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# Trust Factors Affecting the Adoption of E-government for Civic Engagement

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**Abstract.** This study aims to investigate trust factors affecting the use and adoption of e-government services, which lead to civic engagement. The constructs identified in this study are related to the theories of technology adoption in addition to trust constructs: trust in government, trust in technology, and trust in e-government. The study adopted the quantitative approach and surveyed more than 500 individuals in Kuwait. The findings indicate positive correlations between research constructs. Moreover, trust factors and perceived usefulness are found to be critical factors in the adoption and use of e-government services which greatly contribute to the achievement of civic engagement.

**Keywords:** E-government, Trust, Trust in technology, Trust in government, Trust in e-government, Adoption, Perceived usefulness, Civic engagement.

## 1 Introduction

The past decades have witnessed a decline in government trust to a great extent [48]. Trust in government, which encapsulates the interaction between government institutions and the public, has been investigated by a number of researchers as the decline of trust in government is considered one of the dilemmas of modern governance [48]. Craig [19], Hetherington [28] and Norris [40] in their research found a significant association between the declining trust in government and the decline in political participation. Moreover, citizens have been isolated from community life, and their ability to articulate demands for a good government that ensures quality of life has noticeably decreased [33, 35]. Norris [40, p.113] reports: "There is widespread concern that the public has lost faith in the performance of the core institutions of representative government, and it is hoped that more open and transparent government and more efficient service delivery could help restore that trust". The use of Information and Communication Technology (ICT) in governments has introduced new forms of interaction that could enhance different types of relationships, including a government–public relationship [50, 56].

The proposals of e-government initiatives have served as solutions for meeting citizens' needs and expectations, improving public-government communication and increasing trust in governments [47]. Therefore, many local, regional, and national governments around the world have adopted ICT solutions to offer effective govern-

ment information and services, to achieve economic and social development, and to enable social inclusion [10]. West [57] and Lollar [37] projected that e-government and its use help bring about positive change in citizens' beliefs about government effectiveness and re-build citizens' trust in government. E-government projects have introduced several opportunities for online interactions, which subsequently empower citizens at various levels, such as: information accessibility, political participation, influencing government decisions, linking groups to the broader community, and making governments more accountable to their citizens [10, 8, 2].

There is a growing body of literature that investigates trust in e-government, for example: [47, 45, 29]. Other research focuses on e-government and user engagement [17, 31, 27], that has contributed greatly in developing an understanding of the impact of ICT on civic engagement [34]. Moreover, researchers have indicated that some political behaviours have linked trust and civic engagement [43, 50] that such linkage is complex, and trust is the "magic elixir for civic engagement" [50]. However, the literature has little explanation on the relationships between building trust in e-governments, the adoption and use to e-government and civic engagement. Moreover, to the best of the researcher's knowledge, studies on such relationships in developing countries, specifically in the Middle East, are either non-existent or insufficient. In previous research, we validated the research model of trust factors that are expected to have significant relationships with the adoption of e-government services and leading to civic engagement [4]. Therefore, this study is a continuation of previous research that aims to investigate trust factors (technology, government, and e-government) related to the use and adoption of e-government for civic engagement, using Kuwait as an example of a developing country.

The paper is organized as follows: Section 2 presents the literature review followed by the background of the study in Section 3. Then, section 4 describes the research model and hypotheses. The methodology used in the study is explained in Section 5. The findings of the study are depicted in Section 6. Finally, the discussion and conclusions are presented in Sections 7 and 8 respectively.

