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MODERATING ROLE OF ONLINE TRUST ON THE RELATIONSHIP BETWEEN SERVICE DYNAMICS, INFORMATION AWARENESS, CITIZEN SATISFACTION TO E-GOVERNMENT SERVICES AND CONTINENCE INTENTION: A CASE OF UAE

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Abstract:

The purpose of this research is to examine the trends in citizen satisfaction for e-government services as observed through service usefulness, service ease of use, information awareness and service quality. Furthermore, this study also investigates the impact of citizen satisfaction towards e-government services on E-government service continuance intention. Additionally, the moderating impact of online trust on the relationship between exogenous and endogenous variables is also observed. A sample of 364 questionnaires was observed as valid enough for the purpose descriptive statistics, correlational matrix and demographic analysis as well. Additionally, this research has applied two step approach while considering the measurement model assessment and structural model assessment. The study findings through measurement model confirms that there is no problem for the model validity and reliability along with other fit indices. After examining the measurement model, structural model is applied through Smart PLS-SEM approach for both direct and moderating effect. The study results confirm that there is a significant and positive impact of e-service ease of use, information awareness, e-service quality, and online trust on citizen satisfaction to e-government services. Furthermore, the study findings confirm that there is a significant moderating effect of online trust on the relationship between e-service usefulness-citizen satisfaction, between e-service ease of use-citizen satisfaction, between information awareness-citizen satisfaction, and between e-service quality-citizen satisfaction. The study findings would be great support to various stakeholders specifically to those

who are responsible for managing and providing e-government services for better citizen satisfaction. Besides, some limitations like missing of cross departmental comparison, consideration of only UAE region, and data collection through survey questionnaire only. Future studies are highly recommended to address these limitations.

Keywords:

E-government Services, Citizen Satisfaction, Service Usefulness, UAE

Introduction

E-government or governance is a system which covers some inter-association between the government employees as working in different department with the society at large. Th relationship between e-government and e-governance is quite critical for the design of system and effective and efficient delivery of e-services to the community members (AlSayegh, Hossan, & Slade, 2019). In this e-government and related technologies serve in a distinguish way and ends with the improved and better service delivery to the citizens. Such initiatives not only encourage the citizens to empower themselves while accessing the exact information along with some sensible interaction with the governmental organizations (Alkraiji, 2020). For the initiative to be realized, the government commissioned an executive committee with the mandate regarding the conduction of regular strategic audit for the various activities related with Dubai Smart Government. The core task was to study and examine the various governments like Singapore, Malaysia, Britain and United States of America USA. After getting some significant body of knowledge from the stated economies, an e-strategy was developed for the governmental departments which covers the related infrastructure, e-services, and many other tools so that delivery of the services can be started electronically. Additionally, it is observed that some of the public sector organizations were very well equipped with the electronic infrastructure while others need some relevant technologies are infrastructure as well. Furthermore, after networking the public departments an e-government portal was finally launched during 2001 as expressed by (Warf, 2013).

In addition, through e-government facility various services were offered to the general public and business groups. These services include esurvey, epay, mpay, SMSDubai, Ask Dubai, eHost, eComplain, and eSuggestion as well (AlSayegh et al., 2019). various factors are playing their leading role towards the success of the e-government system in Dubai which is mainly attributed to the information and communication technology or ICT infrastructure, information structure of e-government and its promotion in the region as well (Kumar & Dash, 2015). As per the Figure 1 below, the government of Dubai has adopted a recommendation as provided by United Nations regarding the four stages e-government model.

In addition, the title of citizen satisfaction from e-government services has provided the fact that various determinants are also observed in the existing literature. For example, Anwer, Esichaikul, Rehman, and Anjum (2016) indicate that there are two perspective of the variables which are entitled as determinants of citizen satisfaction towards e-government services. These are known as supply side and demand side, where the former consist of service availability, website design, and service quality and later comprises of digital divide and trust and security. More specifically, the factor like service usefulness is also entitled as a determinant of citizen satisfaction to e-government services.

Another factor which is observed as among the key determinants of citizen satisfaction towards e-government services is entitled as service ease of use. This would specify that ease of use is the extent to which a user believes that a specific system can be utilized without much more hazzles or efforts as expressed by Davis (1989). Furthermore as per the specification of Dahi and Ezziane (2015) the digital technologies are related services will be more accepted if they would be easy to use. Furthermore, some others also specify that general public normally like to use the digital technologies specifically in the m-government services due to the fact that it is very simple, easy to access, lesser hazels involve in it, and more practical (Abu-Shanab, 2015; Al Thunibat, Zin, & Sahari, 2011). Although the significance of ease of use specifically in determining the e-government and citizen satisfaction is reasonably addressed in the literature, yet a big gap is yet to cover specifically from the context of UAE where there is a range of digital and e-government like esurvey, epay, mpay, SMSDubai, Ask Dubai, eHost, eComplain, and eSuggestion are provided (AlSayegh et al., 2019). This issue has raised an open research question regarding the role of service ease of use and its impact on the citizen satisfaction towards the e-government services as provided by the government of UAE.

Literature Review

Service Usefulness and Citizen Satisfaction to E-govt. Services
Generally, it happens that when a thing is useful then it will be more used. Greater usefulness results in greater utilization and adoption of that particular thing. Accordingly, previous studies agreed on a point that usefulness positively influence the citizen's satisfaction regarding the e-services provided to them (Sfenrianto, Wijaya, & Wang, 2018). It has been widely studied that usefulness of a system lead towards its acceptance satisfaction (Gupta, Singh, & Bhaskar, 2016). In this regard Arfat et al. (2018) carried out a study and collected data from 250 students from upper Punjab in Pakistan. They examined the influence of usefulness on the satisfaction with services provided to them. Their study results revealed that the perceived usefulness increase the satisfaction and also the intention to use the e-government among the students. Alike, Thominathan and Ramayah (2015) also conducted a study to examine the influence of usefulness on citizens' satisfaction. They conducted the study in Malaysian context particularly the citizens' interaction of e-filing. They collected data from 153 residents of Malaysian north region and their study results revealed that citizens use the e-government services as they consider it useful for them interaction depends on the perceived usefulness and citizens' satisfaction**.**

