

The Implementation of E-Governance in Enhancing Efficiency, Transparency, and Accountability in South Buton Regency, Indonesia

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ABSTRACT

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This research seeks to investigate the effects of supporting and inhibiting factors on the effectiveness of e-governance processes and, consequently, the ability of these processes to improve efficiency, transparency, and accountability in local government, employing the South Buton Regency as an empirical case. A quantitative explanatory design was utilized through the use of questionnaires distributed electronically and physically to 329 civil servants. Measurement items for the theoretical constructs were adopted based on previous literature and were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the aid of SmartPLS 4.0 to evaluate both the measurement and structural models. The findings indicate that supporting factors play an important role in improving the effectiveness of e-governance processes, with inhibiting factors also having a considerable impact. Moreover, the e-governance process is highly effective in increasing efficiency, transparency, and accountability in local government, suggesting its essential nature as the mediating mechanism of digital governance. Efficiency has been found to have the most pronounced impact, followed by transparency and accountability. This study makes a valuable contribution to theory by establishing an integrative model incorporating antecedents, the process itself, and outcomes simultaneously within one framework. Besides, it extends theoretical knowledge by illustrating the double impact of inhibiting factors and clarifying the mediating role of e-governance in ensuring good governance in underdeveloped areas.



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INTRODUCTION

Fast-paced development of the digital technology has radically changed the face of governance in public sector organizations and urged them to utilize innovative solutions (Faro et al., 2022; Ylinen, 2021). E-governance, as the utilization of ICT technology, becomes one of the important means to optimize operations of governmental agencies and to achieve higher levels of efficiency, transparency, and accountability. Digital technologies allow to ease administrative burden, automate the processes, and make the work more citizen-oriented (Tkachenko et al., 2025). Recently published studies show that the transition towards digitalization is crucial to improve institutional performance and make public services more responsive to the needs of citizens (Maheshwari, Mohan, & Mishra, 2025; Bhandaria & Bhatt, 2025). Therefore, e-governance becomes a core element of current public administration reform.

In the case of developing countries like Indonesia, the introduction of digital technologies plays an important role in boosting bureaucratic efficiency and promoting effective governance. Currently, the Indonesian government has introduced the concept of the electronic-based government system called SPBE. This policy focuses on integrating information systems and making the work of public administrations more oriented towards citizens. Nevertheless, even though there are clear attempts to introduce e-governance policies, many developing countries, especially at the local level, face challenges to implement these policies successfully. Empirical research proves that such factors as insufficient budget, lack of IT skills, and weak infrastructure can significantly hinder implementation of digital systems in governmental agencies (Saragih et al., 2023; Rokon-UI-Hasan & Monem, 2013).

E-governance processes occur under the influence of various factors that support or inhibit digitalization of governance. The former include commitment to change, strong information infrastructure, favorable legal and regulatory environment, and adequate citizen's knowledge about the functioning of digital systems. In its turn, such inhibiting factors as budgetary constraints, reluctance to change, low level of technological literacy, and issues with security of personal data significantly affect the ability of an organization to introduce and utilize new technologies effectively. Thus, both enabling and constraining factors play a significant role in the implementation of e-governance processes, so they should be considered jointly when evaluating these processes.

It is important to choose a proper case to demonstrate the effect of implementing e-governance processes on several governance-related outcomes. South Buton Regency can serve as a good choice for this purpose because according to the recent evaluation (Mutiarin et al., 2024), its performance measured by the SPBE index has steadily improved for the last three years. Table 1 demonstrates that during this period, the SPBE index increased from 1.59 in 2022 to 2.78 in 2024. This table shows an increase from the category "poor" to the category "fair". Though the process is evident, its results fall behind those expected in terms of efficiency of public services provided by local governments. Therefore, there is a need to conduct further research concerning the role of supporting and inhibiting factors in implementing e-governance.

