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Determinants of E-participation in Government Initiatives based on Theory of Planned Behaviour: Insights from Guyana

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Abstract

E-participation is growing increasingly relevant as a tool that facilitates citizens' participation in policymaking and decision-making activities while studies surrounding the intention of citizens to engage with e-participation in developing countries remain limited. Thus, it is essential to understand the factors that may or may not influence a citizen's intention to engage with e-participation initiatives in order to build successful initiatives. This study proposes a conceptual model that extends Theory of Planned Behaviour to incorporate the construct, Trust in Technology. Using data collected from an online survey of 344 Guyanese citizens, the model was tested and validated using Partial Least Square - Structural Equational Modelling (PLS-SEM). The quantitative results proved that citizens with stronger perceived behavioural control and subjective norms positively affects the intention to engage with e-participation. Additionally, the study found that attitude and trust in technology have no significant effect on citizen intention. The findings presented in this document present a vivid idea of the factors that impact citizens' intentions to participate in e-participation programmes in Guyana. These findings can help practitioners in designing effective and efficient e-participation programs.

Keywords: E-participation, Theory of Planned Behaviour, developing countries

1. INTRODUCTION

E-participation is a subset of e-government that relates to the utilization of Information and Communication Technologies (ICTs) to improve the effectiveness of government processes [1], [2]. For instance, it is critical to involve citizens in discussion and decision-making to create a more inclusive society [3]. The overall advantage of e-participation is unquestionable in terms of increasing government interactions with its citizens, producing a stronger democracy through greater transparency, accountability and social inclusion. However, many barriers to the implementation of e-participation programmes exist in developing countries. The issues around implementation becomes exacerbated when the citizens, who are the key stakeholders in e-participation initiatives, have little or no intention of engaging with e-participation initiatives. Several new studies have

provided evidence that government-inspired e-participation programmes and initiatives face low citizen engagement and participation intentions [4].

A major roadblock to effective e-participation initiatives is citizens' lack of intention in participating in e-participation projects. Therefore, it is unusual, particularly in the context of the developing countries and sustainable development goals, that the intentions of citizens to participate have not been thoroughly studied [5]. Furthermore, there remains a paucity of evidence of the issue in a Guyanese context. Therefore, the intention of citizens to engage with e-participation initiatives has been identified as a research gap and researchers have urged for greater attention to be directed towards studying citizens' perspectives and the factors that lead to citizens' engagement with e-participation [7], [8].

Based on the research gap, this study seeks to create a better understanding of the fundamental factors for citizens' engagement with e-participation initiatives in the country of Guyana. Since its independence, Guyana has built and developed a democratic structure. Through the government, citizens have the authority to make policy decisions. According to the latest United Nations' e-government survey, Guyana's e-participation index is ranked 153 out of 193 [9]. This indicates that the country has a lot of potential for e-participation to develop. Compared to its regional leader, Brazil which has a ranking of 11 of 193, Guyana has a long way to go in its e-participation development.

The following research question was used to guide the study: "What are the factors that in-fluence citizens' intention to engage in e-participation initiatives in Guyana?" The study aims to contribute to the body of literature on electronic governance by providing insight into variables that impact citizens' intentions to e-participate in developing countries. Early identification of such variables can aid e-government practitioners in determining why public involvement is low and will assist in the development of stronger e-participation initiatives in the future.

2. METHODS

2.1. Research Model

The Theory of Planned Behaviour (TPB) advocates that the intention of a person to execute a particular behaviour can be a strong predictor for that actual behaviour [10]. According to the theory, Behavioural Intention is described as a person's willingness to attempt or execute a specific behaviour and is influenced by three factors namely attitude, subjective norms, and perceived behavioral control. In short, attitude towards refers to "the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question".

Subjective norms describes a social factor in the theory that refers perceived pressure or influence from certain individuals in performing a behaviour. Perceived behavioural control refers to the degree to which a person exhibits control over engaging in the behaviour [10].

The theory of planned behaviour is the guiding theory that has driven the current research and is well-suited to achieve the research's goal of determining the factors that influence citizens' intention to e-participate. TPB demonstrates predictive capability in understanding human behaviour intention across several different environments, notably when the behaviour is voluntary [10]. For instance, TPB has been used as a validated model for assessing citizens' acceptance of technologies in the fields of e-government, social media and mobile e-participation services [5], [11], [12]. Specifically, for e-participation research, the TPB's construct of intention has been proven to be a good predictor for citizens' decisions to utilise e-Petition and e-Voting systems [13], [14].

