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Article

Understanding the key driver of e-government services continuance usage intention: An integrated model of Expectation Confirmation Model and Technology Acceptance Model

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Abstract: Continuous usage is crucial for ensuring the longevity of technological advancements. The success of e-government is contingent upon its ongoing use, rather than its initial acceptance. Nevertheless, there has been a dearth of scholarly research on the ongoing use of e-government services. The objective of this study was to identify the primary factors that influences the continued use of e-government services in Indonesia. The research model was created by integrating both Expectation Confirmation Model and Technology Acceptance Model, two theories that are frequently employed in the adoption of technology. The data was obtained by administering an online survey to 217 Indonesian citizens who had previously utilized the Online Citizen Aspiration and Complaints Service (LAPOR) e-Government services. The results indicate that perceived ease of use had a substantial impact on citizen satisfaction and perceived usefulness. In contrast to previous research conducted in the context of e-Government, it was found that perceived usefulness did not have a significant correlation with the intention to continue using the system. The most significant predictor of continued intention to use was citizen satisfaction. Surprisingly, satisfaction was more significantly influenced by perceived ease of use than perceived usefulness. The implications of these findings are elaborated upon.

Keywords: e-government services; continuance intention; perceived ease of use; perceived usefulness; satisfaction

1. Introduction

In recent times, numerous countries have been transitioning towards the adoption of e-Government 2.0 with the aim of augmenting transparency, accountability, efficiency, and citizen engagement in governance, as well as improving the quality of public service provision (Alalwan, 2013). E-Government 2.0, often known as e-Gov 2.0, is the utilization of Web 2.0 technologies such as social networking, social media, multimedia sharing platforms, and wikis that have facilitate two-way online interaction. There are many benefits of e-Gov 2.0 such as e-Gov 2.0 can engage high levels of citizen participation to assist the government in meeting the citizens' needs and providing better public services (Sun et al., 2015). Additionally, e-Gov 2.0 can build the culture of transparency and openness where citizens can participate in policy-making process by giving their opinions, leaving suggestions, initiating new services and having access to government data (Napitupulu et al., 2019). Moreover, e-Gov 2.0 supports more open and also collaborative participation by making citizens a source

of knowledge and information in the decision-making process (Avazov and Lee Seohyun, 2020). This recognizes the role of citizens not only as users but also as co-creators of public services (Leino and Puumala, 2021). User engagement is a fundamental characteristic of e-Gov 2.0 as it corresponds with the objective of Web 2.0 to facilitate user participation.

Despite the advantage of e-Gov 2.0, its implementation is not easy. Several studies have shown that e-Gov 2.0 adoption faces many challenges and barriers (Napitupulu, 2017; Razak et al., 2017). Many government institutions around the world still struggle with the lack of citizen participation even though they have already adopted modern technology to facilitate it (Napitupulu et al., 2017). The low intention of citizen to participate remains a major problem in the domain of public service all over the world. Citizens are not solely motivated by the promise of technologies; rather, they are primarily concerned with how technology can effectively provide benefits and value to them. Basically, any kind of technology does not guarantee that the public will participate in the policy-making process because it does not automatically create significant public engagement. Many factors hinder public participation, both from internal factors such as an inadequate bureaucratic system, slow government response, and high time and cost (Utomo, 2011) as well as external ones such as the lack of awareness and the low level of citizens' education (Marzuki, 2015).

It is well established that acquiring a new customer costs a lot more than keeping an old one (Reichheld and Schefter, 2000). As the number of people using e-government services grows, officials need to take steps to make sure that people keep using them. Thus, it is not only a good idea but also very much needed in the academic world to look into the main factors that affect people's long-term plans to use e-government services, especially in a growing country like Indonesia (Shuib et al., 2019). The study's results can be used to increase continuous usage of e-government services, benefiting both the government and the people. This study seeks to answer the following research question: "What are the key factors that influence citizens continuance intention to use e-Government 2.0 services in Indonesia?" By addressing this question, this article aims to provide a comprehensive understanding of the factors driving the continuous usage of e-Government services, particularly within the context of e-Government 2.0. This research contributes to the existing literature by combining the Technology Acceptance Model (TAM) with the Expectation-Confirmation Model (ECM) to offer a nuanced perspective on post-adoption technology use in Indonesia. Through this integrated approach, the role of this study is not only to fill a critical gap in the literature but also to offer practical implications for policymakers aiming to enhance the effectiveness and sustainability of e-Government initiatives.

The extent to which consumers use information systems (IS) determines their success. Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behaviour (TPB) (Ajzen, 1991), and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) were studied decades ago to determine why people adopt new IS. While these models are useful for understanding initial adoption, many of these theories may not be adequate for studying continued use (Nabavi et al., 2016). Thus, researchers advocate combining these ideas with other factors to improve their explanatory value.

The ECM was used to find users' continued intention to use a system. Kumar et al. (2018) claim that a new model for IS continued usage was developed by means of an ECM integration with IS research. The ECM relies on elements that affect reliability and retention as it is obvious that the long-term success of any IS depends on post-adoption usage (Wang et al., 2021). Thus, in this study, we propose an integrated model of TAM and ECM to understand the determinants of continuous utilization of e-Government services.

