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Determinants of Behavioral Intentions towards Using E-Government Services in the Kingdom of Bahrain

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Abstract: E-government in Bahrain has shown great potential in terms of e-government development index advancing to 13th place on Asia in 2010 from the 42nd place on Asia in 2008. However, the United Nation report for 2012 shows a significant drawback in Bahrain e-government development, dropping to the 36th place on Asia. The current research is survey-based; that investigates citizens' intentions towards the use of e-government services and infers the reasons of using or not using such applications and e-services. 631 questionnaires were analyzed and findings showed significant and positive relationships between attitude, satisfaction, functionality, ease of use and intention to use e-government services in the Kingdom of Bahrain. Also, the research revealed that satisfaction and attitude towards government services are essential antecedent of behavioural intention of Bahraini towards e-government. Because the previous studies on e-government services adoption did not give much concern to the main factors that affect citizens' decision to use e-government services and the quantity and types of services, the results of the current research showed the factors that influence individuals to use or withhold from using e-government services. Therefore, the findings will be beneficial to Bahrain e-government stakeholders in their efforts to improve the e-government services.

Keywords: Behavioral Intentions, Satisfaction, E-Government Services, Innovation Acceptance Models

1. INTRODUCTION

E-government services gradually increase and have become numerous taking communities towards smart cities. Nowadays, it covers majority of the public services transactions with the government and the private sector. On the other hand, many citizens remain illiterate of this kind of e-government services due to its rapid growth and development. Some had driven away from using these services via the e-government's portals and maintain the traditional methods of interacting with the government sector. Thus, the current research raises the questions of whether the public is properly satisfied and has a proper attitude towards these e-government services and whether these services be a viable replacement for government traditional services, which might become obsolete soon.

The research will focus on citizens' attitude and satisfaction with the e-government, and try to shed light on physical and psychological barriers to gain better understanding of the reasons that prevent citizens from using e-government services. The aim of this research is to explore the public's behavioral intentions towards using the Bahraini e-government services. The problem of this research evolved as the author was considering the reasons why some people hesitate to exploit the e-government portal despite the great value of its services and the huge efforts and funds invested in such a venture.

This research contains six sections. The first section contains an introduction and statement of the research problem and objectives. The second section analyzes the literature review related to e-government services and innovation acceptance models, whereas the third section explains the research methodology and framework. The fourth section contains the main results of the survey, while the fifth section presents the analyses and discussion of these results. Finally, the sixth section is the conclusion and recommendations for future research.

2. BACKGROUND

In 2007, the e-government t authority was established to move the Kingdom of Bahrain to a leading position among the Gulf Corporate Council (GCC) by providing comprehensive public services through the communication channels and portals preferred by the

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citizens, residents, and commercial institutions. The e-government authority is in charge of setting the general policy and legislation in alliance with the higher committee for information technology plans and strategies, which is headed by his highness Sheikh Mohammad Bin Mubarak Al-Khalifa.

The Bahraini e-government provides the citizens, residents, visitors, and commercial institutions more than 200 services through several communication channels. Although the concept of E-government is still vague and has been accused of being slow and complicated in the Middle East, the Bahraini e-government has four clear target pillars:

- To establish continuous communication with the public on 24/7 basis.
- To establish efficient, effective, coordinated and quick performance between different government organizations.
- To collate all informative and interactive services within one portal.
- To accomplish funds saving from both government and customer sides; moreover increase the return on investment from government activities with a commercial nature.