Table 1. SPBE Index of South Buton Regency (2022–2024)

Year	SPBE Index Score	Category
2024	2.78	Fair
2023	2.18	Poor
2022	1.59	Poor

Source: Evaluation Report on the SPBE of the Ministry of State Apparatus and Bureaucratic Reform of the Republic of Indonesia, 2025

From the theoretical perspective, there is a correlation between e-governance processes and certain aspects of governance. Specifically, e-governance allows to boost the efficiency, transparency, and accountability of governmental bodies and to increase their efficiency. Thus,

these characteristics are commonly used as indicators of public sector performance (Wirata et al., 2025; Kästik, 2019; Febriyanti et al., 2023). In addition to it, diffusion of innovation theory can serve as a proper framework to understand the adoption of technological innovations in the organizational context. Also, digital governance framework is helpful in examining implementation of digital technologies (Manoorkar & Yampe, 2025; Sujith & Sumathy, 2023). All these theoretical backgrounds will contribute to the analysis of the implementation of digital technologies in South Buton Regency.

However, there are still some gaps in the existing literature regarding the simultaneous examination of supporting and inhibiting factors in their influence on the process of implementing e-governance and on their impact on governance outcomes. Most of previous research papers were centered on the examination of either technological or organizational issues without combining these two factors in a single framework. Also, only few researchers have analyzed the mediating effect of e-governance process on relationship between antecedent factors and governance outcomes (efficiency, transparency, and accountability). Thereby, it is necessary to fill in these gaps to enrich the field with new research findings and to promote theoretical development of digital governance.

Thus, the aim of this paper is to investigate how supporting and inhibiting factors influence the process of implementing e-governance and to examine whether e-governance positively affects efficiency, transparency, and accountability in the case of South Buton Regency. PLS-SEM methodology will be employed to achieve the research objectives. An integrative model will be created, which will incorporate antecedent variables, mediators, and outcome variables. Such an approach will be novel to the current body of literature and make a substantial contribution to the theoretical development of e-governance.

Considering above-stated theoretical background and existing findings, the following hypotheses should be tested:

- H1. Supporting factors positively and significantly enhance the effectiveness of the e-governance process.
- H2. Inhibiting factors significantly shape the effectiveness of the e-governance process by creating adaptive pressure within the organization.
- H3. The effectiveness of the e-governance process positively and significantly improves public sector efficiency.
- H4. The effectiveness of the e-governance process positively and significantly enhances transparency in public administration.

The effectiveness of the e-governance process positively and significantly strengthens accountability in public administration.

METHOD

Study Context and Data Collection Stages

This study implements the quantitative explanatory research method with the application of online/offline survey to collect the primary data from respondents. Mixed online and offline survey techniques will enhance data reliability and help cover different demographics. They also reduce sampling biases that may occur while selecting respondents for the study (Schillewaert & Meulemeester, 2005; Vera et al., 2022). Data collection took place within a period of two months from January to February 2025, focusing on civil servants (PNS) in South Buton Regency. This area serves as the context for studying the implementation of e-governance because it strives to introduce electronic-based government systems (SPBE).

Data collection was implemented with a combination of online surveys conducted via WhatsApp and email as well as offline surveys through face-to-face interviews and

questionnaires. Both offline and online surveys ensured inclusiveness of respondents with regard to their digital access abilities and allowed for cross-checking of answers collected through different means. Earlier studies show that a mixture of online and offline surveys increases data quality and response rate (Heerwegh, 2005; Sauermann & Roach, 2013). Thus, there were 329 participants who comprised the sample and met the minimum sample size requirements for structural equation modeling analysis.