Our study has several contributions. First, this study enhances the explanatory power of TAM by combining it with ECM to provide a comprehensive viewpoint of post-adoption technology-related issues in Indonesia, particularly for Online Citizen Aspiration and Complaints Service (LAPOR). Second, this study fills the literature gap by specifically investigating the key drivers of continued usage of e-Government services in Indonesia especially for e-Government 2.0 context. To our knowledge, there has been no research conducted to investigate the key drivers of citizens' continuance intention to use e-Government services in Indonesia based on an integrated model of TAM and ECM. Therefore, this study aims to investigate the factors that influence citizens' continuance intention to use e-Government 2.0 services in Indonesia. This study is structured as follows: Section 2 provides a literature review, theoretical background and hypotheses proposed in this study, while section 3 explains the methodology. Section 4 presents the results, discussion of findings, and implications, followed by Section 5 which provides the conclusion, and limitations and suggests areas for further research.

2. Literature review

2.1. E-government 2.0

Web 2.0 has transformed government service delivery and stakeholder engagement (Gardini et al., 2012). Web 2.0 platforms and tools like blogs, wikis, mashups, microblogs, social networking sites, podcasts, RSS feeds, and video sharing have changed how government and stakeholders interact. Traditional approaches lack these technologies' simplified processes, numerous communication channels, and advanced frameworks (Waters et al., 2009). Web 2.0 also improves stakeholder engagement and government responsiveness. It has made the governments citizen-centric instead of organization-centric. This transformation is achieved by delivering citizen-focused government services and encouraging citizen participation. Web 2.0 helps establish e-Government 2.0 as a citizen-focused paradigm (Napitupulu et al., 2019). It will remove government barriers and increase citizen transparency, openness, and interaction. Citizens consume information and also create, share, remix, and share material (Leino and Puumala, 2021). This shows how citizens are now co-creators in public service innovations, moving from passive recipients to active beneficiaries to improve service quality.

The incorporation of Web 2.0 principles into government settings is called "e-Government 2.0" or "e-Gov 2.0". Web 2.0 technologies are used to improve public engagement with governance. E-Government 2.0 manages the environment decentralized and democratically, unlike e-Government 1.0. Citizens also contribute to content creation. In E-Gov 2.0, communication is interactive and multidirectional.

The main difference between e-Gov 1.0 and 2.0 is the level of involvement. In e-Gov 1.0, public interaction is limited to email and a simple interactive form. E-Gov 2.0 makes participation more inclusive and cooperative. Citizens are key knowledge and information producers in policymaking (Santhanamery and Ramayah, 2014). There is strong evidence that e-government 2.0 has transformed government (Pinem et al., 2018). Public bodies are utilizing new ways to engage with citizens to improve operational efficiency and be more proactive.

In this study, Indonesia's Ministry of Administrative Reform and Bureaucratic Reform (Menpan-RB) uses e-Government 2.0 to improve public services. Menpan-RB's Online Citizen Aspiration and Complaints Service (LAPOR) allows the public to submit complaints, aspirations, criticism, and ideas about public service issues online. The LAPOR application integrates all public service complaints into one application and sends them to the necessary public service providers for follow-up and correction. Many public reports are received, yet problems are not resolved quickly (Iqbal and Virginia, 2020). Until now, there were no policies or consequences against authorities who ignore reports. Thus, citizens underused the system. The complaints process has failed to encourage public interaction (Napitupulu et al., 2020). When individual complaints are treated seriously, satisfaction increases and service use rises (Bhattacherjee, 2001).

2.2. Research model & hypotheses development

To understand Indonesian e-government service use continuity, this study presents the integrated ECM and TAM model. Research shows that human behaviour towards technology acceptance is multi-faceted and requires an integrated strategy (Shen et al., 2010). In contrast to models based on a single theory, integrated models provide a comprehensive and inclusive knowledge of the causal mechanism behind interactions (Rahi et al., 2019; Thusi and Maduku, 2020). This suggests that integrating ECM and TAM will provide a holistic view of post-adoption technological concerns in Indonesia.

The literature on TAM is substantial. TAM, an information service theory, was proposed by Davis (1989) and describes how consumers adopt and use a technology (Yusuf Dauda and Lee, 2015). Applications of TAM include Telemedicine (Hu et al., 1999); mobile internet (Hong et al., 2006); and digital libraries (Hong et al., 2002). TAM posits that perceived usefulness (PU) and perceived ease of use (PEOU) impact a person's attitude toward adopting information technology. However, TAM cannot capture post-adoption user behaviour, according to (Joo et al., 2018). Thus, researchers advocate combining TAM with other factors to improve its explanatory value.