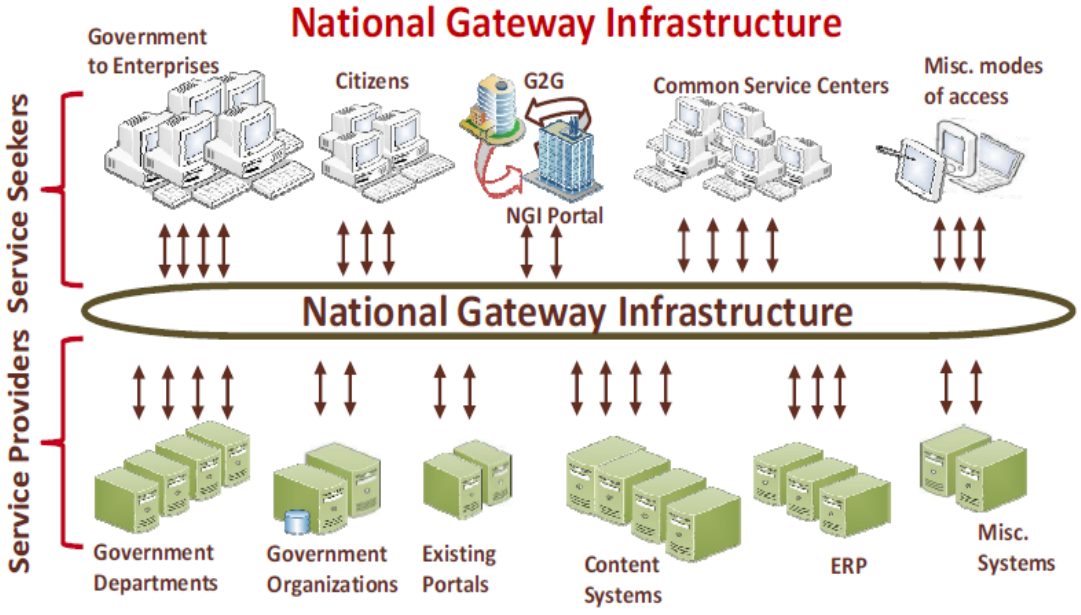

Figure 1. Bahrain National Gateway Infrastructure [1]

Source: Ahmed [1]

From Figure 1, it is clear that the Bahrain National Gateway Infrastructure (NGI) is derived into two main key players, the providers and the receivers, who form the e-government platform. This platform integrates the systems of the government's entities that provide data services to other entities in Bahrain, such as enterprise, citizens, and common service centers. According to Ahmed [1], the NGI assists in increasing business agility and in lowering the costs of maintenance and interoperability. The NGI shows the integration of two main players, the government and the public, while it is not much concerned with other drivers such as policies that govern the relationship between service providers and services receivers. Therefore, the Bahraini e-government strategy is customer centric. Moreover, part of the efforts of e-government authority is to attract the public and convince them with the benefits and gains of using electronic services. E-government authority have developed several programs, like a customer's charter, a complaints reprocessing system for all ministries, a customer satisfaction index, and a government transformation index, as methods for system monitoring and evaluation.

The current research will contribute to the few studies conducted in Bahrain and the Middle East on e-government because this kind of research is crucial to the humanity regardless of nationality, ethnicity, age or gender. The research sample has been selected from the whole residents of the Kingdom. This sampling method helps researchers to make it thorough and comprehensive study. Furthermore, it helps to identify participants' attitudes and satisfaction with e-services. The aim of most previous researches conducted by both researchers from Bahrain and professional corporations on e-government is to measure customer satisfaction, evaluate electronic services for further updates and development and to find how to increase customers' satisfaction index. In line with this, few researchers attempted to identify the public level

of readiness and skill to use e-government services. In the current research, researchers attempted to identify difficulties that hold users back from using the e-government services as well as the public level of trust, credibility, and reliability of the e-government services. The researchers also investigated citizens' behavioural intentions towards using e-government services and the factors leading to these intentions.

A. Research Framework and Hypotheses

The following Figure 2 explains the research framework in which the researchers proposed that behavioral intention is a function of attitude and satisfaction whereas attitude has three independents variables namely; ease of use, social influence with media and relative advantage, and satisfaction which, has four independents variables namely; efficiency, trust, reliability and citizen support. Accordingly; the following hypotheses are suggested for further investigation.

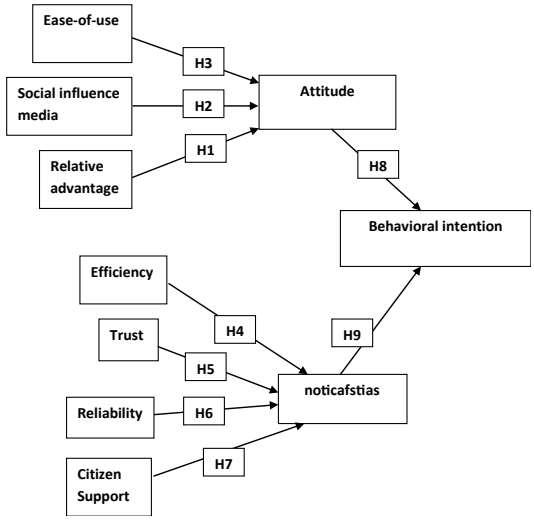

Figure 2. Research Framework

Hypothesis1: There would be a positive relationship between relative advantage and attitude towards e-government services. Hypothesis 2: There would be a positive relationship between social influence and attitude toward e-government services. Hypothesis 3: There would be a positive relationship between ease of use and attitude toward e-government services. Hypothesis 4: There would be a positive relationship between efficiency and satisfaction with e-government services. Hypothesis 5: There would be a positive relationship between trust and satisfaction with e-government services. Hypothesis6: There would be a positive relationship between reliability and satisfaction with e-government services. Hypothesis7: There would be a positive relationship between citizen support and satisfaction with e-government services. Hypothesis8: There would be a positive relationship between attitude and behavioral intention to use e-government services. Hypothesis9: There would be a positive relationship between satisfaction and behavioral intention to use e-government services.