Service Ease of Use and Citizen Satisfaction to E-govt. Services
Ease of use is another factor considered under the study that lead towards the citizen satisfaction. It is to be noted that ease of use results in increased satisfaction as the citizens do not find it difficult to use the services provided by the government (Suki & Ramayah, 2010). Notably, when e-government portal seems to be easier to be used, accessible and navigation also easier then it will add to the citizen satisfaction regarding the services provided by the government electronically (Colesca & Dobrica, 2010). It is inclusive of the extent to which easiness is found while searching particular information on the websites (Yoo & Donthu, 2001) and when it happens it results in increased citizen satisfaction. Additionally, a number of research studies identified that easiness while using a service ends up in increased satisfaction among citizens. A study contended that when the beneficiary in form of citizen perceives that a particular service provided by the government is easy to use then it results in satisfaction among the citizens regarding that particular service. They also identified that the easier services

provided by the government tend to have higher chances that they satisfy the citizens (Al-Hawary & Al-Menhaly, 2017).

Chapter 1: Information Awareness and Citizen Satisfaction to E-govt. Services

Awareness is important in creating information about product knowledge and information about the details of a new product or service (Park et al., 2015). A proper communication not only shall create awareness about the product or services but also interest, desire and action (Butt, Warraich, & Tahira, 2019). Those steps are important especially in introducing new products or services (Haseeb, Zandi, Hartani, Pahi, & Nadeem, 2019). Information awareness can be described as the nature and extent to which system users are aware of the right approach and process of accessing the required services. In this context, the concept of information awareness can be classified into two main categories, namely the skills and the system knowledge. On one hand, (Palaco, Park, Kim, & Rho, 2019) argues that, in the accessing of online e-services platforms, the users require the right ICT skills. This is because, the handling of such ICT systems requires basic knowledge to operate and access. On the other hand, with respect to the process of acquiring services, Palaco et al. (2019) argues that besides having the basic ICT skills, each service system is different. This means that the users require the right set of knowledge on how to operate and use such service platforms.

Chapter 2: Service Quality and Citizen Satisfaction to E-govt. Services

Finally, the study has considered the service quality as predictor of the satisfaction among the citizens regarding the e-government services. It is to be noted that literature on service quality is dominated by the marketing context which affirms that it has been extensively research topic in marketing regarding satisfaction of customers. The relationship between service quality and satisfaction has gained much attention from the researchers as it ultimately influences the behaviors of individuals regarding the usage of services (Zeithaml, Berry, & Parasuraman, 1996). Accordingly, Iacobucci, Ostrom, and Grayson (1995) also contended that service quality is necessary to drive the customer satisfaction as it determines the success and failure of a particular product and service in any context. Moreover, Rust and Zahorik (1993) in their study reported that when service quality of a product or service increased or decreased then it also increases or decreases the satisfaction of the citizens. It is worthy to mention that e-service quality is different from the regular construct studied as a service quality. In this regard a previous study Zeithaml, Parasuraman, and Malhotra (2002) contended that service quality from e-govt. perspective represents the various aspects of service delivery by ensuring that information is available, easiness, can be used, and secure as well.

Chapter 3: Citizen Satisfaction and Continuance Use

Satisfaction is regarded as the measure to assess the continuance intention to utilize an information system in short-run and long-run. It can be stated that the satisfaction with the services tend to result in developing the long-run intention to use the e-government. Generally, satisfaction of individuals tend to have positive association with the intentions to use the different services. In context of e-services it is regarded as a key component and factor that influences the satisfaction regarding the various services such as e-banking, e-billing, e-government etc. Satisfaction of a user can be regarded as the emotional state that can influence his/her perceptions and adoption of something. For instance, if a user of mobile payments is satisfied with its services from all aspects then he or she will be more inclined to use these services in long-run as compared to citizens who are not satisfied with these services. Previous studies have pointed out that when a technology is easier to use then it results in satisfaction

and later on adds to the citizen intention to use that particular technology (Cho, 2016). It affirms that individuals rely on the limited resources and they need them to learn the new technologies to use them accordingly. When they perceive that something is valuable and useful then it increases their satisfaction and intention to use the particular service.

Chapter 4: Online Trust As A Moderator

Trust denotes to the citizens' confidence in actions performed by a government in favor of the public and they are also perceived as positive by the public (Easton & Dennis, 1965). It represents the degree of trust about the institutions among the public and they have faith that these are doing best in favor of community and society (Kim and Lee, 2012). Trust is necessary in every aspect of life. Similarly, it has gained attention and importance in e-government due to the increasing use of the e-government globally. It asks for the privacy, secrecy and security of information provided by using the e-government applications (Bannister and Connolly, 2011). Presence of higher trust in government results in higher satisfaction with the e-government services. They also contended that when individuals interact through online platform they need to have increased trust on these platforms. Sternstein (2010) in his study reported that trust plays a vital role in increasing the satisfaction and intention to use e-government services among public. He contended that when citizens perceive the e-government services as transparent, and reliable they are supposed to return to it when have to use these services in future. Additionally, Nam (2014) in their study contended that e-government services are important, and they become more prevalent in society when they are trusted by the citizens. In this regard trust in government is of greater importance as compared to trust in e-government services.

