

# Administrative Digitalization and Performance Efficiency: The Moderating Role of Accountability in Public Sector Organizations in Nunukan Regency.

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## ABSTRACT

Public sector organizations increasingly adopt administrative digitalization to improve governance efficiency; however, empirical evidence regarding how digital transformation enhances performance efficiency and the role of accountability mechanisms remains limited, particularly in local government institutions. This study aimed to examine the effect of administrative digitalization on performance efficiency and to analyze the moderating role of accountability in public sector organizations in Nunukan Regency. The research employed a quantitative explanatory design using primary data collected through structured questionnaires distributed to employees of the Department of Social Affairs, Women's Empowerment, and Child Protection in Nunukan Regency. A total sampling technique was applied, resulting in 50 respondents. Data were analyzed using SmartPLS with structural equation modeling to test direct and moderating relationships among variables. The results indicated that administrative digitalization had a positive and significant effect on performance efficiency, suggesting that the adoption of digital administrative systems improves operational processes and decision-making effectiveness. Accountability also showed a significant direct influence on performance efficiency. However, the interaction analysis revealed that accountability weakened the relationship between administrative digitalization and performance efficiency, indicating that additional accountability procedures may introduce administrative complexity that reduces the efficiency gains from digital transformation. These findings contribute to the literature on digital governance by highlighting the conditional role of accountability in shaping the effectiveness of digitalization initiatives. Practically, the study suggests that public sector organizations should balance digital transformation with streamlined accountability mechanisms to maximize efficiency improvements in administrative services.

## 1. Introduction

Digital transformation of public administration has become a central agenda for governments worldwide to improve service delivery, operational efficiency, transparency, and accountability in governance systems. Scholars argue that digital governance initiatives can significantly enhance public sector performance by streamlining bureaucratic procedures, enabling data-driven

decision-making, and facilitating citizen engagement (Mangai & Ayodele, 2025). Recent evidence suggests that in contexts with robust digital infrastructures and supportive institutional frameworks, digitalization improves efficiency and reduces transaction costs in public services (Sadat et al., 2025). However, in developing settings, digital adoption is challenged by infrastructure limitations, uneven digital literacy, and weak

accountability mechanisms, which can compromise the effectiveness of technological reforms (Mimbar, 2025; Akbar et al., 2025).

In Indonesia, the pursuit of bureaucratic reform has accelerated digital government initiatives under the Electronic-Based Government System (SPBE). These programs aim to improve administrative efficiency and strengthen governance accountability at national and local levels. Empirical studies highlight that digitalization in Indonesia enhances transparency, accelerates service delivery, and improves access to public information, but persistent gaps remain in human resource capacity, infrastructure readiness, and organizational change management (Mimbar, 2025; JHSS, 2025). Research also indicates that integration between digital systems and accountability frameworks is critical for translating technology adoption into measurable efficiency gains (Hassan Sain et al., 2025; Bussman, 2025).

At the local level, regional public service agencies, particularly those delivering complex social welfare programs, face unique challenges in adopting digital administrative systems. For example, the Department of Social Affairs, Women's Empowerment, and Child Protection of Nunukan Regency continues to experience heavy reliance on manual procedures for reporting, documentation, and program monitoring, which constrains performance efficiency and inhibits transparent accountability. This contrasts with the theoretical expectations that digitalization should reduce procedural bottlenecks and enhance institutional responsiveness (Maulana, 2023).

The literature on digital public administration reveals inconsistent findings regarding the direct impacts of digitalization on organizational efficiency. While some studies demonstrate that digital governance significantly enhances operational outcomes, others note limited or conditional effects depending on institutional readiness, governance capacity, and strategic alignment

(Sadat et al., 2025; Mimbar, 2025; JHSS, 2025). Most existing research tends to focus on direct relationships between digital systems and performance outcomes, while fewer studies examine how accountability mechanisms interact with digitalization to produce synergistic effects on performance efficiency in specific organizational settings. This gap is particularly salient in regional public organizations where contextual dynamics such as leadership practices, resource constraints, and stakeholder expectations shape digital implementation outcomes but remain underexamined in empirical research.

Therefore, this study investigates two closely related questions: Does administrative digitalization significantly influence performance efficiency in public sector organizations? and Does performance accountability moderate the relationship between digitalization and efficiency? By addressing these questions, the research fills an important gap in understanding how accountability frameworks can strengthen or attenuate the effectiveness of digital transformation efforts in local public institutions.

