

Mediating Role of System Reliability in the Relationship between E-Government Service Quality, Citizen Trust, and Service Usage: Evidence from Jordan's Public Service Sector

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ABSTRACT

This study investigates the mediating effect of system reliability (SR) between e-government service quality (EGSQ), citizen trust (CT) and service usage (SU) in the public service sector in Jordan. Despite the high investments made in digital governance initiatives, in many developing contexts, little has been achieved in terms of sustained citizen participation, meaning that citizens do not only perceive quality in service but continue to use e-government platforms. The study is based on the DeLone and McLean Information Systems Success Model (ISSM) as well as the Trust Based Adoption Framework and posits that the socio-technical construct of “system reliability” is a key construct that links service quality perceptions to the formation of trust and actual usage behavior. A structured survey was conducted with a sample of 428 citizens who were using e-government services in Jordan, measuring citizens’ perceptions of EGSQ, SR, CT and SU. The hypothesized relationships and mediation effects were tested by using Structural Equation Modeling (SEM) software program AMOS 24.0. The results showed that EGSQ has a significant positive effect towards SR, CT and SU. Importantly, SR found to partially mediate the relationships between service quality, trust and usage, suggesting its mediating role to enhance the service quality to usage relationship. The results of the bootstrapping analysis also indicated the importance of indirect effects, and the multi-group analysis results indicated that the structural relationships were stable for the demographic groups. The findings highlight that reliable system performance is essential for sustaining CT and encouraging continued use of digital government services. The study contributes to theory by extending established information systems and trust-based models through the integration of SR as a key mediating construct. Practically, it emphasizes that governments must prioritize system stability and operational consistency alongside service quality improvements to ensure effective digital governance outcomes.

Keywords: E-government Service Quality, System Reliability, Citizen Trust, Service Usage, Digital Governance

JEL Classifications: H11, L8

1. INTRODUCTION

Digital governance systems are spreading across the world at a fast pace, embracing public administration as a technology-driven service ecosystem where e-government platforms are expected to provide services efficiently, transparently and citizen-centric, but the success of these platforms remains uneven in developing and developed contexts, partly because of varying degrees of infrastructure maturity, institutional readiness and stability of system performance (Ahmad et al., 2025; Alkraihi and Ameen, 2022). EGSQ is a recurring concept in this context, which is

key to the notion of the effectiveness of digital public services, defined by usability, responsiveness, accuracy and accessibility, that influence citizen perceptions of government performance (Alsarraf et al., 2023; Alswalmh et al., 2024). Technological backbone can be overlooked, however, when they assume that service quality is a direct measure of trust and usage, they also neglect the critical technological dimension that ensures these perceptions are maintained in real-world interactions, especially when it comes to SR, which denotes the stability, availability, and consistency of digital platforms over time (Aswar et al., 2023; Brahmi et al., 2025). CT in e-government systems is a

psychological and institutional-based trust in the secure, accurate, and stable performance of government platforms, particularly when users have to give up confidential personal information on digital platforms (DeLone and McLean, 2003; Cheng et al., 2021). Trust is not only influenced by the perceived intentions of government in developing digital governance ecosystems including Jordan, but is also generated by lived experiences in these systems, and any small technical mishaps can make a big difference in eroding institutional credibility and lowering the willingness for long-term adoption (Gupta and Chauhan, 2024). This formation of trust is a behavioral process, and SU is more about actual usage of DGP platforms than intention to use, so it is a more valid indicator of e-government maturity and success (Hu and Bentler, 1999). However, the lack of strong explanatory links between perceived service quality and ongoing usage behavior is an ongoing challenge in the literature which suggests that there are missing intervening mechanisms between perceived service quality and usage behavior.