Theoretical Framework

The purpose of the study is to examine the determinants of the continuance intention to use the e-government. The study has considered the service quality, information awareness, service usefulness, service ease of use and satisfaction with e-government as an independent variable. Additionally, study has also considered the moderating role of online trust. Following figure shows the theoretical framework.
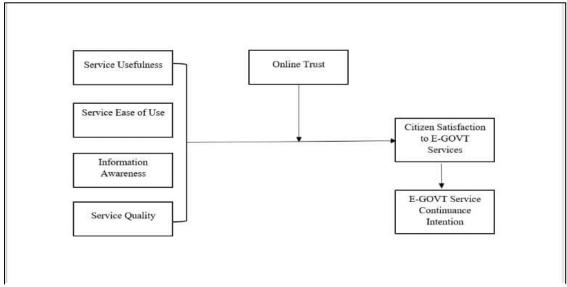

Figure 1   Research Framework

Research Methodology

This section operationalizes and provides a measure of the variables such as service usefulness, service ease of use, information awareness, service quality, online trust, online trust, citizen satisfaction to E-Government services and E-GOVT continuation intention. There is not a proper or hard rule for the data collection strategy. This a reason, the researcher could only apply or follow the general rule for the research instrument that is considered to be suitable for achieving the research objective. It is recommended in the previous research that the instrument that is being used in the study, the researcher should assured that the collected data could be able to answer the research questions and also meet the research objectives (J. F. Hair, Money, Samouel, & Page, 2007). Therefore, numerous measured presented in literature has been analyzed and the one which received large validity and reliability in the literature is selected for this research. In this regard, the current study is based on primary data and for the data collection was used self-administered structured questionnaire. The main reason for selection of the self-administered questionnaire is that it helps the respondents to give response in an easy way and also provides help to the researcher to accumulate and summarize the responses more efficiently (Corbetta, 2003). The reliability and validity of the self-report measures is endorsed by a survey adopted as the most suitable data collection and prior study tool (Brush & Vanderwerf, 1992). For the data collection, the researcher had used E-GOVT service user which are operating in the UAE.

The current study research instrument consists of three type of variables. Among of these variables, there are four independent variables, one moderating variable and two are outcomes variables. With respect to independent variables, E-service usefulness was measured by five items which were adopted from the study of (Jasimuddin, Mishra, & A. Saif Almuraqab, 2017), ease of use was measured by four items which were adapted from the study of (Khan, Moon, Swar, Zo, & Rho, 2012), E-service awareness was measured by three items which were adapted from the study of (Jasimuddin et al., 2017), and E-service quality was measured by ten items which were adapted from the study of (Kaya, Behravesh, Abubakar, Kaya, & Orús, 2019). Moreover, online trust is a moderating variable which was measured by four items which were adapted from the study of (Safa & Von Solms, 2016). Moreover, citizen satisfaction to E-GOVT services is a dependent variable that was measured by four items which were adapted from the study of (Safa & Von Solms, 2016), and E-GOVT service continuance intention is also a dependent variable that was measured by ten by three items which were adopted from the study of (Bhattacherjee, 2001) . All of these variables were measured by using 5-point Likert Scale. Olakunke (2003) further explained that the format of five points Likert scale provides a better way to communicate with the respondents. Therefore, the Likert scale had the following five measures; 1-strongly disagree, 2- disagree, 3- Neutral, 4- agree, 5- strongly agree. There are many studies have done on the Likert scale, since they used the perceptual measures and obtained data was the ordinal in nature (Kafetzopoulos, Gotzamani, & Skalkos, 2019; Kassem, 2016; Kassem, Ajmal, Gunasekaran, & Helo, 2019).

Furthermore, studies in the area of service usefulness, service ease of use, information awareness, service quality, online trust, citizen satisfaction to E-GOVT services and E-GOVT continuation intention advocates for the administration of questionnaire as the primary source of relevant data and they were succeeded in this approach (Kafetzopoulos et al., 2019). Therefore, before going any type of analysis, it is very much necessary to pay significant attention that how the instrument should be developed. There are six sections such as, A, B, C, D, E and F in which the questionnaire was distributed. Firstly, section A provides the identity

of the topic to conveying the overall objective of the study. Secondly, section B provides their background information which includes the name of the organization, job description, gender, age, qualification and experience in the relevant field. Thirdly, section C consists of all questions of independent variables; COC dimensions. Fourthly, section D consists of moderating variable ICT aims to earn the information from the respondents about the ICT. Fifthly, section E consists of BE for the data collection about the excellence. Finally, section F is providing a note for the comments of the respondents. After development of the questionnaire, data was collected from various citizens who are currently using e-government services.

Analysis and Discussion

Demographic Analysis
This section covers the characteristics of respondents who participated in our study. Since the unit of analysis of current research is the citizens of UAE who use e-govt services from the e-Government webs and portals. The characteristics that determined in this section, consist of gender, marital status, age, internet usage frequency, highest education, employment level, and salary of the respondents. These characteristics have been measured on nominal scales.

In demographic analysis the distribution of respondent's based on the gender illustrates that Male respondents having dominated response rate with 87.9% (*n*=320) as compared to 12.1% (*n*=44) who are females. As the UAE's culture the male having the dominant position over the female especially in technological advance online activities. With respect to marital status, it was observed that most of the respondents were married as 76.1% (277) as compared to the 23.9% (*n*=87) which were bachelor. As for as Age was concerned this study illustrates that majority of the respondents fall within the age 31-35 years as 42.2% (*n*=154), the second highest age group was 36- 40 about 35.2% (*n*=128) and 15.1% (*n*=55) respondents were older than the 25-30 years and remaining 7.4% (*n*=27) were more than the age of 40 years. Moreover, it was also observed that over 43.7% (*n*=164) of the responses came from the respondent who were holding the master's degree, 38.5% (*n*=140) respondents had bachelor's degree, and 9.3% (*n*=34) of the diplomas. The remaining 8.5% (*n*=31) respondents were the holder of other qualifications. Moreover, job the internet usage of the respondents 4-6 hours a day was dominated frequency with a percent of the 42.9% (*n*=156), the second highest number of the respondents having frequency of 2-4 hours a day with a percent of the 37.1% (*n*=135), the third highest number of respondents reported with the 1-2 hours a day as 14.8% (*n*=54) and remaining 5.2% (*n*=19) having the more than 6 hours usage of internet a day. Also, the employment level of the respondents was assessed in this study which was reported as 47% (*n*=171) of the respondents are working in public sector organizations in UAE and remaining 53% (*n*=193) were doing jobs in private sector organizations in UAE. It was also observed that 39.3% (*n*=143) of the responses came from the respondent who have the monthly income of between 5001-7000 AED, 39% (*n*=142) respondent's monthly earnings between 3001-5000 AED, and 16.5% (*n*=60) of the respondent's income was less than 3000 AED. The remaining 5.2% (*n*=19) respondents' earnings was more than 7000 AED as shown in the Table 1.

