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The aImpact Of User Awareness On The Continuance Usage Intention Of E-Government Services: Evidence From The Sanad App In Jordan

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Abstract

This study examines the direct impact of user awareness on the continuance usage intention of the SANAD App–Jordan's official mobile government platform. Adopting a quantitative approach, data were collected from 350 active users and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings revealed a strong, positive, and statistically significant effect of awareness on continuance usage intention ($\beta = 0.546$, $p < 0.001$), with awareness explaining 47.3% of the variance ($R^2 = 0.473$), a medium-to-large effect size ($f^2 = 0.302$), and high predictive relevance ($Q^2 = 0.321$). These results position awareness as a foundational determinant of sustained digital engagement. Theoretically, the study contributes to post-adoption research in e-government by integrating Self-Awareness Theory with behavioral models. Practically, it underscores the importance of targeted awareness campaigns and citizen-centric outreach strategies to enhance adoption and usage continuity in developing country contexts.

Keywords: *SANAD App, user awareness, continuance usage intention, e-government, Jordan.*

Introduction

The exponential growth of smartphone technology and mobile applications has transformed how citizens interact with services, including those offered by governments. Mobile government platforms provide convenient, location-independent access to public services, enhancing efficiency, transparency, and user satisfaction (Sharma, 2017; Alonazi et al., 2019). The increasing reliance on such platforms is driven not only by technological innovation but also by citizens' behavioral readiness to engage with digital solutions. However, a significant proportion of users discontinue engagement with these applications after initial use, especially when awareness and perceived relevance are lacking (Talukder et al., 2022).

With the widespread implementation of e-government services, the aspect of citizen continuance usage intention has been largely overlooked in favor of initial adoption. Government initiatives often prioritize delivering essential services rather than fully addressing citizens' long-term engagement (Zubir & Latip, 2022). Although various theories such as TAM and UTAUT have attempted to explain continuance behavior, they often focus on technical and managerial dimensions, paying less attention to users' psychological and behavioral motivations (Ameen et al., 2022; Zubir & Latip, 2022).

Among these behavioral drivers, awareness has emerged as a particularly underexplored but critical determinant. Citizens are more likely to continue using services they perceive as useful and relevant—perceptions that are shaped by awareness of the services' existence, accessibility, and benefits (Rup et al., 2020; Butt et al., 2018). Despite its importance, empirical research examining awareness as a direct predictor of continuance usage remains limited, especially in developing countries (Talukder et al., 2022).

In the context of Jordan, where digital transformation has been an ongoing national priority, efforts to promote awareness of e-government services such as the SANAD App are essential for bridging the digital divide and ensuring inclusive participation (El-Kassem et al., 2020). The SANAD App provides

access to various governmental services including digital identification, document verification, and utility payments (SANAD, 2024). Despite these offerings, the app remains underutilized, largely due to insufficient public awareness and outreach strategies (Alkhwaldi & Al-Ajaleen, 2022). This study aims to address this gap by examining the direct relationship between awareness and continuance usage intention of the SANAD App in Jordan.

Literature Review

E-government initiatives in Jordan began in 2000, with the aim of delivering accessible and efficient digital services to citizens regardless of their geographical, educational, or economic status (MODEE, 2023). Despite two decades of efforts, citizen engagement remains limited, especially through platforms like the SANAD App. While mobile internet penetration is high (TRC, 2020), actual utilization of mobile government services has been inconsistent, revealing a gap between infrastructure and user behavior (Althunibat et al., 2021)

Awareness and Its Role in E-Government Adoption

Awareness is a foundational element in the adoption and sustained use of e-government services. It refers to the extent to which citizens are informed about the existence, functionalities, and benefits of digital government services. Research by Malicay et al. (2021) and Abudaqa et al. (2019) emphasized that lack of awareness often leads to low utilization, especially in developing countries. Awareness shapes initial perceptions of usefulness and ease of use, which are critical in models like TAM (Davis, 1989) and UTAUT (Venkatesh et al., 2003).