The Expectation Confirmation Model (ECM) was introduced by (Bhattacherjee, 2001) to describe users' behaviour in continuance use of new information system (IS). (Bhattacherjee, 2001) adapted Expectation Confirmation Theory (ECT) which was developed previously by (Oliver, 1980) in the domain of consumer behaviour and marketing literatures. ECM assesses IS usage loyalty and intention to continue using the system. Based on the phenomenon of why some users of information systems stop using them after initially accepting them (acceptance-discontinue anomaly), ECM has a great capability to explain what factors influence people's willingness to continue

using IS in an ongoing basis (Bhattacherjee, 2001). The concept of continuance use of IS is considered more relevant than initial use or acceptance only because it is vital to ensure the Success of IS in the long term (Pinem et al., 2018). The survival of business entities is also determined by how many users repurchase or renew subscriptions for specific software. According to Alalwan (2013), the optimum benefit of IS can only be achieved if the users continue to use the IS.

As shown in **Figure 1**, this study will integrate both the TAM and ECM model to investigate key drivers of continuance intention to use e-Government services in Indonesia. **Figure 1** represents the research model of the study.

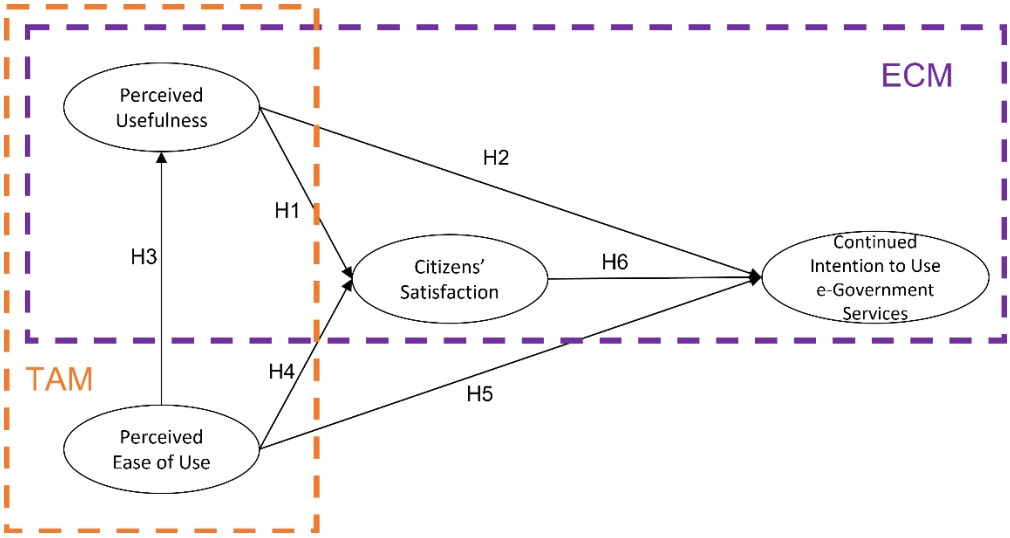

Figure 1. Research model.

2.2.1. Perceived usefulness (PU)

Davis (1989) defines PU as "the degree to which an individual believes that using the Information System (IS) will increase his/her job performance within an organizational context". According to the Technology Acceptance Model (TAM), PU is a crucial determinant of users' behavioral intentions to use a system. When users perceive a system to be useful, they are more likely to be satisfied with its performance, which in turn enhances their intention to continue using the system (Davis, 1989; Venkatesh et al., 2003).

Moreover, the Expectation-Confirmation Model (ECM) extends this understanding by suggesting that continued use of a system is influenced by users' satisfaction, which arises from the confirmation of their expectations about the system's PU (Bhattacherjee, 2001). When users' expectations of the e-Government services are met or exceeded, particularly in terms of the perceived usefulness (PU) they gain from using the system, their satisfaction increases, reinforcing their intention to continue using the service.

In this survey, PU refers to how much respondents think e-Government services may help them report grievances and aspirations. Previous studies have revealed that PU significantly affects e-Government service satisfaction (Santhanamery and Ramayah, 2014; Pinem et al., 2018). These studies found that citizens were more satisfied if they saw more service benefits, and they were more likely to reuse the system regularly. According to Hernandez-Ortega et al. (2014) PU significantly

affects satisfaction. Research by (Puthur et al., 2020) found that PU affects Indian government railroads' e-ticketing continuance usage. (Hossain and Quaddus, 2012) revealed that the PU was the most common predictor of information system research continuation. Additionally, Santhanamery and Ramayah (2014) demonstrated that the PU affects users' continuing intention. In this study, citizens need to understand the e-government system as a tool that can improve their lives in this study. They are more likely to repeat actions with higher PU in e-government. Thus, we propose the following hypotheses as follows:

H1: PU has a significant influence on satisfaction.

H2: PU has a significant influence on continuance intention to use.