This paper proposes and tests a conceptual model of citizens' intention to participate in government-led e-participation initiatives based on the Theory of Planned Behaviour. In the proposed model, citizens' intention to engage in e-participation efforts is predicted to be determined by the constructs namely attitude, subjective norms, perceived behavioural control. Additionally, the model extends TPB through the inclusion of Trust (TR) as an additional predictor variable. As the focus of this study is on citizens' intention to participate rather than actual e-participation usage, the behaviour construct has been dropped from the TPB model. In the early stages of implementing e-participation initiatives, intention is considered to be a more important issue to study rather than adoption [5], [15], [16], particularly in the context of voluntary usage. Figure 1 depicts the comprehensive conceptual model. The sub-sequent sections provide a rationale and validation for each of the anticipated associations based on prior research in the field.

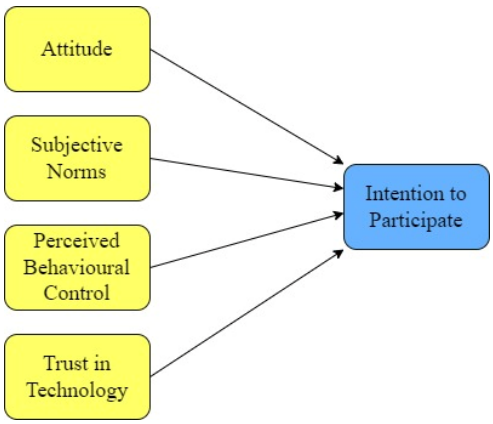

Figure 1. Conceptual Model of the study

2.1. Attitude (ATT)

In technology adoption, attitude (ATT) refers to a person's feelings and perceptions towards a system or technology [9]. In this context of this study, attitude refers to a citizen's feelings towards participating in e-participation initiatives. The literature shows that attitude to be most significant predictor for the intention to participate in the use of technologies [6], [10], [17], [18]. Thus, if citizens have a positive attitude about e-participation, it is possible that intent to e-participate will increase. In light of these findings, the following hypothesis was proposed:

> H1: Citizens with positive attitudes towards e-participation will have a stronger intent to engage with e-participation.

2.2. Subjective Norms (SBN)

Subjective norms (SBN) can be classified as the perceived pressure or influence from certain groups or individuals when considering the adoption and utilisation of a system [10]. This influence comes from the media, political members, and other people in society. For this study, subjective norms refer to the extent to which a citizen feels that the people who matter to them, such as family and friends, believe they should engage in e-participation. Those people may have positive influences encouraging citizens to engage with e-participation, thereby improving citizens' intentions. Subjective norms are important to consider in this study to provide an understanding of how social elements impact the adoption of technology. Several studies have shown the positive impact and influence of subjective norms on intention [18], [19], [20]. In this regard, the following hypothesis was proposed:

> H2: Citizens with positive subjective norms towards e-participation will have a stronger intent to engage with e-participation.

2.3. Perceived Behavioural Control (PBC)

Perceived Behavioural Control (PCB) is considered as a person's perception of their capability to utilise technology, taking into consideration that person's confidence and skills [10]. In this study, PBC is defined as the ease or difficulty of using e-participation. The citizen's perception of the ease and skill needed to embrace e-participation is critical in determining whether or not they intend to use it. In Guyana, a critical issue to technology adoption by citizens is a lack of digital literacy. As a result, if citizens have any trouble using e-participation, it is unlikely that they will embrace the initiative, thus weakening citizens' intentions. Studies in

the past have shown significant correlations between PBC and intention [17], [21], [22]. In this regard, the following hypothesis was proposed:

> H3: Citizens with positive perceived behavioural control towards e-participation will have a stronger intent to engage in e-participation

2.4. Trust in Technology (TIT)

The role of trust in technology (TIT) depends on the technology's ability to work as intended, reduce associated risks in interactions and avoid harm [23]. Many studies have integrated trust as an important constituent component of technology acceptance models [24]. Many studies have shown that trust is relevant to intention and its general importance in technology adoption [5], [25], [26]. Trust has the potential to reduce the uncertainties that plague the usage of new technologies or systems by fostering positive mindsets among individuals [27]. In this study, it is envisaged that citizens will exhibit a greater likelihood to take part in e-participation if they believe the technologies are provided in their best interests. In this regard, the following hypothesis was proposed:

> H4: Citizens with positive trust in technology towards e-participation will have a stronger intent to engage in e-participation.

