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E-Government and Public Service Performance: The Role of Good Governance among Non-Metropolitan Local Governments in Jambi, Indonesia

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Abstract

This study investigates the interplay between e-government initiatives and public service performance, focusing on the implications of good governance in non-metropolitan local governments in Jambi, Indonesia. The ongoing challenge of enhancing public service performance in decentralized governance is underscored, as many local governments struggle to provide efficient and effective services. While e-government has been widely adopted as a solution, its outcomes are inconsistent across different institutional settings, prompting an exploration of governance's role in facilitating digital transformation. This research delineates good governance as a moderating variable in the e-government-public service performance nexus, contrasting with previous studies that primarily viewed governance as a direct or mediating factor. Employing a quantitative methodology with an explanatory design, this study analyzes data from cross-sectional surveys conducted among 377 civil servants in Kerinci Regency and Sungai Penuh City, utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) for analysis. Findings reveal that e-government positively influences public service performance significantly, and good governance also exerts a significant direct impact. However, the moderating effect of good governance is found to be non-significant, indicating that both governance and e-government function as independent determinants of public service performance, rather than in concert. This research challenges the prevailing notion that governance universally enhances digital transformation efficacy within the public sector, particularly in non-metropolitan contexts. It is important to interpret these findings with caution due to limitations in measurement reliability, as indicated by relatively low alpha and marginal Average Variance Extracted values for certain constructs.

KEYWORDS

e-government; good governance; public service performance; local government.

Introduction

Public service performance is a key indicator of the success of local government administration, particularly within the context of decentralization that demands improved service quality for citizens (Bersch & Fukuyama, 2025). However, in practice, many local governments still face challenges in delivering services that are efficient, effective, and responsive (Latupeirissa et al., 2024). Service processes that remain conventional, slow, and prone to administrative errors are common issues encountered in the field. This condition leads to low levels of public satisfaction and increasing demands for improving the quality of public services (Bennett & Meers, 2025). Therefore, enhancing public service performance has become a strategic issue that requires serious attention in administrative reform (Lukman & Hakim, 2024).

Along with the advancement of information technology, the implementation of e-government has emerged as a widely adopted solution to improve public service performance (Moggi et al., 2026). E-government enables local governments to enhance operational efficiency, accelerate service delivery processes, and improve transparency and accessibility for citizens (David et al., 2023). Numerous studies have shown that the use of e-government positively affects the quality of public services through the optimization of digital systems in administrative processes (Kawabata & Camargo, 2023; Patergiannaki & Pollalis, 2024; Ren et al., 2025). Nevertheless, the success of e-government implementation is not consistent across regions, raising questions about the factors that influence its effectiveness (Turner et al., 2022). This suggests that technology alone is not sufficient to guarantee improvements in public service performance (Ly et al., 2026).

From a governance perspective, the effectiveness of e-government implementation is strongly influenced by the application of good governance principles, such as transparency, accountability, and effectiveness (Hartanto et al., 2021). Good governance functions not only as a normative framework but also as an institutional mechanism that can enhance the effectiveness of policies and technological implementation in the public sector (Abdou, 2021) Previous studies have primarily examined good governance from three major perspectives. First, several studies position good governance as a direct determinant of public service performance and institutional effectiveness (Barbera et al., 2025; Davidescu et al., 2025; Ríos et al., 2026). Second, other studies conceptualize governance as a mediating mechanism through which organizational quality and administrative processes influence performance outcomes (Wahyuni & Cahyani, 2025) Third, a growing body of literature highlights governance as a contextual factor associated with digital transformation and administrative capacity in public organizations (Maheshwari et al., 2025)

However, limited research has specifically examined good governance as a moderating variable in the relationship between e-government and public service performance. Drawing on governance and institutional theory, such a moderating role is theoretically plausible because governance mechanisms, including transparency, accountability, regulatory effectiveness, and administrative control, may strengthen the implementation quality and operational effectiveness of digital public services. Strong governance practices can improve policy coordination, reduce administrative inefficiencies, enhance public accountability, and ensure more responsive service delivery, thereby increasing the effectiveness of e-government initiatives in improving public service performance outcomes. In local government settings, particularly in non-metropolitan regions with varying institutional capacities, governance may function as a contextual condition that determines whether e-government initiatives effectively improve service quality, efficiency, and responsiveness. Therefore, a more comprehensive approach is needed to explain how governance and digital transformation interact in shaping public sector performance.