Table 2. Demographic information of respondents

Respondents		Number	Percent
Gender	Male	185	56.23%
	Female	144	43.77%
Age	≤ 20	29	8.81%
	21–29	132	40.12%
	30–39	89	27.05%
	40–49	46	13.98%
	≥ 50	33	10.03%
Education	Below high school	16	4.86%
	High school	112	34.04%
	Bachelor's degree	155	47.11%
	Postgraduate degree	46	13.98%
Daily internet usage	≤ 2 hours	35	10.64%
	2–4 hours	68	20.67%
	5–7 hours	110	33.43%
	≥ 8 hours	116	35.26%
	≥ 1 year	8	2.43%
Experience using the internet	2–5 years	45	13.68%
	6–10 years	129	39.21%
	≥ 10 years	147	44.68%

Source: Primary Data Processing, 2025

The demographic information of the respondents can be found in Table 2. It shows key characteristics of respondents in terms of their gender, age, education, digital engagement level, and other factors. As the table suggests, the respondents represent the productive age group and possess relatively high levels of education, primarily the secondary one, as well as bachelor degrees. Besides, most respondents engage actively with digital devices since they use the Internet daily and already have several years of experience with it. Hence, the respondents possess adequate digital background that makes them eligible for evaluating the SPBE process.

Questionnaire Design and Measurement Items

The questionnaire design in this study is based on an integration of theoretical frameworks such as digital governance theory, diffusion of innovations theory, and good governance. This integration creates a conceptual foundation for studying the relationships between supportive factors, inhibitory factors, e-governance process, and governance effects. All measurement items are adopted from earlier studies and, thus, ensure the content validity and theoretical relevance of the constructs.

Table 3. Measurement items and sources

Variable	Code	Measurement items	Source
Supporting Factors (X1)	X1.1	The quality of human resources (government staff) supports the implementation of e-governance.	(Damrongrat et al., 2025; Maheshwari, Mohan, & Mishra, 2025; Rokon-Ul-Hasan & Monem, 2013; Saragih, Nurmandi,
	X1.2	Adequate IT infrastructure is available to support digital governance systems.	
	X1.3	Policies and regulations support the implementation of e-governance.	

Variable	Code	Measurement items	Source
Inhibiting Factors (X2)	X1.4	Organizational culture encourages the adoption of digital systems.	Misran, & Subekti, 2023)
	X1.5	Leadership provides strong support for e-governance initiatives.	
	X1.6	Community digital literacy supports the use of e-government services.	
	X2.1	Limited budget constrains the implementation of e-governance.	(Belachew, 2010; Reji, Moulya, & Rajeswari, 2025)
	X2.2	Low digital competence among staff hinders system implementation.	
E-Governance Process (Z)	X2.3	Resistance to change occurs within the organization.	
	X2.4	Data security and privacy concerns affect system adoption.	
	X2.5	Inequality in access to technology limits implementation effectiveness.	
	Z1	Public services are delivered through digital platforms.	(Bhandaria & Bhatt, 2025; Manoorkar & Yampe, 2025; Sujith & Sumathy, 2023; Wirata, Gunawan, Judijanto, Sarmento, & Permono, 2025)
	Z2	Information systems are integrated across government units.	
	Z3	Government interacts with citizens through digital channels (G2C).	
	Z4	Public information is transparently provided through digital systems.	
	Z5	Public participation is facilitated through technology.	
Efficiency (Y1)	Y1.1	E-governance reduces service delivery time.	(Bhandaria & Bhatt, 2025; Kästik, 2019)
	Y1.2	E-governance reduces administrative costs.	
	Y1.3	E-governance optimizes resource utilization.	
Transparency (Y2)	Y2.1	Public information is easily accessible through digital platforms.	(Misra et al., 2025; Wirata et al., 2025)
	Y2.2	Government data and documents are openly available.	
	Y2.3	Information provided is real-time and accurate.	
Accountability (Y3)	Y3.1	Government performance is accountable to the public.	(Febriyanti, Widianingsih, Sumaryana, & Buchari, 2023; Funkhouser & Pu, 2019; McGuire, Prior Jonson, Perryman, & McKeown, 2021)
	Y3.2	Monitoring and evaluation are conducted through digital systems.	
	Y3.3	Performance reports are measurable and transparent.	