2.5 Intention to Participate (ITI)

Intention refers to the likelihood that a person will utilise or continue to utilise a new system or technology [10]. In many studies, intention serves as an antecedent to behaviours towards technology [17], [20]. For this study, intention to participate describes the inclination of citizens to utilise e-participation initiatives of government.

2.2. Data Collection

The study was conducted in the developing country of Guyana. Given that the vast majority of e-participation literature has been carried out in developed or western countries, Guyana provides for a compelling context for this study. Guyana's low e-participation ranking indicates that the country has a lot of potential for e-participation to develop, as seen by Guyana's progress from 2018 to now [9].

To answer the research question of this study, a quantitative approach was deemed suitable. This study utilized Structural Equation Modelling (SEM) technique to test, validate and measure the research hypotheses. An online survey was created using Google Forms to collect responses from citizens residing in various districts

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of Guyana. Responses were measured on a Likert scale of 1-5, ranging from "Strongly Disagree" to "Strongly Agree."

To develop the questions on the study instrument, relevant works of literature in the field of citizens' e-participation in government initiatives were thoroughly evaluated. As a result, validated questionnaire items for each construct of the model were identified and reviewed to ensure appropriateness to this study. Table 1 illustrates the questionnaire measurements items, as well as their supporting references.

Table 1. Sources of Measurements Items

Construct	Measurement Items	Supported by:
Attitude	**ATT1:** I believe adopting e-participation initiatives is a good idea. **ATT2:** Learning to use e-participation is easy for me. **ATT3:** My experience with e-participation technology has been simple and clear.	[5], [10]
Subjective Norms	**SBN1:** Most people who are important to me think e-participation initiatives are a good idea. **SBN2:** Most people who i usually engage with think it is a good idea for me to use e-participation **SBN3:** Most people whose opinions I value use e-participation.	[4], [10], [29]
Perceived Behavioural Control	**PCB1:** I have the resources, knowledge and skills to use e-participation. **PCB2:** My interaction with e-participation is clear and understandable. **PCB3:** I believe it is entirely within my control whether to participate in e-participation initiatives	[10], [11]
Trust in Technology	**TIT1:** I trust e-participation programs to protect my personal information. **TIT2:** I trust e-participation programs in providing secure data communication for participating. **TIT3:** I will trust the information I receive from e-participation programs.	[25], [29]
Intention to Participate	**ITP1:** I expect that I would engage in e-participation initiatives. **ITP2:** I intend to engage in e-participation initiatives. **ITP3:** It would be very likely that I will engage in e-participation initiatives.	[4], [10]

The study utilized a non-probability convenience sampling technique to obtain data from the participants. This technique allowed for the recruitment of participants from the target population who were easily accessible and willing to

participate in the study. Respondents were given a web link to the survey that could only be used once and an explanatory introduction to the survey's purpose, along with examples of e-participation technologies. A total of 600 questionnaires were distributed to the citizens. A total of 344 valid responses were attained indicating a 57.3% response rate which is higher than the average response rate of survey research [28].

2.3. Data Analysis

To be consistent with the majority of research studies executed in the field of information systems, a two-step method was used to analyse the survey data [30]. Smart PLS 3.0 was utilised to analyze the data using the partial least squares structural equation modelling (PLS-SEM) technique [31]. The first step involved testing the measurement model's reliability and validity, and the second step involved validating the structural model by testing the hypotheses.

3. RESULTS AND DISCUSSION

3.1 Demographics

In our sample size, the majority of the participants (61%) were male. In terms of age, 22% of participants fell into the category of 21 – 25 years while 32% fell into the 26 – 30 years range and 26% fell into the 31-35 years range. The remaining participants were spread across the other ranges: 16 – 20 and greater than 35. As per educational attainment, the majority of participants (73%) had tertiary level education.

3.2 Measurement Model

Reliability and validity tests were conducted to validate the measurement model. The stability of a measurement item is represented by reliability, which shows how repeatable and consistent an item is. Cronbach alpha is a commonly used measure for assessing reliability, and it is recommended that Cronbach's value not be less than 0.70 [32]. Validity, which relates to how successfully a measurement item measures what it is meant to measure, represents the truthfulness of findings [33]. Convergent validity is said to occur when the measurement item strongly correlates with the measured construct, whereas discriminant validity occurs when the item correlates weakly with the other items or constructs [34]. In this study, the Cronbach Alpha values for all factors of the model were above 0.7 thus demonstrating satisfactory internal consistency. The study also utilised composite reliability (CR) in examining reliability of constructs. As shown in Table 2, all of the constructs obtained CR scores that were higher than the recommended value of 0.700 [35].

