Journal of Posthumanism
2025
Volume: 5, No: 6, pp. 2862–2881
ISSN: 2634-3576 (Print) | ISSN 2634-3584 (Online)
posthumanism.co.uk

DOI: https://doi.org/10.63332/joph.v5i6.2408

The Future of Election: E -Voting Adoption in Developing Countries – The Case of Iraq

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Abstract

The effectiveness of computerized systems is greatly enhanced when technological, organizational, and human factors are collectively considered. As e-voting systems gain prominence in fostering democratic engagement and citizen participation, understanding the factors that influence their adoption becomes increasingly important. This study investigates the key determinants influencing the adoption of e-voting systems among potential voters in countries where such systems are already in use, such as Iraq. Data were collected from 349 university students across Iraq using purposive sampling. The relationships among latent constructs were then analyzed using structural equation modelling (SEM) with SmartPLS. The findings reveal that behavioral intention to adopt e-voting is significantly influenced by performance expectancy, social influence, facilitating conditions, perceived security, and trust in government. Conversely, effort expectancy and trust in technology were found to impact behavioral intention negatively. Additionally, perceived security significantly affects trust in technology while facilitating conditions that positively influence trust in government. By extending the Unified Theory of Acceptance and Use of Technology (UTAUT) with additional constructs, this study contributes to the theoretical understanding of e-voting adoption in developing countries. Practically, the proposed model offers valuable insights for policymakers and system designers aiming to enhance voter acceptance of e-voting systems.

Keywords: *Developing Countries, E-voting Adoption, Smart PLS, TAM, UTAUT.*

Introduction

Information Technology has become a powerful force for significant changes, providing strategic benefits to different industries, including governance (Abou-Moghli & Shatem, 2024). The electronic voting (e-voting) systems, as one of the key electronic government (e-government) initiatives, offer a chance to improve transparency, efficiency, and participation in political processes (Pratama & Salabi, 2020). E-voting is when the process of casting votes occurs through information technology, either at a partial or complete scale (Elfattal et al., 2023). As with other e-government initiatives, e-voting systems can fundamentally alter the electoral landscape by reshaping citizens' involvement in politics and democratic processes (Pratama & Salabi, 2020).

E-voting systems are expected to enhance various democratic processes, thus enabling better accessibility and accuracy, unlike traditional paper-based methods (Agbesi, 2020b: Salman et

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al., 2022; Ikrissi & Mazri, 2024). Consequently, democratic institutions can be revived and civic trust reinforced.

E-voting systems are intended to replace the traditional voting procedure, complementing and improving all election operations procedure by providing proper techniques, policies, and tools for managing voter interactions as well as handling information. Different types of e-voting systems have been introduced with the aim to fulfill these objectives, including Direct Recording Electronic (DRE) systems, Optical Scan Systems, Internet Voting, and Remote Electronic Voting. However, among the main technical challenges to be solved in e-voting systems are transparency, privacy, integrity, and security throughout the voting process (Jafar & Aziz, 2021; Ikrissi & Mazri, 2024).

The usage of e-voting systems is hindered by an extensive list of challenges, ranging from technology infrastructural factors to cultural and organizational issues that need to be addressed beforehand. The adoption of computer-based systems would therefore, become more effective, as emphasized by (Khan et al., 2011), when technological, organizational, and social factors are considered. That said, adopting an e-voting system is not an easy process, and evaluating it from all possible angles is even more important, including how voters accept and adopt the new system (Sahib & Al-Shamery, 2021).

E-voting systems have emerged significantly across the globe due to technological advancements; however, their implementation has not been pervasive enough, making e-voting an uncharted territory that needs specific classification driven by in-depth review (Elfattal et al., 2023). Consequently, the e-voting adoption process must be studied more deeply to realize the bigger role of e-voting in the midst of global and social changes (Mpekoa & Van Greunen, 2017; Darmawan, 2021). Limited research on this topic in developing countries impedes a thorough understanding of the readiness of these countries to embrace e-voting systems across various elections (Adeshina & Ojo, 2020), highlighting the pressing need for more comprehensive research and investigations (Alomari & Khan, 2022). Darmawan, (2021) contends that a thorough review of e-voting adoption should take individual perspectives into account in addition to differences at the national level.

Given the increasing significance of e-voting systems in promoting democratic practices and citizen participation, it is essential to comprehend the determinants of the adoption of these systems, particularly amongst young people who make up the largest demography in developing countries such as Iraq. Therefore, this inquiry empirically enriches the current body of knowledge on e-voting adoption by analyzing the factors influencing potential voters' behavior towards adopting the e-voting system.

Literature Review

The literature review on e-voting adoption, the hypotheses development, and the proposed research model supporting this research are detailed in this section.

Technology Adoption Theories

Technology adoption is among the more developed research domains within the Information Systems (IS) sphere. This research area has gone from creating new constructs to explaining the phenomenon of technology adoption, resulting in several theories and models. In a nutshell, the success of any new technology depends on user confidence and adoption (Taherdoost, 2019).

New technologies that could change the users' way of life are a major investment by organizations and governments. However, if the targeted users do not utilize these innovations, the investment will inevitably go to waste (Sharma & Mishra, 2014). Decision-makers need to know the determinants that shape the intention of users to adopt new technologies so they can take them into account during system development (Mathieson, 1991). Technology adoption models and theories play a vital role in the research domain as they explain or predict people's behaviors with regards to the adoption of specific technologies (Taherdoost, 2018).

In this regard, the literature identifies a number of commonly known and widely used theories (Sackstein et al., 2023), including Diffusion of Innovation (DOI), Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM), and Unified Theory of Acceptance and Use of Technology (UTAUT).

Many studies drew on these legacy frameworks; some combined or comprised the existing models/constructs, while others introduced new theory(ies) to inform their methodological approach(es).

Analyzing the factors that determine the acceptance or rejection of technologies by users is fundamental for researchers in the academic context and professionals in the business sectors. This underpins every developmental initiative in any business and market-oriented technology (Salmassi et al., 2022). Moreover, identifying users' needs and acceptance paves the way for future development and offers critical information for the decision authorities. According to (Mathieson, 1991), decision-makers should understand the forces that drive users to adopt various ICT systems. The latter statement plays a critical role during the development stage of any system to guarantee that the factors affecting users' preferences and rejection are met accordingly. In turn, the question of why people adopt or reject new technologies is a point which unites professionals as well as academics. Understanding the answers to this question, as suggested by Dillon and Morris (1996), is fundamental in improving methods for designing, evaluating, and predicting recoil of users from new technologies.

E-voting Adoption Studies: TAM and UTAUT

The Technology Acceptance Model (TAM) is a commonly used framework for studying the behavior of users in terms of technology acceptance and adoption; it has its advantages as well as some limitations (Rosli et al., 2022). The primary advantage of TAM lies in its simplicity; it covers users' behavior so efficiently through its core constructs like perceived ease of use (PEOU) and perceived usefulness (PU). Therefore, it has been shown to be valid across a wide range of settings (Nagadeepa et al., 2022).