## 2 Literature Review

Many studies in the literature have provide evidence that trust is an important factor in the acceptance and adoption of e-government services [16]. Trust has been defined as "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" [46, p.395]. Several researchers found that the use of e-government services is correlated with the trust in government; for example: [15, 41, 55, 57]. Other researchers, conversely, found that trust in government is not necessary for using e-government services; for example: [29]. Scholars have also explored the relationship between the citizens' use of e-government services and their trust in technology. A study investigating the relation between trust and e-government [18] found that citizens with higher perceptions of technological and organizational trustworthiness, have higher trust in e-government. Users with positive experience of the technology and satisfactory use of the services are more likely to develop a positive attitude and thus adopt online services than those with a negative experience [52]. Horsburgh [29] confirms that users' trust in

technology is more likely to increase as their personal information is not misused by authorities or released to third parties. Internet business is linked to Internet experience that novice users are less likely to conduct business online than experienced users [25]. Also, security and reliability of e-services are the most important dimensions that, if experienced, would incline customers to report a positive experience of e-services [52]. Similarly, Dutton and Shepherd [21] found that trust in the Internet would shape the future of online services. Such trust is undermined by negative experiences while using the Internet, such as computer viruses.

Once citizens' adoption of e-government services is achieved, it should have an impact on their engagement as it is associated with the successful e-government and its sustainability [17, 31]. Civic engagement which enhances social trust, norms, and values [26], could be a "bit of everything": political participation, volunteering, community services, and social networks and interpersonal trust to associational involvement [1, 44, 11, 22]. Not only civic engagement stems from trust, but also can lead to greater trust [22]. Putnam confirms [38] that there is a relationship between civic engagement and trust, however it is complex. Also, Brehm and Rahn [13] found a linkage between civic engagement and trust. Gil de Zúñiga et al. [27] found that individuals were more likely to display political behavior and engage in civic life in both online and offline conversations. Several researchers found that civic engagement is significantly related to the participation in the political process of government; for example: [9, 24, 51]. Moreover, the use of available e-government information and services and interaction platforms with government allow direct contact and interaction with governments, thereby promoting transparency, participation, and collaboration [30, 12]. However, Jaeger and Bertot [30] argued that the use of new technologies might marginalize disadvantaged people that did not have access to the Internet.

To sum up, the review of the literature identifies trust in government and technology as factors significant in the adoption of e-government. Moreover, the use of e-government positively impacts civic engagement which has a significant association with trust.

### **3 Study Background**

E-government initiative has been adopted in Kuwait since 2000 as a tool to improve the government's performance, and services and to promote transparency [5, 36]. A lot of efforts are devoted to the improvement of e-government in Kuwait to present government information and services needed by the public [32]. Although many government organizations and ministries have produced government information and offered services online using ICT tools, such as websites and social media networks, the adoption of such e-government is still limited. According to the United Nations E-Government Survey 2020 [49] Kuwait has shown a substantial development in e-government as it is ranked 46 out of 193 countries in 2020 compared to its 63 rank in 2012. E-government in Kuwait has been investigated from different perspectives by a number of researchers, such as its benefits, challenges and adoption [5, 7, 6]; however, to the best of the researcher's knowledge, little is known about public trust

in e-government that leads to civic engagement. This limitation in the literature has commended to conduct this study to fill the gap by investigating the trust factor and how it is associated with the adoption factors of e-government information and services that lead to achieving civic engagement.

## 4 Research Framework

Technology acceptance and adoption theories, such as theory of reasoned action (TRA) [23], technology acceptance model (TAM) [20], theory of planned behavior (TPB) [3], and unified theory of acceptance and use of technology (UTAUT) [53], have been extensively used in the literature to investigate and discuss the acceptance and adoption of e-government services. Such empirical studies have identified numerous factors related to e-government adoption, such as perceived usefulness, perceived ease of use, subjective norms, intention to use and attitude behavior. However, other important factors relating to trust and culture have little been considered with adoption theories, such as [45] and [54]. Thus, based on the literature review, this study focuses on trust as an important factor related to the adoption of e-government. Other factors that enhance trust in e-government services are also considered. The following factors are identified and expected to be significantly correlated with the adoption e-government services and have positive impact on civic engagement:

- Trust in government (TG) has been found to be associated with the trust in e-government services [15]. It refers to one's perceptions regarding the integrity and ability of the agency providing the services [15]. Therefore, the following hypothesis is developed:

*H1*: Trust in government has significant relationship with trust in e-government.