In the current study, the concept of SR is added as a missing socio-technical link between the perceived service quality and the process of building trusting relationships and usage outcomes. It is about the steady performance of the digital systems, such as maintaining uptime stability, error-free processing, promptness, and service availability, which helps build user confidence in digital governance platforms (Hussain and Waheed, 2025). Importantly, previous studies have tended to conflate system reliability with other system quality aspects, leaving out the unique and mediating role of system reliability in the functioning of psychological trust mechanisms (Jimoh, 2026; Khan et al., 2023). Digital government programs within the national transformation plan have grown rapidly in Jordan, however, infrastructural inconsistencies and system downtime are part of the obstacles to continued citizen engagement (Nguyen et al., 2023; Pham et al., 2023). The reason for choosing the e-government sector for Jordan is that they are still transitioning into a digital society, and there is a significant amount of e-service investments in the country while there are varying levels of adoption, creating a good empirical platform for analysis of the service quality-trust-usage paradox (Pramuditha et al., 2024; Qadeer and Hussain, 2025). Even though digital service channels are made available, there is still a persistent citizen demand for physical channels, meaning that it is not enough to provide digital services to ensure citizens' behavioral switching (Ramadhani et al., 2025; Ye et al., 2023). This further substantiates the idea that SR is a key mediator between service quality perceptions and institutional trust and usage behavior. The fragmentation of current e-government adoption models—often service quality or trust or usage are examined separately, with a direct causal relationship with no consideration of its underlying consistency of the technology that supports these relationships—is a significant research gap that is addressed in this study (Ahmad et al., 2025; Pham et al., 2023). Furthermore, due to the theoretical relevance of SR in the ISSM and trust-based adoption points of view (Hussain, 2026; Jimoh, 2026), there is limited empirical evidence in the Middle Eastern public sector context that integrates SR as a mediator between the two.

The current research focus is largely in the context of the Western and technologically developed economies, which may result in

contextual biases that make findings less applicable to contexts of digital governance in developing economies (Qadeer and Hussain, 2025; Ye et al., 2023). Thus, the direction of effect of e-government service quality on citizen trust and service adoption was empirically tested and the mediation effect of SR in strengthening the relationship between the two was tested in this study. In doing so, it helps to expand previous theoretical models, by including infrastructural stability as a central explanatory factor, instead of a system attribute that occurs on the periphery. This research is important because it provides an expanded socio-technical perspective on the success of e-government, and it is unique in combining perceptual, technological and behavioral constructs in a single structural framework. Finally, the study suggests that the lack of system reliability will not lead to long-term CT and usage, even if e-government services are of high quality, as a result of which system reliability needs to be regarded as a precondition for making e-government services effective.

2. THEORETICAL BACKGROUND

In theory, the study is grounded in the DeLone and McLean ISSM and the Trust Based Adoption Framework, because both frameworks offer a complementary lens for viewing the socio-technical and behavioral aspects of how EGSQ translates into CT and SU, and what SR is in between EGSQ and CT and SU. This is because the DeLone and McLean model provides a complete framework to assess information systems success in terms of system quality, information quality and service quality that jointly lead to user satisfaction and net behavioral outcomes (DeLone and McLean, 2003). This is especially useful for e-government applications, as digital platforms are not only vehicles for delivering services but also an interface for citizens that effects their perception of government competence. Its drawback, however, is that it assumes technical attributes are strong, direct predictors of satisfaction, but fails to explicitly account for the change of psychological states that can drive continued trust and use, which requires complementing with theoretical reasoning about trust (Ahmad et al., 2025; Alkrajji and Ameen, 2022). However, to compensate for this, the Trust-Based Adoption Framework is included as it highlights that trust is an important intervening variable between system perceptions and behavioral intent especially in high uncertainty digital environment where users are required to engage in public services through non-physical interactions (Alsarraf et al., 2023; Alswalmh et al., 2024). For e-government systems, trust is not just institutional but also technological, as a result of the regular system functioning, transparency, and reliability. The rationale for considering system reliability as a core mediating construct instead of a peripheral technical feature is also supported by this framework, which clearly implies that citizens' perceptions of competence, integrity, and predictability of government systems is driven by their perception of system reliability (Aswar et al., 2023; Brahmi et al., 2025). These theories can be combined to provide a more comprehensive understanding of the cognitive and structural factors affecting the adoption of digital public services.

The results of the past studies show that e-government service quality has a significant effect on the e-government user

satisfaction and e-government behavioral intention, especially if the system is performing well and responding rapidly (Cheng et al., 2021; DeLone and McLean, 2003). Likewise, research that builds on the concept of trust-based adoption results confirm that CT is an essential factor for continued e-government use, particularly for sensitive data exchange (Gupta and Chauhan, 2024; Hu and Bentler, 1999). Yet, one of the drawbacks of previous studies is that they often fail to highlight system reliability as a distinct pathway in their models of explaining trust formation, instead including it within overall system quality constructs, which lacks the ability to explain its unique role in maintaining trust over time (Hussain and Waheed, 2025; Hussain, 2026). In developing digital governance contexts, further empirical evidence shows that CT can be compromised with high perceived service quality and system instability such as downtime and slow processing speed, suggesting a disconnect between perceived and perceived service quality that is not adequately captured by existing models (Jimoh, 2026; Hussain, 2026). Research in the Middle Eastern public sector likewise indicates that the citizens' intention to use e-government platforms repeatedly is heavily dependent on the consistency and reliability of the system, which suggests that the technical performance of a system will act as a stabilizing factor for the behavioural continuity of citizens (Khan et al., 2023; Pham et al., 2023). Furthermore, the latest studies highlight that trust in digital governance is fragile and can be undermined at any moment without a secure system, such as in new markets where institutional distrust has already grown (Hussain, 2026).