As per the literature, many contemporary studies in various developing countries utilized the TAM to understand the level of e-voting adoption and acceptance among voters (Moletsane & Tsibolane, 2022; Al-Ashoush et al., 2023; Tulkinovna & Ugli, 2023). Nevertheless, the literature reveals that researchers refrain from using it due to its limitations. Primarily, it has static abilities and does not take into consideration external factors beyond the PEOU and PU constructs (Malatji et al., 2020). The TAM has also been criticized for its low scope, which resulted in numerous minor concepts being subsequently added to the model, making it too extended and theoretically unproven, capable of explaining only 30-40% of the variance in dependent variables (Kakar & Kakar, 2017). Additionally, the TAM fails to consider motivational factors; thus, its relevance is confined to practical needs and neglects emotional needs (Taherdoost & Masrom, 2009).

The second most utilized model for investigating e-voting adoption by individuals in developing countries is UTAUT (Mensah, 2020; Yousef & Albattat, 2023), which has been chosen as the foundation theory for this research study. Its selection is grounded upon its comprehensive integration of the eight theories (Taherdoost, 2018), making it an appropriate, up-to-date, and reliable framework for understanding technology adoption. This is evidenced by its capacity to explicate a majority of the variance (R2) in usage intention (Venkatesh et al., 2003; Khalid et al., 2023).

Venkatesh et al. (2003) emphasized the importance of testing the model across different contexts, a sentiment echoed by Straub (2009), who highlighted the need for further validation of UTAUT in diverse settings, especially from an e-voting perspective in contexts like Iraq and other developing countries. The goal of applying the UTAUT model here is to investigate specific variables which may be able to predict e-voting system adoption, as suggested by previous studies (Yousef & Albattat, 2023).

This paper considers the key factors of UTAUT in examining Iraqi voters' intentions towards the e-voting system in addition to integrating and analysing other factors which are unique to the Iraqi context into the UTAUT model, aiming to enhance its applicability and relevance to this specific setting.

The Model Constructs and Research Hypothesis

Integrating additional constructs into the UTAUT can significantly enhance the model's relevance to specific contexts by addressing unique factors influencing technology adoption (Yousef & Albattat, 2023; Xue et al., 2024). For instance, incorporating "trust in technology" in the Tunisian context for blockchain technology adoption has been an added value to the research model (Ennajeh & Najar, 2024).

In the realm of mobile learning, UTAUT was extended with the addition of seven brand new constructs namely interaction, self-efficacy, innovation and motivation, satisfaction, attitude, literacy and readiness, and non-functional requirements, which were validated to positively contribute to the study of mobile learning adoption (Chand et al., 2022).

In the context of mobile payment utilization in Malaysia, UTAUT was revised to incorporate trust and convenience, revealing that these factors significantly infeluance the intention to use m-payment (Tang et al., 2021).

These studies demonstrate that integrating additional constructs into the UTAUT model enhances its applicability and provides deeper insights into technology adoption across different contexts, highlighting the importance of context-specific factors such as trust and perceived security. The following subsections describe the constructs used in this research paper, as well as the development of the relevant hypothesis.

Performance Expectancy

According to Venkatesh et al. (2003), performance expectancy reflects the user’s assurance that the usage of a given technology will assist or facilitate them in efficiently fulfilling a particular job. Several investigations concurred that the factor of performers positively influences the purpose of using technology-related applications (Davis, 1989 ;Venkatesh et al., 2003). In e-government settings, it is believed that e-government usage will affect the intent of an individual to utilize e-government systems. Based on the studies on the e-voting scenario, all learning analysis consistently confirms the significantly positive effect of performance expectancy on a

person's intent to utilize various e-government systems, including e-voting (Bhuasiri et al., 2016; Kurfalı et al., 2017; Mensah, 2019; Agbesi, 2020b; Yousef & Albattat, 2023). As a result, the hypothesis is as follows:

H1: *Performance Expectancy has a significant and positive influence on the Behavioral Intention to use the e-voting system.*

Effort Expectancy

As defined by (Venkatesh et al., 2003), effort expectancy represents the perception of the user regarding the ease and freedom from challenges associated with using a particular technology. The ease of use, or lack of effort required, has a notable impact on user acceptance of new technology (Davis, 1989; Venkatesh et al., 2003). With regards to e-voting, citizens who believe that using the e-voting system is uncomplicated and does not demand significant effort, especially during the vote tallying process, are more likely to be attracted to e-voting. Past research has consistently demonstrated the robustness of effort expectancy in predicting a person's behavioral intention to utilize various e-government systems (Kurfalı et al., 2017; Agbesi, 2020b; Yousef & Albattat, 2023). As a result, the hypothesis is as follows:

H2: *Effort Expectancy has a significant and positive influence on the Behavioral Intention to use e-voting system*.

Social Influence

Social influence denotes the influence of friends, family, and influential figures' perceptions and opinions on an individual's tendency to utilize a specific technology (Venkatesh et al., 2003). The way friends and family communicate about e-voting can play a decisive role in encouraging or discouraging e-voting system adoption and usage during elections. Extensive research has consistently affirmed that social influence substantially predicts one's behavioral intention to utilize e-government systems, including e-voting (Bhuasiri et al., 2016; N. L. Lu, 2016; Kurfalı et al., 2017; Agbesi, 2020b; Yousef & Albattat, 2023). Consequently, the hypothesis is as follows:.

H3: *Social Influence has a significant and positive influence on the Behavioral Intention to use the e-voting system.*

Facilitating Conditions

Facilitating conditions, as per Venkatesh et al., (2003) refer to the user's belief that appropriate infrastructures – both organizational and technical – are in place to assist the usage of a given technology. This perception considerably impacts users' perceptions of the acceptance of the technology (Venkatesh et al., 2003). Facilitating conditions, including a strong ICT infrastructure, accessible e-voting tools, and high-quality devices for e-voting, positively affect the behavioral intention to utilize e-voting. For this reason, multiple studies have consistently discovered that facilitating conditions significantly and positively impact a person's likelihood to utilize a variety of e-government initiatives (Bhuasiri et al., 2016; N. L. Lu, 2016; Kurfalı et al., 2017; Agbesi, 2020b; Yousef & Albattat, 2023). Hence, the hypothesis is as follows :

H4: *Facilitation Condition has a significant and positive influence on the Behavioral Intention to use the e-voting system.*

Trust in Government

Within the trust framework, trust in government emerges when citizens believe that the government possesses the capacity, commitment, and technological expertise to successfully implement e-government projects for enhanced public service delivery (Mensah, 2019). Over time, trust in government has declined, with e-government being perceived as a mechanism to restore the trust and confidence of citizens in the government (Khan et al., 2011).

The view of the political arena as characterized by fraud and corruption might lead to concerns among voters. There may be concerns over the possibility of political elites interfering with an electronic vote, which might undermine its integrity and favor specific interests. Hence, the level of confidence an individual has in the government, namely the election commission, is expected to impact the decision to utilize an electronic voting system. Therefore, while discussing e-voting, trust in government is primarily understood as trust in the electoral system and institutions that are directly involved in managing elections (Carter & Bélanger, 2005; Agbesi, 2020a; Mensah, 2020). Again, the Trust in Government construct has been a focal point in previous research on adopting web-based technologies (Nguyen et al., 2024).

Facilitating conditions influence trust in government, as shown by various studies across domains. Well-established facilitating conditions help build governmental and institutional trust, which is essential for user acceptance and engagement (Lu et al., 2016; Alraja, 2016). In alignment with the aforementioned issues, hypotheses H5 and H6 are postulated.