In addition, there is an empirical gap in research examining the relationship between e-government, good governance, and public service performance at the local government level, particularly in non-metropolitan areas. Previous studies have largely focused on central governments or large urban areas, thereby providing limited understanding of institutional conditions in regions with different administrative and technological characteristics (Kiviaho & Einolander, 2023; Tiika et al., 2024). Regional conditions such as limited resources, administrative capacity, and institutional readiness to adopt digital technologies may influence the effectiveness of e-government implementation (David et al., 2023). However, this study specifically emphasizes good governance as the primary contextual mechanism because governance principles such as transparency, accountability, and administrative effectiveness are considered more directly associated with the implementation and performance outcomes of digital public services. This complexity indicates that the relationship between e-government and public service performance is not necessarily linear but may depend on contextual institutional conditions (Valaskova et al., 2025). Therefore, studies focusing on non-metropolitan local governments are essential to provide more contextual and applicable insights into digital public sector transformation.

Based on the above discussion, this study aims to analyze the effect of e-government on public service performance and to examine the role of good governance as a moderating variable in strengthening this relationship in local governments. This study also seeks to address the research gap by integrating technological and governance aspects within a more comprehensive analytical framework, particularly by examining whether good governance functions as a contextual factor that strengthens the relationship between e-government and public service performance in non-metropolitan local governments. Theoretically, this research is expected to contribute to the development of public management literature, particularly regarding the relationship between e-government and good governance. Practically, the findings are expected to serve as a reference for local governments in formulating more effective policies to enhance digital-based public service performance. Therefore, this study holds both academic and practical relevance in supporting public service transformation at the local level.

Methods

Research Type

This study employed a quantitative approach with an explanatory design to examine the associations between e-government and public service performance, as well as the moderating role of good governance in local governments. The quantitative approach was selected to objectively analyze relationships among variables through statistical analysis and hypothesis testing. A cross-sectional survey design was employed, in which data were collected at a single point in time using structured questionnaires. The population consisted of civil servants from local government institutions in Kerinci Regency and Sungai Penuh City, Indonesia. Respondents were selected using proportional sampling to ensure representation across government agencies based on the proportion of employees in each institution. The inclusion criteria required respondents to be actively employed as civil servants and directly involved in administrative or public service activities related to digital governance practices.

Prior to full-scale data collection, the questionnaire instrument was reviewed by academic experts in public administration and tested through a pilot study involving 30 respondents outside the main sample to assess clarity, relevance, and contextual suitability. Several questionnaire items were subsequently refined based on the pilot results. The study applied Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze both direct and moderating effects within the proposed model, as presented in Figure 1. PLS-SEM was considered appropriate because the study involved a relatively complex model with moderating effects, emphasized prediction-oriented analysis, and was suitable for exploratory research with constructs that demonstrated marginal reliability and convergent validity characteristics.