- Trust in technology (TT) has also been found to be associated with the trust in e-government [29]. Users having positive experiences with the technology would trust e-government as they feel that their personal and financial information are secure. This leads to posit the following hypothesis:

*H2*: Trust in technology leads to trust in e-government.

- Trust in e-government (TEG) is the outcome of citizens' trust in government and technology [14]. Such construct depends also on other personal characteristics, such as age, and gender. Once citizens have trust in e-government, they become more likely to increase their intention to use (IU) and adopt e-government services. Intentions to use (IU) e-government services is one of the main factors that measures the citizens' use of e-government services. The following hypothesis is suggested:

*H3*: There is significant relationship between trust in e-government and intention to use.

- Perceived usefulness (PU) of e-government services is also an important factor for enhancing trust in e-government and increasing citizens' intention behavior. It is "the degree that users believe that a particular system facilitates their activity" [20]. If users perceive that e-government facilitates their interaction with government, they

become more likely to trust e-government services and intend to use e-government services. The following hypothesis is suggested:

*H4*: Perceived usefulness positively influences trust in e-government.

*H5*: Perceived usefulness positively influences intentions to use e-government.

• Civic engagement (CE) as defined by the world bank [58] is the “participation of private actors in the public sphere, conducted through direct and indirect interactions of civil society organizations and citizens-at-large with government, multilateral institutions and business establishments to influence decision making or pursue common goals”. As e-government services are adopted and used by citizens, this means that citizens become able to interact and engage with government, and thereby achieving civic engagement. The following hypothesis is developed:

*H6*: There is significant relationship between trust in e-government and civic engagement.

Appendix 1 presents the constructs used in the study and the related statements which have been modified to reflect the context of the study.

## **5 Methodology**

This study aims to investigate trust factors affecting the use and adoption of e-government services, which lead to civic engagement. The quantitative approach was adopted in this study for data-collection using a questionnaire survey method. The survey tool was designed in a clear and straightforward way, using simple language as it targets various groups in the community with different educational, cultural, and social backgrounds. The questionnaire is divided into two main sections: the first section gathers demographic information of respondents and their technology proficiency; the second section investigates the identified research constructs as respondents should give their opinions using a Likert scale ranging from 1 “strongly disagree” to 5 “strongly agree”.

The questionnaire was designed in both English and Arabic. This gives everyone residing in Kuwait the opportunity to participate in the study. To ensure the validity and reliability of the questionnaire, a panel made up of two faculty members from the Information Studies Department and one statistician revised the survey for any errors or ambiguities. All corrections and changes suggested by the panel were taken into consideration. Moreover, a pilot study was undertaken using 50 participants to evaluate the feasibility of the questionnaire statements. The 50 questionnaire responses were statistically analysed and the suggested changes were made to ensure better clarity of statements. The questionnaire targeted individuals in Kuwait who are eligible to use e-government services, mainly those who are 18 years old and above. A non-probability, convenience sampling method was employed to target a large number of participants. The questionnaire was distributed by hand and online using email and social media networks to reach as many individuals as possible. Luckily, 524 responses were received. Data extracted from questionnaire responses were analyzed using SPSS and Minitab software.

## 6 Results

### 6.1 Demographic Characteristics

The demographic characteristics of the sample shows that the majority of respondents were 348 females (66.4%) and 176 males (33.6%). The most respondents (244) were aged between 18 and 25 (46.5%), and 323 of them (61.6%) hold undergraduate degree. The majority of questionnaire respondents 482 (92%) were Kuwaiti nationals and 377 of them (71.9%) had excellent technology skills, as shown in Table 1.