Accordingly, the main objective of this study is to analyze the influence of administrative digitalization on performance efficiency and to examine how performance accountability moderates this relationship in the context of the Department of Social Affairs, Women's Empowerment, and Child Protection of Nunukan Regency. This objective responds to calls for more nuanced models that integrate governance variables into digital transformation research in the public sector.

This study contributes theoretically by advancing digital governance literature through the integration of accountability theory with digital transformation frameworks to better explain organizational performance outcomes. Practically, the findings offer evidence-based recommendations for policymakers and public managers on the importance of aligning digitalization strategies with robust accountability mechanisms to

achieve sustainable performance improvements. The study's novelty lies in its focus on the interaction effect between digitalization and accountability in a regional social service institution an area that remains empirically underexplored but highly relevant for evidence-based bureaucratic reform and public sector modernization in emerging economies.

## 2. Literature Review

### 2.1 Conceptual and Theoretical Foundations

Digital transformation in the public sector is widely discussed within the frameworks of digital governance theory, public sector performance theory, and accountability theory. Digital governance theory explains how information and communication technology enhances administrative effectiveness through automation, integration of data systems, and improved transparency. Recent studies emphasize that digital administrative systems reduce bureaucratic complexity and support data-driven decision-making processes that improve organizational performance ([Mergel, Edelmann, & Haug, 2021](#); [Verhoest et al., 2022](#); [Tangi et al., 2023](#)).

From a performance perspective, public sector efficiency is often explained through New Public Management (NPM) theory, which promotes efficiency, measurable outcomes, and managerial accountability in government organizations. Contemporary research shows that digitalization strengthens NPM principles by enabling faster service processes and improved resource allocation ([Criado & Gil-Garcia, 2021](#); [Wirtz, Weyerer, & Schichtel, 2022](#)). However, digital transformation alone does not guarantee performance improvement unless supported by governance control mechanisms.

Accountability theory provides an essential explanatory lens for understanding how organizational responsibility and monitoring systems influence performance outcomes. Accountability ensures that digital systems are used effectively and aligned with

institutional objectives. Recent empirical evidence indicates that performance accountability strengthens transparency and organizational control, thereby improving the effectiveness of digital transformation initiatives ([Bracci, Humphrey, Moll, & Steccolini, 2021](#); [Ferry & Eckersley, 2022](#)).

In the context of public organizations in developing countries, including Indonesia, the integration of administrative digitalization and accountability mechanisms remains uneven due to differences in institutional readiness and technological infrastructure. Therefore, the relationship between digitalization and performance efficiency requires further empirical investigation, particularly with accountability positioned as an interaction variable.

### 2.2 Review of Empirical Studies

Recent empirical studies have examined the relationship between digital transformation and public sector performance across different contexts. [Tangi et al. \(2023\)](#) found that digital government initiatives significantly improve service efficiency but depend heavily on organizational readiness and employee digital competence. Similarly, [Wirtz et al. \(2022\)](#) reported that digital administrative integration improves operational performance when supported by strong institutional governance.

Other studies highlight the importance of accountability in strengthening digitalization outcomes. [Ferry and Eckersley \(2022\)](#) demonstrated that transparency and accountability mechanisms improve the effectiveness of digital public services in local governments. [Bracci et al. \(2021\)](#) also found that accountability frameworks enhance monitoring quality and reduce inefficiencies in public financial management.

However, empirical findings remain inconsistent. [Criado and Gil-Garcia \(2021\)](#) showed that digital transformation improves transparency but does not always lead to efficiency improvements due to organizational resistance and procedural complexity.

[Verhoest et al. \(2022\)](#) emphasized that digitalization effects vary across institutional contexts, particularly between developed and developing administrative systems.

Methodologically, most prior studies focus on direct relationships between digitalization and performance outcomes using regression or structural equation modeling approaches. Limited research explicitly examines moderating variables, particularly performance accountability, in regional public sector contexts. Furthermore, sector-specific studies especially in social service institutions remain relatively scarce.

### 2.3 Identification of the Research Gap

Based on the theoretical and empirical review, several research gaps can be identified.

First, although digital transformation has been widely studied, many studies focus primarily on direct effects of digitalization on performance without examining interaction mechanisms that may influence these relationships. The role of performance accountability as a moderating variable remains underexplored.

Second, existing research largely concentrates on national-level institutions or general public administration contexts, while limited empirical evidence addresses sector-specific public organizations such as social welfare agencies.