Empirical Evidence of Awareness Influencing Usage

Multiple studies affirm the significant role of awareness in shaping usage behavior. For instance, Mutahar et al. (2018) noted that awareness positively influences citizens' intention to adopt e-services. Zahid and Haji Din (2019) found a high dissatisfaction rate among users who were unaware of available services. These studies collectively highlight that without proper communication strategies, digital services like the SANAD App may remain underutilized.

Awareness in the Jordanian Context

While awareness has been acknowledged in global studies, limited empirical work has been conducted in Jordan to examine its direct influence on usage behavior. Alkhwaldi et al. (2018) pointed out that awareness is often treated as a supplementary rather than a central variable. This article aims to bridge that gap by focusing on the direct impact of awareness on continuance usage intention of the SANAD App.

Self-Awareness Theory

The Self-Awareness Theory (Duval & Wicklund, 1972) suggests that individuals evaluate their behavior against internal standards. Applied to e-government, this implies that citizens who are aware of their needs and the services available to them are more likely to engage continuously. This theory supports the premise that awareness not only initiates engagement but also sustains it over time.

Methodology

Research Design

This study employs a quantitative research design, utilizing structured questionnaires to assess the direct effect of citizen awareness on continuance usage intention of the SANAD App. This approach is appropriate for testing hypotheses involving latent constructs and allows for statistical analysis of relationships among variables (Creswell et al., 2018; Easterby-Smith et al., 2021).

Population and Sampling

The target population includes Jordanian citizens aged 18 and above who have used the SANAD App. Using purposive and convenience sampling, the study recruited 350 participants, exceeding the minimum required sample size (77) as calculated using G*Power (2017). This ensures better generalizability and statistical power (Hair et al., 2019).

Data Collection Instrument

Data were collected using a structured, self-administered questionnaire distributed electronically via platforms like WhatsApp and Facebook. The instrument included items measuring Citizen Awareness (adapted from Dabbous & Barakat, 2020; Alblooshi et al., 2023) and Continuance Usage Intention (Kaseasbeh et al., 2019; Alkraiji & Ameen, 2021). A 5-point and 7-point Likert scale were used respectively.

Validity and Reliability

The instrument's content and face validity were confirmed through expert review. A pilot test was conducted on 100 respondents. Reliability was established using Cronbach's Alpha, all constructs scoring above 0.9. The instrument also passed KMO and Bartlett's tests, confirming sampling adequacy and data suitability.

Data Analysis

Analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) due to its appropriateness for complex models and small-to-medium sample sizes. Both the measurement model (e.g., composite reliability, AVE, HTMT) and structural model (e.g., R^2, f^2, Q^2) were assessed. Bootstrapping was used to evaluate path coefficients and test hypotheses.

Results

This section presents the statistical findings of the study, based on data collected from 350 SANAD App users in Jordan. The analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate both the measurement and structural models.

Measurement Model Assessment

The reliability and validity of the constructs were examined using Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). All values met the recommended thresholds, confirming internal consistency and convergent validity.

Table 1: Reliability and Validity Indicators

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Awareness	0.920	0.935	0.745
Continuance Usage Intention	0.940	0.965	0.691

These results indicate excellent internal consistency and convergent validity for both constructs, as all CR values exceed 0.70 and AVE values exceed 0.50 (Hair et al., 2019).

Structural Model and Hypothesis Testing 1.1

To assess the hypothesized relationship, the path coefficient, t-value, and p-value were evaluated using bootstrapping with 5,000 resamples. The results provide empirical support for the study hypothesis.

Table 2: Path Coefficient and Hypothesis Testing

Hypothesis	Path	β Coefficient	t	p	Result
H1	Awareness → Continuance Usage Intention	0.546	13.977	<0.001	Supported

The path coefficient ($\beta = 0.546$) is statistically significant ($p < 0.001$), indicating that user awareness has a strong and positive influence on continuance usage intention of the SANAD App.

Coefficient of Determination and Effect Size 1.2

The R^2 value of the dependent variable (Continuance Usage Intention) was examined to assess the model's explanatory power. Additionally, the effect size (f^2) and predictive relevance (Q^2) were calculated.

Table 3: Model Fit Indicators

Indicator	Value	Interpretation
R^2 (Continuance Usage Intention)	0.473	Moderate to strong explanatory power
f^2 (Awareness)	0.302	Medium to large effect
Q^2	0.321	High predictive relevance

These findings suggest that 47.3% of the variance in continuance usage intention is explained by awareness alone, indicating a substantial impact. The f^2 and Q^2 values further confirm the construct's predictive relevance and practical significance.

