The Linkage between E Government and Citizens' Satisfaction in UAE

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Abstract
The purpose of this paper is to explore the relationship between the attributes of e-government in terms of service quality, system quality and quality of information with user satisfaction in using e-government services in the United Arab Emirates (UAE). A quantitative approach for answering the research question was chosen. Data was collected through survey questionnaire from respondents. Data were analyzed using structural equation model (SEM). Study findings also provided indication of the direct impact on user satisfaction of e-government attributes (Information quality, service quality, and system quality). The research will help policy-makers recognize e-government users and enact specific policies to address the e-government services needs of people. Moreover, findings of the study and the suggested model can be used as guidance for the development and implementation of e-government strategies for the UAE government.
Keywords: United Arab Emirates, E-government adoption, Users' satisfaction.

1. INTRODUCTION

The Internet has advanced communication technology over the last decades. Technology use and obtained data from these technologies have affected many areas of life, in particular how people, governments and business communicate (Rabaiah, & Vandijck. 2009). As a governmental perspective, the implementation of eGovernment has become a necessary activity. As much like most political agencies, the people are always demanding and expecting a high standard of services rendered (Athmay et al., 2016). Design of eGovernment software has become advanced. Most of the countries, to meet the needs of people providing the services remotely (Maditinos, D., & Sidiropoulou, N. N. 2020). While, the transition from the traditional way of providing electronic services entails significant improvements in current processes across government institutions such as health, education, defence, etc (Kaisara, G., & Pather, S. 2011). The adoption of eGovernment programs shall be maintained and encouraged by the appreciation of procedure and operational improvements. There are a large number of eGovernment program solutions that have been developed and found to be inadequate to assist a government employee in conducting and carrying out other tasks and activities (Athmay et al., 2016). From a technological viewpoint, people face some difficulties with how to use the systems and services developed by the government (Stamatios & Theocharis, 2013). The eGovernment offers greater participation of the citizens and business groups in the current governance structure.

The Implementation of eGovernment services helps organizations towards the achievement of the organizational goals. Some of the priorities of achieving organizational goals include creating favourable systems for its citizens, increasing productivity in operations of organizations globally, and developing technology to the best possible. Consequently, eGovernment supports technical growth, eradicating poverty and increasing productivity (Agangiba & Agangiba, 2013). The eGovernment helps citizens to access government services without entering into a long queue and wasting time. When citizens time is saved,

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they can use it in eGovernment technology, and they can use it in one way or another to build economies. Developing economies with the use of technology helps achieve the Millennium Objectives. Using the time and energy saved for development minimizes deprivation among humans. Reduction or eradication of poverty is one of the governments' main objectives (Lee, J., Kim, H. J., &Ahn, M. J. 2011).

eGovernment has been seen as a concept designed to provide the impetus for global economic growth. Developing countries are making significant efforts to operate eGovernment programs, as they are seen to enhance the delivery of services to the public by governments (Westland, D., & Al-Khouri, A. M. 2010). Developed countries such as the U.S.A., U.K., Republic of Korea, Denmark and Singapore have already made positive stories about the implementation of eGovernment, while the developing countries are still facing ineffective and abandoned eGovernment programs. There is plenty of research literature published previously on implementation of e-government from a citizen's point of view, in developed or underdeveloped countries (Athmay et al., 2016; Westland, D., & Al-Khouri, A. M. 2010; Maditinos, D., & Sidiropoulou, N. N. 2020; Kaisara, G., & Pather, S. 2011; Lee, J., Kim, H. J., &Ahn, M. J. 2011). Nevertheless, little work has been done exploring the factors influencing e-government adoption in the Arab countries (Al Awadhi and Morris, 2009). The current research was either conducted to understand users' satisfaction of such information, or to investigate the impact of eGovernment aspects on the users' satisfaction in the adoption and usage of e-government services. With, best of the researcher's knowledge, little of the studies has explored the influence citizens satisfaction as a dependent variable on user satisfaction. This current research is essential as it provides an integrated conceptual model that focuses on the direct impact on user satisfaction of some of the e-government attributes.