Source: Adopted and adapted from the cited literature listed in the Source column.

In this study, the measurement model is developed for six major constructs: Supporting Factors (X1), Inhibiting Factors (X2), E-Governance Process (Z), Efficiency (Y1), Transparency (Y2), and Accountability (Y3). All the constructs consist of multiple indicators measuring different aspects of the investigated variables. In this respect, they are considered reflective in which case changes in latent variables are reflected in indicators.

Five-point Likert scale was used as a tool of respondents' perception measuring. It includes the range of options from 1 to 5 indicating strongly disagreeing to strongly agreeing. Thus, this approach allows quantifying attitudes of people and analyzing variables statistically.

Table 3 shows measurement items adopted from established studies for each construct investigated in the current study. Supporting Factors (X1) involve indicators such as quality of human resources, infrastructure availability, regulatory support, organizational culture, leadership commitment, and digital literacy. Inhibiting Factors (X2) include constraints such as financial resources, lack of digital literacy, resistance to new innovations, data security, and inequality of access. E-Governance Process (Z) is measured through indicators such as digital services, integration, government-citizen communication, transparency of information, and public participation.

Moreover, outcome variables – efficiency, transparency, and accountability (Y1-Y3) – are measured based on the theoretical basis of good governance. The measurement of efficiency involves time-saving, cost-efficiency, and resource optimization indicators. Transparency encompasses such features as access to information, information transparency, and information accuracy. Accountability indicators relate to performance responsibility, monitoring, and reporting.

Before collecting the data, the questionnaire was subject to content validation by experts in digital governance and public administration. Moreover, a pretest was conducted to ensure the reliability of the questionnaire and clarity of all questions. The final questionnaire had satisfactory internal consistency and was ready for further data collection.

Data Analysis Technique

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) for data analysis using SmartPLS 4.0 software. PLS-SEM was selected because the proposed model is predictive and exploratory, includes several latent variables, and aims to explain how antecedent conditions are translated into governance outcomes through an e-governance process. The method is also appropriate for social science survey data because it is robust under non-normal data conditions and enables simultaneous assessment of measurement quality and structural relationships.

The PLS-SEM analysis was conducted in two stages: measurement model assessment and structural model assessment. The measurement model was evaluated using outer loadings, Cronbach's Alpha (CA), Composite Reliability (CR), Average Variance Extracted (AVE), and the Fornell-Larcker criterion. The structural model was assessed using path coefficients, t-statistics, p-values, coefficient of determination (R^2), and model fit indicators, including SRMR and NFI. Following contemporary PLS-SEM reporting guidance, model fit indices were interpreted as supplementary diagnostics rather than as the sole basis for model acceptance, because PLS-SEM primarily emphasizes prediction, theory development, and explanation of variance (Hair et al., 2019).

RESULTS AND DISCUSSION

This part consists of the research results and the researchers are discussed. The results obtained from the research have to be supported by sufficient data. The research results and the discovery must be the answers to the research hypothesis or research question stated previously in the introduction. (Cambria, 11pt, 1 line spacing)

Analytical steps include construct validity testing (AVE, CR, and Cronbach's α), analysis of relationships between latent variables, hypothesis testing, and model fit assessment (SRMR, Chi-Square, and NFI). Multicollinearity and residual distribution checks were conducted to ensure inferential validity. Internal validity was obtained from adequate construct reliability testing, while external validity was maintained through sample distribution that represented the characteristics of institutions and academic staff in the study area.

Descriptive Statistics and Data Distribution

The results obtained show a complex structure of the research question, implying that the distribution of answers in relation to all measurement items has sufficient variability and statistical appropriateness. Thus, based on Table 4, it could be stated that the median values of most indicators are moderately centered, meaning that their distribution is balanced among the sample participants. Moreover, the standard deviation of the answers is mostly moderate and high, which indicates considerable variability in the perception of e-governance implementation among the respondents.