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This study utilized factor analysis to assess the convergent validity of fifteen (15) items of the survey instrument. The literature suggests that 0.5 is valid for each item's factor loadings [8], [36]. Table 2 displays the factors loadings of the measurement items for the five factors of the research model. The results show that all factor loadings in this study were above 0.5, suggesting satisfactory convergent validity. Convergent validity was also deemed acceptable because the Average Variance Extracted (AVE) values of all constructs were over 0.500 [36].

Tabel 2. Reliability and Validity Analysis Scores

Constructs	Measurement Items	Factor Loadings	Average Variance Extracted	Composite Reliability	Cronbach's Alpha
Attitude	ATT1	0.702	0.664	0.854	0.741
	ATT2	0.891			
	ATT3	0.839			
Subjective Norms	SBN1	0.876	0.702	0.876	0.0787
	SBN2	0.857			
	SBN3	0.778			
Perceived Behaviour Control	PCB1	0.940	0.618	0.803	0.0711
	PCB2	0.946			
	PCB3	0.774			
Trust in Technology	TIT1	0.721	0.574	0.801	0.706
	TIT2	0.712			
	TIT3	0.834			
Intention to Participate	ITP1	0.850	0.780	0.914	0.858
	ITP2	0.943			
	ITP3	0.852			

To test for discriminant validity, the Fornell-Lacker criterion was used [37]. Table 3 displays the results of the evaluation using the square root of AVE. To assess discriminant validity of the constructs, the square root value of the AVE of each variable in the model was compared to the strength of the correlations between the two constructs. When comparing the square roots of AVE to the correlations between constructs, discriminant validity can be proven only when the square roots of AVE are larger than the correlations between components [34], [36]. As demonstrated in Table 3, each construct possessed a square rooted AVE value that was larger than the correlations with other constructs. As a result, the discriminant validity the model's constructs were proven.

3.3 Structural Model and Hypotheses Testing

Structural equation modelling was used to test the hypothesized relationships of the study (See Table 5). Figure 2.0 illustrates the hypothesized and tested associations between constructs in the conceptual model. The evaluation of the

structural model is done on the basis of the R^2 values, Q^2 values and the significance of the paths. The significance of the paths was assessed using a statistical analysis done with the Smart PL bootstrapping method at a 5% significance level. The strength of the structural paths within the model was assessed by the R^2 values for the dependent variables. The literature suggests that R^2 should be more than or equal to 0.1. [38]. Table 4 presents the R^2 and Q^2 values within the structural model. The findings of this study demonstrate that the R^2 value for intention to participate is 0.419 (See Table 4). This suggests that the conceptual model explained a 41.9% predictive capability for the intention for citizens to engage with e-participation initiatives. On the other hand, Q^2 values establish the predictive relevance of the endogenous constructs and need to be greater than 0 [38]. The results of the study showed that the Q^2 value for intention to participate is 0.295, indicating predictive relevance (See Table 4).

Tabel 3. Discriminant Validity Scores

Constructs	Attitude	Intention to Participate	Perceived Behavioural Control	Subjective Norms	Trust in Technology
Attitude	**0.815**				
Intention to Participate	0.497	**0.883**			
Perceived Behavioural Control	0.672	0.531	**0.786**		
Subjective Norms	0.453	0.491	0.258	**0.838**	
Trust in Technology	0.286	0.242	0.226	0.424	**0.758**

Each hypothesis in the model was tested to determine the significance of the relationship between the constructs (see Figure 2). Table 5 presents the results of the assessments of study's hypotheses. H1 evaluated whether citizens with positive attitudes towards e-participation will have a stronger intent to engage with e-participation. The results revealed that attitude had an insignificant impact on intention ($\beta = 0.75$, $t = 0.764$, $p=0.445$). Hence, the hypothesis, H1 was not supported. H2 evaluated whether citizens with positive subjective norms towards e-participation will have a stronger intent to engage with e-participation. The results revealed that subjective norms have a positive effect on intention ($\beta = 0.366$, $t=4.091$, $p=0.000$). Therefore, the hypothesis, H2 was supported. H3 evaluated whether citizens with positive perceived behavioural control towards e-participation will have a stronger intent to engage with e-participation, the results revealed ($\beta = 0.391$, $t= 3.747$, $p=0.000$). Hence, the hypothesis, H3 was supported. Lastly, H4 evaluated whether citizens with trust in technology towards e-

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participation will have a stronger intent to engage with e-participation (β = -0.024, t=0.250, p=0.803). Hence, the hypothesis, H4 was not supported.