H5: *Trust in Government has a significant and positive influence on the Behavioral Intention to use the e-voting system.*

H6: *Facilitating Condition has a significant and positive influence on Trust in Government.*

Trust in Technology

Trust in technology denotes the degree of users' confidence in the information technology artifact (Vance et al., 2008). It holds a crucial role in shaping beliefs and behaviors related to technology (Paska & Budnik, 2023). Given the absence of moral agency in technology, trust in technology primarily reveals perceptions regarding the capacity of a given technology rather than its motives or intentions (Methlagl et al., 2023). In essence, user trust is gained when technology performs precisely as designed and developed.

Numerous studies have affirmed the significant impact of trust in technology on one's behavioral intention to utilize technology (Belanche et al., 2014; Montazemi & Qahri-Saremi, 2015; Yu & Teoh, 2023). Moreover, trust crucially facilitates the use of technology for e-participation, particularly in internet voting (Mensah, 2019; AlAbri et al., 2022). Therefore, it is reasonable to expect that trust in the technology employed in designing a specific e-voting system can impact voters' behavioral intention to use it, influencing their participation in elections and contributing to democracy. Hence, the hypothesis is as below:

H7: *Trust in Technology has a significant and positive influence on the Behavioral Intention to use the e-voting system.*

Perceived Security

Perceived security is the extent to which a consumer perceives that the usage of a given technology is secure and without risk (Schuß et al., 2023). Notably, Wolchok et al. (2010) and Sagar et al. (2023) raised concerns about the potential for election insiders to manipulate e-

voting machines, posing risks to both the integrity of voting outcomes and the protection of personal privacy.

uch instances might discourage voters from participating in the voting process. By contrast, when voters believe that the e-voting system is accurate and reliable, they are more likely to confidently delegate their civic voice through electronic means (Avgerou, 2013; Zamir et al., 2022).

Several researchers emphasize the crucial role of security in the acceptance of e-government initiatives (Journal, 2009; Hernandez-Ortega, 2012; Shin, 2013; Zamir et al., 2022). Therefore, perceived security is expected to influence citizens' behavioral intention to utilize the e-voting system for casting their votes.

In a different vein, Lian (2015) and Almansoori et al. (2024) affirmed that a perception of low security in e-government initiatives as marked by system malfunctions, vulnerabilities, and security threats would significantly diminish voters' trust in an e-voting system, subsequently influencing their behavioral intention to use it. Hence, perceived security directly affects trust in the technology employed in e-voting systems, subsequently influencing the behavioral intention to utilize them (Siagian et al., 2022; Manalu et al., 2022). Hence, the following hypotheses are proposed:

H8: *Perceived Security has a significant and positive influence on the Behavioral Intention to use the e-voting system.*

H9: *Perceived Security has a significant and positive influence on Trust in Technology.*

Proposed Research Model

Considering the hypotheses formulated in the above sections, the research model depicted in **Figure 2.1** encapsulates the relationships to be explored. Beyond the established constructs of the UTAUT and their impact on behavioral intention, the additional factors of Trust in Government, Trust in Technology, and Perceived Security are posited to exert a direct effect on the potential voters' behavioral intention to utilize the e-voting system in elections in developing countries. Furthermore, Perceived Security is expected to impact Trust in Technology, and Trust in Government is presumed to influence Facilitating Conditions.

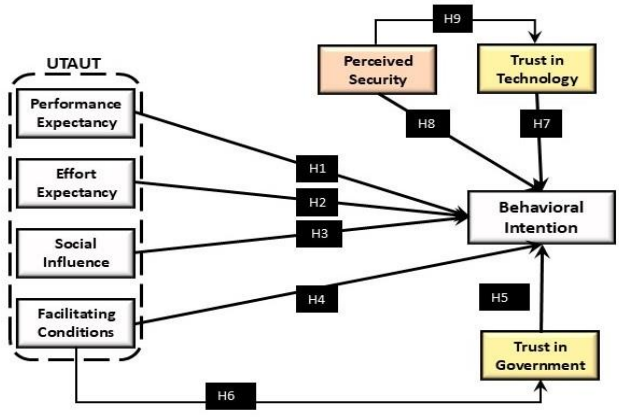

Figure 2.1. The Proposed Research Model

To facilitate a thorough understanding of each construct within the research scope, **Table 2.1** presents a summarized description of each construct. The proposed model serves as the foundation for empirical investigation into the adoption of e-voting systems among the youths in developing nations.

#	Construct	Brief Description	Source
1	Performance Expectancy (PE)	The extent to which the citizens believe that e-voting system usage is beneficial and can help in achieving gains in the elections, especially in the accuracy of polling and the efficiency and speed of vote counting.	(Venkatesh et al., 2003; Weerakkody et al., 2013; Jim E. Helm, 2015)
2	Effort Expectancy (EE)	The degree to which a voter perceives that e-voting usage in elections would be easy, less challenging, and does not need much effort.	(Venkatesh et al., 2003; Mensah, 2019; Mensah & Adams, 2019)
3	Social Influence (SI)	The degree to which family, friends, peers, and significant figures' opinions would affect citizens' belief in using an e-voting system.	(Venkatesh et al., 2003; Dwivedi et al., 2019; Mensah, 2019; Mensah & Adams, 2019)
4	Facilitating Condition (FC)	The extent of a voter's belief that technical and organizational infrastructures are in place to facilitate e-voting usage.	(Venkatesh et al., 2003; Rabaa, 2018; Dwivedi et al., 2019; Mensah, 2019)
5	Trust In Government (TG)	The degree to which the voter believes that the government is able, committed, and knowledgeable to implement the e-voting system in the absence of his/her control over the government's performance.	(Gupta et al., 2016; Mensah, 2019)
6	Trust in Technology (TT)	The voter's believes that the e-voting system is effective and efficient can perform as expected in terms of reliability, credibility, safety, and integrity.	(Shareef et al., 2011; Gupta et al., 2016; Chauhan et al., 2018; Mensah, 2019)
7	Perceived Security (PS)	The voter's extent of perception of the e-voting system's capacity to keep votes secret, private, and secure.	(Shareef et al., 2011; Weerakkody et al., 2013; Chauhan et al., 2018)
8	Behavioral Intention (BI)	An individual's degree of conscious intentions and plans to use or not use the e-voting system for voting in elections.	(Venkatesh et al., 2003; Weerakkody et al., 2013; Rabaa, 2018; Chauhan et al., 2018)

Table 2.1. Description of the Model's Constructs

Methodology

Instrument Design

The items for the model's constructs were derived from prior key works on technology adoption. **Table 3.1** indicates the sources from where the constructs' items were adopted.