Table 4. Descriptive statistics

Item	Median	Standard Deviation	Excess Kurtosis	Skewness
X1.1	0.033	0.538	2.951	-0.139
X1.2	-0.058	0.570	1.982	-0.595
X1.3	0.042	0.612	2.508	-0.989
X1.4	-0.049	0.496	3.478	-0.787
X1.5	-0.077	0.602	1.792	0.527
X1.6	-0.024	0.683	3.309	-0.821
X2.1	0.101	0.527	12.297	1.049
X2.2	0.036	0.430	0.796	-0.305
X2.3	0.020	0.436	2.811	-0.155
X2.4	-0.062	0.315	1.892	-0.305
X2.5	-0.042	0.351	2.990	0.091
Z1	-0.024	0.509	5.437	-0.053
Z2	0.080	0.554	8.168	-0.958
Z3	0.136	0.454	1.841	-0.810
Z4	-0.195	0.513	2.021	1.070
Z5	-0.025	0.396	3.259	-0.884
Y1.1	-0.010	0.313	1.491	-0.030
Y1.2	-0.023	0.329	5.006	1.230
Y1.3	0.035	0.453	3.863	0.278
Y2.1	-0.085	0.387	2.267	0.951
Y2.2	-0.013	0.424	0.818	-0.167
Y2.3	0.119	0.514	3.597	0.136
Y3.1	0.080	0.377	1.159	-0.317
Y3.2	0.018	0.530	5.462	-1.242
Y3.3	-0.090	0.371	3.058	0.807

Source: Data Analysis using SmartPLS 4.0, 2025. The structural model was re-exported in high-resolution PNG format, and all path coefficients are synchronized with the values reported in Table 8.

Furthermore, the skewness and kurtosis values could be useful in determining the distribution characteristics of the data. Some indicators, especially those related to inhibiting factors (X2.1), demonstrated high values of kurtosis, showing a concentration of answers around the average. Nevertheless, the overall distribution was adequate for further statistical analysis in the context of PLS-SEM, which does not require normally distributed data.

Measurement Model Evaluation

The measurement model reliability and validity were determined based on the following metrics: Composite Reliability (CR), Cronbach's Alpha (CA), and Average Variance Extracted (AVE). According to Table 5, the values of all constructs were sufficiently high, with CR exceeding the suggested level of 0.70, and CA demonstrating a high level of internal consistency.

Table 5. Average extracted variance, composite reliability, and Cronbach's α statistics.

Constructs	Items	Loadings	AVE	CR	CA
Supporting Factors (X1)	X1.1	0.843	0.656	0.919	0.895
	X1.2	0.821			

Constructs	Items	Loadings	AVE	CR	CA
Inhibiting Factors (X2)	X1.3	0.791	0.825	0.959	0.947
	X1.4	0.868			
	X1.5	0.799			
	X1.6	0.730			
	X2.1	0.850			
	X2.2	0.903			
	X2.3	0.900			
	X2.4	0.949			
	X2.5	0.936			
	X2.6	0.875			
E-Governance Process (Z)	Z1	0.861	0.762	0.941	0.922
	Z2	0.832			
	Z3	0.891			
	Z4	0.859			
	Z5	0.918			
Efficiency (Y1)	Y1.1	0.950	0.863	0.950	0.920
	Y1.2	0.944			
	Y1.3	0.891			
Transparency (Y2)	Y2.1	0.922	0.802	0.924	0.877
	Y2.2	0.906			
	Y2.3	0.858			
Accountability (Y3)	Y3.1	0.926	0.813	0.929	0.885
	Y3.2	0.848			
	Y3.3	0.929			

Notes: AVE: Average Variance Extracted, CR: Composite Reliability, CA: Cronbach's Alpha.