Drawing on these theoretical and empirical findings, this study proposes to place the concept of system reliability as the core intermediary mechanism linking EGSQ and CT with SU. This integration broadens the DeLone and McLean model and the theory of institutional trustworthiness, showing that behavioral outcomes in e-government settings are not the exclusive function of perceived quality or institutional trustworthiness, but rather that the consistency of system performance over time plays an important role in shaping behavioral outcomes. Thus, this study helps to better understand the success of digital governance because it reveals that the sustainable use of digital governance requires a combination of high service quality and reliable system functionality, which in turn boosts trust in digital governance and the continuous adoption of the service.

2.1. E-Government Service Quality

EGSQ defined as how well digital public service platforms deliver efficient, accessible, accurate and user-friendly service to citizens that meets their expectations. It is a multi-dimensional phenomenon which often consists of responsiveness, accuracy of information, navigability, timeliness and general usability of government digital platforms (Jimoh, 2026). In public administration settings, service quality does not only refer to interface design, but also to service efficiency to serve citizens' needs without human interaction, like licensing, taxing, registration, or information retrieval. Existing research highlights the importance of service quality on digital adoption, as it influences perceived usefulness and satisfaction, which in turn facilitate the adoption of digital services (Aswar et al., 2023; Ye et al., 2023). But crucially, it is not a service quality guarantee that the trick in keeping people engaged, particularly

in a digital ecosystem where infrastructural discrepancies might arise. In such conditions, citizens not only assess the design quality of the systems but also the experience of using them over time, and therefore, even the best-designed systems may fail to keep the citizens engaged if they experience disruptions during operation (Qadeer and Hussain, 2025; Hussain and Waheed, 2025). Hence, the level of effectiveness of service quality is considered as dependent on the performance stability and reliability of the system, which in turn depends on what is expected in terms of system usage behavior, namely in terms of trust (Hussain, 2026).

2.2. System Reliability

In the context of e-government, SR is the ability of the digital public service platform to operate correctly over time, without interruption, and without error; it is the ability to function consistently, without instability, without error, and without user disruption. It reflects the technical strength of e-government systems, such as uptime stability, response time, fault tolerance, and system availability, and is the key indicator of the ability of citizens to rely on e-government digital services without disruptions (Khan et al., 2023). Reliability is one of the technical factors that ensures that the operations of a system are continuous and dependable, and differs from other system quality constructs in that it is explicitly focused on continuity and dependability in the operation of the system (Pham et al., 2023). SR is especially relevant in e-government settings, where common infrastructural challenges like server overloads, intermittent connectivity, and hardware failures can significantly impact UX and perceptions of institutional competence (Nguyen et al., 2023). As a critical component, SR serves as a behavioral stabilizer that strengthens the trust-building process and promotes ongoing engagement by mitigating uncertainty in digital interactions (Pramuditha et al., 2024). If systems consistently perform with no error or downtime, citizens view this as a sign of the government's efficiency and its credibility, which increases psychological trust and decreases perceived risk (Hu and Bentler et al., 1999). On the other hand, accounting for minor reliability failures can negatively affect trust and deter re-use, especially when it comes to public service where there are high expectations of accountability (Qadeer and Hussain, 2025). In this study, then, SR is presumed as a mediating mechanism between the perception of service quality and the formation of sustained trust and actual SU behavior.