#	Construct	Source
1	Performance Expectancy	(Venkatesh et al., 2003; Al Mansoori, 2017; Chauhan et al., 2018)
2	Effort Expectancy	(Jim E. Helm, 2015; Chauhan et al., 2018)
3	Social Influence	(Al Mansoori, 2017; Rabaa, 2018)
4	Facilitating Conditions	(Venkatesh et al., 2003; Gupta et al., 2016; Al Mansoori, 2017; Rabaa, 2018)
5	Trust in Government	(Belanger & Carter, 2008; Al Mansoori, 2017)
6	Trust in Technology	(Shareef et al., 2011; Al Mansoori, 2017; Chauhan et al., 2018)
7	Perceived Security	(Shareef et al., 2011)(Chauhan et al., 2018)
8	Behavioral Intention	(Venkatesh et al., 2003)

Table 3.1. Description Of the Items' Sources

Different scales were used to measure the model variables. The exogenous variables were measured using a 5-point Likert scale, while the endogenous variable's measurement relied on a 7-point Likert scale, consistent with the approach recommended to minimize common method variance (CMV) for exogenous and endogenous measured variables sourced from one particular source (Ngah et al., 2021). The data collected in this study also includes demographic details such as gender, age, education level, geographical area, and whether the participants possess a voting card.

A pre-test was administered using cognitive interviews with 6 students to ensure that the respondents faced no difficulty understanding the format, design, and language of the questionnaire. Out of these, three are Bachelor's students, and one each is a PhD, Master's, and Diploma student. Accordingly, the questionnaire was revised and updated. In general, pre-testing is necessary to decrease the problems of response bias and misunderstanding before the main data collection process (Sang et al., 2017). It also increases confidence that the research tool is well-designed, clear, and captures the correct information as requested. This is particularly important for large asnd complex research studies, which might involve a cross-cultural study where changes in interpretation could greatly impact the quality of data (Ikart, 2019; Aizpurua, 2020).

Sampling and Acquisition of Data

This research deployed a purposive sampling technique focused on potential voters. The respondents were from the youth age group (18 years and above) who were going to participate in the upcoming parliamentary election. This sampling approach was considered suitable as the respondents must fulfil certain criteria for the study (Ngah et al., 2021). In order to target the desired population, various approaches were used for data collection. In the first instance, the questionnaires were sent to the respondents through WhatsApp messages and emails. The questionnaire was also posted on the websites of educational institutions, where students could also access it. Placing the survey tool on both universities' websites widens its reach and serves as an additional method of data collection. Ultimately, 349 respondents agreed to participate in the survey and completed the questionnaire, whereby 34.38% were male, and 65.62% were

female from different geographical areas in Iraq.

Data Analysis

Since this study is exploratory, the hypotheses of the research model were tested using the Smart Partial Least Squares (PLS) software (Hair et al., 2019; Ngah et al., 2021). This software is based on structural equation modeling (SEM) and variance-based analysis using a two-step data analysis technique. The measurement model was the first to be tested for convergent and discriminant validity, and the structural model analysis. However, it is strongly recommended to run a normality test prior to data analysis by Smart PLS to confirm the absence of any significant data abnormality (Hair et al., 2017), as the findings may still be distorted if such a condition occurs, despite Smart PLS being a non-parametric software. As proposed by Hair et al., (2017) and Ngah et al., (2021) and based on the analysis using the Web Power website (https://webpower.psychstat.org/models/kurtosis/), it was revealed that Mardia's multivariate skewness ($b = 9.925471$, $p < 0.01$) and Mardia's multivariate kurtosis ($b = 107.603910$, $p < 0.01$) indicate slight deviations from normality. Therefore, it aligns with the requirements of Smart PLS as a non-parametric data analysis software.

As mentioned earlier, addressing Common Method Variance (CMV) is crucial when the data are gathered from only one source. This is justified using the procedural and statistical approaches as described in the literature. A procedural examination of the model was tested by using multiple scales to evaluate the endogenous and exogenous variables. VIF values between 2.303 and 4.093 (all less than the critical threshold of 5) indicate that CMV does not have any significant effect on this study (Hair et al., 2021). **Table 4.1** shows the results of the VIF test.

Construct	PE	EE	SI	FC	TG	TT	PS	BI
VIF	2.876	3.003	3.922	3.833	2.894	4.093	3.81	2.303

Table 4.1. VIF Test Results

Measurement Model Analysis

This research study implemented a two-stage analysis, beginning with the measurement model assessment and subsequently, the structural model assessment, as suggested by the literature (Anderson & Gerbing, 1988; Khairi et al., 2021). Convergent and discriminant validity must be met to meet the requirements.

Convergent Validity is confirmed when the loading and average variance extracted (AVE) are higher than 0.5, whereas Composite Reliability (CR) should be at least 0.7 (Hair et al., 2019). AVE is related to the latent constructs and incorporates their indicators' variance, whilst CR explains how well the construct indicator reflects its underlying latent variable (Hair et al., 2019; Halimi et al., 2021). **Table 4.2** depicts the results of the analysis for the loadings, AVEs, and CRs, which all meet the acceptable values (Hair et al., 2019).

Construct	**Items**	**Loading**	**CR**	**AVE**
Performance Expectancy (PE)	PE1	0.866	0.913	0.778
	PE2	0.903		
	PE3	0.877		
Efforts Expectancy (EE)	EE1	0.884	0.928	0.811

	EE2	0.915		
	EE3	0.902		
Social Influence (SI)	SI1	0.887	0.931	0.771
	SI2	0.920		
	SI3	0.882		
	SI4	0.820		
Facilitating Condition (FC)	FC1	0.812	0.920	0.743
	FC2	0.902		
	FC3	0.890		
	FC4	0.842		
Trust in Government (TG)	TG1	0.897	0.958	0.852
	TG2	0.926		
	TG3	0.942		
	TG4	0.925		
Trust in Technology (TT)	TT2	0.894	0.931	0.818
	TT3	0.913		
	TT4	0.906		
Perceived Security (PS)	PS1	0.937	0.958	0.884
	PS2	0.946		
	PS3	0.938		
Behavioral Intention (BI)	BI1	0.949	0.967	0.908
	BI2	0.961		

Table 4.2. Common Method Variance

Discriminant validity is confirmed when the heterotrait-monotrait (HTMT) values are less than 0.85 (Franke & Sarstedt, 2019). The values of HTMT for the constructs are shown in **Table 4.3,** which all are below 0.85, confirming discriminant validity. With that, the analysis proceeded to the structura l model assessment.

Construct	**BI**	**EE**	**FC**	**PE**	**PS**	**SI**	**TG**	**TT**
BI								
EE	0.637							
FC	0.723	0.808						
PE	0.613	0.897	0.774					
PC	0.672	0.647	0.832	0.646				
SI	0.740	0.817	0.877	0.819	0.755			
TG	0.644	0.589	0.760	0.556	0.799	0.680		
TT	0.749	0.709	0.824	0.718	0.895	0.823	0.837	

Table 4.3. Common Method Variance

Structural Model Analysis

This entails the evaluation of the hypotheses formulated in the framework of the research (Sunanto & Hendrowati, 2022). In this research, the hypothesis must satisfy four distinct criteria in order to be considered valid. These criteria include the orientation of the Beta value, which can either be positive or negative; a T-value that exceeds or equals 1.645 for direct effects; a P-value that is less than or equal to 0.05; and a confidence interval that excludes zero, lower level, and upper level (LL and UL). In the event that any of these prerequisites are not satisfied, the hypothesis is considered unsupported (Hair et al., 2019).