Tabel 4. R^2 and Q^2 Results

R^2 Table		Q^2 Table	
Dependent Variable	**R^2**	**Dependent Variable**	**Q^2**
Intention to Participate	0.419	Intention to Participate	0.295

Tabel 5. Path Analysis Results

Hypothesis	Proposed Relationship	Path Coefficient	T Statistics	P-Value	Supported
H1	ATT→ITP	0.075	0.764	0.445	Not Supported
H2	SBN→ITP	0.391	3.747	0.000	Supported
H3	PBC→ITP	0.366	4.091	0.000	Supported
H4	TIT→ITP	-0.024	0.250	0.803	Not Supported

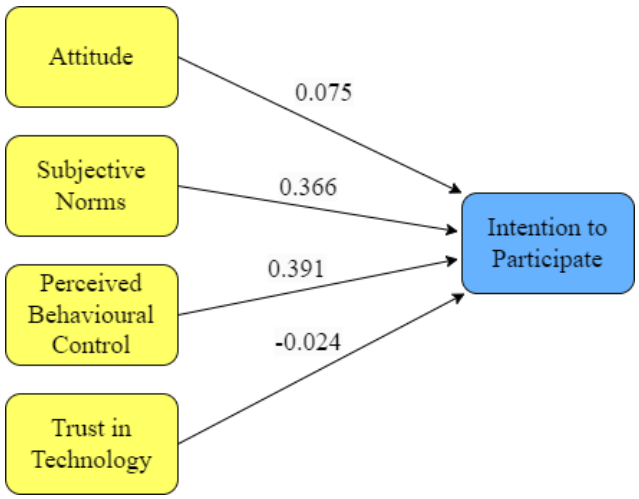

Figure 2. Structural Model Results

3.4 Discussion

The aim of this research was to propose and evaluate the conceptual model to determine what constructs influenced Guyanese citizens' intentions to engage with e-participation. This model extended the Theory of Planned Behaviour model to incorporate one additional construct named Trust in technology. The findings suggest that the proposed model has a 41.9% ability to predict intention to engage with e-participation initiatives.

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The theory's original constructs, namely subjective norm and perceived behavioural control were discovered to be significant and the strongest predictor in explaining why some citizens participate in e-participation. The study showed that citizens with positive subjective norms and perceived behavioural control are far more willing to participate in e-participation. The strongest factor for the intention to use e-participation was proven to be perceived behavioural control, which is consistent with prior studies and the underlying assumption of the theory of planned behaviour. Several research papers have demonstrated the importance of perceived behavioural control in determining individuals' intentions to participate [11], [39], [40].

As previously discussed, a citizens' digital literacy and ease of use is an important factor in determining citizens perceived behavioural control. As such if citizens have any perceived difficulty in embracing e-participation technology then it is unlikely that they will use it. As a result, this study recommends that those in charge of e-participation programs consider a citizen's skill before making decisions and improving citizens' interactions with ICTs. Also, government officials should consider increasing the country's digital literacy.

Subjective norms, as hypothesized in this study, have a positive influence on participation intention. Individuals are influenced by other people's opinions on the use of technology in the democratic process. Citizens' intention to use e-participation is likely to be influenced by subjective norms. These findings that identify subjective norms as relevant are consistent with previous research in the field [41]. In countries with strong feelings of collectivism and community, such as Guyana, shared views regarding e-participation initiatives might increase citizens' intention to participate. This suggests that citizens are more inclined to accept their peers' opinions on e-participation and to meet the expectations of those who are important to them.

In contrast to the Theory of Planned Behavior, the results of this study showed that attitude has no influence on intention to use e-participation. The insignificance of attitude toward intention for e-participation contradicts several e-participation and e-government studies conducted in developing and developed countries, which have shown attitude to be a strong factor for the intention to participate. A possible explanation for the results' contradiction might be found in the study's setting of voluntary use, whereas attitude may have a stronger influence on intention to engage in a mandatory setting. Also, the technology proficiency of the study's participants may have influenced the variable.

According to the findings of this study, people's trust in technology has no significant influence on their intention to e-participate. Despite studies that support trust as a factor that positively influences intention, the concept of trust

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has received little attention in the context of e-participation [42]. Trust in technology is also considered to be the extent to which citizens believe that the government will deliver efficient e-participation programmes and proper data protection. Past studies have shown that citizens who do not trust the government also do not trust technology that government provides [29], [43]. As a result, such citizens do not have strong trust when making decisions to e-participate. This indicates that trust in government can strengthen citizens' intentions to participate in e-participation.