2.2.2. Perceived ease of use (PEOU)

PEOU measures an individual's perception that utilizing a given technology would be easy (Davis, 1989), meaning that easy-to-use technology is more helpful (Iranmanesh et al., 2017). Phuong et al. (2020) found that PEOU strongly impacts customer satisfaction, as users are more likely to embrace and enjoy easy-to-use technology. Several authors have focused on PEOU and PU's positive association (Abbasi et al., 2021; Foroughi et al., 2019). According to Davis (1989), PEOU has a positive effect on PU. The easier a system is to use, the more beneficial it is, and hence TAM suggests PEOU influences PU. Since this research focuses on continuing intention to use e-government services, a citizen who has used them is more likely to readily reuse them and to embrace new ones. Venkatesh et al. (2011) revealed that PEOU positively affects e-government continuing intention. In this study, PEOU is anticipated to positively affect e-government service continuation intention. Thus, we propose the following hypotheses as follows:

H3: PEOU has a significant influence on PU.

H4: PEOU has a significant influence on satisfaction.

H5: PEOU has a significant influence on continuance intention to use.

2.2.3. Satisfaction

Bhattacherjee (2001) defines satisfaction as "users affect with (feelings about) prior information system use". Customer satisfaction is often used to predict product repurchase in consumer behaviour research. Customer satisfaction is key to long-term loyalty (Oliver, 1980). ECM proposes that user satisfaction with information system utilization influences their continuance intention. Satisfaction also explains the IS acceptance-discontinue anomaly, which occurs when people cease using IS after initial acceptance, a common phenomenon in current IS use study. (Bhattacherjee, 2001) stated that satisfied IS consumers will continue to utilize IS. If users are unsatisfied with IS, they may stop using it. Several scholars have studied the positive association between user satisfaction and sustained intention in online banking (Bhattacherjee, 2001), electronic filing (Veeramootoo et al., 2018), electronic medical records (Veeramootoo et al., 2018) and enterprise resource planning (Chou and Chen, 2009). Previous research also shows that satisfaction is a predictor of e-Government service continuing intention (Santhanamery and Ramayah, 2014; Pinem et al., 2018). Therefore, we propose the following hypotheses as follows:

H6: Satisfaction has a significant influence on continuance intention to use.

3. Methodology

3.1. Instrument design

Data was collected by using questionnaire to test the research model. To ensure survey content validity, all concept measurements were developed from previous literature. A five-point Likert scale with values ranging from 1 ('strongly disagree') to 5 ('strongly agree') was used. The questionnaire was composed of two sections. Section 1 collected user demographics including gender, age, and education. In Section 2, participants were asked to rate e-government services using PEOU, PU, satisfaction, and continuance intention to use. **Table 1** shows that the measurements for PEOU were derived from (Abdul Rahim et al., 2023), PU items from (Davis, 1989), satisfaction scales from (Belanche et al., 2014) and continuance intention to use items from (Afrizal and Wallang, 2021). A pre-test was conducted to validate and assess the questionnaire's interpretability and clarity before distribution.

Table 1. Research instrument.

Construct	Item	Statement	Reference
Perceived Ease of Use (PEOU)	PEOU1	"Learning to operate LAPOR—e-government services is easy for me"	(Abdul Rahim et al., 2023)
	PEOU2	"The pertinent task can be easily completed using LAPOR—e-government services"	
	PEOU3	"My interaction with LAPOR—e-government services is clear and understandable"	
Perceived Usefulness (PU)	PU1	"Using LAPOR—e-government services is advantageous for me"	(Davis, 1989)
	PU2	"I find LAPOR—e-government services to be useful"	
	PU3	"Using LAPOR—e-government services would improve the quality of the task I performed"	
Satisfaction (SAT)	SAT1	"Overall, I am satisfied with LAPOR—e-government services"	(Belanche et al., 2014)
	SAT2	"In my opinion, using LAPOR—e-government services are one of the best decisions"	
	SAT3	"I have a satisfying experience in using LAPOR—e-government services"	
Continuance Intention to Use (CI)	CI1	"I will use LAPOR—e-government services in the future"	(Afrizal and Wallang, 2021)
	CI2	"I intend to continue using LAPOR—e-government services rather than discontinue its use"	
	CI3	"I would like to continue using LAPOR—e-government services as much as possible"	

3.2. Data collection & analysis

This study collected variable data using a structured questionnaire. Indonesians were asked to complete an online questionnaire. This survey includes Indonesians who have used LAPOR e-Government services. The survey lasted two months, from March to April 2024. The online community service site LAPOR serves as a platform to express ambitions and grievances. LAPOR is a complaint service with a website (https://www.lapor.go.id/) and Android and iOS apps. According to Almahamid & McAdams (2010), convenience sampling was used. To determine the sample size for

this study, we refer to Pinem et al. (2018) and multiply ten by the largest independent variable to get a latent variable (Urbach and Ahlemann, 2010). This study has three independent variables that lead to latent variables. Thus, the minimal sample size in this study is 30.

Before conducting the analysis, we checked for incomplete responses, irrelevant answers, or responses that showed patterns of haphazard filling such as the same answer for all questions. These responses were carefully identified and excluded from the dataset to ensure that only valid and reliable data were included in the analysis. In total, 217 of 245 online replies were suitable for analysis. Among them, 48.39% were women and 51.61% were men, as shown in **Table 2**. Most respondents (57.14%) were between 26 and 35 years old, followed by those (26.73%) between 36 and 45 years old. Bachelor's degrees were held by 118 respondents (54.38%), while postgraduate degrees were held by 29.03%.

