26-30.
- [13]. Alzahrani, L., Al-Karaghoul, W., & Weerakkody, V. (2017). Analysing the critical factors influencing trust in e-government adoption from citizens' perspective: A systematic review and a conceptual framework. *International Business Review*, 26(1), 164-175.
- [14]. Andalib, Z., & Danaee, H. (2013). A study on measuring the quality of university website. *Management Science Letters*, 3(7), 1955-1960.
- [15]. Belanger, F., & Carter, L. (2008). Trust and risk in e-Government adoption. *The Journal of Strategic Information Systems*, 17(2), 165-176.
- [16]. Carter, L., & Belanger, F. (2005). The utilization of e-government services: citizen trust, innovation and acceptance factors. *Information systems journal*, 15(1), 5-25.
- [17]. Carter, L., Weerakkody, V., Phillips, B., & Dwivedi, Y. K. (2016). Citizen adoption of e-Government services: Exploring citizen perceptions of online services in the United States and United Kingdom. *Information Systems Management*, 33(2), 124-140.
- [18]. Chatfield, A., & AlAnazi, J. (2013). Service quality, citizen satisfaction, and loyalty with self-service delivery options to transforming e-government services. In *24th Australasian Conference on Information Systems*. (pp. 1-11), Melbourne, Australia.
- [19]. Colesca, S. E. (2009). Increasing e-trust: A solution to minimize risk in e-Government adoption. *Journal of applied quantitative methods*, 4(1), 31-44.