Source: Data Analysis using Smart-PLS, 2025

Thus, the obtained values corroborate the results of previous works, which indicated that constructs with CR values higher than 0.70 and AVE values higher than 0.50 can be considered reliable and valid in PLS-SEM analysis (Hair et al., 2019). All AVE values were also above the minimum threshold, meaning that each construct demonstrated convergent validity. Moreover, outer loadings of all indicators were more than 0.70, which means that their reliability was relatively high. This conclusion suggests that the measurement items used in this study successfully capture the latent constructs of supporting factors, inhibiting factors, e-governance processes, and governance outcomes.

Discriminant Validity and Construct Relationships

To determine discriminant validity, the Fornell-Larcker criterion was applied (see Table 6). The results showed that the square roots of AVE for each construct were higher than its correlations with other constructs, meaning that they represented independent variables. It is especially valuable for this study since it proves that constructs such as efficiency, transparency, and accountability were independent of each other and measured different concepts.

Table 6. Correlation matrix

	X1	X2	Z	Y1	Y2	Y3
X1	0.810					
X2	0.763	0.908				
Z	0.816	0.873	0.873			
Y1	0.814	0.814	0.872	0.929		
Y2	0.812	0.775	0.818	0.877	0.896	
Y3	0.716	0.739	0.783	0.827	0.810	0.902

Source: Data Analysis using Smart-PLS, 2025

Moreover, the correlation matrix revealed that there was a substantial relationship between constructs, especially between the e-governance process (Z) and outcome variables. In particular, there were high correlations between the e-governance process and efficiency (Y1), transparency (Y2), and accountability (Y3), meaning that the enhancement of digital governance processes had a positive impact on public sector performance. Therefore, the results confirm that the e-governance process played a mediating role between antecedent factors and governance outcomes.

Model Fit Assessment

The appropriateness of the research model was tested through several fit diagnostics, including the Standardized Root Mean Square Residual (SRMR), d_ULS, d_G, Chi-Square, and Normed Fit Index (NFI), as presented in Table 7. The estimated SRMR value of 0.090 remains within the acceptable tolerance used in exploratory PLS-SEM research, indicating that the discrepancy between the observed and model-implied correlations is still manageable for the purpose of prediction-oriented analysis.

Table 7. Model fit

Indicators	Saturated Model	Estimated Model
SRMR	0.075	0.090
d_ULS	1.809	2.640
d_G	2.333	2.576
Chi-Square	769.725	818.872
NFI	0.698	0.679

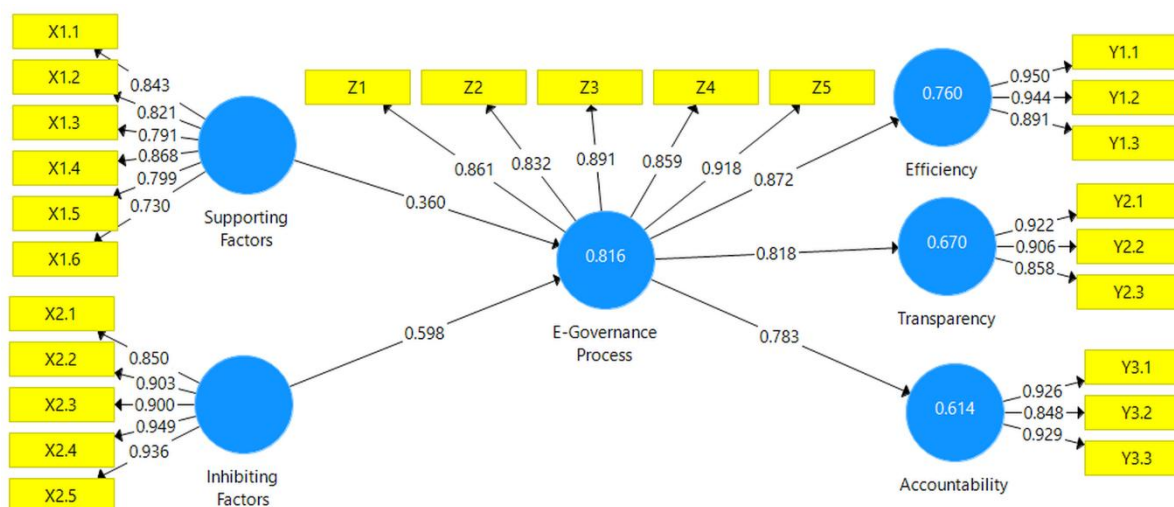
Source: Data Analysis using Smart-PLS, 2025