2.3. Citizen Trust

CT in e-government is the readiness of people to trust digital government platforms due to its competence, integrity, security, and service delivery. It is a psychological state of citizens believing in the reliability of government systems that protect their data and provide the services they are entitled to without opportunistic behavior or system failure (Ye et al., 2023). However, in digital governance contexts, trust is a key factor in adoption because citizens are forced to engage with abstract systems without any tangible proof, which raises uncertainty and risk (Jimoh, 2026). Importantly, CT is not just created by simply being exposed to service quality, but it is a process that is slowly built up as a result of repeated positive interactions with stable and reliable systems. If the platforms of e-government are not broken, delayed, or hacked, citizens assume competence and benevolence, thereby fostering

their trust in e-government and its governing body (Pramuditha et al., 2024). But in digital public services, a lack of trust is easily lost and any slight failure in the system can make people feel less confident in the services they receive, and undermine institutional credibility, particularly in developing economies where skepticism towards digital governance is already high (Hussain, 2026). Theoretically, trust is a psychological mechanism that lies between the performance of the system and the behavior of users, including continued use and satisfaction (Aswar et al., 2023). It is also closely related to expectation-confirmation processes, which align with the reliability of the system being used, thus assuring user expectations, and aiding in the ongoing development of user trust (Cheng et al., 2021). In this study, therefore, CT is identified as the mediating variable which spans technical system reliability and perceived quality of service to the e-government usage behavior.

2.4. Service Usage

SU in e-government is the real experience of citizens using digital government platforms for public service transactions, including registrations, applications, payment and information retrieval, and the likelihood that they will return for more. In contrast to intention-based constructs, service usage is a more accurate measure of e-government success and system effectiveness as it is a true measure of engagement behavior (Ahmad et al., 2025). It is a measure of citizens' involvement in digital government platforms as opposed to the traditional physical service channels in their day to day administrative processes. Importantly, while perceived service quality is a major factor in SU, so is the willfulness of citizens to interact with digital platforms again and again, given their trust in the system and a sense of reliability. Despite having a positive perception of the usefulness of e-government systems, the actual usage behavior can be significantly influenced by the uneven and/or technical failures of the system, which lead to increased perceived risk and uncertainty (Khan et al., 2023). This disconnect between intent and practice is especially apparent in cases of developing digital governance contexts, where the infrastructural instability can be seen to cause disruptions in continuity of engagement (Gupta and Chauhan et al., 2024). Theoretically, the last stage of the information systems success models is the SU stage, which means that the quality of the system and the trust of users gives rise to the net benefits for the users' behaviors (Alswalmh et al., 2024). It is also aligned with trust based adoption logic, in which citizens will use the system repeatedly if they repeatedly believe that it is reliable, secure and provide the desired outcomes (Jimoh, 2026). For this reason, in this research, SU is treated as a dependent variable that represent the effectiveness of e-government systems in achieving real citizen engagement by converting service quality and trust.

2.5. System Reliability as Mediating Mechanism

The PESQ is used as a mediating variable, it shows how the PESQ is converted to CT and maintained SU. In this capacity it acts as a socio-technical intermediary, aligning user's expectations of service design and the actual system performance experienced in digital interactions, and thus minimizing uncertainty in digital interactions and stabilizing behavioural reactions. In information systems literature, mediation logic asserts that there are underlying conditions of system performance that validate or invalidate users'

expectations, resulting in outcomes produced not directly by service attributes (Jimoh, 2026; Hussain, 2026). Most importantly, in e-government environments where the quality of the services may initially draw users, but regular access to services relies on the ability of the system to continuously provide services without interruption. Thus, SR transforms the abstract service perceptions into concrete experiential confirmation, thereby enhancing the process of forming trust over time (Pham et al., 2023). If reliability is high, citizens interpret stable system performance as evidence of competence of the institutions and technological readiness, strengthening their trust in and repeated use of the system (Ye et al., 2023). On the other hand, unreliable systems can have a negative impact and undermine trust even if service quality perceptions are good (Khan et al., 2023). Theoretically speaking, every system is reliable from the standpoint of expectation formation and behavioral confirmation processes as described in Expectation–Confirmation Theory, and strengthens the pathway of trust in the adoption process (Hussain, 2026). Therefore, it is conceptualized as the critical mechanism that determines whether EGSQ can successfully translate into long-term CT and actual service usage behavior.

3. METHODS AND DATA

3.1. Participants

The study involved 428 citizens in the public sector (PS) in Jordan as volunteers. The respondents were users of different e-government platforms and electronic public administration services. The total number of samples collected was 271 male and 157 female. The mean age of the respondents was 21.3 years (SD = 2.1 years). Participants were selected using convenience sampling method to provide access to people who had first hand experience with e-government SU in the Jordanian public sector context.