This study used the bootstrapping technique and performed a resampling 500 times. The results showed that seven out of the nine hypotheses regarding direct effects are significant. Surprisingly, Effort Expectancy and Behavioral Intention have no confirmed relationship (β = -0.109, t = 3.152, p = 0.001, LL = -0.165, UL = -0.053), whilst Trust in Technology and Behavioral Intention have an unsupported relationship (β = -0.023, t = 0.521, p = 0.301, LL = -0.100, UL = 0.046). **Table 4.4** shows the path coefficient analysis results.

Hypos	**Hypo path**	**Beta**	**T Value**	**P Values**	**LL**	**UL**	**Result**
H1	PE → BI	0.252	5.924	0.001	0.180	0.321	Supported
H2	EE → BI	-0.109	3.152	0.001	-0.165	-0.053	Unsupported
H3	SI → BI	0.127	2.452	0.005	0.037	0.207	Supported
H4	FC → BI	0.294	5.232	0.001	0.199	0.381	Supported
H5	TG → BI	0.099	2.328	0.010	0.029	0.172	Supported
H6	FC → TG	0.693	20.602	0.001	0.635	0.745	Supported
H7	TT → BI	-0.023	0.521	0.301	-0.100	0.046	Unsupported
H8	PS → BI	0.342	6.846	0.001	0.262	0.427	Supported
H9	PS → TT	0.715	21.758	0.001	0.657	0.763	Supported

Table 4.4. Path Coefficient Analysis

One of the reasons for utilizing Smart PLS in this study lies in its predictive capacity, as proposed by (Hair et al., 2017). Predictive relevance (Q^2) was also assessed through the blindfolding technique, besides assessing the coefficient of determination (R2) and effect size (f2).

In the current study, the Q^2 approach was employed to illuminate the inherent variance in the endogenous variable. Hair et al. (2022) provide a practical guideline for interpreting Q^2 values, i.e., either small (0.02-0.15), medium (0.15-0.35) or large (above 0.35) as indicated in **Table 4.5**. Based on the 10-fold blindfolding procedure, the Q^2 values for the model's predictive power ranged from 0.360 (TT2) to 0.763 (BI2), indicating strong predictive relevance across all constructs. Specifically, all Q^2 values exceed the threshold of 0.35, which signifies a large predictive power (Hair et al., 2019). This confirms that the tested model demonstrates high predictive accuracy for Trust in Government, Trust in Technology, and Behavioral Intention.

Constructs	**Items**	**Q^2_predict**	**Decision**

Trust in Government	TG1	0.462	Large
	TG2	0.407	
	TG3	0.377	
	TG4	0.384	
Trust in Technology	TT2	0.360	Large
	TT3	0.418	
	TT4	0.460	
Behavioral Intention	BI1	0.747	Large
	BI2	0.763	
	BI3	0.715	

Table 4.5. Predictive Power of the Model

The analysis reveals that Behavioral Intention (BI) has an R^2 value of 0.562, indicating that the model explains 56.2% of the variance in BI. The Adjusted R^2, which accounts for the number of predictors, is slightly lower at 0.553, suggesting strong explanatory power with minimal risk of overfitting. This minor difference between R^2 and Adjusted R^2 supports the robustness of the model's fit, reinforcing confidence in its predictive capability regarding BI.

The effect size (f^2) analysis was conducted to assess the relative impact of each exogenous construct within the model. According to established benchmarks, effect sizes are categorized as small (0.02), medium (0.15), or large (above 0.35). The results revealed notable relationships, particularly the substantial influence of Perceived Security on Trust in Technology and Facilitating Conditions on Trust in Government. In contrast, most predictors of Behavioral Intention exhibited small effect sizes, except for Performance Expectancy and Perceived Security, which demonstrated moderate effects. Table 4.6 presents the complete f^2 values. These findings provide valuable insights into the strength of individual relationships and offer a basis for more focused investigation into their theoretical and practical implications.

Hypos	**Hypo path**	**F2**	**Result**
H1	PE → BI	0.200	Medium
H2	EE → BI	0.040	Small
H3	SI → BI	0.044	Small
H4	FC → BI	0.021	Small
H5	TG → BI	0.027	Small
H6	FC → TG	0.949	Large
H7	TT → BI	0.037	Small
H8	PS → BI	0.200	Medium
H9	PS → TT	2.124	Large

Table 4.6. Constructs' Effect Size (F2)

Discussion and Conclusion

The UTAUT was used in this study as a main theory and extended with three additional constructs: Trust in Government, Trust in Technology, and Perceived Security, which are highly relevant for voters in general and Iraqis in particular.

The results show that most of the UTAUT variables are significant factors, indicating the

capability of the UTAUT in explaining potential voters' behavioral intention to utilize e-voting systems. PE of the UTAUT was found to positively affect the BI of young voters who utilize e-voting in parliamentary elections. Besides having a medium effect size, this finding aligns with past studies on e-voting adoption. It is consistent with the research conducted by Yousef & Albattat (2023), which highlighted the significant positive influence of PE on e-voting system adoption within the context of Jordan. The study also cited the findings of Agbesi (2020b), who highlighted the positive impact of both PE and EE on the formation of BI to utilize the i-voting system. These collectively reinforce the critical role of PE as a key driver of voters' interest in adopting e-voting systems, referring to its global relevance across different countries and contexts.

The EE is found to have a negative relationship with BI for e-voting adoption by potential voters in Iraq. The results are consistent with that of past studies (Mensah, 2020; Mensah, 2019; Chauhan et al., 2018). However, some other studies indicate EE to be positively correlated to the BI to adopt e-voting systems (Kurfalı et al., 2017), where most of the investigated voters tend to engage with e-government services which are hassle-free and time efficient. Moreover, Abu Sayem (2023) found that EEand PE, positively affect the BI to use EVMs in Bangladesh. The different ideas on the impact of EE emphasize the necessity of considering multiple factors and contextual complexities when developing strategies to promote e-voting adoption with the aim to reinforce voters' engagement in elections that deploy e-voting systems.

The analysis revealed that SI positively affects the BI of potential voters who adopt and use e-voting systems in Iraqi elections. This finding is in accordance with other studies on e-voting system adoption (Bhuasiri et al., 2016; Lu, 2016; Yousef & Albattat, 2023), which revealed that SI is positively correlated with the BI to vote using e-voting systems. The findings underscore that the impact of friends, family, and influential figures' perceptions and opinions are significant to direct users' inclination towards adopting a specific technology, particularly in developing countries like Iraq.

The study also revealed the positive effect of FC on the BI of the youth community in Iraq in adopting e-voting systems in elections with a small effect size. This finding aligns with previous research, such as Alabboodi & Shaban (2019), who examined the higher education context in Iraq, and Hunde et al., (2023), who highlighted the importance of ICT integration in education, emphasizing the need for user-friendly systems and easily accessible resources.