3. LITERATURE REVIEW

Although there are numerous studies about e-government services and e-government adoption, most of them are from the early 2000's and they tackled initiation stages of e-government and services types. However, there are a few studies that discussed citizens' needs and requirements and handled e-government from the citizens' points of view. In order to improve the level of services of the e-government, this research will focus on citizens' attitude and satisfaction with the e-government, and try to shed light on physical barriers and other psychological ones that hold citizens from using e-government services.

"The United Nations Division for Public Economics and Public Administration (UNDPEPA) defines e-government as "Utilizing the Internet and the World Wide Web for delivering government information and services to citizens"p.1 [2].

Online services provide numerous benefits to citizens including reduced cost, time, effort, more convenient, prestige and no more waiting in the line. From the government side, it increases transparency; reduces work load; and improves citizens' trust and confidence in the government. Many authors wrote about e-government benefits [2-7][11].

Unlike e-commerce, dealing with e-government services is free from competitors or limited IT budgets thus; Al-Adawi [2] noted that governments can't explain big budgets for their e-government initiatives due to low adoption rates. Al-Shafi and Weerakkody [7] added until full e-government potential is reached by putting citizens' needs as the target to close the gap between what e-services offer and what do the citizens need.

While the use of some e-government services is mandatory; which in turn is a major distinctive feature between e-government and other online commercial services, Chan et al [5] argued that attitude and intention are less important determinants when it comes to mandatory use. However, in this case behavioral intentions are related to reward and punishment hence, current technology models do not fit with the e-government situation.

Concerning e-government related research, many researchers focused on issues related to government integration between its institutions or e-government initiation stages. Al-Shafi and Weerakkody [7], Al-Adawi et al [2] cited that although issues related to end-user such as low adoption rates, satisfaction with e-government services, distrust of the government, negative attitudes and bad social influence via word-of-mouth among the citizens are most important issues to deal with and have high potential to bring citizens closer to the government,

only a few number of studies discussed these issues. Morgeson et al. [8] noted that most studies in this field were done in the early 2000's and thus, they are outdated and due to the rapid change of the technologies and services offered, the variables and findings related to e-government should be reinvestigated and further studied. These variables will be discussed in this section.

A. Technology Adoption Models

1) Technology adoption models are conceptual models designed to help understand the reasons that drive people to use or hold back from using an Information System (IS). These models are vast and plenty, they cover many variables as attitude, satisfaction, usefulness, ease of use, trust and confidence, reliability, convenience and many more. However, the Technology Acceptance Model (TAM) developed by Davis in 1989 [18], it is considered to be the base model for most acceptance models such as the Theory of Reasoned Action (TRA), Unified Theory of Acceptance and Use of Technology Model (UTAUT), TAM2 and more, as all of these models were built upon the original TAM model. In this literature, the researchers will discuss some of the abovementioned models with their variables along with two more models to formulate a new framework that better fit the case of e-government Technology Acceptance Model (TAM).

The TAM model has been widely validated through reusing and retesting ([2]; [14]; [15]; [16]; [7]; [8]; [5]. It consists of two variables perceived ease of use and perceived usefulness. Al-Adawi et al. [2] mentioned that the more useful and easy to use e-government services are the more citizens will use them. Zolait and Sulaiman [14] reported that any use of technology is derived from behavioral intentions and the latter is mediated through attitude, which is formulated from usefulness and ease of use attributes.

Thus, TAM is a proper foundation to start with building a new framework, yet on its own is not enough. Chan et al [5] argued that in mandatory use situations such as the use of a smart card or viewing salary details online, attitude and its attributes are less important. Zolait and Mattila [16] argued that studies should not be limited to these factors. On the other hand, satisfaction with the e-services plays the main role for formulating behavioral intentions.

2) Theory of Reasoned Action (TRA)

The TRA model was proposed by Ajzen and Fishbein in 1980, Zolait and Sulaiman [14] noted that the theory explains behavioral intention through its two variables attitude and subjective norms, the latter consists of two attributes mass media and word of mouth by the citizens [5]. It is worth mentioning here that although subjective norms are a powerful drive to try new things in general, Zolait and Mattila [16] noted that subjective norms may have some inconsistencies in explaining behavior.