Table 1   Demographic *Profile of The Respondents* (n = 364)

Demographic variables	Category	Frequency	Percentage
Gender	Female	44	12.1%
	Male	320	87.9%

Marital Status	Married	277	76.1%
	Bachelor	87	23.9%
Age	25-30	55	15.1%
	31-35	154	42.3%
	36-40	128	35.2%
	Above 40	27	7.4%
Highest Education	Diploma	34	9.3%
	Bachelor	140	38.5%
	Master's degree	159	43.7%
	others	31	8.5%
Salary	Less than 3000 AED	60	16.5%
	3001-5000 AED	142	39.0%
	5001-7000 AED	143	39.3%
	More than 7000 AED	19	5.2%
Internet usage	1-2 Hours	54	14.8%
	2-4 Hours	135	37.1%
	4-6 Hours	156	42.9%
	More than 6Hours	19	5.2%
Employment level	Public	171	47.0%
	Private	193	53.0%

Assessment of the Measurement Model

In accordance with the rule of thumb, defined by Fornell and Larcker (1981b) and Larcker (1981) and advocated by the recent literature (Hair, Sarstedt, Hopkins, & G. Kuppelwieser, 2014; J. F. Hair, Hult, Ringle, & Sarstedt, 2016, p. 119), Average Variance Extracted (AVE) was used as a determinant of convergent validity. Table 2 shows the AVE values of all the constructs, which reveal that all the values are above the acceptable threshold of 0.5 (Fornell & Larcker, 1981b; J. Hair, Sarstedt, Ringle, & Gudergan, 2017), ranging from 0.65 to 0.74. The AVE value greater than 0.5 implies that the latent construct explains more than half of the indicators' variance(J. Hair et al., 2017, p. 114). Internal consistency reliability refers to the "extent to which all items on a particular sub scale are measuring the same concept" (McCrae, Kurtz, Yamagata, & Terracciano, 2011). According to composite reliability acceptable value is 0.7 which should not lower than the threshold value of 0.7, and the average variance extracted (AVE) acceptable value should be at least 0.5, that criteria given by the (Fornell & Larcker, 1981a). In this study the composite reliability and AVE value of all variables fulfill the criteria suggested by the Hair, Black, Babin, and Anderson (2014); J. F. Hair, Anderson, Babin, and Black (2010). Table 2 shows that all the variables are highly reliable, and the AVE value of each variable is above than the cutoff point of 0.50 which shows that the measurement model is reliable for the further analysis. The Cronbach alpha also calculated in this study to validate the internal consistency of the constructs, as per the rule of thumb given by the George and Mallery (2003) that α< 0.9 = Excellent, α< 0.8 = Good, α< 0.7 = Acceptable. The detail is shown below in the table 4.14 that possess the AVE, Cronbach alpha, and composite reliability scores of all latent variables.

Table 2: Factor loading, Cronbach's Alpha, CR, and AVE of Latent Variables

Construct Name	Item	Loading	C-Alpha	CR	AVE	Deleted
Citizen satisfaction to e-govt services	EGS1	0.754	**0.825**	**0.884**	**0.657**	
	EGS2	0.816				
	EGS3	0.868				
	EGS4	0.801				
E-govt service continuance intention	ESCI1	0.844	**0.800**	**0.882**	**0.714**	
	ESCI2	0.913				
	ESCI3	0.773				
E-service ease of use	ESEU1	0.818	**0.850**	**0.896**	**0.682**	
	ESEU2	0.871				
	ESEU3	0.836				
	ESEU4	0.777				
E-service quality	ESQ1	0.888	**0.941**	**0.949**	**0.702**	**2**
	ESQ2	0.846				
	ESQ3	0.832				
	ESQ5	0.750				
	ESQ6	0.889				
	ESQ7	0.845				
	ESQ8	0.832				
	ESQ9	0.812				
E-service usefulness	ESU1	0.815	**0.790**	**0.860**	**0.607**	
	ESU2	0.843				
	ESU3	0.727				
	ESU4	0.725				
Online trust	ET1	0.823	**0.888**	**0.922**	**0.747**	**1**
	ET2	0.878				
	ET3	0.883				
	ET4	0.872				
Information awareness	IW1	0.807	**0.834**	**0.897**	**0.743**	
	IW2	0.891				
	IW3	0.886				

For the assessment of the discriminant validity, Cross-Loadings were used. Firstly, the assessment was based on cross-loadings of the items. As a rule of thumb (Chin, 1998b; J. Hair et al., 2017, p. 114; J. F. Hair, 2010), the ideal standardized loading estimates is 0.7 or higher. (Esposito Vinzi, Chin, Henseler, & Wang, 2010). Table 4.14 presents the values of the outer loadings of the items that are well above the stringent cutoff point of 0.7. However, three items were not included to the measures as they are notating the lowest criteria of the outer loading. The rest of the outer loadings exceeded 0.7 to reach the highest value of 0.91. These values were greater than the cross-loadings of other constructs as well as complying to the rule of thumb (J. F. Hair, Black, Babin, Anderson, & Tatham, 2010). All the loaded indicators, on their

respective constructs, suggest that no cross-loadings exist among the indicators. The detail of cross-loadings is presented in Table 3.