Partial least squares (PLS) with SmartPLS 3.0 were used to test the hypotheses (Sarstedt et al., 2021). PLS is preferred over covariance-based SEM for the current research because it evaluates how well exogenous constructs predict endogenous constructs (Kim et al., 2019; Minh et al., 2019). PLS-SEM was also utilized since it can address typically distributed data problems with small samples size (Nabavi et al., 2016). Following the method of Anderson and Gerbing (1988) study, this study examined the measurement model first, then the structural model (Ali et al., 2019; Foroughi et al., 2019).

Table 2. Demographic of respondents.

Demographic Factors	Category	Frequency	%
Gender	Male	112	51.61
	Female	105	48.39
Age	Below 26	13	5.99
	26–35	124	57.14
	36–45	58	26.73
	46–55	12	5.52
	Above 55	10	4.61
Education	High School	11	5.07
	Diploma	25	11.52
	Bachelor	118	54.38
	Post Graduate	63	29.03

4. Result and discussion

4.1. Results

The first result provided measurement model analysis, which tests each construct's validity and reliability. The second result shows structural model analysis to test six study hypotheses.

4.1.1. Measurement model

The measurement model stage assesses convergent validity and reliability for the

three study constructs. Factor loading and average variance extracted (AVE) determine convergent validity, while composite reliability determines reliability. According to Hair Joseph et al. (2010), the factor loading for each item must be greater than 0.7, AVE greater than 0.5, and CR greater than 0.7 to fulfill dependability. **Table 3** shows that factor loading, AVE, and CR are above the required thresholds. Convergent validity and reliability test results fulfill the requirements.

Table 3. The result of measurement model.

Construct	Item	Convergent Validity		
		Factor Loading	**AVE**	**Composite Reliability**
PU	PU1	0.920	0.859	0.924
	PU2	0.924		
	PU3	0.930		
PEOU	PEOU1	0.851		
	PEOU2	0.910	0.729	0.889
	PEOU3	0.796		
SAT	SAT1	0.858	0.679	0.864
	SAT2	0.778		
	SAT3	0.834		
CI	CI1	0.838	0.733	0.892
	CI2	0.879		
	CI3	0.851		

Additionally, the square root AVE value is used to evaluate discriminant validity. When the square root AVE value of a construct exceeds the correlation value with other constructs, discriminant validity is established (Fornell and Larcker, 1981). The results indicate that discriminant validity was met, as illustrated in **Table 4**.

Table 4. Discriminant validity.

Construct	CI	PEOU	PU	SAT
CI	**0.856***			
PEOU	0.638	**0.854***		
PU	0.480	0.579	**0.927***	
SAT	0.696	0.777	0.580	**0.824***

*Square root AVE.

4.1.2. Structural model

Structural model evaluation examines the relationship between hypothesized constructs in **Figure 1**'s study model. R^2 and path analysis significance were calculated to demonstrate data support for the hypothesis (Santhanamery and Ramayah, 2014). Higher predictive accuracy is associated with a higher R^2 value between 0 and 1. **Table 5** shows that PEOU, PU, and satisfaction explain 51.1% of the variance in continuation intention to use. However, PEOU and PU explain 62.9% of satisfaction. In addition, PEOU explains just 33.6% of PU variation. A good model must have R^2 greater than 26% (Hair Joseph et al., 2010), therefore the findings are

excellent. The endogenous construct's R^2 value is greater than the indicated value, indicating that all constructs have good model explanatory power (**Table 5**).

Table 5. The value of R^2 (determination coefficient).

Endogent Latent Variable	Perceived Usefulness (PU)	Satisfaction (SAT)	Continuance Intention to Use (CI)
R^2	0.336	0.629	0.511

To test six hypotheses in this structural model, the path coefficient value (β), *T*-Statistic, and significance (*P*-Value) must meet requirements to support the suggested hypothesis. The path coefficient indicates the strength of the link between two constructs (Hair Joseph et al., 2010). Path coefficient must be larger than 0.1 with significance of 0.05 or less. Also, T-Statistic should be bigger than 1.96. The results from **Figure 2** and **Table 6** indicate that the Perceived Usefulness (PU) construct significantly impacts Satisfaction (SAT), as hypothesized in H1 ($\beta = 0.195$, *T*-statistic = 4.222, $p < 0.05$). Additionally, Perceived Ease of Use (PEOU) is significantly correlated with PU (H3, $\beta = 0.579$, *T*-statistic = 14.853, $p < 0.05$), SAT (H4, $\beta = 0.665$, *T*-statistic = 15.724, $p < 0.05$), and Continuance Intention (CI) (H5, $\beta = 0.222$, *T*-statistic = 2.395, $p < 0.05$). Moreover, SAT significantly affects CI as predicted by H6 ($\beta = 0.481$, *T*-statistic = 5.505, $p < 0.05$). However, our analysis revealed that PU does not have a significant impact on CI, contrary to the hypothesis H2 ($\beta = 0.073$, *T*-statistic = 1.176, $p > 0.05$), which contradicts the Expectation-Confirmation Model (ECM) that suggests that PU should influence continuance intention.