2. LITERATURE REVIEW
2.1 The eGovernment

There is no single accepted definition of eGovernment since numerous academic studies have adopted terms for their understanding of the subject. UNESCO defined eGovernment is the as effective use of information and technology for communication to improve the delivery of information and vice versa services. Citizen engagement in the decision-making process and to make the government more accountable, transparent and efficient. E-Government needs new leadership models, new ways to negotiate and compromise on policies and programs, new ways to access education, new ways to listen to people and new ways to organize and distribute information and expertise. Services. E-Government will introduce new conceptions of citizenship, in terms of the needs and obligations of people. This study aims at engaging, encouraging and inspiring citizens.

According to Leitner (2003), the word "governance" refers to the definition of the government's relations with its relevant operational climate, including political, social, economic, administrative and cultural. The implementation of electronic communications details the interaction of individuals, corporations, government agencies, and the internal exchange of government operations to improve the expected roles and business of government. eDemocracy is a subset of and builds upon, eGovernance. eGovernment focuses on the technologies and acts that promote feasibility.

Foley, Montfort (2008) and Clift (2003) stated that one of eGovernment's main objective is to enhance its the operational and administrative capacity and the implementation of information and communication via technological advancement in government departments. It is resulting in a substantial reduction in costs, mistakes and time savings as well as enhanced service quality. According to Nkwe (2012), eGovernment empowers people by allowing them to access information and formulate an effective administration of government. The eGovernment benefits can be summarized as increased accountability, anti-corruption, enhanced transparency, cost savings, productivity improvements, and increased government capability, improved quality of decision-making, network and community development, and increased revenue growth, as well as encouraging the use of eGovernment services in all sectors. As Nkwe (2012) observed, eGovernment is seen as the technology that enables government-public engagement and transformation. Similarly, Musyoka (2008) notes that eGovernment is the guarantee that technology can be used for monumental purposes, including efficient services and better democracy. According to Dawes (2008) and Marche &McNiven (2003), found eGovernment to be a mediator reflecting the citizens-government relationship.

According to the accounting firm Deloitte and Deloitte & Touché. (2000) eGovernment services are the use of technology in a way to deliver value services to its citizen and the business holders. West (2008) claims that offering valuable services, eGovernment provides easy access to information to its citizens. According to Bhatnagar (2002), eGovernment is contributing to the sharing and distribution of services to citizens and businesses and to eradicate real corruption, reduce costs and time, and improve transparency and accountability. Bhatnagar (2002) discussed the eGovernment from a diversified viewpoint, describing it as a significant movement towards making reforms essential to improve public sector transparency, productivity and effectiveness.

Cowles (2001) has introduced the concept of eGovernment that agencies like legislative, administrative and judicial change their internal and external procedures, and make efficient use of networked systems to provide improved quality of public services. According to Meijer, Boersma, and Wagenaar (2009), E-Government is defined as continuous optimization of service delivery, public participation, and governance through the establishment of external and internal relations through the use of technology. Therefore, eGovernment is considered to be the use of information and communication technology to effectively and efficiently support, providing connectivity to government services and enabling public access to information, and making government accountable more.

2.2   The e-Governement in UAE

Arab nations and UAE are generally similar in character. There may be a similar history, language, culture and religion among the 30 Gulf States. Several examples of E-government exist in the Arab world is addressed in this section to understand the situation in the UAE better. The literature of eGovernment has become very popular in the Middle East, with the adoption of many countries. eGovernment and other technology-driven services have significantly increased the productivity of Middle East countries in recent years. (Alketbi, H. 2018), While there is much scope for development in the Middle East. Systems must be made more open and agile.

UAE governments are struggling to meet their citizen's expectations; this is also one reason why citizens are not engaged in e-government or why E-government programs are not achieving the expected success. (Alketbi, H., 2018). A.T. research in. Kearney, it has been found that approximately half of Middle East government entities lack any mechanism to capture their people's aspirations. The upside is that the Arab countries are trying to catch up, and now most nations are becoming or are trying to become inspired people. Governments are implementing projects and taking steps to provide more extraordinary services to their people and involve their people. Arab nations are opening up their structures and getting feedback from citizens or opinions. Once it comes to engagement with people and how a policy requires the views and input of people on policies, approaches, procedures, and program architecture can be divided into four categories (Lindquist et al., 2013; Alketbi, H. 2018):

- Citizen neutral,
- Citizen aware,
- Citizen motivated, and
- Citizen centric.