Table 3   Cross Loadings of All Items of Latent Constructs

	EGS	ESCI	ESEU	ESQ	ESU	ET	IA
EGS1	**0.754**	0.222	0.169	0.247	0.365	0.597	0.162
EGS2	**0.816**	0.228	0.151	0.254	0.296	0.408	0.269
EGS3	**0.868**	0.310	0.128	0.242	0.358	0.501	0.289
EGS4	**0.801**	0.280	0.120	0.265	0.387	0.469	0.178
ESCI1	0.319	**0.844**	0.064	0.081	0.281	0.247	0.110
ESCI2	0.246	**0.913**	0.014	0.050	0.225	0.203	0.013
ESCI3	0.237	**0.773**	0.062	0.119	0.238	0.213	0.054
ESEU1	0.176	0.022	**0.818**	0.633	0.180	0.131	0.061
ESEU2	0.165	0.035	**0.871**	0.636	0.165	0.187	0.016
ESEU3	0.108	0.078	**0.836**	0.678	0.136	0.170	0.023
ESEU4	0.098	0.081	**0.777**	0.565	0.112	0.122	0.071
ESQ1	0.328	0.093	0.616	**0.888**	0.135	0.267	0.027
ESQ2	0.269	0.067	0.692	**0.846**	0.145	0.304	0.019
ESQ3	0.184	0.083	0.661	**0.832**	0.099	0.268	0.027
ESQ5	0.186	0.107	0.590	**0.750**	0.105	0.268	0.065
ESQ6	0.325	0.093	0.614	**0.889**	0.134	0.268	0.026
ESQ7	0.268	0.071	0.704	**0.845**	0.142	0.299	0.017
ESQ8	0.182	0.084	0.659	**0.832**	0.098	0.269	0.026
ESQ9	0.254	0.065	0.603	**0.812**	0.096	0.250	0.011
ESU1	0.449	0.277	0.164	0.090	**0.815**	0.372	0.178
ESU2	0.322	0.219	0.143	0.146	**0.843**	0.355	0.038
ESU3	0.282	0.228	0.148	0.154	**0.727**	0.390	0.016
ESU4	0.250	0.181	0.117	0.073	**0.725**	0.370	0.145
ET1	0.428	0.192	0.142	0.254	0.375	**0.823**	0.387
ET2	0.517	0.262	0.133	0.244	0.496	**0.878**	0.389
ET3	0.507	0.199	0.147	0.273	0.384	**0.883**	0.210
ET4	0.636	0.254	0.205	0.339	0.384	**0.872**	0.203
IW1	0.165	0.027	0.056	0.035	0.090	0.228	**0.807**
IW2	0.219	0.029	0.009	0.006	0.103	0.260	**0.891**
IW3	0.295	0.039	0.022	0.031	0.115	0.345	**0.886**

Note: ESEU= e-service ease of use, ESU= e-service usefulness, IW= information awareness, ESQ= e-service quality, ET= online trust, EGS= citizen satisfaction to e-govt services, ESCI= e-govt service continuance intention
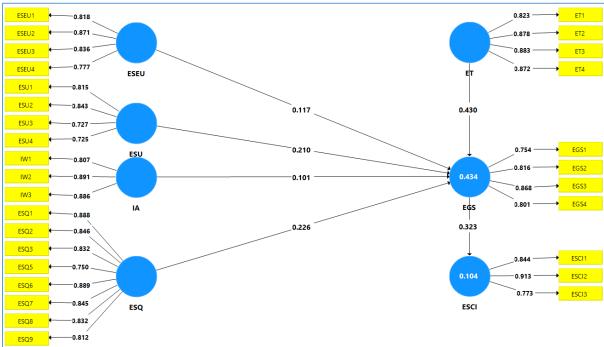
Figure 2   **Measurement Model Results**

Note: ESEU= e-service ease of use, ESU= e-service usefulness, IW= information awareness, IA= information awareness, ESQ= e-service quality, ET= online trust, EGS= citizen satisfaction to e-govt services, ESCI= e-govt service continuance intention.

Assessment of the Structural Model

This section covers the structural model of the study that represents the underlying theory of coefficient path model. Structural model covers the following things; coefficient of determination (R^2 value), predictive relevance of the model (Q^2 value), significance of the path coefficients, and effect size (f^2) as suggested by (J. F. Hair, Hult, Ringle, & Sarstedt, 2014). Smart-PLS 3.3.2 was used to conduct all these tests. First, PLS algorithm was run to calculate R^2 value on Smart-PLS 3.3.2. Subsequently, calculated the predictive relevance of the study model by using blindfolding technique in Smart-PLS 3.3.2. Then, bootstrapping technique was run with 500 subsamples and 364 cases ran to get significance of the path coefficients. Since this study, by running PLS-SEM (PLS algorithm and bootstrapping), assessment of the structural model performed (Chin, 2010). First, the predictive power of the structural model was assessed by the coefficient of determination (*R*2 values) of the endogenous construct (Chin, 2010; Henseler et al., 2009) and significance level of the path coefficients was determined (Hair, Hult et al., 2014).

R-squared constitutes an important parameter in the evaluation of a PLS SEM structural model, known as the determination coefficient (Hair, W. Black, et al., 2014; Henseler, Hubona, & Ray, 2017). J. F. Hair et al. (2016) also indicated R2 as reflecting the proportion of uncertainty in an independent variable, which can be explicated by one or more of the predictor variables (s). While the context of the research identified an acceptable R2 standard, (Falk & Miller, 1992) proposed a minimum acceptable R2 standard of 0.10. Chin (1998a) indicated that when R2, value is 0.19, 0.33 and 0,67 respectively graded as low, moderate and major, this should be taken into consideration. Table 4.18 illustrates R2 of endogenous latent variable of this

study, the R2 of the citizen satisfaction to e-govt services is 0.434 which is considered as substantial and the e-govt service continuance intention R2 values reported as 0.104 as shown in table 4 below.

Table 4   R-square of Endogenous Latent Constructs

Variable Name	R Square values
EGS	0.434
ESCI	0.104

Note: ESEU= e-service ease of use, ESU= e-service usefulness, IW= information awareness, ESQ= e-service quality, ET= online trust, EGS= citizen satisfaction to e-govt services, ESCI= e-govt service continuance intention

Table 5   Direct Relationship Results

H	Path	Beta	STDEV	T Statistics	P Values	Decision
H1	**ESU -> EGS**	0.124	0.044	2.799	**0.005**	Not Supported
H2	**ESEU -> EGS**	0.150	0.057	2.635	**0.009**	Supported
H3	**IA -> EGS**	0.114	0.045	2.545	**0.011**	Supported
H4	**ESQ -> EGS**	0.182	0.057	3.164	**0.002**	Supported
H5	**ET -> EGS**	0.344	0.054	6.313	**0.000**	Supported
H6	**EGS -> ESCI**	0.323	0.039	8.380	**0.000**	Supported

Note: ESEU= e-service ease of use, ESU= e-service usefulness, IW= information awareness, ESQ= e-service quality, ET= online trust, EGS= citizen satisfaction to e-govt services, ESCI= e-govt service continuance intention

In addition, Table 5 shows the direct relationship between the study variables. It is found that there is a significant and positive impact of ESU on EGS, ESEU on EGS, IA on EGS, ESQ on EGS, ET on EGS, and EGS on ESCI. This would indicate that five out of six direct relationship paths between the study variables are justified and accepted.