3) Diffusion of Innovation (DOI)

The DOI theory has four main variables (innovation attributes, communicated channels, time and social system), where innovation attributes have five independent variables (relative advantage, compatibility, trialability, observability, and complexity) these attributes were introduced by Rogers in 1995. Zolait and Sulaiman [14] and Zolait and Mattila [16] argued that these attributes can predict behavioral intention and affect adoption rate. Zolait and Sulaiman [14] noted that all variables have positive correlation with adoption except for complexity, researchers also clarified that innovations with higher relative advantage, compatibility, trialability, observability and less complexity have higher adoption rates. In this study, the researchers are taking into consideration three of the innovation attributes (relative advantage, compatibility and complexity) and the communication channels.

4) Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT has four main constructs (performance expectancy, effort expectancy, social influence and facilitating conditions), it was developed by Venkatesh, et al [9] in 2003 to explain, user intentions and behavior towards information systems [5]. Al-shafi and Weerakkody [7] cited that the UTAUT model was Formulated based on eight earlier models; the theory of reasoned action the technology acceptance model, the motivational model, the theory of planned behavior, a model combining the technology acceptance model and the theory of planned behavior, the model of PC utilization, the innovation diffusion theory and social cognitive theory. Chan et al [5] and Al-shafi and weerakkody [7] noted that due to the models' general ability and diversity, it has higher preference than previous models seeing that it accounts for high percentage of variance in usage intentions.

B. Reliability

Reliability refers to the degree that the service offered is uninterrupted, accurate and available 24/7. Papadomichelaki and Mentzas [6] defined it as "the degree to which a system is usable by as many people as possible without modification" [6]. Also, it is defined as "hardware-oriented quality such as tangibles, convenience, and accessibility" [12]. Chan et al [5] noted that having reliable service can persuade citizens to use it due to convince as they can access anytime anywhere, they also noted that a proper government website drive satisfaction which in turn generates trust with the government. Parent, Vandebeek and Gemino[3] added that reliability can also influence greater trust in the government in general because it diminishes corruption

and ineffectiveness citizens have to deal with when using traditional methods.

Kim and Han [11] noted that services quality (which they model consisted of reliability, responsiveness, empathy and tangibility) is a vital prerequisite of customer satisfaction. The researchers also hypothesized that reliability has a positive effect on customer satisfaction [11].

C. *Efficiency*

An efficiency as a general term means using minimum recourses to perform the task at hand correctly, in the e-government context it refers to allocating adequate resources for the citizens to enable them to use e-services with the least amount of assistance or troubleshooting, it is also defined by Kim and Han [11] as “The ability to provide services swiftly and help customers".

Papadomichelaki and Mentzas [6] pointed out that there are seven evaluation characteristics that can mainly identify efficiency of e-government website, structural clarity, and accuracy of the search engine, organization of the sitemap, customization, comprehensive information, and freshness of the data and in service assisting details. Lee et al. [12] and Parent et al. [3] noted that a properly structured website and categorized services saves citizens’ time and effort as well as the need to visit the local government office to perform his tasks. It also increase satisfaction with the service and develop reuse intentions [17]. Chan et al [5] and Papadomichelaki and Mentzas [6] noted that the e-government website should be flexible and adaptive to meet citizens' needs and various capabilities through increased efficiency and continuous enhancement.

D. *Trust*

Do trust as a general term simply means believing that the trustee will not cause or bring harm upon the trusting person in anyway. However, in the e-government context it means that the E-government will perform the task it is intended to do as well as secure any data submitted by the citizens in a manner that will not put him at risk. Also, Papadomichelaki and Mentzas [6] defined it as "the citizen's confidence towards the website concerning freedom from risk of danger or doubt during the e-service process". Trust has been widely discussed in the field of innovation adoption and especially in e-commerce and web presence, due to the exposure of vital personal and financial information and the enormous risk surrounding it citizens have to build trust and rise above their fears to reach full potential of e-services [2][13]. Chan et al [5] explained that the need for trust emerges when citizens are in a situation where his knowledge is shallow and uncertainty and risk are factors in the transaction because of personal or financial information exchange, in these situations trust is used to mitigate fears of fraud. Papadomichelaki and Mentzas [6] explain that trust has two antecedents' security and privacy, the first being protected against financial fraud and the second is protecting personal information. Alsaghier et al. [15] argued that if citizens are more familiar with the processes and security procedures and their feeling of risk and uncertainty will be reduced. Thereupon, the researchers hypothesized that "citizens’ familiarity with e-government positively affects trust in e-government" [15]. The researchers also noted that the website itself can enhance and reflect trust to citizens through ease of use and attractiveness.

Trust can also influence behavioral intentions and attitude. Researchers such as AL-Adawi et al. [2] and Chan et al [5] noted that when citizens do trust the government positive intentions is formulated towards using e-service and those intentions are mediated via satisfaction. Morgeson et al. [8] and Parent et al. [3] explained that although trust has been degrading between the citizens and the US government for many years now, the effect of these new intentions and satisfactory feelings will reflect on trust with the normal government and improve citizens' confidence. Al-Adawi et al. [2] and Papadomichelaki and Mentzas [6] suggested that for e-governments to reflect trust and confidence their infrastructure must always be up to date. They must also apply security polices to enhance procedural security and finally make sure the citizens understand what steps have been taken to protect them.