Third, contextual studies in developing regional governments remain limited, particularly those integrating digital governance theory and accountability frameworks within a single analytical model.

Therefore, this study addresses these gaps by examining how performance accountability moderates the relationship between administrative digitalization and performance efficiency within a regional public organization context.

### 2.4 Development of the Conceptual Framework

This study integrates three main constructs: administrative digitalization,

performance accountability, and performance efficiency.

Administrative digitalization refers to the implementation of digital systems to support administrative processes such as data management, reporting, and communication ([Tangi et al., 2023](#)). Performance efficiency refers to the ability of organizations to utilize resources effectively to achieve institutional objectives ([Wirtz et al., 2022](#)). Performance accountability reflects monitoring and evaluation mechanisms ensuring responsible implementation of organizational activities ([Ferry & Eckersley, 2022](#)).

Recent empirical studies suggest that digitalization improves efficiency through automation and process integration. However, accountability strengthens this relationship by ensuring proper system utilization and governance control ([Bracci et al., 2021](#)).

Based on these relationships, performance accountability is positioned as a moderating variable that strengthens the influence of administrative digitalization on performance efficiency.

**Fig. 1. Conceptual Framework of the Study**

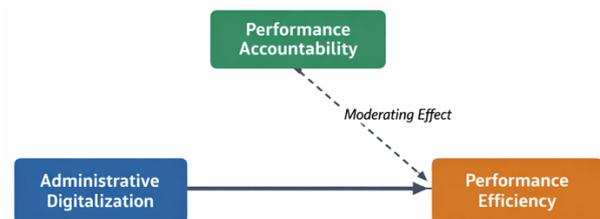


Fig. 1. Conceptual Framework of the Study

### 2.5 Hypotheses or Research Propositions

Based on the theoretical foundations and empirical evidence discussed above, the following hypotheses are proposed:

**H1:** Administrative digitalization has a significant effect on performance efficiency in public sector organizations. Recent studies indicate that digital systems improve organizational efficiency by reducing manual procedures and increasing process integration ([Criado & Gil-Garcia, 2021](#); [Tangi et al., 2023](#)).

**H2:** Performance accountability has a significant effect on performance efficiency. Accountability mechanisms strengthen organizational control and improve performance outcomes through monitoring and evaluation systems ([Ferry & Eckersley, 2022](#)).

**H3:** Performance accountability moderates the relationship between administrative digitalization and performance efficiency.

Empirical evidence suggests that accountability enhances the effectiveness of digital governance by ensuring responsible implementation of digital systems ([Bracci et al., 2021](#); [Wirtz et al., 2022](#)). These hypotheses form the basis for the quantitative testing conducted in this study and contribute to extending digital governance literature by integrating accountability as an interaction variable in explaining public sector efficiency.

### 3. Research Methods

#### 3.1 Research Design

This study employs a quantitative explanatory research design aimed at examining the causal relationship between administrative digitalization and employee performance efficiency, as well as the moderating role of performance accountability. Quantitative methods are considered appropriate because they enable the measurement of relationships between variables using statistical analysis and hypothesis testing ([Creswell, 2021](#)). The research was conducted at the Department of Social Affairs, Women's Empowerment, and Child Protection of Nunukan Regency, an institution responsible for implementing social welfare and public service programs.

#### 3.2 Population and Sample

The population of this study consists of all employees working in the Department of Social Affairs, Women's Empowerment, and Child Protection of Nunukan Regency, including both civil servants and contract staff. The total population is 50 employees. Given the

relatively small number of employees, this study applied a total sampling technique, meaning that all members of the population were included as research respondents. This approach ensures comprehensive representation of employees across different divisions and administrative units within the organization.

#### 3.3 Data Collection

Primary data were collected through a structured questionnaire distributed directly to employees. The questionnaire was designed using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) to measure respondents' perceptions regarding administrative digitalization, performance accountability, and performance efficiency. In addition, secondary data were obtained from institutional documents, such as internal performance reports and administrative records, to support the empirical analysis.

#### 3.4 Measurement of Variables

The study consists of three main variables:

1. Administrative Digitalization (X) – refers to the implementation of digital technology in administrative processes, including digital data management, electronic reporting systems, and online administrative services.
2. Performance Accountability (Z) – represents the extent to which organizational activities are conducted transparently and responsibly, particularly in terms of reporting, monitoring, and evaluation of performance outcomes.
3. Performance Efficiency (Y) – refers to the organization's ability to utilize resources, such as time, labor, and financial resources, effectively in achieving organizational objectives.