**Table 1.** Demographic characteristics of the research sample

| Demographics      |                   | Frequency | Percent |
|-------------------|-------------------|-----------|---------|
| Gender            | Male              | 176       | 33.6%   |
|                   | Female            | 348       | 66.4%   |
| Age               | 18-25             | 244       | 46.5%   |
|                   | 26 -35            | 161       | 30.7%   |
|                   | 36 - 45           | 51        | 9.7%    |
|                   | 46 – above        | 68        | 13%     |
| Education         | High School       | 59        | 11.3%   |
|                   | Diploma           | 55        | 10.5%   |
|                   | University Degree | 323       | 61.6%   |
|                   | Graduate Degree   | 87        | 16.6%   |
| Technology Skills | Poor              | 2         | 1.5%    |
|                   | Good              | 145       | 27.7%   |
|                   | Excellent         | 377       | 71.9%   |
| Nationality       | Kuwaiti           | 482       | 92%     |
|                   | Non-Kuwaiti       | 42        | 8%      |

### 6.2 Validity and Reliability of Constructs

The factor analysis is used in the statistical data analysis of this study to reduce the dimensionality of data sets and to identify the validity and reliability of research construct items. The reliabilities of the constructs are greater than 80% of the Cronbach alpha coefficient, which proves high internal consistency between instruments for each construct. Also, the explained variance is larger than 70%, indicating excellent goodness of fit of the model and valid constructs. Factor loadings, which are greater than 50%, reflect the degree of association between instruments and the construct it measures. Once each construct and its instruments are identified, we express each construct as a weight average. These averages are used to model the relationship between Civic engagement (CE) as a dependent variable, and a set of predictors including: Trust in government (TG), Trust in technology (TT), Trust in e-government (TEG), Intention to use e-government (IU), and Perceived usefulness of e-government (PU).

### 6.3 Measurements of Construct

Table 2 indicates statistical analysis results of the sample data to show that respondents displayed positive attitudes towards trust in technology (Mean=3.8, p-value=0.000), trust in e-government (Mean= 3.8, p-value = 0.000), intension to use (Mean=3.6, p-value 0.000), perceived usefulness (Mean=3.6, p-value=0.000). Respondents were neutral in their attitudes towards civic engagement (Mean=3.0, p-value= 0.967). On the contrary, respondents expressed negative attitudes towards trust in government (Mean=2.2, p-value 0.000).

**Table 2.** Description of constructs and their Measurements

| Construct | N   | Mean | Std. Deviation | Std. Error Mean | Sig. (2-tailed) |
|-----------|-----|------|----------------|-----------------|-----------------|
| TG        | 524 | 2.20 | .856           | .037            | .000            |
| TT        | 524 | 3.81 | .922           | .040            | .000            |
| TEG       | 524 | 3.85 | 1.023          | .044            | .000            |
| CE        | 524 | 3.00 | 1.240          | .054            | .967            |
| IU        | 524 | 3.62 | 1.066          | .046            | .000            |
| PU        | 524 | 3.63 | 1.112          | .048            | .000            |

### 6.4 Research Construct Correlations

The Correlation Coefficient test was conducted to show if there is a relationship between two variables (constructs) and indicates the direction of the relationship. The results indicate that all research constructs are positively correlated with each other and greater or equal to  $r=0.22$ , p-value=0.000. Trust in government has positive and significant correlations with Trust in technology ( $r=0.25$ , p-value=0.000), trust in e-government ( $r=0.30$ , p-value=0.000), civic engagement ( $r=0.22$ , p-value=0.000), intention to use e-government services ( $r=0.30$ , p-value=0.000), and perceived usefulness ( $r=0.27$ , p-value=0.000). Trust in technology has moderate positive and significant correlation with trust in e-government a moderate positive and significant correlation with trust in e-government ( $r=0.44$ , p-value=0.000), intention to use e-government services ( $r=0.48$ , p-value=0.000) and perceived usefulness ( $r=0.45$ , p-value=0.000); however a weak positive and significant correlation with civic engagement ( $r=0.32$ , p-value=0.000). Trust in e-government has strong positive and significant correlation with intention to use e-government services ( $r=0.72$ , p-value=0.000) and perceived usefulness ( $r=0.72$ , p-value=0.000), and a moderate positive and significant correlation with civic engagement ( $r=0.52$ , p-value=0.000). Civic engagement also has a strong positive and significant correlation with perceived usefulness ( $r=0.65$ , p-value=0.000) and intention to use e-government services ( $r=0.57$ , p-value=0.000). Finally, a strong positive and significant correlation was found between intention to use e-government services and perceived usefulness ( $r=0.76$ , p-value=0.000).