The NFI value of 0.679 is below the conventional ideal level frequently used in covariance-based SEM. This result is acknowledged as a limitation of the model fit; however, it does not invalidate the model in the present exploratory PLS-SEM context. The model includes multiple antecedent, process, and outcome constructs that capture complex governance dynamics in an underdeveloped local-government setting. Therefore, the interpretation of NFI should be balanced with the stronger evidence from convergent validity, internal consistency, discriminant validity, significant structural paths, and substantial explained variance in the endogenous constructs. In line with PLS-SEM reporting recommendations, the model is retained because the main objective of this study is predictive explanation and theory extension rather than strict confirmation of a covariance structure (Hair et al., 2019).

Structural Model and Hypothesis Testing

The structural relationships between the variables could be visualized in Figure 1, and the results of hypothesis testing are demonstrated in Table 8. In accordance with the results, all proposed hypotheses were statistically significant, with p-values less than 0.05.

Figure 1. Structural model (path coefficient)



Source: Data Analysis using Smart-PLS, 2025

Specifically, supporting factors (X1) positively influenced the e-governance process (Z) ($\beta = 0.360$, $p = 0.001$). Thus, institutional readiness, infrastructure, and leadership played an important role in the effective implementation of digital governance. Inhibiting factors (X2) also had a positive and significant effect on the e-governance process ($\beta = 0.598$, $p = 0.000$). This positive coefficient should not be interpreted as meaning that constraints are inherently beneficial. Rather, it indicates that the perceived presence of budgetary limitations, low digital competence, resistance to change, security concerns, and unequal access produced adaptive organizational responses that shaped the implementation process. Finally, the e-governance process positively influenced efficiency ($\beta = 0.872$), transparency ($\beta = 0.818$), and accountability ($\beta = 0.783$). Therefore, digital governance occupies a central position in improving public sector performance (Marzuki, Lawelai, Sadat, & Nastia, 2022; Wilkes & Karimi, 2025).

Table 8. Summary of results

Hypothesis	Sample	Mean	STDEV	T Statistics	P Values	Results
Supporting Factors -> E-Governance Process	0.360	0.355	0.105	3.418	0.001	Accepted
Inhibiting Factors -> E-Governance Process	0.598	0.605	0.109	5.484	0.000	Accepted
E-Governance Process -> Efficiency	0.872	0.874	0.038	23.234	0.000	Accepted
E-Governance Process -> Transparency	0.818	0.821	0.043	18.869	0.000	Accepted
E-Governance Process -> Accountability	0.783	0.789	0.047	16.523	0.000	Accepted

Source: Data Analysis using Smart-PLS, 2025

These results provide empirical evidence to the idea that e-governance serves as a crucial mediator in enhancing the public sector performance. Specifically, this study shows that supporting factors significantly strengthen the implementation of e-governance processes, which, in turn, lead to improved governance outcomes. In line with previous studies, the results suggest that institutional capacity and technological readiness are important factors influencing digital transformation (Maheshwari et al., 2025; Saragih et al., 2023). Thus, the presence of supportive factors allows the government to overcome various barriers to optimize the use of digital systems.