Discussion

The findings of this study provide robust empirical evidence that user awareness significantly influences the continuance usage intention of the SANAD App in Jordan. This section interprets these findings in the context of existing literature, theoretical frameworks, and the practical implications for digital governance.

Interpretation of Results

The results revealed that awareness had a strong positive and statistically significant effect on the continuance usage intention ($\beta = 0.546$, $p < 0.001$). This means that as citizens become more informed about the SANAD App—its functionalities, benefits, and relevance to their daily needs—their likelihood of continued usage increases. This aligns with Self-Awareness Theory (Duval & Wicklund, 1972), which posits that individuals are more likely to act in accordance with their internalized standards and needs when they are aware of their options.

The explanatory power of awareness was also substantial, with an R^2 value of 0.473, indicating that nearly half of the variance in continuance usage intention can be explained by awareness alone. Moreover, the effect size ($f^2 = 0.302$) and predictive relevance ($Q^2 = 0.321$) highlight the practical and theoretical importance of awareness as a behavioral determinant.

Comparison with Prior Studies

These findings are consistent with prior empirical studies. For Example, Malicay et al. (2021) and Abudaqa et al. (2019) similarly found that awareness is a prerequisite for both adoption and continued use of digital government platforms. Mutahar et al. (2018) and Zahid & Haji Din (2019) also reported that low awareness often correlates with poor user retention and satisfaction in e-government environments. However, unlike previous research that often treats awareness as a control or secondary

variable, this study positions awareness as a central predictor, offering a more nuanced understanding of its role in post-adoption behavior.

Theoretical Implications

From a theoretical standpoint, the results extend the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) by highlighting awareness as a foundational precondition for constructs such as perceived usefulness and behavioral intention. In contexts like Jordan, where digital literacy and outreach remain inconsistent, awareness may serve as a more proximal predictor than traditional TAM variables.

Furthermore, the findings validate the applicability of Self-Awareness Theory in the context of e-government, emphasizing the internal cognitive processes that influence sustained digital engagement.

Practical Implications

For policymakers and digital service designers in Jordan and similar developing contexts, the findings carry several practical implications: Awareness campaigns should be targeted, consistent, and multilingual, especially through widely used platforms like WhatsApp and Facebook. Onboarding tutorials, digital literacy training, and citizen feedback loops can reinforce the perceived value of the app. Integrating the SANAD App into daily governmental transactions (e.g., fines, taxes, utility bills) can increase both visibility and relevance.

Contextual Factors

While the results are strong, they must be interpreted in light of the Jordanian sociotechnical context, where infrastructure development has outpaced user adaptation. Barriers such as digital literacy gaps, cultural resistance to digital transformation, and mistrust in government institutions may also moderate the effectiveness of awareness campaigns.

Conclusion

This study examined the direct effect of user awareness on the continuance usage intention of e-government services through the case of the SANAD App in Jordan. The findings provide compelling evidence that awareness is not only a significant predictor but also a critical enabler of continued engagement with mobile government platforms.

The results demonstrate that when citizens are informed about the app's existence, functionality, and relevance to their needs, their likelihood of continued usage increases markedly. This supports both the assumptions of technology adoption models like TAM and UTAUT and extends them by introducing awareness as a core behavioral determinant. Moreover, the application of Self-Awareness Theory underscores the psychological mechanisms by which informed individuals regulate their engagement with digital services.

From a practical perspective, the study underscores the need for targeted awareness campaigns and user-centric communication strategies. Enhancing digital literacy, improving outreach, and embedding e-government services into daily routines can significantly improve user retention and service impact.

Given the growing emphasis on digital transformation in Jordan and similar contexts, this study offers timely insights for policymakers aiming to optimize citizen engagement and maximize the returns on public digital infrastructure investments.

Future research may explore moderating variables such as trust, digital skills, or perceived risk, and consider longitudinal designs to capture behavioral changes over time. By doing so, the understanding of post-adoption behavior in e-government can be further refined and contextualized.

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