3.2. Measures

3.2.1. E-government service quality

EGSQ was measured by a 15-item scale that was adapted from information systems service quality instruments that have been used in the past (Jimoh, 2026; Hussain, 2026). A six-point Likert-scale was used to assess the extent of agreement, ranging from 1 = strongly disagree to 6 = strongly agree. This contains things like, "The e-government system offers services efficiently" and "The information available via the system is accurate and up to date." It has proven to be highly reliable, valid convergent, and valid discriminant in previous digital government research (Khan et al., 2023; Nguyen et al., 2023).

3.2.2. System reliability

SR was evaluated using a ten-item scale that measured the stability of the system, consistency of uptime, and error-free performance of the system (Ye et al., 2023; Qadeer and Hussain, 2025). The participants answered on a 6-point Likert scale from 1 = strongly disagree to 6 = strongly agree. Some examples of its components include, "The e-government system is available at all times when necessary" and "Technical problems are not frequent with the e-government system." The reliability-related measures of system quality in digital governance have been observed to be reliable and valid in the past (Ahmad et al. 2025; Aswar et al. 2023).

3.2.3. Citizen's trust and service usage

The scale of CT was adapted from the CT and e-government literature (Alswalmh et al., 2020; Alkraiiji and Ameen, 2022), and consisted of 7 items, including, "I trust the e-government system to protect my personal information" and "The government system is dependable for online services." The actual use intensity of the services was measured with a 7-item behavioral frequency scale asking whether a service has been used a great deal or very little, with items such as, "I use e-government services for official purposes a lot" and "I prefer e-government services over the face-to-face services" (Brahmi et al., 2025; Khan et al., 2023). The responses were measured on a 6-point likert scale ranging from 1= never to 6= very frequently. Previous empirical research on digital adoption behavior has demonstrated the good validity and reliability of both constructs (Ye et al., 2023; Ramadhani et al., 2025).

3.3. Procedure

The participants filled-in structured questionnaires in an academic and public service setting, where the measures of e-government service quality, system reliability, citizen trust, and service usage were assessed. The researcher maintained confidentiality and voluntary participation, and provided a clear explanation of the purpose of the study, prior to data collection. There was a trained research assistant on hand to explain any questions that respondents might have while completing the survey. The mean length of time for participants to complete the survey instruments was about 18 minutes, minimizing fatigue bias and maximizing response quality for each construct.

3.4. Data Analysis

Structural Equation Modeling (SEM) with AMOS 24.0 software was used to analyze the mediation role of system reliability between e-government service quality, citizen's trust and service usage. Indices recommended for model fit were employed: Chi-square statistics, Root Mean Square Error of Approximation (RMSEA ≤ 0.06), Standardized Root Mean Square Residual (SRMR ≤ 0.08), and Comparative Fit Index (CFI ≥ 0.95) (Hu and Bentler, 1999). To reduce the risk of measurement error, the item parceling technique was employed and a balanced design was used to ensure that items with high and low loadings were spread evenly across parcels for each latent variable (Alsarraf et al., 2023). This allowed for stable parameter estimation and decreased error variance inflation, while maintaining construct validity throughout the different measurement models used.

4. RESULTS

4.1. Preliminary Analysis

The means, standard deviations, reliability scores (Cronbach's alpha coefficients), and correlations among all the study variables are presented in Table 1. The inter-relationships among constructs were very strong and significant, with all measures being positively related.

4.2. Measurement Model

The measurement model consists of four latent variables (EGSQ, SR, CT and SU) and 10 observed variables. The preliminary

Table 1: Mean, standard deviations (SD), reliabilities, and intercorrelations among study measures

Measure	Mean	SD	α	1	2	3
EGSQ	3.9	0.74	0.86			
SR	3.7	0.69	0.88	0.46**		
CT	3.8	0.71	0.85	0.52**	0.49**	
SU	3.6	0.76	0.83	0.47**	0.55**	0.51**

α =Cronbach's Alpha. **Correlation is significant at the 0.01 level (2-tailed)

analysis of the measurement model provided an excellent fit to the data. $\chi^2 = 31.8$, $df = 28$; $P = 0.322$; RMSEA = 0.018; PClose = 0.991; SRMR = 0.009; and CFI = 0.997. All the indicators revealed strong and significant factor loadings on their respective latent constructs, which is indicative of the validity and accuracy of the observed variables as indicators of their latent constructs. All constructs have high internal consistency and convergent validity, while there is no rejection of the hypothesis of the relationships between variables which are all significantly positive.