Comprehending the intention of individuals to engage with technology is essential for entities that adopt the usage of e-participation technologies. The findings of this evaluation can offer practitioners some useful insights. In relation to the hypothesis of perceived behavioural control, citizens with positive perceived behavioural control towards e-participation will have a stronger intent to engage in e-participation initiatives. Here, practitioners should create simple and straightforward e-participation initiatives aimed towards all individuals with no restrictions on their use.

Governments should appeal to better community outcomes when encouraging e-participation since the results of this study show that subjective norms have a major positive impact on the intention to use e-participation. Guyanese citizens are open to the views of those closest to them. If e-participation is embraced by the community as a whole, it has the potential to improve democratic processes in society.

4. CONCLUSION

This study allowed for the exploration of factors that impact citizens' intention to engage with e-participation. The study was guided by the Theory of Planned Behaviour, with the main variables being attitude, subjective norms, perceived behavioural control, extended by trust in technology. It was assessed using data from 344 Guyana citizens. Perceived behavioural control and subjective norms were found to be significant predictors for e-participation intention. These findings can help the government design long-term initiatives to encourage citizen e-participation, such as rein-forcing the sense of communal benefit from using e-participation technology. The approach provides the basis for future study into the drivers of citizens to adopt and accept e-participation initiatives of government.

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REFERENCES

[1] E. Riva Sanseverino, R. Riva Sanseverino, and V. Vaccaro, Eds., *Smart Cities Atlas*. in Springer Tracts in Civil Engineering. Cham: Springer International Publishing, 2017. doi: 10.1007/978-3-319-47361-1.

[2] K. Pedersen, "E-government transformations: challenges and strategies," *Transform. Gov. People Process Policy*, vol. 12, no. 1, pp. 84–109, Mar. 2018, doi: 10.1108/TG-06-2017-0028.

[3] A. Santamaria-Philco, J. H. Canos Cerda, and M. C. Penades Gramaje, "Advances in e-Participation: A perspective of Last Years," *IEEE Access*, vol. 7, pp. 155894–155916, 2019, doi: 10.1109/ACCESS.2019.2948810.

[4] M. Naranjo-Zolotov, T. Oliveira, S. Casteleyn, and Z. Irani, "Continuous usage of e-participation: The role of the sense of virtual community," *Gov. Inf. Q.*, vol. 36, no. 3, pp. 536–545, Jul. 2019, doi: 10.1016/j.giq.2019.05.009.

[5] A. Alarabiat, D. Soares, and E. Estevez, "Determinants of citizens' intention to engage in government-led electronic participation initiatives through Facebook," *Gov. Inf. Q.*, vol. 38, no. 1, p. 101537, Jan. 2021, doi: 10.1016/j.giq.2020.101537.

[6] M. Naranjo-Zolotov, T. Oliveira, and S. Casteleyn, "Citizens' intention to use and recommend e-participation: Drawing upon UTAUT and citizen empowerment," *Inf. Technol. People*, vol. 32, no. 2, pp. 364–386, Apr. 2019, doi: 10.1108/ITP-08-2017-0257.

[7] C. Oliveira and A. C. B. Garcia, "Citizens' electronic participation: a systematic review of their challenges and how to overcome them," *Int. J. Web Based Communities*, vol. 15, no. 2, p. 1, 2019, doi: 10.1504/IJWBC.2019.10020619.

[8] T.-H. Tsai, W.-Y. Lin, Y.-S. Chang, P.-C. Chang, and M.-Y. Lee, "Technology anxiety and resistance to change behavioral study of a wearable cardiac warming system using an extended TAM for older adults," *PLOS ONE*, vol. 15, no. 1, p. e0227270, Jan. 2020, doi: 10.1371/journal.pone.0227270.

[9] United Nations Department of Economic and Social Affairs, *United Nations E-Government Survey 2022: The Future of Digital Government*. in United Nations E-Government Survey. United Nations, 2022. doi: 10.18356/9789210019446.

[10] I. Ajzen, "The theory of planned behavior," *Organ. Behav. Hum. Decis. Process.*, vol. 50, no. 2, pp. 179–211, Dec. 1991, doi: 10.1016/0749-5978(91)90020-T.