A test of moderation, as pointed out by Ramayah, Lee, and In (2011), is done to know whatever the moderating variable affects the relationship between endogenous and exogenous variable in terms of strength and/or direction of the relationship. When there is an inconclusive relationship or weak relationship exist between exogenous and endogenous constructs, a moderator variable is typically introduced (Ramayah et al., 2011).

There are a series of techniques to test the moderation effects such as hierarchal regression procedure that has three steps. However, the drawback of this technique is that researchers have to calculate the interaction terms manually by using functions, transformation, computation, and taking the product of each pair. Another technique is the cross products of the indicator of the independent variable and the moderator (Chin et al., 2003; Dawson, 2014). In this study, the researcher applied the moderating variable as an additional construct using the cross product of the indicator of the predictor variable and the moderator (Chin et al., 2003). This method of testing is called a product indicator approach. Subsequently, an interaction model was tested by creating an interaction term between e-service ease of use, e-service usefulness, information awareness, e-service quality, and citizen satisfaction to e-govt services. This model included the moderating effect of online trust on the relationship between e-service ease of use, e-service usefulness, information awareness, e-service quality and citizen satisfaction to e-govt

services and four hypotheses H7, H8, H9, and H10 were tested for the moderation analysis. This product indicator approach involved determining the path coefficients and t-values. Based on analysis of the moderation effect, the result of the H7 suggests that the relationship between E-Service Usefulness and citizen satisfaction to e-govt services would be strengthened by online trust as (β = 0.158, t =4.582, p = 0.000). This result signifies that positive nexuses between E-Service Usefulness and citizen satisfaction to e-govt services were stronger where citizens of UAE have high online trust.

Subsequently, the result of the H8 suggests that the relationship between E-service ease of use and citizen satisfaction to e-govt services would be strengthened by online trust as (β = 0.142, t =2.219, p = 0.027). This result signifies that positive nexuses between E-service ease of use and citizen satisfaction to e-govt services were stronger for citizens of UAE with high online trust.

In the same vein, the result of the H9 suggests that the relationship between Information Awareness and citizen satisfaction to e-govt services would be strengthened by online trust as (β = 0.143, t =3.137, p = 0.022). This result signifies that positive nexuses between Information Awareness and citizen satisfaction to e-govt services were stronger for citizens of UAE with high online trust.

Similarly, the result of the H10 suggests that the relationship between E-Service Quality and citizen satisfaction to e-govt services would be strengthened by online trust as (β = 0270, t =4.079, p = 0.000). This result signifies that positive nexuses between E-Service Quality and citizen satisfaction to e-govt services were stronger for citizens of UAE with high online trust.

Table 6   Moderation results

H	Path	Beta	STDEV	T Statistics	P Values	Decision
H7	ESU*ET -> EP	0.158	0.034	4.582	0.000	Supported
H8	ESEU*ET -> EP	0.142	0.064	2.219	0.027	Supported
H9	IA*ET -> EP	0.143	0.046	3.137	0.002	Supported
H10	ESQ*ET -> EP	0.270	0.066	4.079	0.000	Supported

Note: ESEU= e-service ease of use, ESU= e-service usefulness, IW= information awareness, ESQ= e-service quality, ET= online trust, EGS= citizen satisfaction to e-govt services, ESCI= e-govt service continuance intention
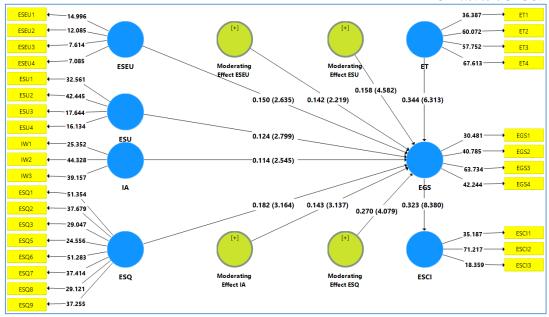
Figure 3   Structural Model Results

Note: ESEU= e-service ease of use, ESU= e-service usefulness, IW= information awareness, IA= information awareness, ESQ= e-service quality, ET= online trust, EGS= citizen satisfaction to e-govt services, ESCI= e-govt service continuance intention.

Table 7:   Summary of the Hypotheses

H1	There is positive significant relationship between service usefulness and citizen satisfaction to e-govt services.	Accepted
H2	There is positive significant relationship between service ease of use and citizen satisfaction to e-govt services.	Accepted
H3	There is positive significant relationship between information awareness and citizen satisfaction to e-govt services.	Accepted
H4	There is positive significant relationship between service quality and citizen satisfaction to e-govt services.	Accepted
H5	There is positive significant relationship between citizen satisfaction to e-govt services and e-services continuance intention.	Accepted
H6	There is positive significant relationship between online trust and citizen satisfaction to e-govt services.	Accepted
H7	Online trust is a significant moderator between relationship of service usefulness and citizen satisfaction to e-govt services.	Accepted
H8	Online trust is a significant moderator between relationship of service ease of use and citizen satisfaction to e-govt services.	Accepted
H9	Online trust t is a significant moderator between relationship of information awareness and citizen satisfaction to e-govt services.	Accepted
H10	Online trust t is a significant moderator between relationship of service quality and citizen satisfaction to e-govt services.	Accepted

Conclusion and Implications

From the empirical results of this study, it is observed that e-service usefulness increased the citizen satisfaction to e-govt services in the UAE and results in increasing e-govt service continuance intention. The study findings also depicted that when a citizen feel the service useful for the resolution of their problems then his/her status of satisfaction tends to increase. Consistent with the findings of the study it is stated that the e-service Govt-organizations of UAE must look at their mandatory services to prevent situations where citizens feel complexity and issues in e-Govt service delivery through websites and portals. It is no exception that organizations, particularly Govt-organizations have issues, but they can be controlled so they do not make the e-govt service facilities useless and time consuming than the traditional ones. In this regard, it is recommended that organizations need to take serious steps to put efforts to make their e-services efficient and effective than past. Additionally, it is worthy to note that service usefulness in the TAM widely acknowledged that by the researchers to achieve the target audience favor, either they are e-customers or citizens in case of the govt services.