E. *Citizen Support*

Citizen support refers to online help, forums, frequently asked question, hotlines and any other means provided by the e-government to assist citizens in concluding their transactions. Also defined as "objective factors in the environment that observers agree make an act easy to accomplish" *page 430* [9]. Citizens' support being one of the four constructs of UTAUT model which has been widely discussed by researchers in various contexts [9][7][12][5][6][10][11]. Citizen support is mostly used in the form of online support such as information that guides the user throughout the transaction time and complaints hot line. Lee et al. [12], Siu et al. [10] and Chan et al [5] noted that employees who assist users on the phone must be properly knowledgeable and capable of swift replies. Papadomichelaki and Mentzas [6] and Kim and Han [11] also added politeness and the ability to convince the user that he or she is trust worthy and capable of solving the problem, are crucial characteristics of e-government employees who work as citizen support.

The importance of the abovementioned characteristics is derived from their influence on satisfaction and effect on behavioral intentions. Siu et al. [10] explained that individual's satisfaction is an emotion. This is more clear, when an issue occurs to individual that requires assistance, anger and frustration feelings starts building up in the individual while waiting for assistance, however when treated properly and his problem is solved swiftly his feeling change to pleasure and happiness this change not only it formulates reuse behavioral intentions but it may also trigger positive social influence through word-of-mouth. Lee et al. [12]; Chan et al. [5] and Siu et al. [10] all hypothesized that citizen support positively influence satisfaction and a determinant of behavioral intentions.

4. METHODOLOGY

As there are many theories in the field of technology acceptance vary in their perspectives with regard to the variables that affect the intention towards technology acceptance and after a thorough study of these models, the researchers have put together a new integrated framework considering four major theories TAM, UTAUT, TRA, DOI and e-GovQual. This framework tests various motives that affect the end user decision either to use a certain technology or to withhold from using it. The result of the work done in this framework will be a new model that can measure behavioral intentions and its antecedents.

The research population contains any person who is capable of using a computer, kiosk or even a smart phone and has Internet access. However as the general population are over a million, criteria have been set to contain the population as follows:

- Age above 21 to ensure that the respondent is a mature responsible adult.
- An internet user who has the proper skill set to use e-government services.

The sampling method was random. The questionnaire was distributed to individuals from both the public and private sectors.

The survey method has been chosen because the sample size is vast; therefore a questionnaire has been designed specifically for this purpose. The questionnaire contains 21 variables, six demographical variables, five variables to measure actual use levels of e-government services, three dependent variables and seven independent variables. Apart from the demographical variables all variables are based on five point's Likert scale. All dependant and independent variables have three to six items to measure them which all have been validated from previous studies done by various researchers. Statistical Package for Social Sciences (SPSS) version 21 was used for data entry and analysis. The statistical tests used for analysis are descriptive analysis means, and standard deviation. Then the researchers ran the factor analysis for the purpose of data reduction and factorial validity. It was followed by the regression analysis to test the impact of each proposed factors on the dependent variable. The researchers performed reliability test to ensure that the items used to measure the construct are really measuring what is intended to be measured. In addition, the researchers performed the correlation analysis to test the relationship between variables.

The questionnaire was distributed to a random sample of individuals in the governmental and private institutions as follows; public universities, private universities, several directorates in the ministry of interior, several directorates in the Bahrain defense force, public health centers, insurance companies, banks, private schools, public schools, tourism offices, private companies, ministry of education, municipalities. A sum of 800 questionnaires were distributed from Sunday 20th of October to 25th of October where each of the above sectors were given a full working day to return the completed questionnaire. 705 questionnaires were returned back; whereas 631 were useable, and the rest contained incomplete or invalid answers and were discarded from further analysis with response rate of 78.8%.

5. ANALYSIS

This section presents the statistical analysis of the data obtained through the survey questionnaire. The data were entered and analyzed using SPSS version 21 and then presented in the form of graphs and tables that can be easily understood. This section will presents findings pertaining to the respondents' profile, actual use levels and the descriptive analysis of the items used in the questionnaire sequentially. Out of 631 respondents, 352 were males and 279 were females; the majority of respondents from the (21-32) age group, hold a graduate degree and have excellent computer skills.