Population and Sample

The population of this study consisted of civil servants working in local government institutions in Kerinci Regency and Sungai Penuh City, Jambi Province, Indonesia. This included

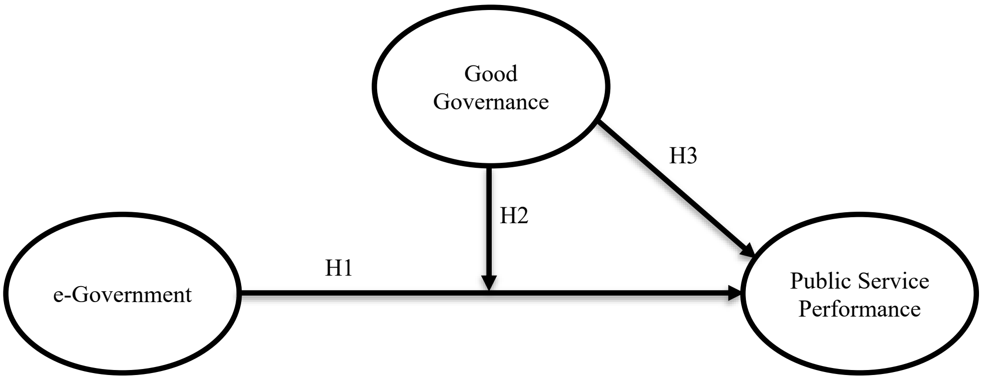

Figure 1. Research Model

Table 1. Questionnaire Items

Variable	Code	Questionnaire Item
E-Government	EG1	The government provides public services digitally.
	EG2	The e-government system is easy for the public to use.
	EG3	Data across government agencies are well integrated.
	EG4	Public service information is transparently available through digital media.
	EG5	Digital communication between the government and the public is effective and simplified.
Good Governance	GG1	Service information is openly communicated to the public through simplified procedures and free from illegal charges.
	GG2	Public officials are accountable for service outcomes through reduced direct contact and transparent processes.
	GG3	The public is involved in monitoring transparency, fairness, and accountability in public services.
	GG4	Public officials are protected from corrupt practices because services are regulated through systems.
	GG5	Public services are implemented in accordance with laws and regulations to prevent corruption, collusion, and nepotism.
Public Service Performance	PSP1	Public services are delivered quickly and accurately.
	PSP2	I am satisfied with the public services I receive.
	PSP3	Service officers are responsive to public complaints.
	PSP4	Public services are easily accessible to all members of society.
	PSP5	Public service processes are conducted transparently and accountably.

regional leaders, public service officials, administrative staff, and employees involved in public service delivery. The total population was 6,609 civil servants based on official statistical data. The sample size was determined using the Slovin formula with a 5% margin of error, resulting in 377 respondents. A proportional sampling approach was applied to ensure adequate representation across different organizational roles and units

Research Location

The research was conducted in Kerinci Regency and Sungai Penuh City, located in Jambi Province, Indonesia. These areas were selected due to their relevance in implementing e-government and good governance practices within non-metropolitan local government contexts. The regions reflect varying levels of digital infrastructure, institutional capacity, and governance quality. This setting provides a meaningful context for examining how governance influences the effectiveness of e-government in improving public service performance. The study was carried out between October 2025 and January 2026

Instrumentation or Tools

Data were collected using a structured questionnaire developed based on established theoretical constructs and prior empirical studies. The instrument measured three main variables: e-government, good governance, and public service performance, each operationalized using validated indicators from previous studies. The indicators for e-government were adapted from (Manoharan et al., 2023), including accessibility, interactivity, transparency, security and privacy, service quality, and administrative efficiency.

The indicators for good governance were adapted from (Rutherford & Wightman, 2021) and contextualized to reflect governance practices within local government administration and public service delivery. In this study, indicators related to monitoring mechanisms, regulatory compliance, and principal–agent conflict resolution were interpreted in the context of public-sector accountability, administrative supervision, and coordination between government institutions and public officials. In addition, transparency and administrative effectiveness were emphasized as core governance dimensions relevant to local government service performance. Meanwhile, public service performance was measured using indicators adapted from (Holzer & Kloby, 2005), including work quantity, timeliness, initiative, capability, and communication. The final questionnaire items used in this study are provided in table 1.