FC is also found to have a significant influence on TG with a large effect size. This result aligns with that of previous multiple studies across different domains (Lu et al., 2016; Alraja, 2016), indicating that well-established facilitating conditions can build governmental and institutional trust, which is crucial for user acceptance and engagement. TG has also been found to have a positive impact on the BI of the young generation, who utilize e-voting systems in Iraq with a small effect size. This finding supports prior empirical studies which emphasized the importance of trust, particularly in the implementation and usage of e-voting technology (Mensah, 2020). Research conducted in June 2022 found that young voters' trust in the electoral commission form their inclination towards utilizing i-voting (Kozel & Dečman, 2022). Surprisingly, TT is found to be non-influential on the BI in utiling e-voting systems among youths. This does not concur with previous studies (Mensah, 2019; AlAbri et al., 2022), which revealed a significant link between TT and the BI to use e-voting systems. Nevertheless, some new investigations have challenged this view. Abu Sayem (2023) and Agbesi (2020a) found no significant link between TT and the BI to utilize electronic voting machines. These studies and the current study suggest

that voters' trust in technology is not necessarily a decisive factor in forming the voters' intentions to adopt e-voting systems, specifically in developing countries.

The analysis also revealed that PS significantly and positively affects the BI of the voters to adopt e-voting systems in elections. Similarly, Chauhan et al. (2018), Siagian et al. (2022), Zamir et al. (2022) and Merhi et al. (2019) arrived at a similar conclusion in their examination of the acceptance of e-voting machines among users, noting the positive influence of PS on BI. Interestingly, PS is also found in this study to significantly impact TT with a large effect size. This finding supports numerous other investigations which found the positive and significant impact of PS on TT (Sa'diyah & Soegoto, 2021;Kumar et al., 2022). This move is also likely to have a great impact on other countries like Iraq, which has been pushing for e-voting in parliamentary elections through the introduction of the new technology by the Iraqi Government.

It is necessary to work on a more effective approach and policy, which should be useful not only for Iraq but for other, especially those with similar contexts and circumstances. This demonstrates the importance of this study in understanding the factors influencing the behavioral intention of voters, namely the youth faction, to adopt e-voting systems.

References

Abou-Moghli, A., & Shatem, M. (2024). Examining the impact of e-governance on organizational strategy execution in the Jordanian ICT industry. Problems and Perspectives in Management, 3(22), 185–197.

Abu Sayem, M. (2023). Citizens' Behavioral Acceptance of Electronic Voting Machine (EVM) in the Electoral Culture of Bangladesh. Journal of Asian and African Studies. https://doi.org/https://doi.org/10.1177/00219096231179654

Adeshina, S. A., & Ojo, A. (2020). Factors for e-voting adoption-analysis of general elections in Nigeria. Government Information Quarterly, 37(3), 101257.

Agbesi, S. (2020a). Examining voters' intention to use internet voting system: A case of Ghana. International Journal of Electronic Governance, 12(1), 57–75. https://doi.org/10.1504/IJEG.2020.106997

Agbesi, S. (2020b). Examining voters ' intention to use internet voting system : a case of Ghana. Int. J. Electronic Governance, 12(1), 57–75.

Aizpurua, E. (2020). Pretesting methods in cross-cultural research. The Essential Role of Language in Survey Research, 129–150.

Al-Ashoush, A., Altarawneh, K., & Lasaasmeh, O. (2023). The Feasibility of Adopting a Secure E-voting Based Biometrics Authenticity: The Jordanian Parliamentary Elections. TEM Journal, 12(1), 59–65. https://doi.org/10.18421/TEM121-08

Al Mansoori, K. A. (2017). Use of a modified UTAUT model to investigate Emirati Citizens' adoption of e-Government in Abu Dhabi.

Alabboodi, A. S., & Shaban, N. S. (2019). The adoption of E-government services in the Iraqi higher education context : An application of the UTAUT model in the university of Baghdad The adoption of E-government services in the Iraqi higher education context : An application of the UTAUT model in. May.

AlAbri, R., Shaikh, A. K., Ali, S., & Al-Badi, A. H. (2022). Designing an E-Voting Framework Using Blockchain Technology: A Case Study of Oman. International Journal of Electronic Government Research (IJEGR), 18(2), 1–29.

Almansoori, L., Al-Katheeri, R., & Al-kfairy, M. (2024). Users' Adoption of Social Media Platforms for Government Services: The Role of Perceived Privacy, Perceived Security, Trust, and Social Influence. European Conference on Social Media, 11(1), 23–31. https://doi.org/10.34190/ecsm.11.1.2165

Alomari, M. K., & Khan, H. U. (2022). Toward a Significant E-Voting Adoption Model: The Digital Divide. International Journal of Technology and Human Interaction, 18(1). https://doi.org/10.4018/IJTHI.300283

Alraja, M. N. (2016). The effect of social influence and facilitating conditions on e-government acceptance from the individual employees' perspective. Polish Journal of Management Studies, 14(2), 18–27.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. Psychological Bulletin, 103(3), 411.

Avgerou, C. (2013). Explaining Trust in IT-Mediated Elections : A Case Study of E-Voting in Brazil Explaining Trust in IT-Mediated Elections : A Case Study of E-Voting in Brazil. Journal of the Association for Information Systems, 14(8), 420–451. https://doi.org/10.1057/jit.2015.19

Belanche, D., Casaló, L. V, Flavián, C., & Schepers, J. (2014). Trust transfer in the continued usage of public e-services. Information & Management, 51(6), 627–640.

Belanger, F., & Carter, L. (2008). Trust and risk in e-government adoption. Journal of Strategic Information Systems, 17(2), 165–176. https://doi.org/10.1016/j.jsis.2007.12.002

Bhuasiri, W., Zo, H., Lee, H., & Ciganek, A. P. (2016). User Acceptance of e-government Services: Examining an e-tax Filing and Payment System in Thailand. Information Technology for Development, 22(4), 672–695.

Carter, L., & Bélanger, F. (2005). The utilization of e-government services: Citizen trust, innovation and acceptance factors. Information Systems Journal, 15(1), 5–25. https://doi.org/10.1111/j.1365-2575.2005.00183.x

Chand, S. S., aklesh Kumar, B., Goundar, M. S., & Narayan, A. (2022). Extended UTAUT model for Mobile learning adoption studies. International Journal of Mobile and Blended Learning (IJMBL), 14(1), 1–20.

Chauhan, S., Jaiswal, M., & Kar, A. K. (2018). The acceptance of electronic voting machines in India: A UTAUT approach. Electronic Government, 14(3), 255–275. https://doi.org/10.1504/EG.2018.093427

Darmawan, I. (2021). E-voting adoption in many countries: A literature review. Asian Journal of Comparative Politics, 6(4), 482–504.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 319–340.

Dillon, A., & Morris, M. G. (1996). User acceptance of new information technology: theories and models. Medford, NJ: Information Today.

Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2019). Re-examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model. Information Systems Frontiers, 21(3), 719–734. https://doi.org/10.1007/s10796-017-9774-y

Elfattal, S., Awad, M., & Ben Abderrahmen, S. (2023). E-voting in Literature: Analyzing Nations' Interest. In Proceedings of the Central and Eastern European eDem and eGov Days 2023 (pp. 41–46).

Ennajeh, L., & Najar, T. (2024). Blockchain technology adoption through the UTAUT model: Exploring the mediating role of trust in technology. Journal of Telecommunications and the Digital Economy, 12(1), 328–355.

Franke, G., & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: a comparison of four procedures. Internet Research, 29(3), 430–447. https://doi.org/10.1108/IntR-12-2017-0515

Gupta, K. P., Singh, S., & Bhaskar, P. (2016). Citizen adoption of e-government : a literature review and conceptual framework. Electronic Government, An International Journal, 12(2), 160–185.