4.3. Structural Model

AMOS 24.0 computer program was used in analyzing the structural relationships among the study variables through SEM procedure. Three alternative models were tested for the best-fitting model. The alternative models were fit using the indices as shown in Table 2. The hypothesized model (Model 1) showed excellent fit to the data: $\chi^2 = 62.1$, $df = 31$, $P = 0.001$; RMSEA = 0.047; PClose = 0.512; SRMR = 0.015; and CFI = 0.984. The tests of the parameter estimates showed that all the direct path coefficients were significant in the proposed directions, suggesting the partial mediation effect of system reliability between EGSQ, CT, and SU. To test the hypothesis that system reliability would partially mediate the relationship between EGSQ, CT, and SU, a full mediation model (Model 2), where the path from EGSQ to CT and the path from EGSQ to SU were constrained to zero was contrasted with another model where the path from EGSQ to CT and the path from EGSQ to SU were freely estimated (partial mediation model [Model 1]) The difference test (χ^2) was used to compare. The fit of the model was significantly lower when the direct paths were constrained ($\Delta\chi^2 [2, n = 428] = 34.6$, $P < 0.05$). Therefore, the partial mediation model (Model 1) fitted best than Model 2. A second mediation structure (Model 3) that tested the indirect relationship between service quality and SR via CT and SU was tested next. The fit indices of Model 3 were: $\chi^2 = 73.2$, $df = 31$, $P = 0.000$; RMSEA = 0.055; PClose = 0.274; SRMR = 0.021; and CFI = 0.979. Model 3 was not as good as Model 1 and was also relatively poor compared to Model 2, suggesting that the direction of the proposed theoretical model in Model 1 is best suited. Based on these results, it could be concluded that Model 1 is the best structural representation. Hence, SR partially moderates the association between EGSQ, CT and SU.

4.4. Assessment of Mediation

A series of bootstrapping tests were conducted to assess the significance of the mediating role of system reliability in AMOS. To create 5000 bootstrap samples, 5000 random samples were taken from the original data set of 428. The mediating effects of system reliability along with their associated 95% confidence intervals are displayed in Table 3 and Figure 1. The results showed

Table 2: Fit indices among competing structural models

Model	χ^2	df	χ^2/df	RMSEA	SRMR	CFI	AIC	ECVI
Model 1 (Partial Mediation)	62.1	31	2.003	0.047	0.015	0.984	112.401	0.261
Model 2 (Full Mediation)	96.7	33	2.930	0.066	0.027	0.967	140.522	0.338
Model 3 (Alternative Model)	73.2	31	2.361	0.055	0.021	0.979	122.418	0.293

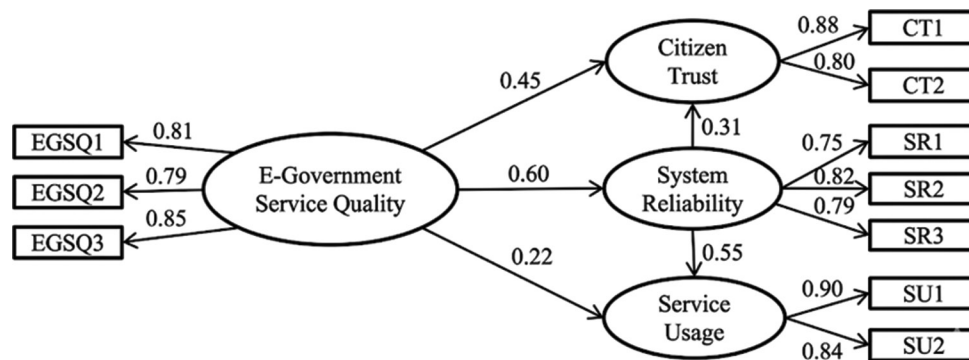
n=428, RMSEA: Root-mean-square error of approximation, SRMR: Standardized root-mean-square residual, CFI: Comparative fit index, AIC: Akaike information criterion, ECVI: Expected cross-validation index

Table 3: Bootstrapping results for mediating effect of system reliability

Path	Direct effect	Indirect effect	Total effect	SE	95% CI (Lower)	95% CI (Upper)	Result
EGSQ → CT	0.41**	0.22**	0.63**	0.04	0.15	0.30	Partial Mediation
EGSQ → SU	0.38**	0.26**	0.64**	0.05	0.18	0.34	Partial Mediation
SR → CT	0.47**	—	0.47**	0.03	—	—	Significant
SR → SU	0.51**	—	0.51**	0.03	—	—	Significant

EGSQ: E-government service quality, SR: System reliability, CT: Citizen trust, SU: Service usage, SE: Standard error, CI: Confidence interval. **P<0.01

Figure 1: The structural equation model regarding the mediating effect of system reliability



that the indirect effect of EGSQ on CT and SU was mediated by the structural model, which was significantly established.