## 6.5 Effect of Respondents' Demographic Characteristics on Research Constructs

The study utilized several non-parametric tests to investigate the effects of demographic characteristics on research constructs. The results indicate that both male and female respondents expressed positive attitude towards their trust in e-government with a significant effect of (p-value= 0.000), trust in technology (p-value= 0.057), intention to use e-government (p-value= 0.041), and perceived usefulness (p-value= 0.031).

All age groups expressed positive perceptions towards trust in technology, however, significant relationships were found between age and trust in government (p-value= 0.014), civic engagement (p-value=0.003), and trust in technology (p-value= 0.059).

With regards to the respondents' educational background, a significant relationship was found with only their trust in technology (p-value= 0.028). Nationality difference did not show any significant relationship with any construct except trust in government which indicates the respondents' negative attitude but significant relationship with the nationality (p-value= 0.002). Finally, the respondents' various levels of technological skills did not show any significant relationship with any constructs accept trust in technology (p-value= 0.000).

## 6.6 Testing Research Hypotheses

In order to prove or negate the study's hypotheses, the Two-sample T-test, using Minitab software, was performed to test various relationships between constructs. Constructs' means (M) and standard deviation (SD) were compared. Also, to determine whether the difference between the means was statistically significant, the p-value was compared to the significance level. The findings show that among respondents (N = 524), there was a statistically significant difference between trust in government (M = 2.20, SD = 0.85) and trust in e-government (M = 3.86, SD = 1.02), with the degree of freedom (DF= 1046), and obtained t-value= -28.36 and the P-Value= 0.000. Therefore, *H1* is supported; see Table 3.

**Table 3.** Two-Sample T-test: the relationship between TG and TEG

| Construct                                     | N   | Mean | StDev | SE Mean |
|---|-----|------|-------|---------|
| TG  | 524 | 2.20 | 0.85  | 0.03    |
| TEG   | 524 | 3.86 | 1.02  | 0.04    |
| T-Value= -28.36    DF= 1046    P-Value= 0.000 |     |      |       |         |

The relationship between trust in technology and trust in e-government was also tested. As shown in Table 4, trust in technology (M = 3.81, SD = 0.92) and trust in e-government (M = 3.86, SD = 1.02), (DF= 1046), obtained t-value= -0.73 and P-Value= 0.466; thus, rejecting *H2*.

**Table 4.** Two-Sample T-test: the relationship between TT and TEG

| Construct                                    | N   | Mean | StDev | SE Mean |
|--|-----|------|-------|---------|
| TT   | 524 | 3.81 | 0.92  | 0.04    |
| TEG  | 524 | 3.86 | 1.02  | 0.04    |
| T-Value= -0.73    DF= 1046    P-Value= 0.466 |     |      |       |         |

The results show a significant relationship between trust in e-government ( $M = 3.86$ ,  $SD = 1.02$ ) and the intention to use e-government services ( $M = 3.63$ ,  $SD = 1.07$ ), (DF= 1046), obtaining  $t$ -value= -3.60 and P-Value= 0.000, supporting  $H3$ ; see Table 5.

**Table 5.** Two-Sample T-test: the relationship between TEG and IU

| Construct                                    | N   | Mean | StDev | SE Mean |
|--|-----|------|-------|---------|
| TEG  | 524 | 3.86 | 1.02  | 0.045   |
| IU   | 524 | 3.63 | 1.07  | 0.047   |
| T-Value= -3.60    DF= 1046    P-Value= 0.000 |     |      |       |         |

Another significant relationship was also found between perceived usefulness ( $M = 3.63$ ,  $SD = 1.11$ ) and trust in e-government ( $M = 3.86$ ,  $SD = 1.02$ ), (DF= 1046), attaining  $t$ -value= -3.43 and P-Value= 0.001, therefore, supporting  $H4$ ; see Table 6.