Table 1. Reliability test Result

Variable	Cronbach's alpha	Number of items
Behavioral intention	.825	5
Attitude	.831	4
Relative advantage	.870	3
Ease of use	.809	4
Social influence	.734	4
Satisfaction	.792	3
Functionality	.882	8
Trust	.821	4
Customer support	.898	4

The factor analysis for attitude as shown in Table 2, resulted in four factors, all the items embarked under their original variables except for two items from relative advantage were removed because there loading values are

less than .5, and the two items which removed from relative advantage are item 1 and item 4.

Table 2. Factor analysis for attitude

Items	Factor			
	1	2	3	4
I think it is a wise idea for me to use E-government services.	.738			
In my opinion, using the E-government services is a good idea.	.710			
I like the idea of using E-government portal.	.694			
Using E-government portal would be a pleasant experience.	.675			
If I were to use E-government services, the quality of my work would improve.		.791		
E-government services would enhance my effectiveness on the job.		.784		
Using E-government services gives me greater control over my work.		.658		
Overall, e-government portal is easy to use.			.798	
Interaction with the e-government portal would be clear and understandable.			.668	
Learning how to operate E-government services would be easy for me.			.598	
If I got the resources, e-government services would be easy to use			.587	
People who influence my behavior would think that I should use e-government services.				.619
I would use online government services if my friends and colleagues used them.				.610
The media and advertising consistently recommend using E-government services.				.583
I read/saw news reports that using E-government portal was a good way to manage my governmental transactions.				.559
Eigenvalue	6.230	1.953	1.560	1.176
Variance explained	36.645	11.486	9.179	6.918
Cronbach's Alpha	.831	.870	.809	.734

(a) Total Variance Extracted by the four factors 64 %; KMO = 0.885; Barlett's Test P<.001

(b) Extraction Method: Principal Axis Factoring;

The factor analysis for satisfaction as shown in Table 3, resulted in four factors, all the items embarked under their original variables except for two items which belong to efficiency construct. These two items were removed because there loading values is bellow the cut-of 0.5. The remaining four items related to efficiency are merged with the four items which came from reliability construct. Accordingly, the single factor and new variable with eight items were named "*functionality*" by the researchers. Items 5 and 6 were removed from relative advantage.

Table 3. Rotated Factor Matrix for Satisfaction

Items	Factor			
	1	2	3	4
This e-government site performs the service successfully upon first request.	.675			
This e-government site provides services in time.	.657			
This e-government site is well customized to individual users' needs.	.648			
The information displayed in this e-government site is appropriate detailed.	.627			
This e-government site is available and accessible whenever you need it.	.621			
This e-government site's search engine is effective.	.615			
This e-government site's structure is clear and easy to follow.	.600			
Forms in this e-government site are downloaded in short time.	.586			
Employees give prompt replies to users' inquiries.		.794		
Employees have the knowledge to answer users' questions.		.784		
Employees have the ability to convey trust and confidence.		.743		
Employees showed a sincere interest in solving users' problem.		.715		
Data provided by users in this e-government site are archived securely.			.734	
Only necessary personal data are provided for authentication on this e-government site.			.607	
Data provided in this e-government site are used only for the reason submitted.			.597	
Acquisition of username and password in this e-government site is secure.			.590	
All things considered, my continuing to use E-government services is... Extremely Harmful to Extremely Beneficial.				.810
All things considered, my continuing to use E-government services is... Extremely Bad to Extremely Good.				.752
I will continue to use E-government services.				.518
Eigenvalue	8.479	1.904	1.391	1.229
Variance explained	40.375	9.068	6.624	5.854
Cronbach's Alpha	.882	.898	.821	.792

(a) Total Variance Extracted by the four factors 62%; KMO = 0.927; Barlett's Test P<.001

(b) Extraction Method: Principal Axis Factoring;

(c) Rotation Method: Varimax with Kaiser Normalization.

The factor analysis for behavioral intention as shown in Table 4, resulted in three factors, all the items embarked under their original variables with a total variance extracted of 65%.

Table 4. Factor Analysis Result for Behavioral Intention

Items	Factor		
	1	2	3
I plan to use E-government services.	.675		
My favorable intention would to use (E-government services) rather than (traditional services) for my practice.	.638		
I will strongly recommend others to use E-government services.	.616		
Given the chance, I predict that I would use E-government portal in the future to perform my activities.	.570		
When I have access to E-government services, I intend to use it.	.515		
I think it is a wise idea for me to use E-government services.		.692	
Using E-government portal would be a pleasant experience.		.682	
In my opinion, using the E-government services is a good idea.		.661	
I like the idea of using E-government portal.		.646	
All things considered, my continuing to use E-government services is... Extremely Harmful to Extremely Beneficial.			.793
All things considered, my continuing to use E-government services is... Extremely Bad to Extremely Good.			.777
I will continue to use E-government services.			.503
Eigenvalue	5.464	1.366	1.002
Variance explained	45.531	11.387	8.349
Cronbach's Alpha	.825	.831	.792

(a) Total Variance Extracted by the three factors 65%; KMO = 0.905; Barlett's Test P<.001

(b) Extraction Method: Principal Axis Factoring;

(c) Rotation Method: Varimax with Kaiser Normalization.