4.5. Gender Differences

Multi group analysis was performed to check if there are significant differences between structural path coefficients of male and female respondents. A constrained model (all paths equal across gender groups) was compared to the unconstrained model (all paths allowed to vary across gender groups). Results showed that the constrained model was not significantly different from the unconstrained model, $\Delta\chi^2 (5, n = 428) = 5.41, P > 0.05$, indicating that there were no significant differences between the models in terms of the structural relationships across gender. An examination of the individual path coefficients showed that the associations in the final mediation model were all positive and similar in size for both males and females, lending further support to the robustness and generalizability of the model across genders.

5. DISCUSSION AND IMPLICATIONS

The results of this study offer empirical evidence that shows how EGSQ significantly affects both CT and SU, both directly and indirectly via SR, giving a more detailed explanation for the success of digital government in the public service sector in Jordan. The first key result shows that EGSQ is positively related to SR, CT and SU, and has a high positive correlation with SR and SU. This finds support in prior research that states that good digital services contribute to US and behavioral engagement,

as it increases their perceived efficiency, accessibility, and responsiveness to government platforms (Jimoh, 2026; Pham et al., 2023; Hussain, 2026). The current study builds on previous research that focused mainly on the perceptual aspects due to the focus on service quality, which was emphasized while neglecting technical consistency (Aswar et al., 2023; Ahmad et al., 2025). The second key finding is that SR is an important mediator between EGSQ and CT and SU. This finding has given a lot of weight to the ISSM which proposes that the dimensions of system quality influence factors that affect US and net benefits (DeLone and McLean, 2003). In this study, however, SR is not simply considered as an element in the system quality, but as an independent mechanism transforming the perceived service quality into trust and behavioral continuity. This aligns with research which highlights the importance of system stability and uptime in user confidence in digital public services (Khan et al., 2023; Ramadhani et al., 2025; Ye et al., 2023). On the other hand, other previous research has not included reliability as a key technical attribute of the system, and overlooked its psychological impact on trust building (Khan et al., 2023; Ramadhani et al., 2025). The third finding is that the relationship between SR and SU is significantly mediated by the CT, which supports the trust-based adoption theories. It aligns with previous studies showing that trust is a core factor in the adoption of e-government, especially in situations where the users encounter high uncertainty and risks in online transactions (Khan et al., 2023; Jimoh, 2026). The findings are similar to empirical studies, which reveal that trust is linked to the willingness to use e-government platforms and to lower the perceived risk (Hussain and Waheed, 2025; Hussain, 2026).

The findings of this study, however, also strengthen the existing literature on SE since it is found that institutional credibility is not the only factor that leads to trust but consistent SE is also a significant factor. This finding is in line with the new critique of the e-governance literature (Pham et al., 2023; Hussain, 2026). The other significant finding suggests that, for SU, both SR and CT play a significant role, confirming that the adoption of behaviors in e-government systems has multiple layers rather than linear. This result aligns with previous research that indicates that the actual use of the system is influenced by two main factors: Cognitive trust and experiential system performance (Aswar et al., 2023; Ye et al., 2023). This finding is contrary to the previous intention-based models that seek to explain that service quality is directly influencing the use of mobile services without taking into account any psychological and technical mechanisms (Qadeer and Hussain, 2025; Ahmad et al., 2025). The results of this study reveal the inability of direct-effect models to explain real-world e-government behavior, as the mediated model showed greater explanatory power. The multi-group analysis also indicated that the structural relationships remained stable across the different groups, suggesting that user characteristics (age or gender) did not have an effect on the mediating role of SR. This aligns with previous studies indicating that system variables influencing e-government adoption are likely to be common to all segments of citizen users once access to the Internet is available (Alkraihi and Ameen, 2022; Aswar et al., 2023). This is, however, in contrast to some of the studies that reported such demographic differences in the process of forming trust and using it in a digital environment, especially in less mature digital environments (Hussain, 2026).