Citizen-neutral governments do not find the participation of people significant, and there is no policy or established mechanism or method for capturing the government's aspirations of the public. Citizen-conscious governments are conscious of what their people want, but they cannot achieve anything due to a lack of resources or the limited mechanisms and processes available. Citizen-motivated governments identify the primary elements of citizenship and develop policies and procedures to capture their wishes, aspirations, and expectations. The epitome of citizen empowerment is people-centered, where all systems, structures, and processes are all at the core of citizens.

A review study with A.T. Kearney finds that the GCC governments have turned themselves into citizens-motivated governments on three grounds: policy creation, organizational growth, and process improvement, but they are still lagging when it comes to program development (Alketbi, H. 2018). The lack of participation of people is one of the critical causes of e-government failures. (Irvin and Stansbury, 2004; Axelsson et al., 2010; and Manoharan, 2012). Statistics show that numerous E-government structures have been introduced but that their maturity level is relatively small compared to Western countries.

2.3 User satisfaction

From the vast amount of research carried out so far, User Satisfaction is reported as the most common variable in deciding website performance, and as a result, several steps have been developed to determine satisfaction rates (DeLone and McLean, 1992; Seddon, 1997; Rai et al., 2002). That said, and given a great deal of research in this area, satisfaction remains a notion that has not been widely embraced (Seddon, 1997). It is clarified in an early description by Hunt (1977:459-460) as − an assessment of an emotion. Fornell (1992:11) considers satisfaction to be − an overall post-purchase assessment, providing its description. Andleeb, (2017) suggests it is the fulfillment response of the customer. It is a judgment that the role of the product or service, or of the product or service itself, has generated a satisfying level of consumption-related fulfillment, including the rate of fulfillment below or above. And again, Hu (2002) In the IT context, user satisfaction refers to the degree to which an individual is satisfied with his or her overall use of the program under review. Clearly, a variety of meanings are used and, in these cases, researchers need to refer to the particular

context in which they are operating before agreeing on the exact criteria to be adopted. Around the same time, it is therefore important to specify the means to calculate the construct, since what is sufficient for one interpretation is not necessarily valid for another.

For the purposes of this current analysis, satisfaction is calculated as the citizen 's positive assessment of the overall usage of the e-government service and, in terms of its calculation, three items from Oliver's (1997) scale are adopted-attribution of performance, fulfillment of need, and overall satisfaction. Cronin et al. (2000) employed these three elements to determine quality in the service industries. Bailey and Pearson proposed 39 things as long ago as 1983 to measure computer user satisfaction, finding that to align with the use of information technology and performance of the program. The other crucial success factors emerged as: precision, reliability, timeliness, relevance and system trust. It is one of the measures which has been developed to assess user satisfaction. Ives (1983) took the work of Bailey and Pearson (1983) in the same year and created a short version of their long (39-item) scale that he used along with production managers. Furthermore, the results substantiated the instrument, which included the relevant factors of product quality, personnel structures and quality of services, and the experience and participation of structures staff in the company as indicators of overall satisfaction. Baroudi and Orlikowski (1988) then took the curtailed version of the Bailey and Pearson (1983) instrument as developed by Ives (1983) and used it; and then Doll and Torkzadeh (1988) devised a 12-point instrument with five components (content, format, accuracy, user-friendliness and timeliness) to assess end-user satisfaction in the computer world (Andleeb, 2016, 2017, 2017; Andleeb et al., 2020).

In the service industries, behavioural intent influenced the subject explored by Cronin et al. (2000), who employed two sets of metrics to assess satisfaction. First set considered to be emotion-based, a response to the fact that happiness was described as an assessment of emotion by some researchers. The second set was called evaluative,' as some researchers implemented the degree to which the use of the service produces positive emotions in the construction of satisfaction (Andleeb et al., 2020; Hafeez, Shamsuddin, Saeed, Mehmood, &Andleeb, 2020).

In a subsequent research on customer satisfaction with e-services, Luran and Lin (2003) concentrated on seeking an aggregate metric for the construction that they conceptualized as customer's affective reactions or thoughts based on their experiences with different aspects of e-services. And Roca et al. (2006) found satisfaction in terms of e-learning to be the determinant of whether or not the students intend to continue. Indeed, the degree of satisfaction felt by the customer clarified 65 per cent of the variation in the decision to carry on.