In terms of the relationships between e-service ease of use and citizen satisfaction to e-govt services this study established that e-service ease of use significantly and positively influences the citizen satisfaction to e-govt services. So, from the Govt e-service perspective, it is recommended that managers should pay special attention to improve the website or e-portals ease for user-friendliness to enhance the satisfaction of the UAE citizens while using the e-Govt services. As one of the major benefits of using the ease of use lies in the fact that it saves the costs of individuals. The e-Govt officials should consider putting efforts to make technology easier for the UAE citizens. It can be argued that individuals who perceive that a particular technology is easier to use then they will be more inclined to use it and result in better outcomes for both the individuals and organizations as well. It reduces the efforts required to gain access or avail the services provided by the government institutions.

Another objective of this study was to investigate the relationship between information awareness and citizen satisfaction to e-govt services of the UAE. By achieving this objective, the study offers valuable practical implications from an information awareness perspective as well. Based on the findings, it is suggested that awareness is necessary in Govt domain as it helps citizens to take decisions, go for something and refrain from something. Awareness has a significant role in creation of information and knowledge regarding a e-Govt service because citizens use the services as per their awareness about that. Hence, therefore it is suggested that Govt organizations should focus on the awareness campaigns of that services towards citizens as the more cleared information's makes citizens more satisfied with e-Govt services.

From the perspective of the e-service quality, this study revealed that e-service quality positively influences citizen satisfaction to e-govt services. These finding of the study expected to help Govt organizations to put focus on the superior services of the e-Govt services to gain the citizen satisfaction. According to the results it is suggested that Govt organizations make such policies and procedures to provide quality services to the citizens of the UAE which leads toward the citizen satisfaction. Additionally, poor quality services provided by the Govt on the portal and websites tend to result in negative outcomes such as dissatisfaction and negative word of mouth regarding the Govt services. Additionally, there should not be unrealistic, lengthy requirements to avail services which makes service delivery complex. These should be avoided so they can use e-Govt services easily which makes them satisfied and loyal toward the Govt. Moreover, from the perspective of the relationship with dependent variable (citizen

satisfaction to e-govt services) and outcome variable (e-govt service continuance intention), e-govt service continuance intention is widely studied as a dependent variable of different predictors whereas the present study has contributed to the existing literature on a e-govt service continuance intention it as an outcome variable. In this way, the study has put forward the new direction that studies may also examine the e-govt service continuance intention as an outcome variable.

The study has provided empirical evidence that online trust can work as a moderator and predictor as well. The study findings highlight that the relationships e-service ease of use, e-service usefulness, information awareness, e-service quality and citizen satisfaction to e-govt services is exists. However, under these relationships, online trust may serve as a moderator that can strengthen the relationship between e-service ease of use, e-service usefulness, information awareness, e-service quality, and citizen satisfaction to e-govt services. Additionally, it also establishes that as a theoretical construct online trust can result in a valuable contributor for citizen satisfaction to e-govt services for citizens of UAE. In this way, the study has strengthened the literature on online trust from a moderation perspective. Theoretically, it put forward the implication that e-Govt organizations need to strongly address the issue of online trust for creating higher citizen satisfaction to e-govt services.

A major objective of the study was to identify the predictors of citizen satisfaction to e-govt services. In this regard, the study considered e-service ease of use, e-service usefulness, information awareness, e-service quality, and online trust as predictors. Additionally, the moderating role of online trust between the relationship of e-service ease of use, e-service usefulness, information awareness, e-service quality, and citizen satisfaction to e-govt services was also tested.

The study findings are presented in chapter 4 and discussed in detail in the above section. As per the findings of the study, it is concluded that service usefulness increased citizen satisfaction to e-govt services. Which proves that when the citizens perceive that e-services provided by the government offers them several benefits then their satisfaction will be greater. Hence, it is established that when any of the e-government service is perceived as viable and useful by the citizens it tends to have satisfaction with these services as compared to services that are not useful or unable to deliver their usefulness.

References
Abu-Shanab, E. A. (2015). Reengineering the open government concept: An empirical support for a proposed model. *Government Information Quarterly, 32*(4), 453-463.
Al-Hawary, S. I. S., & Al-Menhaly, S. M. (2017). The quality of e-government services and its role on achieving beneficiaries satisfaction. *Global Journal of Management And Business Research*.
Al Thunibat, A., Zin, N. A. M., & Sahari, N. (2011). Identifying user requirements of mobile government services in Malaysia using focus group method. *Journal of e-government studies best practices, 2011*, 1-14.
Alkraiji, A. I. (2020). An examination of citizen satisfaction with mandatory e-government services: comparison of two information systems success models. *Transforming Government: People, Process Policy*.
AlSayegh, A., Hossan, C., & Slade, B. (2019). Radical improvement of e-government services in Dubai. *International Journal of Services Technology Management, 25*(1), 53-67.

Anwer, M. A., Esichaikul, V., Rehman, M., & Anjum, M. (2016). E-government services evaluation from citizen satisfaction perspective: A case of Afghanistan. *Transforming Government: People, Process Policy*.

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS quarterly*, 351-370.

Brush, C. G., & Vanderwerf, P. A. (1992). A comparison of methods and sources for obtaining estimates of new venture performance. *Journal of Business venturing, 7*(2), 157-170.

Butt, N., Warraich, N. F., & Tahira, M. (2019). Development level of electronic government services. *Global knowledge, memory and communication*.

Chin, W. W. (1998a). Commentary: Issues and opinion on structural equation modeling. In: JSTOR.