All items were measured using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The indicators were adapted to reflect the context of local government administration and digital service implementation. The questionnaire was designed to ensure clarity, relevance, and consistency in capturing respondents' perceptions. Prior to full data collection, the instrument was reviewed by two academics in public administration and one local government practitioner to assess content relevance and clarity. A pilot test was subsequently conducted involving 30 civil servants from local government institutions outside the main sample. Based on the pilot results, several questionnaire items were refined to improve wording clarity, contextual suitability, and response consistency before the final survey was administered. This approach ensured that the measurement accurately represented the constructs under investigation.

Data Collection Procedures

Data were collected through the distribution of questionnaires to selected respondents within local government institutions. Respondents were provided with clear instructions and were asked to complete the questionnaire based on their experience and perception. The data collection process was conducted over a specified period to ensure adequate response rates and data completeness. All returned questionnaires were screened for completeness and consistency before being included in the analysis. This process ensured the reliability and validity of the collected data.

Data Analysis

Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM), which is suitable for analyzing complex models and testing relationships between latent variables (Sarstedt et al., 2021). The analysis consisted of descriptive statistics and inferential analysis to test the proposed hypotheses. The measurement model (outer model) was evaluated through validity and reliability tests, including convergent validity and internal consistency reliability. The structural model (inner model) was assessed using path coefficients, t-statistics, p-values, R-square, and Q-square values to evaluate predictive relevance. The moderating effect of good governance was tested using the interaction term approach within the PLS-SEM framework. Prior to constructing the interaction term, the indicators of e-government and good governance were mean-centered to reduce potential multicollinearity. The interaction construct was then created by multiplying the standardized indicator scores of the predictor and moderating variables. Collinearity assessment was also conducted by examining the variance inflation factor (VIF) values to ensure that multicollinearity did not affect the stability of the interaction model (Sarstedt et al., 2021).

Ethical Approval

Participation in this study was voluntary, and respondents were informed about the purpose of the research prior to data collection. Confidentiality and anonymity were strictly maintained to protect respondents' identities. The collected data were used solely for academic purposes and were securely stored. Ethical principles were upheld throughout the research process to ensure data integrity and compliance with research standards.

Result and Discussion

The measurement model was evaluated to assess the reliability and convergent validity of the constructs, including e-government, good governance, and public service performance. Convergent validity was examined using outer loadings, Average Variance Extracted (AVE), composite reliability (CR), and Cronbach's alpha. During the evaluation process, several indicators with low outer loading values, namely EG3, GG3, and PSP5, were removed to improve construct reliability and convergent validity. As presented in Table 2, all retained indicators demonstrated outer loadings above the minimum acceptable threshold of 0.60, indicating acceptable indicator reliability for exploratory PLS-SEM analysis.

Furthermore, as presented in Table 3, all constructs achieved composite reliability values above 0.70, indicating satisfactory internal consistency. However, several AVE and Cronbach's alpha values remained slightly below the commonly recommended thresholds, suggesting potential limitations in convergent validity and internal consistency. Following the recommendations of (Hair et al., 2021) the constructs were retained because the indicators remained theoretically relevant to the research context and the composite reliability values exceeded the acceptable threshold. Therefore, the measurement model should be interpreted with caution, particularly regarding the marginal convergent validity and internal consistency observed in several constructs.

Following (Hair et al., 2021), discriminant validity was assessed using the Fornell-Larcker criterion, which remains an acceptable diagnostic for evaluating construct distinctiveness in PLS-SEM. As presented in Table 4, the square root of the AVE for each construct exceeded its correlations with other constructs, indicating satisfactory discriminant validity. These results suggest that the constructs are empirically distinct from one another despite the limitations observed in several reliability and convergent validity indicators. Overall, the measurement model was considered sufficiently adequate for exploratory structural model analysis in the context of non-metropolitan local governments.

The structural model was evaluated using bootstrapping procedures to test the significance of the hypothesized relationships. The analysis focused on both the direct effects of e-government and good governance on public service performance, as well as the moderating effect of good governance. The results of the hypothesis testing, including path coefficients, t-statistics, and p-values, are presented in Table 5. These results provide empirical evidence regarding the strength and significance of the relationships among variables in the proposed model. The evaluation followed standard PLS-SEM procedures to ensure robustness and reliability of the findings.