2.4 The relationship between e-government and user satisfaction

User satisfaction is seen as playing an important role in advancing the implementation of emerging technologies and is therefore popular as a measure of achievement in this regard (DeLone and McLean, 1992; Seddon, 1997; Rai et al., 2002; McKinney et al., 2002). The question of what should actually be assessed, however, is a problem, as indeed is the method by which such measurement may be made. It is, of course, the citizen's satisfaction that is the focus of attention in the current research and, in view of this, it should be remembered that, Such satisfaction in terms of e-government services is related to citizens' expectations of the

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convenience of online services (transaction), the reliability of information (transparency), and the expected engagement with electronic communication (interactivity) (Chan, Ang, Andleeb, Ahmad, & Zaman, 2019). Satisfaction is taken for the purposes of this analysis to mean the citizen's evaluative opinion regarding the overall use of e-government services. In addition, it is calculated according to three things suggested by Oliver (1997), which are attribution of performance, need fulfillment and therefore overall satisfaction. In addition, Cronin et al. (2000) employed them to assess service sector satisfaction. For the sake of clarification, this analysis uses the concept of satisfaction as:The degree to which an individual citizen is satisfied with its overall usage and the overall evaluation of the e-service offered by the Government

In the end, the amount of use that people make of the scheme and the degree of satisfaction they gain from it is seen as success. We would certainly be prevented from using a program either proactively or in response to a direct question, unless it is considered to be in their interest to do so. DeLone and McLean (1992) distinguished knowledge aspects from device features with a view to creating standards of satisfaction. They and other researchers' state that both the consistency of the program and awareness have an impact on user satisfaction. (DeLone and McLean, 1992; McKinney et al., 2002; Seddon, 1997). Szymanski and Hise (2000) have found that website design problems and product details aspects also seem significant in assessing user satisfaction. And in this regard, McKinney et al. (2002) states that satisfaction with a website is determined by the content of the information found therein and the website's actual success in delivering the necessary information. Clearly, the better the system quality, and the better the information it contains, the more users will likely experience satisfaction (DeLone and McLean, 2004). Moreover, a number of studies have shown that e-service efficiency is also a big element of satisfaction (DeLone and McLean, 2003; 2004; Cao et al., 2005, Yang and Fang, 2004).

These discussions lead to the following hypothesis:
a) Information quality has positive relationship with customer satisfaction in UAE.
b) Service quality has positive relationship with customer satisfaction in UAE.
c) System quality has positive relationship with customer satisfaction in UAE.

3. METHODOLOGY

This research follows the current study's research methodology, which introduces the research design, survey instrument, and the data collection method. The present investigation was accompanied by a quantitative research design for data collection and analysis. The goal of quantitative research is to build phenomena-related theories, hypotheses, and models. The purpose of this study is to explore the relationship between E-Government and user satisfaction in the UAE. An online survey was conducted to collect the data from a citizen of the UAE. All respondents were guaranteed full anonymity, previously used questionnaire adapted to cover a wide range of user satisfaction (7 items) and e-government (17 items). The questionnaire consisted of three sections; demographics information of respondents, e-Government, and user satisfaction. A five-point Likert scale is used (1= strongly disagree to 5= strongly agree). We tested for the normality of sample data. Results indicated that data is

not usually distributed. Therefore, non-parametric tests were used for the analysis. Smart PLS-SEM software version 3.2.7 was used to research the data.

4.   RESULTS AND DISCUSSION

In the current research literature, Structural equation modeling (SEM) is a fundamental technique and considered appropriate for early stages of theoretical development where the research interest lies in evaluating basic and complex relationships between latent variables simultaneously using a small sample size. SEM usually suggests a two-step method for performing PLS statistical analysis properly (Reinartz, W., Haenlein, M., &Henseler, J. 2009).

Table 1. Measurement model.