These results also expand the existing literature by revealing the dual role of inhibiting factors in local e-governance implementation. Barriers are commonly treated as negative determinants of digital transformation, yet the findings show that their presence can activate organizational learning, problem solving, and institutional adaptation. From the perspective of organizational resilience theory, public organizations respond to disruption by anticipating constraints, coping with operational pressure, and adapting routines to maintain service continuity (Duchek, 2020). Evolutionary theory further explains that organizations modify routines when they face selection pressures from changing technological and institutional environments (Nelson & Winter, 1982). In South Buton Regency, inhibiting factors therefore operate not only as obstacles but also as signals that push agencies to adjust coordination practices, strengthen digital capacity, and improve the governance process.

At the practical level, this adaptive mechanism can be translated into several local-government strategies. Budget limitations require phased digitalization and prioritization of high-impact services; low staff competence requires continuous digital literacy training and peer-based technical assistance; resistance to change requires leadership communication, incentives, and gradual change management; security concerns require clearer data-protection protocols and stronger monitoring; and unequal access requires hybrid service channels that combine online platforms with assisted offline services. These strategies explain why constraints can appear statistically significant in the model: they create pressure that forces the organization to redesign work routines, improve interagency coordination, and institutionalize e-governance practices rather than merely adopting technology symbolically.

Moreover, the high correlation between the e-governance process and governance outcomes demonstrates the central role of digital transformation in achieving the objectives of good governance. In particular, it was found that digital systems substantially enhance the efficiency through minimizing service delivery time and lowering administrative costs, which is consistent with previous research (Bhandaria & Bhatt, 2025; Kästik, 2019). Furthermore, the positive effect of e-governance on transparency corroborates the idea that digital systems increase information accessibility and reduce information asymmetry (Misra et al., 2025; Wirata et al., 2025). This implication could be relevant for the discussion on open data policies and digital communication. Finally, the effect of e-governance on accountability suggests that digital systems strengthen performance tracking and reporting mechanisms, which is corroborated by previous findings (Febriyanti et al., 2023; McGuire et al., 2021).

CONCLUSION

The current study demonstrates that the success of the e-governance process in South Buton Regency is determined by the interaction between facilitating conditions, inhibiting pressures, and the e-governance process as the key mechanism for improving governance outcomes. Human resource quality, infrastructure, leadership, regulatory support, and digital literacy strengthen digital governance implementation. At the same time, budget constraints, limited digital competence, resistance to change, security concerns, and unequal access significantly shape the process because they generate adaptive pressure that requires organizational response. The e-governance process then produces strong improvements in efficiency, transparency, and accountability, with efficiency showing the strongest effect.

Theoretically, this study contributes by proposing and testing an integrative framework in which antecedents, mediating processes, and governance outcomes are examined simultaneously. The findings clarify the mediating role of e-governance and extend diffusion of innovation and digital governance literature by showing that inhibiting factors can function as triggers of organizational adaptation when local governments possess sufficient willingness to respond. Practically, the results suggest that local governments should not treat barriers only as

implementation failures. Instead, they should convert them into structured policy responses through phased investment, staff capacity building, change management, interagency coordination, and stronger data governance.

However, despite its strengths, this study has some limitations that should be addressed in future research projects. First, this study includes cross-sectional survey data obtained from a particular region, which limits the ability to generalize the findings. Second, self-reports may include biases in perception. Finally, future research can take into account more advanced study designs, such as longitudinal studies or comparative case studies. It would also be interesting to include more variables in the proposed model. Political commitment, interagency collaboration, and citizens' trust, for example, can be added to provide richer results.

Author Contributions

Silas Adian Sampe: Conceptualization, methodology, writing-original draft, software, and validation. Herman Lawelai: Data curation, resources, draft preparation, and correspondence. Andy Arya Maulana Wijaya: Formal analysis and validation. Elaine M. Baulete: Software and visualization. Anwar Sadat: Validation, writing-review, and editing. All authors discussed the results and contributed to the final manuscript.

Declarations

Competing interest. The authors declare no competing interest.

Conflict of interest. The authors declare that they have no conflicts of interest to report in this study.

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