Each variable was measured using several indicators adapted from previous studies in public administration and digital governance research.

### 3.5 Instrument Testing

Before conducting hypothesis testing, the research instrument was evaluated through validity and reliability testing. The validity test used the Corrected Item–Total Correlation, with a minimum threshold of 0.30 indicating acceptable validity. Reliability was assessed using Cronbach’s Alpha, where values above 0.60 indicate that the instrument has acceptable internal consistency ([Hair et al., 2022](#)).

### 3.6 Data Analysis Technique

The data were analyzed using SPSS version 29.0 through several stages. First, descriptive statistical analysis was conducted to describe the characteristics of the data, including the mean and standard deviation of each variable. Second, validity and reliability tests were performed to ensure the accuracy and consistency of the measurement instruments. Finally, Moderated Regression Analysis (MRA) was applied to examine the

influence of administrative digitalization on performance efficiency and to determine whether performance accountability moderates this relationship. The MRA model allows the identification of both direct effects and interaction effects between independent, moderating, and dependent variables.

## 4. Results and Discussion

### 4.1 Results

#### a. Instrument Validity and Reliability Testing

Validity and reliability testing were conducted to ensure the accuracy and consistency of the research instrument used in this study. The questionnaire consisted of indicators representing three variables: Administrative Digitalization, Performance Accountability, and Performance Efficiency. The validity test was carried out using the Corrected Item–Total Correlation method. An indicator is considered valid if the correlation value exceeds 0.30. The results indicate that all indicators meet the required validity threshold.

**Table 4.1 Validity Test Results**

Variable	Indicator	Corrected Item-Total Correlation	Result
Administrative Digitalization	X1	0.742	Valid
	X2	0.791	Valid
	X3	0.703	Valid
	X4	0.668	Valid
	X5	0.651	Valid
	X6	0.614	Valid
Performance Accountability	Y1	0.728	Valid
	Y2	0.694	Valid
	Y3	0.671	Valid
	Y4	0.642	Valid
Performance Efficiency	Z1	0.754	Valid
	Z2	0.712	Valid
	Z3	0.687	Valid
	Z4	0.663	Valid

Source: Processed Research Data (2025)

The results in Table 4.1 show that all questionnaire items have Corrected Item–Total Correlation values greater than 0.30, indicating that each indicator successfully measures the intended construct. The highest validity score

is 0.791 for indicator X2, while the lowest value is 0.614 for indicator X6, which still exceeds the required threshold. Therefore, all indicators used in this study are considered valid and appropriate for further analysis.

In addition to validity testing, reliability testing was conducted using the Cronbach's Alpha

coefficient to assess the internal consistency of the measurement instrument.

**Table 4.2 Reliability Test Results**

Variable	Cronbach's Alpha	Standard	Result
Administrative Digitalization	0.756	> 0.60	Reliable
Performance Accountability	0.735	> 0.60	Reliable
Performance Efficiency	0.776	> 0.60	Reliable

Source: SPSS Output Processed (2025)

As shown in Table 4.2, all variables have Cronbach's Alpha values above the minimum threshold of 0.60, indicating good internal consistency. The reliability coefficient for Administrative Digitalization is 0.756, followed by Performance Accountability with 0.735, and Performance Efficiency with 0.776. These values confirm that the measurement instrument is reliable and consistent, allowing the data to be used for further statistical analysis.

#### b. Moderated Regression Analysis

After confirming the validity and reliability of the research instrument, a Moderated Regression Analysis (MRA) was conducted to examine the influence of Administrative Digitalization and Performance Accountability on Performance Efficiency, as well as the moderating role of accountability. The results of the regression model summary are presented in Table 4.3.

**Table 4.3 Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.673	0.453	0.417	3.37811

Predictors: (Constant), Interaction, Performance Accountability, Administrative Digitalization  
Source: SPSS 29 Output (2025)

Table 4.3 shows that the correlation coefficient (R) is 0.673, indicating a moderately strong relationship between the independent variables and the dependent variable. The R Square value of 0.453 suggests that 45.3% of the variation in performance efficiency can be explained by administrative digitalization, performance accountability, and their

interaction. Meanwhile, the Adjusted R Square value of 0.417 indicates that approximately 41.7% of the variability in performance efficiency remains explained after adjusting for the number of predictors in the model. The regression coefficients for the independent variables are presented in Table 4.4.