A. Research Model for E-government in Bahrain:

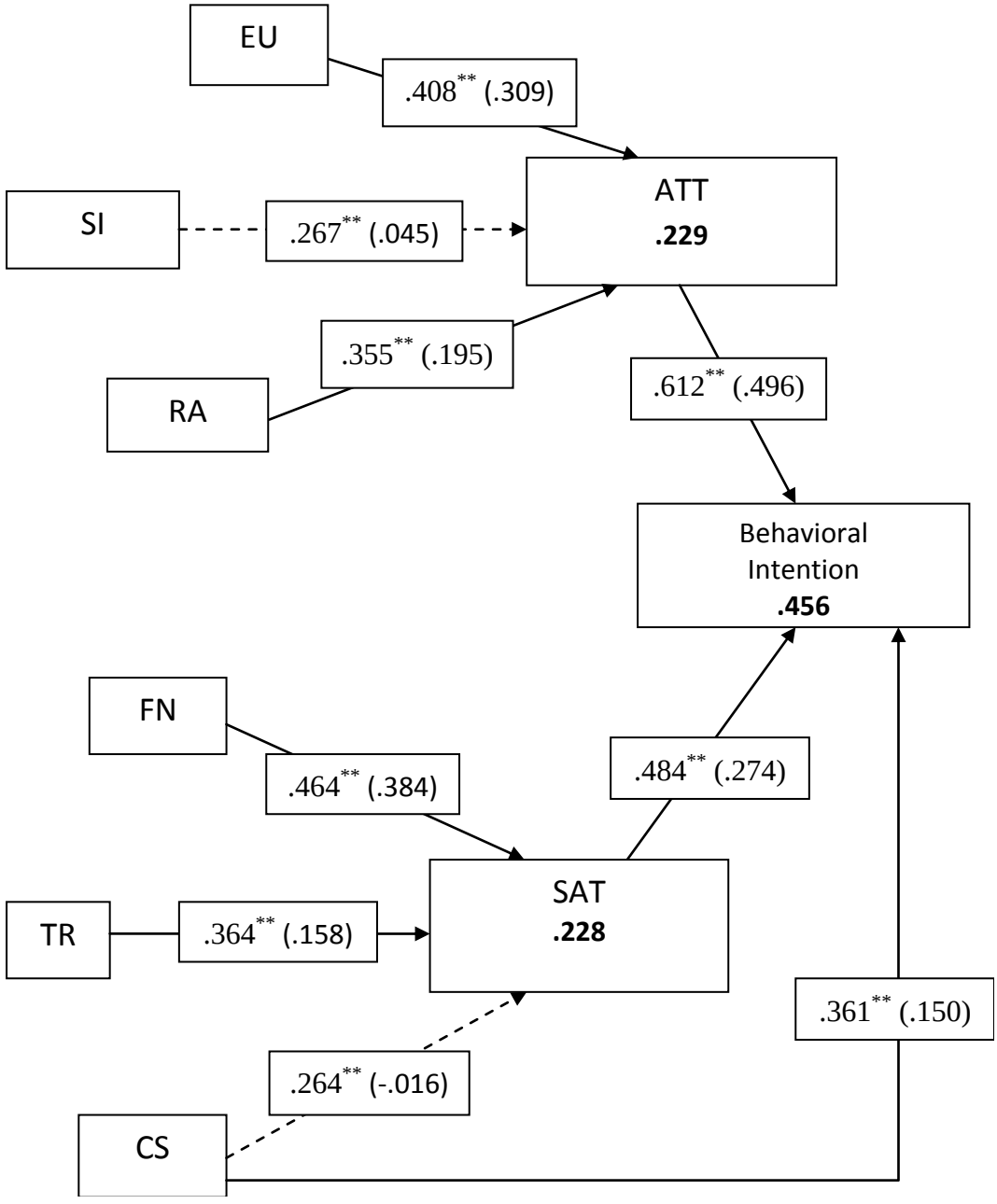

Figure 3. Research Model for E-government in Bahrain

a. **P<.001,
b. Not significant,
c. Significant
d. R^2 value in bold

6. DISCUSSION

The paper reports the analysis of the use of e-government services used by Bahraini citizens and their behaviours and satisfaction with the usage of the services. This can be considered as a major factor in innovating and improving this type of services worldwide. The results indicated that both 'attitude' and 'satisfaction' have a significant impact on behavioral intention, thus supporting H8 and H9. However, 'attitude' was the strongest determinant of behavioral intentions. This result contradicts Chan et al's [5] argument that in mandatory settings, 'satisfaction' is a more proper determinant than 'attitude'. Nonetheless, this could be due to the situation in the Kingdom of Bahrain, where there is still flexibility when it comes to using e-government services.