The results presented in Table 5 indicate that e-government has a significant positive effect on public service performance ($\beta = 0.406$, $t = 9.807$, $p < 0.001$), supporting H1. This finding suggests that the implementation of digital government systems plays an important role in improving service efficiency, effectiveness, and overall quality in local governments. In addition, good governance also demonstrates a significant positive direct effect on public service performance ($\beta = 0.287$, $t = 6.097$, $p < 0.001$), highlighting the importance of governance practices such as transparency, accountability, and regulatory compliance in enhancing service outcomes. The effect size analysis further shows that e-government has a moderate effect on public service performance ($f^2 = 0.185$), while good governance demonstrates a smaller but still meaningful effect size ($f^2 = 0.093$). Furthermore, the structural model achieved an R^2 value of 0.376, indicating moderate explanatory power in explaining variations in public service performance.

However, the moderating effect of good governance on the relationship between e-government and public service performance was not statistically significant ($\beta = 0.014$, $t = 0.155$, $p = 0.877$), leading to the rejection of H2. As presented in Table 5, the interaction effect also demonstrated a negligible effect size ($f^2 = 0.000$), providing additional evidence that good governance does not meaningfully strengthen the relationship between e-government and public service performance in the context examined in this study. This finding suggests that governance and e-government may operate as relatively independent determinants of public service performance rather than as interacting mechanisms.

Several factors may help explain this result. Methodologically, the non-significant moderation effect may be influenced by the marginal reliability and convergent validity values observed in several constructs, which may have reduced the ability to detect interaction effects. Contextually, non-metropolitan local governments often face challenges related

Table 2. Outer Loadings of Measurement Indicators

Construct	Indicator	Outer Loadings
E-Government	EG1	0.667
	EG2	0.640
	EG4	0.669
	EG5	0.657
Good Governance	GG1	0.639
	GG2	0.671
	GG4	0.646
	GG5	0.647
Public Service Performance	PSP1	0.686
	PSP2	0.657
	PSP3	0.653
	PSP4	0.626

Table 3. Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE
E-Government	0.565	0.753	0.433
Good Governance	0.546	0.746	0.423
Public Service Performance	0.560	0.751	0.430

Table 4. Discriminant Validity Assessment (Fornell-Larcker Criterion)

Construct	e-Government	Good Governance	Public Service Performance
e-Government	**0.658**		
Good Governance	0.535	**0.651**	
Public Service Performance	0.563	0.507	**0.656**

to administrative capacity, digital readiness, and institutional resources, which may limit the extent to which governance mechanisms reinforce the effectiveness of digital transformation initiatives. Therefore, the effectiveness of e-government in improving public service performance may not necessarily depend on the level of governance within the institutional context examined in this study. These findings further suggest that governance may be more appropriately conceptualized as a direct determinant, mediator, or antecedent variable rather than as a moderating mechanism in future public sector digital governance research.

This finding may be explained by several factors. From a theoretical perspective, the result suggests that governance and e-government operate as independent rather than interacting determinants of performance. Methodologically, the non-significant moderation may also be influenced by the relatively marginal reliability and convergent validity values observed in several constructs, which may have reduced the ability to detect interaction effects. In addition, contextual conditions in non-metropolitan local governments, such as limited administrative capacity, uneven digital readiness, and institutional constraints, may reduce the extent to which governance mechanisms strengthen digital transformation outcomes. Therefore, the effectiveness of e-government in improving public service performance may not necessarily depend on the level of governance within the context examined in this study. These findings further suggest that governance may be more appropriately conceptualized as a direct determinant, mediator, or antecedent variable rather than as a moderating mechanism in future public sector digital governance research.