**Table 4.4 Regression Coefficients**

Variable	B	Std. Error	Beta	t	Sig.
Constant	-5.624	8.465	—	-0.664	0.508
Administrative Digitalization	0.510	0.148	0.408	3.445	0.001
Performance Accountability	0.607	0.167	0.430	3.629	0.001

Dependent Variable: Performance Efficiency

Source: SPSS Output Processed (2025)

The results presented in Table 4.4 indicate that both Administrative Digitalization and Performance Accountability have significant positive effects on Performance Efficiency. Administrative digitalization shows a coefficient of 0.510, indicating that an increase of one unit in digitalization leads to an increase of 0.510 units in performance efficiency. The t-value of 3.445 with a significance level of 0.001 confirms the statistical significance of this relationship.

Similarly, Performance Accountability demonstrates a positive effect on performance

efficiency with a coefficient of 0.607. The t-value of 3.629 and significance level of 0.001 indicate that accountability significantly contributes to improving organizational efficiency.

To test the moderating effect of performance accountability, the interaction variable between Administrative Digitalization and Performance Accountability was included in the regression model. The results are presented in Table 4.5.

**Table 4.5 Moderated Regression Analysis**

Variable	B	Std. Error	Beta	t	Sig.
Constant	171.950	58.339	—	2.947	0.005
Administrative Digitalization	-4.309	1.575	-3.454	-2.735	0.009
Performance Accountability	-4.089	1.536	-2.900	-2.662	0.011
Interaction (Digitalization × Accountability)	0.127	0.041	5.027	3.104	0.004

Dependent Variable: Performance Efficiency

Source: SPSS Output Processed (2025)

Table 4.5 shows that the interaction variable has a positive and significant coefficient of 0.127 with a significance value of 0.004. This indicates that performance accountability moderates the relationship between administrative digitalization and performance efficiency.

Although the individual coefficients of administrative digitalization and accountability appear negative in the moderated model, the positive interaction coefficient suggests that the combined implementation of digitalization and accountability creates a stronger positive effect on organizational efficiency.

These findings indicate that performance accountability strengthens the effectiveness of digital administrative systems, ensuring that digital transformation initiatives contribute positively to organizational performance.

## 4.2 Discussion

The findings of this study provide important insights into the relationship between administrative digitalization,

performance accountability, and performance efficiency in public sector organizations. The empirical results demonstrate that the implementation of digital administrative systems alone does not automatically lead to improved efficiency. Instead, the effectiveness of digitalization largely depends on the presence of strong accountability mechanisms that guide and control its implementation. These findings align with contemporary literature emphasizing that digital transformation in the public sector requires not only technological innovation but also institutional capacity, governance structures, and accountability mechanisms to generate sustainable organizational performance improvements ([Criado & Gil-Garcia, 2021](#); [Verhoest et al., 2022](#); [Mangai & Ayodele, 2025](#)).

### 4.2.1 The Effect of Administrative Digitalization on Performance Efficiency

The results of this study indicate that administrative digitalization has a statistically significant influence on performance efficiency.

This finding suggests that the adoption of digital technologies in administrative processes can enhance the effectiveness of organizational operations. Digitalization enables faster information processing, reduces paperwork, and simplifies administrative procedures, which ultimately contributes to improved efficiency in public organizations. These findings support the argument that digital transformation improves operational performance by enabling automation, data integration, and more responsive administrative systems ([Mergel et al., 2021](#); [Tangi et al., 2023](#)).

In public administration, digitalization often involves the implementation of electronic document management systems, digital reporting platforms, and integrated information systems. These technologies allow organizations to streamline internal workflows and minimize bureaucratic delays. Previous studies emphasize that digital governance initiatives play a crucial role in increasing administrative efficiency and improving the responsiveness of public institutions ([Sadat et al., 2025](#); [Bussman & Hartono, 2025](#)).

However, the regression results also reveal that the direct effect of digitalization becomes negative when the interaction variable is introduced into the model. This phenomenon may reflect the challenges commonly faced during the implementation phase of digital transformation in public organizations. The transition from conventional administrative systems to digital platforms requires substantial adjustments in organizational processes, infrastructure, and human resource capabilities.