	Factor loading	Composite reliability (CR)	AVE
Customer satisfaction		0.859	0.551
CS1	0.737		
CS2	0.608		
CS3	0.749		
CS4	0.822		
CS5	0.778		
Information quality		0.910	0.670
IQ1	0.766		
IQ2	0.802		
IQ3	0.849		
IQ4	0.842		
IQ5	0.832		
Service quality		0.871	0.532
SQ1	0.770		
SQ2	0.733		
SQ3	0.701		
SQ4	0.843		
SQ5	0.679		
SQ6	0.629		
System quality		0.924	0.671
SYQ1	0.798		
SYQ2	0.786		
SYQ3	0.751		
SYQ4	0.842		
SYQ5	0.876		
SYQ6	0.854		

First, it validates the measuring methods (outer models). By following the procedures for resampling (i.e., bootstrapping) to 5,000 resamples (Hair, J. F., Ringle, C. M., &Sarstedt, M. 2013), the structural model (inner model) is tested in a second phase. This method is in three steps (Roldán, J. L., & Sánchez-Franco, M. J. 2012). The first phase involves testing the individual indicators' reliability using their external loadings to determine the degree to which each building indicator is substantially associated with their respective latent variables. Items with loads of 0.60 or greater are acknowledged as the thumb rule for internal product quality.

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The indicators with lower outer loads had been dropped from the original model. In the four reflective measuring items all, outer loadings were at least 0.60.

In the second phase, composite reliability (CR) is evaluated by testing Cronbach's alphas, which shows how the array parameter is compatible with what it intends to check. The accuracy of the corresponding construct is fulfilled by both multidimensional structures and dimensions as their CRs are higher than average 0.70.In general, the CR scores range from 0.84 to 0.92 for customer satisfaction. Therefore, it's concluded that the measurement objects were reliable with respect to their internal accuracy and reliability, as indexed by the CR. Convergence was calculated using the average extracted variance (AVE) for all latent constructions, including reflective indicators and variable loading criteria (Fornell, C., &Larcker, D. F. 1981). The factor loading for any build should be greater than 0,60 and AVE than its largest correlation square. The reflective measurement model met those requirements. Factor loading of certain items ranges from 0.60 to 0.87, which supports convergent validity.

The third level, a validity test that discriminates, determines if each model construct differs significantly from the other. There are two methods of calculating the discriminating validity; one is the criterion fornerlarcker and the criterion HTMT. The results of the fornerlarcker criteria are shown below the table:

Table no.2: Fornerlarcker criterion

	Information Quality	Service Quality	System Quality	User satisfaction
Information Quality	0.819			
Service Quality	0.474	0.729		
System Quality	0.597	0.394	0.819	
User Satisfaction	0.566	0.463	0.535	0.742

Comparison of AVE values with the correlation of square variables (Thompson, R., Barclay, D. W., & Higgins, C. A. 1995), the presence of discriminating construct validity is also verified, because the AVE values are greater than the expected square correlations. The result for HTMT criterion was also shown in the table below:

Table no.3: heterotrait-monotrait HTMT

	Information Quality	Service Quality	System Quality	User satisfaction
Information Quality				
Service Quality	0.542			
System Quality	0.672	0.450		
User Satisfaction	0.673	0.555	0.630	

According to Henseler, et al. (2015) indicated that the heterotrait-monotrait ratios (HTMT) are less than 0.85 and below 1 to the upper confidence limits. These HTMT findings suggest