Interpretation of Key Findings

The findings of this study demonstrate that e-government has a significant positive association with public service performance, confirming that digital transformation plays an important role in improving efficiency, transparency, and service quality in local government contexts. This result reinforces a growing body of literature emphasizing the contribution of digital systems to administrative effectiveness and citizen-oriented services (Castañar-Alano & Clinton, 2025; Chen & Li, 2024). From a theoretical perspective, this finding supports the digital governance paradigm, which argues that information technology integration can enhance institutional performance by reducing transaction costs and streamlining service delivery processes (Wojciech, 2017; Yukhno, 2024)

However, unlike prior studies that primarily emphasize e-government effectiveness through technological adoption or service automation, this study highlights the role of e-government as an institutional and operational enabler within non-metropolitan local government settings. In this context, digital systems appear to support administrative coordination, service accessibility, and operational consistency even when governance mechanisms do not significantly strengthen their effectiveness. This interpretation suggests that e-government may contribute to performance improvement not only through technological efficiency but also through its capacity to sustain basic administrative functions under varying institutional conditions. Therefore, the study extends existing e-government effectiveness models by demonstrating that digital transformation may retain its functional relevance even in contexts where governance interaction effects are weak or absent.

The results also reveal that good governance has a significant direct relationship with public service performance, indicating that governance practices such as transparency, accountability, and regulatory compliance independently contribute to institutional effectiveness. This finding aligns with prior studies that position governance as a foundational determinant of public sector (Hariyanti & Rahayu, 2024; Wahyuni & Cahyani, 2025). From a governance theory perspective, these results highlight that formal institutional arrangements and regulatory mechanisms play a crucial role in ensuring service quality and organizational accountability (Prencipe, 2025). However, unlike traditional assumptions that governance enhances the effectiveness of other organizational drivers, this study suggests that governance exerts its influence primarily through direct pathways rather than interaction effects. This distinction is important in understanding the functional role of governance within digital transformation processes in non-metropolitan local government contexts.

The most notable and theoretically significant finding of this study is the absence of a moderating effect of good governance on the relationship between e-government and public service performance. Contrary to dominant assumptions in the literature, governance does not strengthen the impact of digital transformation. Instead, the findings indicate that e-government and governance operate as independent determinants of performance. This result challenges the widely held view that governance universally enhances the effectiveness of technological initiatives. From an institutional theory perspective, one possible interpretation of this finding is the phenomenon of institutional decoupling, where formal governance structures may exist symbolically but do not necessarily influence operational processes (Westphal, 2023). In such contexts, digital systems may function more

Table 5. Path Coefficients and Hypothesis Testing

Hypothesis	Path	β	T-Statistics	P-Values	f²	Result
H1	E-Gov → Public Service Performance	0.406	9.807	0.000	0.185	Supported
H2	Moderating Effect (E-Gov × Good Governance → Performance)	0.014	0.155	0.877	0.000	Not Supported
H3	Good Governance → Public Service Performance	0.287	6.097	0.000	0.093	Supported

autonomously, potentially influenced by factors such as technical capacity and implementation quality rather than governance frameworks alone. This condition may help explain why the interaction between good governance and e-government did not produce a significant moderating effect in the structural model.

However, because institutional decoupling, technical capacity, and implementation quality were not directly examined in this study, these explanations should be interpreted cautiously as possible contextual interpretations rather than empirically confirmed findings. Future research is therefore encouraged to incorporate variables such as technical capacity, digital readiness, implementation quality, and institutional alignment to better explain the conditions under which governance may strengthen the effectiveness of e-government initiatives. Thus, governance in this study may operate not as a reinforcing mechanism but as a parallel determinant of performance.