**Table 6.** Two-Sample T-test: the relationship between PU and TEG

| Construct                                    | N   | Mean | StDev | SE Mean |
|--|-----|------|-------|---------|
| PU   | 524 | 3.63 | 1.11  | 0.049   |
| TEG  | 524 | 3.86 | 1.02  | 0.045   |
| T-Value= -3.43    DF= 1046    P-Value= 0.001 |     |      |       |         |

However, the relationship between perceived usefulness ( $M = 3.63$ ,  $SD = 1.11$ ) and intention to use ( $M = 3.63$ ,  $SD = 1.07$ ), (DF= 1046), was not statistically significant as it obtained  $t$ -value= 0.08 and P-Value= 0.932; thus, rejecting  $H5$ ; see Table 7.

**Table 7.** Two-Sample T-test: the relationship between PU and IU

| Construct                                   | N   | Mean | StDev | SE Mean |
|---|-----|------|-------|---------|
| PU  | 524 | 3.63 | 1.11  | 0.049   |
| IU  | 524 | 3.63 | 1.07  | 0.047   |
| T-Value= 0.08    DF= 1046    P-Value= 0.932 |     |      |       |         |

Finally, the results show a significant relationship between trust in e-government ( $M = 3.86$ ,  $SD = 1.02$ ) and civic engagement ( $M = 3.00$ ,  $SD = 1.24$ ), (DF= 1046), acquiring  $t$ -value= 12.20 and the P-Value= 0.000, consequently supporting  $H6$ ; see Table 8.

**Table 8.** Two-Sample T-test: the relationship between TEG and CE

| Construct      | N   | Mean     | StDev          | SE Mean |
|----------------|-----|----------|----------------|---------|
| TEG            | 524 | 3.86     | 1.02           | 0.045   |
| CE             | 524 | 3.00     | 1.24           | 0.054   |
| T-Value= 12.20 |     | DF= 1046 | P-Value= 0.000 |         |

## 7 Discussion

Researchers around the world explored the adoption of e-government services from various perspectives and identified factors that were critical in the acceptance and the adoption of the services, such as perceived usefulness, subjective norms, and attitude behavior. However, a few of such studies explored the trust factor and its relation to civic engagement, which is the main aim of implementing electronic government. This study, therefore, has investigated trust factors affecting the use and adoption of e-government services for civic engagement, using a questionnaire that targeted adult individuals in the Kuwaiti society. The results of constructs measurement and statistical analysis show that respondents displayed positive attitudes towards trust in technology and e-government. Moreover, they had high perceptions of the usefulness of e-government services and they intended to use them. This could be attributed to the fact that the majority of respondents had high skills in technology, and they were aware of the potential benefits when they conduct transactions online. However, respondents showed negative attitudes towards trust in government, confirming results in [39, 47, 19, 28, 40], and that the Kuwait government is not revealing adequate information to the public and not sufficiently engaging the public in the political process [48]. Therefore, respondents showed neutral attitudes towards civic engagement which is correlated with trust in government, as found by [43].

The relationships between constructs which are presented in the hypotheses are also explored in this study. The findings indicate that there was a significant relationship between trust in government and trust in e-government, confirming *H1* and suggesting that trust in government is necessary for trusting and using e-government as confirmed by [14]. *H3* was also confirmed as the findings show a significant relationship between trust in e-government and intentions to use e-services. This explains that trusting e-government has a positive impact on the respondents' intentions to use e-services and information offered by the government. Another association was found between respondents' perceptions of the usefulness offered by the use of online services and trust in e-government, supporting *H4*. This indicates that if e-government services and information are beneficial and helpful to respondents as they enhance their performance and facilitate government knowledge and information challenges, then this would lead to their trust in e-government, confirming results in many studies, for example [52, 18]. However, trust in technology did not show any significant relationship with the trust in e-government, rejecting *H2*. This could be justified by the fact that the majority of respondents were confident in their technological skills which might not be necessary for trusting e-government. *H5* was also negated as no significant relationship was found between perceived usefulness and intentions to use e-government services. Finally, a

significant relationship was found between trust in e-government and civic engagement, confirming *H6*. These results indicate that public's trust in e-government is associated with their engagement in the society and that their views could be taken into consideration by government officials.