an appropriate and discriminatory validity of the data. Together, these results provide sufficient affirmation that the reflective measurement model fits well with the data.
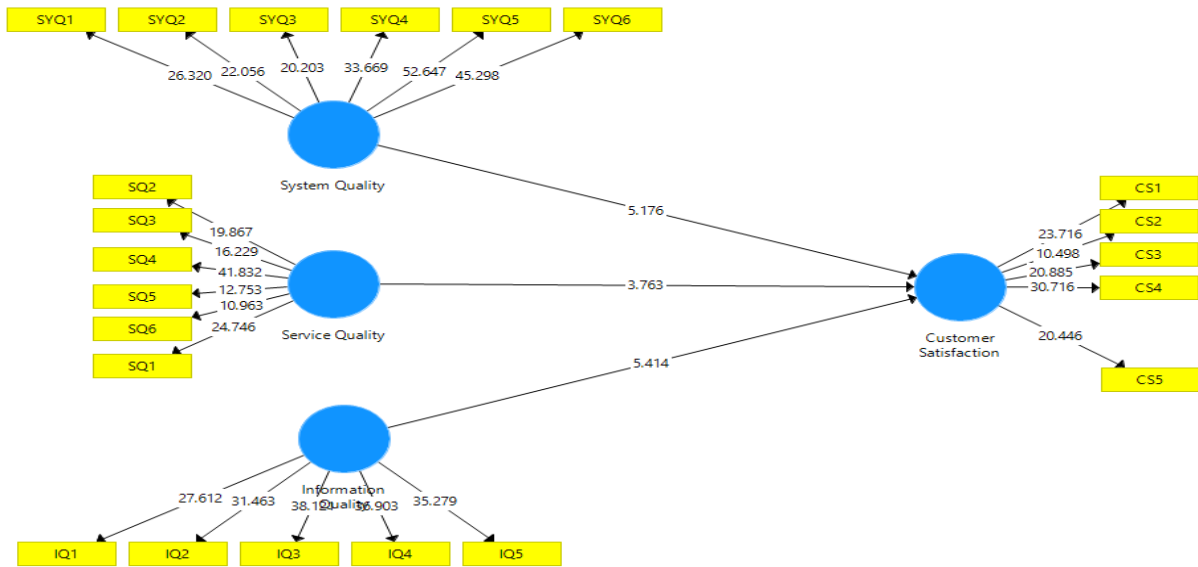
Fig. 1. (a) Structural Model.

Hypotheses proposed in the model were tested; the measurement model's convergent and discriminating validity is satisfactorily based on values. We analyzed the effect of each element of the eGovernment on consumer satisfaction, checking the value of the path coefficients and their significance (the bootstrapping technique was applied on 5000 subsamples).

Table no. 4: Result of structural model

	Beta value	Standard Deviation (STDEV)	T Statistics	P Values
Information Quality -> Customer Satisfaction	0.304	0.056	5.414	0.000
Service Quality -> Customer Satisfaction	0.212	0.056	3.763	0.000
System Quality -> Customer Satisfaction	0.270	0.052	5.176	0.000

Hypothesis suggests customer satisfaction is affected by knowledge, service, and system quality. Table 4 shows what findings have been collected. The quality of information and service has a positive effect on customer satisfaction as predicted and the quality of the system has also a positive impact on customer satisfaction.

The findings provide evidence of the relationship between e-government and customer service. The results showed that quality of knowledge is a key factor of customer satisfaction as well as an obstacle to customer satisfaction. The literature emphasizes that satisfaction with a website is measured by the quality of the information contained therein, and the actual effectiveness of the website in delivering the requisite information (McKinney et al. 2002; DeLone& McLean 1992).

Overall, studies have shown the positive impact of the service quality on customer satisfaction. Aspects of information from product apps with a view to establishing quality levels. The programme's consistency and knowledge affect user satisfaction (McKinney et al., 2002; Seddon, 1997). The satisfaction impact of system quality is also consistent with research that has shown that the features of system quality, such as improving system quality, and the more knowledge it offers, the more users are likely to be satisfied. (DeLone and McLean, 2004).

Considering the findings for the three dimensions of eGovernment use, it can be concluded that, when it comes to performance, knowledge quality is more important than service and quality of program. To put it another way, to attaining consumer satisfaction, accuracy of the information is a must.

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5. CONCULSION

Through this paper we studied customer satisfaction in the use of eGovernment in UAE. We conducted a survey with 268 respondents, and collected data from UAE people on user satisfaction and e-Government usage. Our research presents analytical insights on the use of technology in various industries. Yes, the odds of success tend to be greater:

- If information quality is considered;
- When quality of service provided;
- When there is a quality of system is improved.

For practitioners, the consequences of the above findings are obvious. A country is looking to adopt eGovernment system must pay attention to the quality of the information it provides; the quality of the services it provides; and build a proper framework because it could be a key enabler or a big obstacle. In addition, this study was conducted to explore the factors influencing the end-user perspective of adopting e-government services in the UAE. E-government implementation has been examined more extensively in developed countries than in developing countries, and more specifically the Arab countries. There have been few studies in the Arab countries concerning the implementation of e-government. This research will thus serve as a starting point for research into e-government adoption in the UAE from the end-user point of view, which is relevant and significant to improving its acceptance and use.

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