The key findings from this analysis highlight that Satisfaction (SAT) is the strongest predictor of Continuance Intention (CI) compared to Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Contrary to expectations, PU does not significantly impact CI (H2), indicating that while users may recognize the benefits of the service, these benefits alone are not sufficient to drive continued usage. Furthermore, the results reveal that PEOU has a more significant impact on SAT than PU, underscoring the importance of ease of use in enhancing user satisfaction.

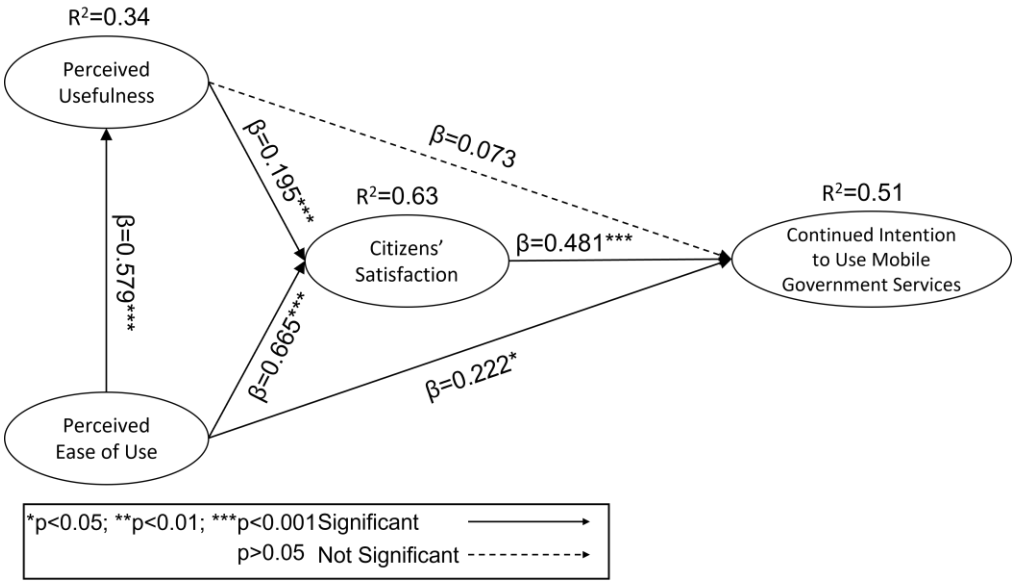

Figure 2. Structural model.

Table 6. Hypotheses testing.

Hyphoteses	Path	Path Coefficient (*β*)	*T*-Statistic	*P*-Value	Result
H1	PU → SAT	0.195	4.222	0.000	Significant
H2	PU → CI	0.073	1.176	0.240	Not Significant
H3	PEOU → PU	0.579	14.853	0.000	Significant
H4	PEOU → SAT	0.665	15.724	0.000	Significant
H5	PEOU → CI	0.222	2.395	0.017	Significant
H6	SAT → CI	0.481	5.505	0.000	Significant

4.2. Discussion

H1: Perceived Usefulness (PU) has a significant impact on Satisfaction (SAT).

Based on the analysis results, this hypothesis is supported, as Perceived Usefulness (PU) has a significant impact on user satisfaction (SAT) with a path coefficient of 0.195 and a *T*-statistic value of 4.222. This indicates that users feel satisfied using e-Government services when they find the services beneficial to them. In the context of LAPOR, users who perceive that the platform effectively helps them report complaints and aspirations tend to feel higher satisfaction. This underscores the importance of ensuring that e-Government services provide clear and tangible benefits to users. This finding is consistent with previous studies (Abdul Rahim et al., 2023; Pinem et al., 2018). These studies reported that the usefulness of a system directly contributes to user satisfaction, which in turn can enhance the intention to use the service continuously.

H2: Perceived Usefulness (PU) does not have a significant impact on the Continuance Intention (CI) to use the e-Government service.

This hypothesis is not supported in this study, with a path coefficient of 0.073 and a *T*-statistic value of 1.176. This indicates that PU does not significantly influence the continuance intention to use the service. Although PU is important in increasing user satisfaction, it does not directly impact users' continuance intention to keep using e-Government services. This finding is interesting because it contradicts the traditional understanding in ECM, which suggests that PU is a strong predictor of continuance intention. One reason could be that users prioritize ease of use and overall satisfaction over perceived usefulness in the context of the LAPOR system. In other words, the lack of a direct relationship between PU and continuance intention may suggest that users consider the benefits of the service to be ordinary or that other criteria, such as ease of use and satisfaction, influence their decision-making. This highlights the complexity of post-adoption user behavior and suggests that while perceived benefits are significant, ease of use and positive user experience play a more crucial role in influencing long-term engagement.

H3: Perceived Ease of Use (PEOU) has a significant impact on Perceived Usefulness (PU).