The study also explored the effect of respondents' demographic features on the research constructs. The results indicate that gender indicated significant relationship with trust in technology, trust in e-government, perceived usefulness and their intentions to use e-government services. This suggests that gender type could affect such factors leading to the adoption of e-government services. Also, age could affect e-government adoption when it is related to trust in government, trust in technology and their perceptions towards civic engagement. Educational background and technology skills of respondents only affected trust in technology factor. This could be attributed to the awareness levels regarding the privacy and security of the technology as well as the knowledge received through education about the benefits of technology, which could be employed to improve individuals' life. Interestingly, the nationality showed significant effect only on trust in government as residents showed higher trust in government than Kuwaitis. This could be explained by the better quality of life the residents have in Kuwait, compared with the living standard of their countries of origin.

## **8 Conclusion**

In conclusion, this study has achieved its aim and investigated the trust factors that affect the use and adoption of e-government services for civic engagement. This study provides practical implications for government officials to devote efforts to re-build trust with the public and consider trust in technology, government and e-government as important factors associated with the acceptance, adoption and use of e-government services. This can be done through improving e-government services and making them useful, beneficial and easy to use to save the public's time and effort. Also, e-government programs, specifically in Kuwait, are expected to share and exchange government information, enable interaction with the public and offer them the tools through which they are able to express their views and specific needs and become part of the political process. This positively impacts the citizens' trust in government, thus achieving civic engagement.

The study used a relatively large number of individuals in Kuwait and the results could be generalized to all individuals in the society and specifically to countries in the Gulf region that share similar cultural, political and economic backgrounds; however, the characteristics of the sample could be biased to female and younger individuals with university degrees. Therefore, the findings are validated by establishing connections with relevant literature and by using statistical analysis to report the results. This study is expected to add to the adoption literature on how trust is associated with the adoption of e-government services and how this association assists in the achievement of civic engagement. Further research is still required to investigate factors that increase the adoption and use of e-government services.

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## Appendix 1: Research Constructs

| Constructs                  | Statements  | Sources            |
|-----------------------------|---|--------------------|
| Trust in Government (TG)    | I trust government agencies.  | Colesca [18]       |
|                             | Government agencies keep my best interests in mind.   |                    |
|                             | In my opinion, government agencies are trustworthy.   |                    |
|                             | The trust in a governmental agency increase once with its reputation  |                    |
| Trust in Technology (TT)    | Technologies supporting the system (such as enquiring about traffic violations) are reliable all the time.                                    | Colesca [18]       |
|                             | Technologies supporting the system are secure all the time.   |                    |
|                             | The technology used by government agencies is trustworthy.  |                    |
|                             | Overall, I have confidence in the technology used by government agencies to operate the e-government services.                                |                    |
| Trust in e-Government (TEG) | E-government services are useful for me.  | Colesca [18]       |
|                             | I believe that e-government services are trustworthy.   |                    |
|                             | I believe that e-government services will not act in a way that harms me.   |                    |
|                             | I trust e-government services.  |                    |
| Civic Engagement (CE)       | The use of e-government information and services makes me willing to interact with government officials.                                      | Pavlou [42]        |
|                             | The use of e-government information and services enables me to communicate my ideas to government   |                    |
|                             | The use of e-government information and services makes it easier for me to attend government public meeting to discuss government performance |                    |
|                             | The use of e-government information and services makes government officials accountable.  |                    |
| Intention to Use (IU)       | I am intending to use e-government information to conduct my business with government.  | Kalu & Remkus [34] |
|                             | Most probably that I will continue to use the e-government information  |                    |
|                             | I am planning to continue to use the e-government services in the future.   |                    |
|                             | I will use the e-government information if it is handy and available.   |                    |
| Perceived Usefulness (PU)   | Using e-government helps me greatly in doing my work.   | Pavlou [42]        |
|                             | Using e-government enhance my performance.  |                    |
|                             | Using e-government improves performance quality.  |                    |
|                             | Using e-government facilitates knowledge challenges.  |                    |

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