Comparison with Previous Studies

The findings of this study both align with and diverge from previous research, offering important implications for public administration and digital governance literature. Consistent with prior studies, the positive association between e-government and public service performance confirms that digitalization contributes to administrative efficiency, reduces procedural burdens, and improves service quality (Chen & Li, 2024; Wirata et al., 2025) Likewise, the significant direct relationship between good governance and public service performance supports the argument that governance quality remains essential for institutional effectiveness, accountability, and public trust (Hariyanti & Rahayu, 2024)These consistencies reinforce the importance of both technological and governance dimensions in shaping public sector performance outcomes.

However, the absence of a significant moderating effect of good governance contrasts with several previous studies that reported governance as a strengthening mechanism between organizational drivers and performance outcomes (Rizki, Tabah; Kurniawan, 2023; Yaya & Sukardi, 2025). This divergence suggests that the role of governance may be highly context-dependent rather than universally applicable. In metropolitan or institutionally advanced government settings, governance mechanisms may operate more effectively due to stronger administrative capacity, more integrated digital infrastructure, higher levels of bureaucratic professionalism, and more mature institutional coordination. Under such conditions, governance practices may reinforce the effectiveness of digital transformation initiatives. In contrast, non-metropolitan local governments often face limitations related to digital readiness, institutional resources, administrative coordination, and technological integration. These contextual differences may reduce the extent to which governance mechanisms strengthen the relationship between e-government and public service performance, allowing digital systems to function more independently from formal governance arrangements. This interpretation contributes to comparative public administration literature by suggesting that governance effects in digital transformation processes may vary according to institutional and regional characteristics rather than operating uniformly across governmental contexts.

Furthermore, several studies have emphasized the mediating role of governance rather than its moderating function. For instance, (Jing et al., 2026) found that governance mediates the relationship between e-government and performance, while (Wahyuni & Cahyani, 2025) highlighted the role of service quality as a mediating mechanism linking governance to performance outcomes. These findings suggest that governance may influence public service performance indirectly through institutional processes rather than by strengthening relationships between variables. Accordingly, the results of this study indicate that governance may be more appropriately conceptualized as a direct determinant, mediator, or contextual condition depending on institutional configurations and levels of digital maturity. Nevertheless, these interpretations should be understood as context-bound reflections rather than universally generalizable conclusions.

Theoretical Implications

This study contributes to the literature on public administration and digital governance by extending the discussion on the role of governance within digital transformation processes in local government contexts. First, the findings provide empirical evidence that the relationship between e-government and public service performance may not always depend on the strengthening role of governance mechanisms. Within the non-metropolitan local government settings examined in this study, e-government and good governance demonstrated significant direct relationships with public service performance, while the moderating effect of governance was not statistically supported. This finding contributes to moderation theory in public sector digitalization by suggesting that governance may function as an independent determinant rather than a reinforcing mechanism under certain institutional conditions.

Second, the study highlights the importance of contextual and institutional factors in shaping governance effects within digital governance systems. The findings indicate that governance mechanisms may operate differently across institutional environments depending on variations in administrative capacity, digital readiness, organizational coordination, and technological integration. In this regard, the study contributes to comparative public administration literature by emphasizing that governance effects in digital transformation should not be assumed to operate uniformly across metropolitan and non-metropolitan government contexts. Instead, the interaction between governance and digitalization appears to be contingent upon local institutional characteristics and levels of digital maturity.

Third, from a broader theoretical perspective, the study suggests that governance and digital transformation may represent parallel dimensions of institutional development rather than inherently integrated mechanisms. However, this interpretation should be viewed cautiously as a context-bound theoretical reflection rather than a directly verified empirical conclusion, since the study did not specifically measure institutional alignment or decoupling mechanisms. Therefore, rather than broadly reconceptualizing governance theory, the study contributes more modestly by offering context-sensitive insights into how governance roles may vary across different public sector digitalization environments.