This hypothesis is supported, as the research results show that PEOU has a significant impact on PU with a path coefficient of 0.579 and a *T*-statistic value of 14.853. This suggests that the easier the LAPOR system is to use, the higher its perceived usefulness by users. This finding strengthens the TAM model, which indicates that ease of use enhances users' perception of the usefulness of a system

(Davis, 1989). Users who find the system easy to use tend to see it as a more useful tool, which in turn increases satisfaction and intention to continue using the service (Abbasi et al., 2021; Foroughi et al., 2019). In the case of LAPOR, an intuitive and easy-to-use interface contributes to users' perception that the system is more beneficial, further reinforcing the need for user-centered design in e-Government platforms.

H4: Perceived Ease of Use (PEOU) has a significant impact on Satisfaction (SAT).

This hypothesis is supported, as PEOU has a significant impact on user satisfaction with a path coefficient of 0.665 and a *T*-statistic value of 15.724. This finding indicates that ease of use is a key factor in creating a satisfying user experience. Users who find that they can easily use the LAPOR system tend to feel more satisfied with the services provided. Therefore, ensuring that the platform is easy to navigate and use is crucial for driving a positive user experience and satisfaction, which in turn encourages sustained usage. This finding is consistent with previous research emphasizing the importance of PEOU in enhancing user satisfaction with new technology, highlighting the crucial role of ease of use in user satisfaction (Phuong et al., 2020).

Moreover, PEOU surprisingly influences satisfaction more than PU, according to one of the key findings in this paper. PEOU has a greater impact on satisfaction than PU, indicating that a user-friendly interface and ease of interaction are highly important for user satisfaction. This is crucial in e-Government services, where a diverse user demographic may have varying levels of technological proficiency. Therefore, making e-Government platforms easy to use can significantly increase user satisfaction and encourage sustained usage. This finding is in line with Shah and Attiq (2016) research, which also found that PEOU has a higher impact on satisfaction than PU. Their study reported that PEOU is key to high user satisfaction. New technology must be high-quality and easy to use for users to be satisfied.

H5: Perceived Ease of Use (PEOU) has a significant impact on Continuance Intention (CI) to use the e-Government service.

This hypothesis is supported with a path coefficient of 0.222 and a *T*-statistic value of 2.395. This finding suggests that the perception of ease of use directly affects the intention to continue using e-Government services. This indicates that users who find the system easy to use are more likely to intend to continue using the service in the future. A user-friendly system design is crucial for retaining users in the long term. Users who feel comfortable with and find it easy to use the system are more likely to continue using the service, even over a long period. This finding aligns with previous studies (Razak et al., 2017; Wangpipatwong et al., 2008). These studies found that PEOU has a significant impact on the intention to continue using e-Government services.

H6: Satisfaction (SAT) has a significant impact on Continuance Intention (CI) to use the e-Government service.

This hypothesis is also supported, as satisfaction has a significant impact on continuance intention to use e-Government services with a path coefficient of 0.481 and a *T*-statistic value of 5.505. This finding indicates that a satisfying user experience is a key factor in ensuring the continuity of service usage. Users who feel satisfied

with e-Government services tend to have a strong intention to continue using the services. This finding is consistent with previous research on the behavior of government-to-business (G2B) online service users (Pinem et al., 2018; Puthur et al., 2020). These studies found that satisfaction affects their intention to use the service on an ongoing basis. They concluded that if people are satisfied, they will show a greater intention to continue using the product or service, in this case, e-Government services, on an ongoing basis.

In addition, of all the predictors of continuance intention in this study, satisfaction is proven to be the strongest predictor of continuance intention to use e-Government services. This finding is in line with the ECM theory, which emphasizes the importance of user satisfaction in maintaining system usage continuity (Bhattacherjee, 2001). It posits that an individual's intention to continue IT usage depends on the users' level of satisfaction (Olivia and Marchyta, 2022). In other words, ECM argues that the most important determinant of continuance intention is user satisfaction. In the context of LAPOR, this means that maintaining a high level of user satisfaction is essential for sustaining long-term engagement with the platform.

4.3. Theoretical & managerial implication

This study makes significant theoretical advances in e-Government services and technology adoption models. First, it integrates the Technology Acceptance Model (TAM) with the Expectation Confirmation Model to improve its explanation. This integrated approach provides a better understanding of e-Government service consumers' post-adoption behaviour, notably continuance intention. The study addresses the constraints of TAM, which focuses on initial adoption, and ECM, which stresses post-adoption behaviour, by integrating these two models. The findings show that perceived ease of use (PEOU) and satisfaction drive continuance intention, underscoring the need to examine pre- and post-adoption aspects in technology acceptance and use.

The study also addresses e-Government services in Indonesia, a developing country, filling a gap in the literature. Previous research has focused on developed countries, creating a gap in understanding how these models work in varied socio-economic contexts. Unlike other studies, perceived usefulness (PU) did not significantly affect continuance intention. This suggests that cultural and contextual factors may influence user behaviour towards e-Government services.