The findings overall suggest that SR is the missing link in the chain to link EGSQ with trust and usage behaviour. Previous research has been able to link only some of these constructs, and they have not yet been combined in a single framework of mediation. Stable system performance is, therefore, an empirical finding in this study that not only is a technical requirement but is also a behavioral enabler that builds institutional trust and helps to guarantee digital engagement. The findings also go against the simplistic adoption of e-government models because they show that even a good e-government service may not be used by citizens in the long term if it depends on the reliability of the system, thus highlighting the need for socio-technical integration in the research of e-government (Jimoh, 2026).

5.1. Theoretical Contributions

Theoretically, this study extends the DeLone and McLean ISSM and the Trust Based Adoption Framework to e-government systems in a significant manner. In this study, the original DeLone and McLean model of system quality, information quality, and service quality directly influencing user satisfaction and net benefits (Ahmad et al., 2025) is enhanced by introducing SR as a separate mediating variable and not a sub-dimension of system quality. This is an important extension because it shows that technical consistency is not just supportive of the conversion of service quality perceived by the customers to their trust and actual usage behavior, but also structurally transformative. Moreover, by including items from the trust-based adoption theory, the conceptual depth of the study has been increased as

it demonstrates that CT is not purely institutionally driven but rather is significantly strengthened by the repeated confirmation of a reliable system performance (Alsarraf et al., 2023). The study thus addresses an important theoretical gap by integrating a socio-technical performance in a single model of psychological trust formation. Moreover, it extends the Expectation-Confirmation logic by showing that the reliability of the system is the experiential mechanism that ensures long-term digital engagement (Ramadhani et al., 2025). In general, it adds a multi-layered and more complete explanation of e-government success, with SR as the core explanatory mechanism linking service quality, trust and usage behavior.

5.2. Practical Implications

The findings of this research are important for the policymakers, e-government designers, and public administration authorities: to allow for regular citizen involvement, governments need to focus on infrastructure stability, ensuring the uptime of their servers, their cybersecurity, and error-free performance of their systems. The study shows that in the Jordanian context, digital transformation efforts are growing, and therefore, it is vital to invest in the system architecture behind the project, instead of just the interface design or digitization of services. Hence continuous monitoring systems, real-time error detection and service recovery mechanisms are the things that the public sector managers should implement to ensure that the customer have trust in them. The results indicate that the approach towards increasing the use of services should focus on both psychologically and technically; the communication strategies should address reliability assurance and user friendly service design. Moreover, there is a need for training government IT personnel on system maintenance and security resilience management. Finally, policymakers should think of the mechanism of citizens' feedback to detect the reliability problems in the early stages and make continuous improvements. In conclusion, the study offers concrete evidence of how to create a sustainable and efficient governance system based on digital technologies that is trusted and widely adopted by citizens.

6. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The present study empirically confirms a structural model in the context of public service sector in Jordan, and thus proves that SR is not just a technical factor, but a crucial and important socio-technical factor that can either reinforce or weaken the relationship between perceived service quality and the trust and actual behavior of the customer. The results show that citizens' use decisions are more complex than just the design of services and the efficiency of the system, but that they depend heavily on the system's stable performance as a sign of institutional competence and credibility. The study combines the ISSM and the Trust Based Adoption Framework, which makes it more complete to explain e-government success and explains both technological stability and psychological trust formation. It also extends expectation-confirmation logic to demonstrate that system reliability serves as the experiential confirmation factor which strengthens long-term usage behavior. The paper points out that in reality, governments

need to focus both on building reliable digital infrastructure and on enhancing the quality of services in order to deliver sustainable outcomes for digital adoption. It can be inferred that it theoretically helps to develop the body of e-governance literature by shifting the focus from system reliability as a secondary system characteristic to a primary mediating construct. Overall, the study confirms that to achieve digital service use, it is important for e-government to continuously align its service quality, SR, and CT.

Although this study has contributed, there are some limitations that can be explored in future studies. The cross-sectional research design does not allow us to infer causality between EGSQ, SR, CT and SU. Future research should use longitudinal designs, which help to understand the changes in trust and use over time as system performance changes, and the study is limited geographically to the public service sector, which may affect generalizability to other countries with different levels of digital maturity. While system reliability is recognized as a mediator, there are other possible mediators like perceived security, digital literacy and institutional transparency that were not included in this study and could be useful in future models. Finally, the inclusion of moderation between socioeconomic status, digital experience, and regional disparities in infrastructure may help to shed light on heterogeneity in adoption behavior. Further studies should also examine the impact of AI-based e-government systems on trust and reliability in user engagement. These restrictions in sum create avenues to further advance theory and empirical research on digital governance.

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