Hair, Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. Industrial Management and Data Systems, 117(3), 442–458. https://doi.org/10.1108/IMDS-04-2016-0130

Hair, Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). A primer on partial least squares structural equation modeling (PLS-SEM). Sage publications.

Hair, Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial least squares structural equation modeling (PLS-SEM) using R: A workbook. Springer Nature.

Hair, Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Halimi, F. F., Gabarre, S., Rahi, S., Al-Gasawneh, J. A., & Ngah, A. H. (2021). Modelling Muslims' revisit intention of non-halal certified restaurants in Malaysia. Journal of Islamic Marketing. https://doi.org/10.1108/JIMA-01-2021-0014

Hernandez-Ortega, B. (2012). Key factors for the adoption and subsequent use of e-invoicing. Academia. Revista Latinoamericana de Administración, 50, 15–30.

Hunde, M. K., Demsash, A. W., & Walle, A. D. (2023). Behavioral intention to use e-learning and its associated factors among health science students in Mettu university, southwest Ethiopia: Using modified UTAUT model. Informatics in Medicine Unlocked, 36, 101154.

Ikart, E. M. (2019). Survey Questionnaire Survey Pretesting Method: An Evaluation of Survey Questionnaire via Expert Reviews Technique. Asian Journal of Social Science Studies, 4(2), 1. https://doi.org/10.20849/ajsss.v4i2.565

Ikrissi, G., & Mazri, T. (2024). Electronic Voting: Review and Challenges. The Proceedings of the International Conference on Smart City Applications, 110–119.

Jafar, U., & Aziz, M. J. A. (2021). A state of the art survey and research directions on blockchain based electronic voting system. Advances in Cyber Security: Second International Conference, ACeS 2020, Penang, Malaysia, December 8-9, 2020, Revised Selected Papers 2, 248–266.

Jim E. Helm. (2015). Internet e-Voting : How Technology Acceptance and the Digital Divide Influence Senior Citizen Intention to Use a New Voting Technology (Issue March).

Journal, A. I. (2009). Trust and security in the e-voting system Lichun Chiang. 6(4), 343–360.

Kakar, A. K., & Kakar, A. (2017). A General Theory of Technology Adoption: Decoding TAM from a User Value Perspective.

Khairi, M. I., Susanti, D., & Sukono, S. (2021). Study on structural equation modeling for analyzing data. International Journal of Ethno-Sciences and Education Research, 1(3), 52–60.

Khalid, K., Ismail, R., & Mat-Jizat, J. E. (2023). Teachers and Crowdsourcing Platform: Using UTAUT to Examine Behaviour Intention and Use Behaviour. International Journal of Academic Research in Progressive Education and Development, 12(1), 1797–1812. https://doi.org/10.6007/ijarped/v12-i1/15737

Khan, G. F., Moon, J., Park, H. W., Swar, B., & Rho, J. J. (2011). A socio-technical perspective on e-government issues in developing countries: A scientometrics approach. Scientometrics, 87(2), 267–286.

Kozel, E., & Dečman, M. (2022). The Impact of Trust in Government–Young Voters' Behavioral Intention to Use I-voting in Slovenia. NISPAcee Journal of Public Administration and Policy, 15(1), 61–87.

Kumar, N., Singh, M., Upreti, K., & Mohan, D. (2022). Blockchain adoption intention in higher education: role of trust, perceived security and privacy in technology adoption model. Proceedings of International Conference on Emerging Technologies and Intelligent Systems: ICETIS 2021 (Volume 1), 303–313.

Kurfalı, M., Arifoğlu, A., Tokdemir, G., & Paçin, Y. (2017). Adoption of e-government services in Turkey. Computers in Human Behavior, 66, 168–178.

Lian, J.-W. (2015). Critical factors for cloud based e-invoice service adoption in Taiwan: An empirical study. International Journal of Information Management, 35(1), 98–109.

Lu, J., Yu, C.-S., & Liu, C. (2016). Facilitating conditions, wireless trust and adoption intention. Journal of

Computer Information Systems, 46(1), 17–24.
Lu, N. L. (2016). Online tax filing—e-government service adoption case of Vietnam. Modern Economy, 7(12), 1498.
Malatji, W. R., Eck, R. Van, & Zuva, T. (2020). Understanding the usage, modifications, limitations and criticisms of technology acceptance model (TAM). Advances in Science, Technology and Engineering Systems Journal, 5(6), 113–117.
Manalu, I. F., Saidani, B., & Aditya, S. (2022). Pengaruh perceived security dan perceived ease of use terhadap intention to use dengan trust sebagai intervening pada penggunaan aplikasi pembayaran digital di Jakarta. Jurnal Bisnis, Manajemen, Dan Keuangan, 3(1), 186–197.
Mathieson, K. (1991). Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior. Information Systems Research, 2(3), 173–191.
Mensah, I. K. (2019). Factors Influencing the Intention of University Students to Adopt and Use E-Government Services: An Empirical Evidence in China. SAGE Open, 9(2). https://doi.org/10.1177/2158244019855823
Mensah, I. K. (2020). Impact of performance expectancy, effort expectancy, and citizen trust on the adoption of electronic voting system in Ghana. International Journal of Electronic Government Research (IJEGR), 16(2), 19–32.
Mensah, I. K., & Adams, S. (2019). A Comparative Analysis of the Impact of Political Trust on the Adoption of E-Government Services. International Journal of Public Administration, 43(08), 682–696. https://doi.org/10.1080/01900692.2019.1645687
Merhi, M., Hone, K., & Tarhini, A. (2019). A cross-cultural study of the intention to use mobile banking between Lebanese and British consumers: Extending UTAUT2 with security, privacy and trust. Technology in Society, 59, 101151.
Methlagl, M., Michlmayr, F., & Perillo, V. (2023). Technological trust perceptions in wearable fitness technology: A person-centred approach. Journal of Technology in Behavioral Science, 8(4), 392–401.
Moletsane, T., & Tsibolane, P. (2022). Intention to adopt e-Voting: A Perspective of South African Youth. 2022 IST-Africa Conference (IST-Africa), May, 1–11. https://doi.org/10.23919/IST-Africa56635.2022.9845522
Montazemi, A. R., & Qahri-Saremi, H. (2015). Factors affecting adoption of online banking: A meta-analytic structural equation modeling study. Information & Management, 52(2), 210–226.
Mpekoa, N., & Van Greunen, D. (2017). E-voting experiences: A case of Namibia and Estonia. 2017 IST-Africa Week Conference, IST-Africa 2017, 1–8. https://doi.org/10.23919/ISTAFRICA.2017.8102303
Nagadeepa, C., Mohan, R., & Kumarathas, P. (2022). Acceptance of Voice Assistants using Technology Acceptance Model (TAM). Kristu Jayanti Journal of Management Sciences (KJMS), 1(December), 9–17. https://doi.org/10.59176/kjms.v1i2.2277
Ngah, A. H., Gabarre, S., Eneizan, B., & Asri, N. (2021). Mediated and moderated model of the willingness to pay for halal transportation. Journal of Islamic Marketing, 12(8), 1425–1445. https://doi.org/10.1108/JIMA-10-2019-0199
Nguyen, T. T. U., Nguyen, P. Van, Huynh, H. T. N., Vrontis, D., & Ahmed, Z. U. (2024). Identification of the determinants of public trust in e-government services and participation in social media based on good governance theory and the technology acceptance model. Journal of Asia Business Studies, 18(1), 44–61.
Paska, M., & Budnik, K. (2023). Trust as a participant in the adaptation of technological changes. Scientific Papers of Silesian University of Technology. Organization and Management Series, 2023(170), 383–391.
Pratama, H. M., & Salabi, N. A. (2020). Adoption of Voting Technology: A Guide for Electoral