[11] Q. Xie, W. Song, X. Peng, and M. Shabbir, "Predictors for e-government adoption: integrating TAM, TPB, trust and perceived risk," *Electron. Libr.*, vol. 35, no. 1, pp. 2–20, Feb. 2017, doi: 10.1108/EL-08-2015-0141.

[12] M. A. Shareef, V. Kumar, Y. K. Dwivedi, and U. Kumar, "Service delivery through mobile-government (mGov): Driving factors and cultural

impacts," *Inf. Syst. Front.*, vol. 18, no. 2, pp. 315–332, Apr. 2016, doi: 10.1007/s10796-014-9533-2.

[13] G. Aichholzer and G. Rose, "Experience with Digital Tools in Different Types of e-Participation," in *European E-Democracy in Practice*, L. Hennen, I. Van Keulen, I. Korthagen, G. Aichholzer, R. Lindner, and R. Ø. Nielsen, Eds., in Studies in Digital Politics and Governance. , Cham: Springer International Publishing, 2020, pp. 93–140. doi: 10.1007/978-3-030-27184-8_4.

[14] Y.-Q. Zhu, A. H. Azizah, and B. Hsiao, "Examining multi-dimensional trust of technology in citizens' adoption of e-voting in developing countries," *Inf. Dev.*, vol. 37, no. 2, pp. 193–208, Jun. 2021, doi: 10.1177/0266666920902819.

[15] F. D. Davis, R. P. Bagozzi, and P. R. Warshaw, "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," *Manag. Sci.*, vol. 35, no. 8, pp. 982–1003, Aug. 1989, doi: 10.1287/mnsc.35.8.982.

[16] C. Barhoumi, "User acceptance of the e-information service as information resource: A new extension of the technology acceptance model," *New Libr. World*, vol. 117, no. 9/10, pp. 626–643, Oct. 2016, doi: 10.1108/NLW-06-2016-0045.

[17] S. Kamboj and M. Sharma, "Social media adoption behaviour: Consumer innovativeness and participation intention," *Int. J. Consum. Stud.*, vol. 47, no. 2, pp. 523–544, Mar. 2023, doi: 10.1111/ijcs.12848.

[18] R. Li, "Modeling the Continuance Intention to Use Automated Writing Evaluation Among Chinese EFL Learners," *SAGE Open*, vol. 11, no. 4, p. 215824402110607, Oct. 2021, doi: 10.1177/21582440211060782.

[19] D. Marikyan, S. Papagiannidis, and G. Stewart, "Technology acceptance research: Meta-analysis," *J. Inf. Sci.*, p. 01655515231191177, Aug. 2023, doi: 10.1177/01655515231191177.

[20] T.-H. Chu and Y.-Y. Chen, "With Good We Become Good: Understanding e-learning adoption by theory of planned behavior and group influences," *Comput. Educ.*, vol. 92–93, pp. 37–52, Jan. 2016, doi: 10.1016/j.compedu.2015.09.013.

[21] C. Nisson and A. Earl, "The Theories of Reasoned Action and Planned Behavior," in *The Wiley Encyclopedia of Health Psychology*, 1st ed., K. Sweeny, M. L. Robbins, and L. M. Cohen, Eds., Wiley, 2020, pp. 755–761. doi: 10.1002/9781119057840.ch129.

[22] S. Sawang, Y. Sun, and S. A. Salim, "It's not only what I think but what they think! The moderating effect of social norms," *Comput. Educ.*, vol. 76, pp. 182–189, Jul. 2014, doi: 10.1016/j.compedu.2014.03.017.

[23] L. Kuen, D. Westmattelmann, M. Bruckes, and G. Schewe, "Who earns trust in online environments? A meta-analysis of trust in technology and trust in provider for technology acceptance," *Electron. Mark.*, vol. 33, no. 1, p. 61, Dec. 2023, doi: 10.1007/s12525-023-00672-1.

[24] I. Almarashdeh, K. Aldhmour, R. Aljamaeen, M. Alsmadi, and G. Jaradat, "The effect of perceived trust in technology, trust in the bank and perceived risk on customer adoption of mobile banking," in *2019 International Conference on Internet of Things, Embedded Systems and Communications (IINTEC)*, Tunis, Tunisia: IEEE, Dec. 2019, pp. 118–123. doi: 10.1109/IINTEC48298.2019.9112107.

[25] L. S. Müller, C. Nohe, S. Reiners, J. Becker, and G. Hertel, "Adopting information systems at work: a longitudinal examination of trust dynamics, antecedents, and outcomes," *Behav. Inf. Technol.*, vol. 43, no. 6, pp. 1096–1128, Apr. 2024, doi: 10.1080/0144929X.2023.2196598.