Policymakers and practitioners developing and implementing e-Government services can benefit from the study's managerial insights. PEOU's impact on satisfaction and continuance intention emphasizes the need for user-friendly interfaces. To enhance usability, governments should prioritize creating user-friendly e-Government platforms. User-centered design, usability testing, and user input can improve the interface.

The findings also show that user satisfaction is crucial for e-Government service use. Managers should prioritize reliable, efficient, and responsive services to improve user experience. Addressing user complaints and feedback promptly can increase satisfaction and platform engagement. Additionally, the study suggests that while perceived usefulness is important, it is not sufficient on its own to drive continuance

intention. Therefore, efforts should also be directed towards ensuring that users have positive and satisfying experiences with the services. Finally, the study emphasizes the need for tailored communication strategies to raise awareness about the benefits of e-Government services. This includes educating citizens on how these services can simplify their interactions with the government and improve service delivery. Effective communication can help bridge the gap between initial adoption and continued use by reinforcing the value and advantages of using e-Government platforms.

5. Conclusion

This study used an integrated model of the ECM and TAM to examine the drivers of continuance intention to utilize e-Government services, specifically the Online Citizen Aspiration and Complaints Service (LAPOR) in Indonesia. The findings shed light on user behaviour and the variables that keep people using e-Government services. This method emphasizes the need to incorporate pre- and post-adoption aspects in technology acceptance and usage studies to better understand user behavior. This study advances the theory of e-Government service uptake and informs policymakers and service creators. E-Government services can increase continuous usage by focusing on user-friendly design and user satisfaction, benefiting the government and its citizens. The study emphasises ongoing improvement and user-centered design in e-Government services to encourage long-term use.

Both perceived usefulness (PU) and citizen satisfaction were significantly influenced by perceived ease of use (PEOU). E-Government services should be user-friendly and easy to navigate to improve user experience and satisfaction. The results demonstrated that easy-to-use services increase user satisfaction and continued intention. Satisfaction was the strongest indicator of e-Government service utilization. According to the ECM hypothesis, prior user satisfaction strongly influences system utilization. Thus, e-Government platforms must provide responsive and reliable services to maintain citizens' satisfaction. It was surprising that perceived usefulness (PU) did not directly affect continuance intention. This implies that while users appreciate the benefits of e-Government services, ease of use and satisfaction are more important in their decision to continue using them. This contrasts with prior studies and shows the intricacy of post-adoption user behavior.

Policy implications: This study has several implications for policymakers. First, given that perceived ease of use (PEOU) significantly influences both satisfaction and continuance intention, policymakers should prioritize the development of e-Government platforms that are intuitive and easy to navigate. Regularly testing the platform and listening to user feedback will help keep it easy to navigate, which will encourage more people to keep using it. Second, since satisfaction is identified as the strongest predictor of continuance intention, ensuring high service quality should be a key policy focus. This involves providing reliable, responsive, and efficient services that meet user expectations. Quickly addressing complaints and feedback will help increase user satisfaction and make them more likely to continue using the e-Government services. Third, although perceived usefulness (PU) alone does not directly drive continuance intention, it is still an important factor for user satisfaction.

Therefore, communication strategies should be broadened to educate citizens about the tangible benefits of e-Government services. Finally, different people have different needs. The government should consider creating specific strategies for different groups of users. This might mean personalizing the user experience or providing extra support for those less familiar with technology.

Research limitation: Despite its findings, this study has certain limitations. First, the study used convenience sampling, which may restrict generalizability. Second, this research focused on the Indonesian e-Government service context. The cultural, sociological, and technological context of Indonesia may limit the applicability of the findings to other countries or e-Government services. Third, while the study focused on ease of use, usefulness, and satisfaction as predictors of continuance intention, it did not include control variables, which may limit the ability to fully isolate the effects of the primary variables under investigation. The absence of control variables means that external factors not accounted for in the model may have influenced the results. Finally, the study's cross-sectional methodology limits causal assumptions, as this study discovered correlations based on one-time associations.

Future research direction: This study integrated the Technology Acceptance Model (TAM) and Expectation Confirmation Model (ECM) to understand the continuance intention of e-Government services. Future research could incorporate additional constructs such as perceived trust, privacy concerns, and government transparency. These factors are particularly relevant in e-Government contexts, where user trust in government systems can significantly influence continued usage. Furthermore, future research should consider including control variables to better isolate the effects of the primary constructs under investigation. Incorporating control variables could enhance the validity of the findings by accounting for external factors that may influence the relationships being studied. In addition, this research concentrated on the Indonesian setting, which has unique cultural, socio-economic, and technological characteristics. Future studies could compare these findings across different countries or regions to understand how cultural and contextual factors influence the continuance intention of e-Government services. Such comparative studies could provide a broader understanding of user behavior in diverse settings. Finally, the cross-sectional design of this study makes it hard to determine cause-and-effect relationships between variables over time. Future research should use longitudinal designs to track changes in user perceptions and behaviors regarding e-Government services. This approach would help to better understand how user satisfaction and continued use change over time.

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