Stakeholders in Indonesia. In Adoption of Voting Technology: A Guide for Electoral Stakeholders in Indonesia. https://doi.org/10.31752/idea.2020.26

Rabaa, A. (2018). The use of UTAUT to investigate the adoption of e-government in Jordan : a cultural perspective The use of UTAUT to investigate the adoption of e-government in Jordan. International Journal of Business Information Systems, January 2017. https://doi.org/10.1504/IJBIS.2017.10002806

Rosli, M. S., Saleh, N. S., Md. Ali, A., Abu Bakar, S., & Mohd Tahir, L. (2022). A systematic review of the technology acceptance model for the sustainability of higher education during the COVID-19 pandemic and identified research gaps. Sustainability, 14(18), 11389.

Sa'diyah, M. H., & Soegoto, D. S. (2021). The Effect of Perceived Security towards Intention to Use Digital Payment through a Trust. Proceeding of International Conference on Business, Economics, Social Sciences, and Humanities, 4, 233–238.

Sackstein, S., Matthee, M., & Weilbach, L. (2023). Theories and Models Employed to Understand the Use of Technology in Education: A Hermeneutic Literature Review. Education and Information Technologies, 28(5), 5041–5081. https://doi.org/10.1007/s10639-022-11345-5

Sagar, A., Narang, S., Seth, A., & Jain, S. (2023). SoulBound E-Voting System. International Journal for Research in Applied Science & Engineering Technology, 45(3), 1520–1525.

Sahib, R. H., & Al-Shamery, E. S. (2021). A Review on Distributed Blockchain Technology for E-voting Systems. Journal of Physics: Conference Series, 1804(1). https://doi.org/10.1088/1742-6596/1804/1/012050

Salman, H., Hasan, D. R., & Gbashi, D. E. K. (2022). Development of Electronic Elections Systems: A Review. Webology, 19(1), 1750–1762. https://doi.org/10.14704/web/v19i1/web19117

Salmassi, A. R. N., Kazemi, M., Mehraeen, M., & Malekzadeh, G. (2022). A review of most applicable theories and models of technology acceptance. International Journal of Health Sciences, May 2022, 48020–48030. https://doi.org/10.53730/ijhs.v6ns7.13419

Sang, L. T., Mail, R., Rahimie, M., Karim, A., Karamah, Z., Baharul, A., Mifli, M., & Lajuni, N. (2017). Pretesting and Piloting The Research Instrument To Examine The Central Roles of Risk Perception and Attitude Towards Financial Investment Behavioural. 4, 97–108.

Schuß, M., Himmels, C., & Riener, A. (2023). Development of a Perceived Security Scale for Shared Automated Vehicles (PSSAV) and its Validation in Colombia and Germany. Proceedings of the 15th International Conference on Automotive User Interfaces and Interactive Vehicular Applications, 52–62.

Shareef, M. A., Kumar, V., Kumar, U., & Dwivedi, Y. K. (2011). E-Government Adoption Model (GAM): Differing service maturity levels. Government Information Quarterly, 28(1), 17–35. https://doi.org/10.1016/j.giq.2010.05.006

Sharma, R., & Mishra, R. (2014). A review of Evolution of Theories and Models of Technology Adoption. Indore Management Journal, 6(2), 17–29.

Shin, D.-H. (2013). User centric cloud service model in public sectors: Policy implications of cloud services. Government Information Quarterly, 30(2), 194–203.

Siagian, H., Tarigan, Z. J. H., Basana, S. R., & Basuki, R. (2022). The effect of perceived security, perceived ease of use, and perceived usefulness on consumer behavioral intention through trust in digital payment platform. Petra Christian University.

Straub, E. T. (2009). Understanding technology adoption: Theory and future directions for informal learning. Review of Educational Research, 79(2), 625–649.

Sunanto, R. F., & Hendrowati, T. Y. (2022). Structural model equations: Analysis on the performance abilities of the main competencies of graduates. Desimal: Jurnal Matematika, 5(3), 265–278.

Taherdoost, H. (2018). A review of technology acceptance and adoption models and theories. Procedia

Manufacturing, 22, 960–967. https://doi.org/10.1016/j.promfg.2018.03.137

Taherdoost, H. (2019). Importance of technology acceptance assessment for successful implementation and development of new technologies. Global Journal of Engineering Sciences, 1(3).

Taherdoost, H., & Masrom, M. (2009). An examination of smart card technology acceptance using adoption model. Proceedings of the ITI 2009 31st International Conference on Information Technology Interfaces, 329–334.

Tang, K. L., Aik, N. C., & Choong, W. L. (2021). A modified UTAUT in the context of m-payment usage intention in Malaysia. Journal of Applied Structural Equation Modeling, 5(1), 40–59.

Tulkinovna, M. R., & Ugli, Z. S. T. (2023). E-Voting & Electorate Attitude in 2023 Election in Nigeria. Central Asian Journal of Innovations on Tourism Management and Finance, 04(02), 116–120.

Vance, A., Elie-dit-cosaque, C., & Straub, D. W. (2008). Examining trust in information technology artifacts: The effects of system quality and culture. Journal of Management Information Systems, 24(4), 73–100. https://doi.org/10.2753/MIS0742-1222240403

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly: Management Information Systems, 27(3), 425–478. https://doi.org/10.2307/30036540

Weerakkody, V., El-Haddadeh, R., Al-Sobhi, F., Shareef, M. A., & Dwivedi, Y. K. (2013). Examining the influence of intermediaries in facilitating e-government adoption: An empirical investigation. International Journal of Information Management, 33(5), 716–725.

Wolchok, S., Wustrow, E., Halderman, J. A., Prasad, H. K., Kankipati, A., Sakhamuri, S. K., Yagati, V., & Gonggrijp, R. (2010). Security analysis of India's electronic voting machines. Proceedings of the 17th ACM Conference on Computer and Communications Security, 1–14.

Xue, L., Rashid, A. M., & Ouyang, S. (2024). The Unified Theory of Acceptance and Use of Technology (UTAUT) in Higher Education: A Systematic Review. SAGE Open, 14(1), 1–22. https://doi.org/https://doi.org/10.1177/21582440241229570

Yousef, F., & Albattat, A. (2023). The use of UTAUT to investigate the Intention to use E-Voting System in Jordan mediated by Perceived Value. February.

Yu, T., & Teoh, A. P. (2023). The Role of Trust in Predicting Behavioral Intention to Use Electric Car-sharing Services: Evidence from China. 2023 11th International Conference on Information and Communication Technology (ICoICT), 333–338.

Zamir, M. A., Khan, D. A., & Umar, M. S. (2022). Secure electronic voting machine using biometric authentication. 2022 9th International Conference on Computing for Sustainable Global Development (INDIACom), 511–516.