Chin, W. W. (1998b). The partial least squares approach to structural equation modeling. *Modern methods for business research, 295*(2), 295-336.

Corbetta, P. (2003). *Social research: Theory, methods and techniques*: Sage.

Dahi, M., & Ezziane, Z. (2015). Measuring e-government adoption in Abu Dhabi with technology acceptance model (TAM). *International Journal of Electronic Governance, 7*(3), 206-231.

Easton, D., & Dennis, J. (1965). The child's image of government. *The Annals of the American Academy of Political and Social Science, 361*(1), 40-57.

Esposito Vinzi, V., Chin, W. W., Henseler, J., & Wang, H. (2010). *Handbook of partial least squares: Concepts, methods and applications*: Heidelberg, Dordrecht, London, New York: Springer.

Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*: University of Akron Press.

Fornell, C., & Larcker, D. F. (1981a). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research, 18*(1), 39-50.

Fornell, C., & Larcker, D. F. (1981b). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 39-50.

George, D., & Mallery, M. (2003). Using SPSS for Windows step by step: a simple guide and reference.

Gupta, K. P., Singh, S., & Bhaskar, P. (2016). Citizen adoption of e-government: a literature review and conceptual framework. *Electronic Government, an International Journal, 12*(2), 160-185.

Hair, Black, W., Babin, B., & Anderson, R. (2014). Multivariate data analysis (Pearson new internat. ed). *Harlow: Pearson*.

Hair, Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM).

Hair, J., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modeling*: SAGE Publications.

Hair, J. F. (2010). *Multivariate data analysis*: Pearson College Division.

Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate data analysis: A global perspective* (Vol. 7): Pearson Upper Saddle River, NJ.

Hair, J. F., Black, W. C., Babin, B., Anderson, R., & Tatham, R. (2010). RE [2010]: Multivariate Data Analysis. *A Global Perspective*.

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*: Sage Publications.

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*: Sage Publications.

Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007). Research methods for business. *Education+ Training*.

Haseeb, M., Zandi, G., Hartani, N. H., Pahi, M. H., & Nadeem, S. (2019). Environmental Analysis of the Effect of Population Growth Rate on Supply Chain Performance and Economic Growth of Indonesia. *Ekoloji Dergisi*(107).

Henseler, J., Hubona, G., & Ray, P. A. (2017). Partial least squares path modeling: Updated guidelines. In *Partial Least Squares Path Modeling* (pp. 19-39): Springer.

Iacobucci, D., Ostrom, A., & Grayson, K. (1995). Distinguishing service quality and customer satisfaction: the voice of the consumer. *Journal of consumer psychology, 4*(3), 277-303.

Jasimuddin, S. M., Mishra, N., & A. Saif Almuraqab, N. (2017). Modelling the factors that influence the acceptance of digital technologies in e-government services in the UAE: a PLS-SEM Approach. *Production planning & control, 28*(16), 1307-1317.

Kafetzopoulos, D., Gotzamani, K., & Skalkos, D. (2019). The relationship between EFQM enablers and business performance. *Journal of Manufacturing Technology Management*.

Kassem, R. (2016). *Assessing the Impact of Organizational Culture on Achieving Business Excellence with a Moderating Role for Information and Communication Technology.* Rassel Kassem,

Kassem, R., Ajmal, M., Gunasekaran, A., & Helo, P. (2019). Assessing the impact of organizational culture on achieving business excellence with a moderating role of ICT. *Benchmarking: An International Journal*.

Kaya, B., Behravesh, E., Abubakar, A. M., Kaya, O. S., & Orús, C. (2019). The moderating role of website familiarity in the relationships between e-service quality, e-satisfaction and e-loyalty. *Journal of Internet Commerce, 18*(4), 369-394.

Khan, G. F., Moon, J., Swar, B., Zo, H., & Rho, J. J. (2012). E-government service use intentions in Afghanistan: technology adoption and the digital divide in a war-torn country. *Information Development, 28*(4), 281-299.

Kumar, A., & Dash, M. K. (2015). Effectiveness of electronic service dimensions on consumers' electronic buying behaviour and exploration of different groups. *International Journal of Business Innovation Research, 9*(1), 81-99.

McCrae, R. R., Kurtz, J. E., Yamagata, S., & Terracciano, A. (2011). Internal consistency, retest reliability, and their implications for personality scale validity. *Personality and social psychology review, 15*(1), 28-50.

Palaco, I., Park, M. J., Kim, S. K., & Rho, J. J. (2019). Public–private partnerships for e-government in developing countries: an early stage assessment framework. *Evaluation and program planning, 72*, 205-218.

Rust, R. T., & Zahorik, A. J. (1993). Customer satisfaction, customer retention, and market share. *Journal of retailing, 69*(2), 193-215.

Safa, N. S., & Von Solms, R. (2016). Customers repurchase intention formation in e-commerce. *South African Journal of Information Management, 18*(1), 1-9.

Sfenrianto, S., Wijaya, T., & Wang, G. (2018). Assessing the buyer trust and satisfaction factors in the E-marketplace. *Journal of theoretical and applied electronic commerce research, 13*(2), 43-57.

Suki, N. M., & Ramayah, T. (2010). User acceptance of the e-government services in Malaysia: structural equation modelling approach. *Interdisciplinary Journal of Information, Knowledge, and Management, 5*(1), 395-413.

Thominathan, S., & Ramayah, T. (2015). Ensuring continued usage of an e-government service in Malaysia: The role of perceived usefulness and user satisfaction. In *Public affairs*

and administration: concepts, methodologies, tools, and applications (pp. 1546-1562): IGI Global.

Warf, B. (2013). Global E-Government. In *Global Geographies of the Internet* (pp. 115-138): Springer.

Yoo, B., & Donthu, N. (2001). Developing and validating a multidimensional consumer-based brand equity scale. *Journal of business research, 52*(1), 1-14.

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of marketing, 60*(2), 31-46.

Zeithaml, V. A., Parasuraman, A., & Malhotra, A. (2002). Service quality delivery through web sites: a critical review of extant knowledge. *Journal of the academy of marketing science, 30*(4), 362-375.