- [20]. Cordella, A., &Tempini, N. (2015). E-Government and organizational change: Reappraising the role of ICT and bureaucracy in public service delivery. *Government Information Quarterly*, 32(3), 279-286.
- [21]. Deng, L., Turner, D. E., Gehling, R., & Prince, B. (2010). User experience, satisfaction, and continual usage intention of IT. *European Journal of Information Systems*, 19(1), 60-75.
- [22]. Distel, B. (2018). Bringing Light into the Shadows: A Qualitative Interview Study on Citizens' Non-Adoption of e-Government. *Electronic Journal of e-Government*, 16(2).
- [23]. Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2019). Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model. *Information Systems Frontiers*, 21(3), 719-734.
- [24]. Faulkner, N., Jorgensen, B., & Borg, K. (2017). What encourages citizens to use e-government? A rapid review and comprehensive model, (1-33).
- [25]. Faulkner, N., Jorgensen, B., & Koufariotis, G. (2019). Can behavioural interventions increase citizens' use of e-government? Evidence from a quasi-experimental trial. *Government Information Quarterly*, 36(1), 61-68.
- [26]. Hair Jr, J. F., Wolfinbarger, M., Money, A. H., Samouel, P., & Page, M. J. (2015). *Essentials of business research methods*. Routledge.
- [27]. Ismailova, R., Muhametjanova, G., & Kurambayev, B. (2018). A Central Asian View of E-Government Services Adoption: Citizens' Trust and Intention to Use E-Services. In *Innovative Perspectives on Public Administration in the Digital Age* (pp. 212-226). IGI Global.
- [28]. Jaradat, M. I. R. M., Moustafa, A. A., & Al-Mashaqba, A. M. (2018). Exploring perceived risk, perceived trust, perceived quality and the innovative characteristics in the adoption of smart government services in Jordan. *International Journal of Mobile Communications*, 16(4), 399-439.
- [29]. Kanaan, R. K., & Masa'deh, R. E. (2018). Increasing Citizen Engagement and Participation through eGovernment in Jordan. *Modern Applied Science*, 12(11), 225-231.
- [30]. Khasawneh, R., Rabayah, W., & Abu-Shanab, E. (2013). E-Government Acceptance Factors: Trust and Risk. In *The 6th International Conference on Information Technology (ICIT 2013)* (pp. 8-10).
- [31]. Kurfali, M., Arifoğlu, A., Tokdemir, G., & Paçin, Y. (2017). Adoption of e-government services in Turkey. *Computers in Human Behavior*, 66, 168-178.
- [32]. Lee, J., Kim, H. J., & Ahn, M. J. (2011). The willingness of e-Government service adoption by business users: The role of offline service quality and trust in technology. *Government Information Quarterly*, 28(2), 222-230.
- [33]. Lee, J., Warkentin, M., & Johnston, A. C. (2016). A Broader View of Perceived Risk during Internet Transactions. *CAIS*, 38, 8.
- [34]. Liu, D., & Carter, L. (2018). Impact of citizens' privacy concerns on e-Government adoption. In *Proceedings of the 19th Annual International Conference on Digital Government Research: Governance in the Data Age* (p. 27). ACM.
- [35]. Madsen, C., & Kræmmergaard, P. (2015). Channel Choice: A Literature Review. In *Electronic Government* (pp. 3-18). Springer International Publishing.
- [36]. Mohammed, M. A., Aboobaidar, B. M., Ibrahim, H., Abdullah, H. A., Ali, M. H., Jaber, M. M., & Shawkat, A. (2016). E-government and its challenges in developing countries: Case study Iraqi e-government. *Soc. Sci*, 11(17), 4310-4319.
- [37]. Mohammed, M. A., Hasson, A. R., Shawkat, A. R., & Al-khafaji, N. J. (2012). E-government architecture uses data warehouse techniques to increase information sharing in Iraqi universities. In *2012 IEEE Symposium on E-Learning, E-Management and E-Services* (pp. 1-5). IEEE.
- [38]. Mohammed, M., Ibrahim, H. B., Shawkat, A. R., & Hasson, A. R. (2013). Implementation of Data warehouse Architecture for E-government of Malaysian Public Universities to Increase Information sharing between them. In *Proceedings of the International Conference on Rural ICT Development* (pp. 1-8).
- [39]. Mouakket, S. (2010). The motivations for citizens' adoption of e-government: an empirical study in the UAE. *International Journal of Business Information Systems*, 6(2), 240-264
- [40]. Mouakket, S., & Al-hawari, M. A. (2012). Investigating the factors affecting university students' e-loyalty intention towards the Blackboard system. *International Journal of Business Information Systems*, 9(3), 239-260.
- [41]. Nugroho, R. A., & Haryani, T. N. (2016). Generation X and generation Y perception towards Internet of Things in public service: A preliminary study in Indonesia. In *2016 22nd Asia-Pacific Conference on Communications (APCC)* (pp. 110-114). IEEE.
- [42]. OECD. (2017). Government at a Glance 2017, Retrieved at 14 June 2019 from: <https://www.oecd.org/gov/government-at-a-glance-2017-highlights-en.pdf>.
- [43]. Ospina, M., & Pinzon, B. (2018). Theoretical Perspectives on Usage of e-Government Services: A Literature Review. In *Twenty-fourth Americas Conference on Information Systems (AMCIS)*. (pp. 1-10), New Orleans: USA.
- [44]. Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International journal of electronic commerce*, 7(3), 101-134.
- [45]. Putri, J. W. (2015). Factors Affecting Customers Online Search Intention and Online Purchase Intention using Social Networks: Case Study of Online Shop on Instagram. *iBuss Management*, 3(2), 232-240.
- [46]. Rana, N. P., & Dwivedi, Y. K. (2015). Citizen's adoption of an e-government system: Validating extended social cognitive theory (SCT). *Government Information Quarterly*, 32(2), 172-181.
- [47]. Rana, N. P., Dwivedi, Y. K., Williams, M. D., & Weerakkody, V. (2015). Investigating success of an e-Government initiative: validation of an integrated IS success model. *Information Systems Frontiers*, 17(1), 127-142.
- [48]. Reddick, C. G. (2005). Citizen interaction with e-Government: From the streets to servers?. *Government Information Quarterly*, 22(1), 38-57.
- [49]. Rehman, M., Esichaikul, V., & Kamal, M. (2012). Factors influencing e-Government adoption in Pakistan. *Transforming Government: People, Process and Policy*, 6(3), 258-282.
- [50]. Rey-Moreno, M., Felício, J. A., Medina-Molina, C., & Rufin, R. (2018). Facilitator and inhibitor factors: Adopting e-government in a dual model. *Journal of Business Research*, 88, 542-549.
- [51]. Rifat, A., Nisha, N., & Iqbal, M. (2019). Predicting e-Tax Service Adoption: Integrating Perceived Risk, Service Quality and TAM. *Journal of Electronic Commerce in Organizations (JECO)*, 17(3), 71-100.
- [52]. Salam, A. F., Rao, H. R., & Pegels, C. C. (2003). Consumer-perceived risk in e-commerce transactions. *Communications of the ACM*, 46(12), 325-331.
- [53]. Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.
- [54]. Shahzad, F., Xiu, G., Khan, I., & Wang, J. (2018). m-Government Security Response System: Predicting Citizens' Adoption Behavior. *International Journal of Human-Computer Interaction*, 1-17.
- [55]. Tan, W. K., Lee, P. W., & Hsu, C. W. (2015). Investigation of temporal dissociation and focused immersion as moderators of satisfaction-continuance intention relationship: Smartphone as an example. *Telematics and Informatics*, 32(4), 745-754.

- [56]. Tan, Y. & Thoen, W. (2001). Toward a generic model of trust for electronic commerce. *International journal of electronic commerce*, 5(2), 61-74.
- [57]. Tat-Kei Ho, A. (2002). Reinventing local governments and the e-government initiative. *Public administration review*, 62(4), 434-444.
- [58]. Verkijika, S. F., & De Wet, L. (2018). E-government adoption in sub-Saharan Africa. *Electronic Commerce Research and Applications*, 30, 83-93.
- [59]. Wangpipatwong, S., Chutimaskul, W., & Papisratom, B. (2008). Understanding citizen's continuance intention to use e-Government website: A composite view of technology acceptance model and computer self-efficacy. *The electronic journal of e-Government*, 6(1), 55-64.
- [60]. Warkentin, M., Gefen, D., Pavlou, P. A., & Rose, G. M. (2002). Encouraging citizen adoption of e-government by building trust. *Electronic markets*, 12(3), 157-162.
- [61]. Zarei, B., Amanati, K., & Ghapanchi, A. H. (2018). Investigating drivers of user acceptance of electronic treasury: a case study. *International Journal of Business Information Systems*, 27(3), 277-297.

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