For attitude, both 'ease of use' and 'relative advantage' had significant impact on attitude, with 'ease of use' being the strongest with a standardized Beta value of 0.309, followed by relative advantage with a standardized Beta value of 0.195. This is supporting H1 and H3. However, H2 was rejected because 'social influence' had no significant impact on 'attitude' with a standardized Beta value of 0.45. These results further validate Davis' [18] and Zolait and Mattila's [16] arguments that the social influence effect can sometimes be inconsistent with behavioral intentions. 'Functionality' and 'trust' had a significant impact on 'satisfaction'. Functionality is the strongest, with a standardized Beta value of 0.384 and it had the highest value among all independent variables, followed by trust with a standardized Beta value of 0.158. These results support H4, H5, and H6 and validate part of Papadomichelaki and Mentzas's [6] theory that 'reliability', 'efficiency', 'trust' and 'citizen support' have impact on 'satisfaction', as the latter has standardized a Beta value of -0.016 thus, rejecting H7.

The researchers decided to investigate further the 'citizen support' relation with "behavioral intentions'; therefore, one more regression test was performed to test this relation. Figure 3 indicated a significant relationship between 'citizen support' and 'behavioral intentions', with a standardized Beta value of 0.150. This result indirectly validates Papadomichelaki and Mentzas's [6] theory, as it does affect 'behavioral intentions'; however, in a direct way rather than via satisfaction.

For future studies, the researchers recommend the testing of new variables and using multiple path regression to identify hidden relationships between independent and dependent variables. The results of such a test could identify how these variables affect each other and may discover new factors that affect citizens' behavioral intentions to use innovations.

7. CONCLUSION

In a rapidly changing environment, the Bahrain government is sparing no cost to deliver up-to-date services, yet the research findings indicated that citizens are still reluctant to exploit the full potential of the e-government services [19]. Although citizens have shown positive intentions to use e-services and while they believe that using e-government helps them save time and effort and brings ease to their daily lives and transactions, yet when asked about the ease of using e-government services not all of them agreed. The results indicated that citizens with lower education and computer skills believed that the website is unclear and not easy to follow, where those with higher education and computer skills thought it was fair enough. In the case of social influence and mass media, almost all citizens agreed that they have seen advertisements for e-government services. However, they disagreed that their peers and friends have influence on their decisions. The citizens have shown general satisfaction with the e-government and its services, but they had some complaints about the reliability of the services and efficiency of the website [20]. The result indicated that citizens have serious doubts regarding security of the website and safety of their financial and personal data. Many of them answered with (not sure) to the trust questions, which showed lack of awareness regarding security procedures. With regards to customer support, the results have shown some criticism about citizen support employees' capabilities to answer citizens' questions and convey trust. Nonetheless, employees are gracious and answer citizens with professional manner.

As the Kingdom of Bahrain is one of the leading countries in the region in innovation adoption, the government should spare no effort attracting citizens to use e-government services by educating them about security procedures that help keep them protected and make their lives much easier. Policy-makers can increase e-government services usage by introducing smart applications that fulfils people's needs [20-21], expectations security conditions and trust facilitating environment [13].In order to increase adoption rates and awareness of e-services, the researchers recommend the following:

- Increase the media campaign with all available resources about the importance and benefits of e-government services for the citizens.
- Enable trialability by conducting public training courses about using e-government services.

- Focus on the elderly as they face difficulties while using e-government services considering they most need it to reduce effort.
- Build trust and confidence in citizens by solving complaints quickly and properly.
- Continuously develop questionnaires for user to help improve e-services and encourage them to fill them by offering them with prizes or benefits.
- Train citizen support employees to be properly qualified and knowledgeable to better troubleshoot and meet citizens' needs swiftly and precisely.
- Customize the e-government portal to be more attractive and less complex.
- Conduct conferences in the local universities to increase e-government awareness among the youth.
- Encourage researchers in the field to further study e-government related issues as policies, standards, applications and required technologies for successful e-government services.

There are some difficulties that the researcher faced in conducting this research; such as dealing with big sample size, lack of previous studies in this field about the Kingdom of Bahrain, and the heterogeneous sample distribution which might be a limitation of the current research. Therefore, the researchers recommend that future research should focus on discussing factors related to security as e-government deals with sensitive data that might hamper the use of e-government in Bahrain.

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