[26] F. Nwaiwu, M. A. Kwarteng, A. B. Jibril, L. Burita, and M. Pilik, "Impact of security and trust as factors that influence the adoption and use of digital technologies that generate, collect and transmit user data: Proceedings of the 15th International Conference on Cyber Warfare and Security, ICCWS 2020," 2020. doi: 10.34190/ICCWS.20.016.

[27] U. Tandon, A. Mittal, and S. Manohar, "Examining the impact of intangible product features and e-commerce institutional mechanics on consumer trust and repurchase intention," *Electron. Mark.*, vol. 31, no. 4, pp. 945–964, Dec. 2021, doi: 10.1007/s12525-020-00436-1.

[28] M. Saunders, P. Lewis, and A. Thornhill, *Research Methods for Business Students*. in Always learning. Prentice Hall, 2009.

[29] A. Alharbi, K. Kang, and I. Hawryszkiewycz, "The Influence of Trust and subjective Norms on Citizens Intentions to Engage in E-participation on E-government Websites," May 28, 2016, *arXiv*: arXiv:1606.00746. Accessed: Aug. 06, 2024.

[30] J. C. Anderson and D. W. Gerbing, "Structural equation modeling in practice: A review and recommended two-step approach.," *Psychol. Bull.*, vol. 103, no. 3, pp. 411–423, May 1988, doi: 10.1037/0033-2909.103.3.411.

[31] C. Ringle, D. Da Silva, and D. Bido, "Structural equation modeling with the SmartPLS," *Bido Silva Ringle C2014 Struct. Equ. Model. Smartpls Braz. J. Mark.*, vol. 13, no. 2, 2015.

[32] D. Gefen and D. Straub, "A Practical Guide To Factorial Validity Using PLS-Graph: Tutorial And Annotated Example," *Commun. Assoc. Inf. Syst.*, vol. 16, 2005, doi: 10.17705/1CAIS.01605.

[33] E. G. Carmines, *Reliability and Validity Assessment*. in Quantitative applications in the social sciences. Sage Publications, 1979.

[34] D. Gefen, D. Straub, and M.-C. Boudreau, "Structural Equation Modeling and Regression: Guidelines for Research Practice," *Commun. Assoc. Inf. Syst.*, vol. 4, 2000, doi: 10.17705/1CAIS.00407.

[35] M. Sarstedt, C. M. Ringle, and J. F. Hair, "Partial Least Squares Structural Equation Modeling," in *Handbook of Market Research*, C. Homburg, M. Klarmann, and A. E. Vomberg, Eds., Cham: Springer International Publishing, 2021, pp. 1–47. doi: 10.1007/978-3-319-05542-8_15-2.

[36] J. F. Hair, *Multivariate Data Analysis*. in Pearson international edition. Pearson Prentice Hall, 2006.
[37] C. Fornell and D. F. Larcker, "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *J. Mark. Res.*, vol. 18, no. 1, p. 39, Feb. 1981, doi: 10.2307/3151312.
[38] R. F. Falk and N. B. Miller, *A primer for soft modeling*. University of Akron Press, 1992.
[39] A. U. Urbina and N. Abe, "Citizen-centric Perspective on the Adoption of E-Government in the Philippines," *Electron. J. E-Gov.*, vol. 15, no. 2, pp. pp63-83, 2017.
[40] J.-C. Choi and C. Song, "Factors explaining why some citizens engage in E-participation, while others do not," *Gov. Inf. Q.*, vol. 37, no. 4, p. 101524, Oct. 2020, doi: 10.1016/j.giq.2020.101524.
[41] S. Scherer and M. A. Wimmer, "Conceptualising Trust in E-Participation Contexts," in *Advanced Information Systems Engineering*, vol. 7908, C. Salinesi, M. C. Norrie, and Ó. Pastor, Eds., in Lecture Notes in Computer Science, vol. 7908. , Berlin, Heidelberg: Springer Berlin Heidelberg, 2014, pp. 64–77. doi: 10.1007/978-3-662-44914-1_6.
[42] S. Hofmann, M. Räckers, and J. Becker, "Identifying factors of e-government acceptance–A literature review," 2012.
[43] M. Mpinganjira, "Use of e-government services: the role of trust," *Int. J. Emerg. Mark.*, vol. 10, no. 4, pp. 622–633, Sep. 2015, doi: 10.1108/IJoEM-12-2013-0151.