Limitations and Cautions

Despite its contributions, this study has several limitations that should be considered. First, the cross-sectional design limits the ability to establish causal relationships between e-government, governance, and performance. Longitudinal data would be more appropriate for capturing dynamic interactions over time. Second, the reliance on self-reported data introduces the possibility of common method bias and subjective evaluation of performance outcomes. Third, the study is limited to local governments in Kerinci Regency and Sungai Penuh City, which may restrict the generalizability of the findings to other regions with different institutional capacities and levels of digital maturity. Additionally, although the measurement model met acceptable thresholds, the relatively low AVE values suggest that construct measurement could be further refined in future research.

Recommendations for Future Research

Future research should build upon these findings by exploring alternative roles of governance beyond moderation, particularly as a mediating or antecedent variable. Longitudinal studies are recommended to better capture the evolving relationship between digital transformation and governance over time. Furthermore, incorporating additional variables such as service quality, digital readiness, and organizational capacity could provide a more comprehensive understanding of public service performance. Expanding the scope of research to include diverse regional and cross-country contexts would enhance the generalizability of findings. Finally, mixed-method approaches combining quantitative and qualitative analyses are encouraged to uncover deeper institutional dynamics and explain why governance does not always strengthen the impact of e-government, as observed in this study.

Conclusion

This study examined the association between e-government, good governance, and public service performance within non-metropolitan local government contexts. The findings indicate that both e-government and good governance are positively associated with public service performance, while the moderating role of good governance was not statistically supported. These results suggest that digital transformation and governance may function as relatively independent improvement mechanisms rather than strongly interacting determinants of performance within the institutional context examined in this study. Accordingly, this study contributes context-specific insights to the literature on public sector digitalization by showing that the role of governance in digital transformation may vary across local government environments.

From a theoretical perspective, the findings contribute to the discussion of moderation theory in public administration and digital governance literature by indicating that governance may not always function as a reinforcing mechanism in the relationship between e-government and public service performance. Instead, the interaction between governance and digital transformation appears to be contingent upon institutional and contextual conditions, particularly within non-metropolitan local government settings. Therefore, the study highlights the importance of developing more context-sensitive models of digital governance rather than assuming that governance universally strengthens digital transformation outcomes.

From a practical perspective, the findings imply that non-metropolitan local governments should pursue parallel and complementary improvement strategies in both digital transformation and governance reform. In terms of e-government development, policymakers should prioritize strengthening digital infrastructure, improving inter-agency system integration, expanding the accessibility of online public services, and enhancing the digital competencies of civil servants through continuous training programs. These priorities are particularly important in non-metropolitan regions where technological readiness and administrative capacity remain uneven.

At the same time, governance reforms should independently focus on strengthening transparency mechanisms, improving accountability and regulatory compliance systems, enhancing public participation in service monitoring, and developing more effective performance evaluation and anti-corruption oversight mechanisms. By implementing these digital and governance reforms simultaneously, local governments may improve the quality, responsiveness, and sustainability of public service delivery even when governance does not function as a direct reinforcing mechanism of e-government effectiveness.

Despite these contributions, several limitations should be acknowledged. The cross-sectional design limits causal interpretation, while the use of self-reported data may introduce response bias. In addition, the focus on specific non-metropolitan local governments may limit the generalizability of the findings to other institutional settings. Future research is therefore encouraged to adopt longitudinal approaches, strengthen measurement validation, and explore alternative roles of governance, particularly as a mediating or antecedent variable. Incorporating additional factors such as digital readiness, organizational capacity, and service quality may also provide a more comprehensive understanding of digital governance and public service performance in the public sector.

Author contributions

Authors explicitly outline and describe their individual contributions to the research and the development of the manuscript. This statement is intended to provide transparency and clarity regarding each author's role in the project. It helps readers and reviewers understand the specific contributions of each author to the research process.

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Conflict of interest

Confirms that the authors have declared any potential conflicts that could influence the impartiality of the research. The authors explicitly state that they have no financial or personal relationships with entities that might unduly affect their objectivity. This declaration ensures the integrity of the study by transparently addressing any possible influences on the research outcomes, contributing to the credibility and trustworthiness of the article.

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