During the early stages of digital transformation, organizations often face implementation costs, system integration challenges, and employee adaptation issues. These transitional factors may temporarily reduce efficiency before long-term benefits are realized. This finding is consistent with the argument that digital transformation represents a complex organizational change process rather than merely a technological

upgrade ([Maulana & Dečman, 2023](#); [Mangai & Ayodele, 2025](#)). Therefore, organizations must manage the transformation process carefully to ensure that technological adoption produces sustainable efficiency gains.

#### 4.2.2 The Role of Performance Accountability in Organizational Efficiency

Another important finding of this study concerns the role of performance accountability in influencing organizational efficiency. The results indicate that performance accountability alone does not necessarily produce immediate efficiency improvements. Although accountability mechanisms are designed to strengthen transparency and control within public organizations, their implementation often involves additional administrative procedures. Accountability systems typically require detailed reporting, monitoring mechanisms, performance documentation, and verification processes. While these procedures are essential for ensuring responsible governance, they may also increase administrative workloads. As a result, accountability mechanisms may sometimes slow down administrative processes if they are not supported by efficient information systems.

This finding is consistent with prior research highlighting that accountability frameworks, while essential for governance, may create bureaucratic burdens when implemented without adequate technological support ([Bracci et al., 2021](#); [Ferry & Eckersley, 2022](#)). In many public institutions, the need for extensive documentation and performance reporting can increase operational complexity.

Nevertheless, accountability remains a fundamental component of good governance in public administration. Accountability mechanisms help ensure that public resources are used responsibly and that organizational performance is continuously monitored and evaluated. Recent research emphasizes that strong accountability structures are essential for improving public sector performance, particularly in environments undergoing

digital transformation ([Hassan Sain et al., 2025](#); [Akbar et al., 2025](#)). Therefore, the key challenge lies not in reducing accountability but in integrating accountability mechanisms with efficient administrative systems.

#### 4.2.3 The Moderating Role of Performance Accountability in Digitalization and Efficiency

The most significant contribution of this study lies in identifying the moderating role of performance accountability in the relationship between administrative digitalization and performance efficiency. The empirical results demonstrate that the interaction between these variables has a positive and statistically significant effect on organizational efficiency.

This finding indicates that accountability mechanisms play a critical role in ensuring that digitalization initiatives are implemented effectively. When digital systems operate within a strong accountability framework, they become more structured, transparent, and result-oriented. Accountability systems provide governance structures that guide the use of digital technologies in organizational processes.

Digital administrative systems integrated with accountability frameworks can improve transparency, reduce information asymmetry, and minimize the risk of data manipulation or administrative errors. For example, digital reporting systems combined with automated verification mechanisms allow organizations to monitor performance more accurately and efficiently. These systems also facilitate real-time data access, enabling managers to make informed decisions more quickly. Similar findings are reported by [Tangi et al. \(2023\)](#), who found that digital government transformation significantly improves administrative performance when supported by institutional governance structures.

Furthermore, digital accountability systems enable organizations to enhance transparency, improve monitoring

mechanisms, and strengthen organizational control. Research by [Hassan Sain et al. \(2025\)](#) shows that digital accountability frameworks significantly contribute to improved performance measurement and transparency in public organizations.

The positive interaction effect identified in this study suggests that digitalization and accountability function most effectively when implemented as complementary governance mechanisms. Digital technologies provide the infrastructure for efficient administration, while accountability frameworks ensure that these technologies are utilized responsibly and effectively.

#### 4.2.4 Comparison with Previous Studies

The findings of this study are consistent with previous research emphasizing the importance of governance and institutional capacity in digital transformation processes. [Criado and Gil-Garcia \(2021\)](#) highlight that successful digital government initiatives depend heavily on institutional readiness and governance structures rather than solely on technological adoption.

Similarly, [Verhoest et al. \(2022\)](#) argue that digital-era governance reforms require the integration of digital technology with accountability and transparency mechanisms to improve public sector performance. Without proper governance frameworks, digital transformation initiatives may fail to deliver expected efficiency improvements.

Recent studies in developing countries further confirm this relationship. [Akbar et al. \(2025\)](#) found that digital governance readiness significantly improves public sector performance when supported by accountability structures and institutional capacity. [Likewise, Sadat et al. \(2025\)](#) demonstrate that digital public administration enhances service efficiency when digital systems are integrated with organizational governance mechanisms.

In the Southeast Asian context, [Bussman and Hartono \(2025\)](#) report that

digital governance integration significantly improves organizational performance in public sector institutions. Their findings suggest that digital transformation must be accompanied by administrative reforms and governance improvements.

Similarly, research conducted in Indonesia indicates that digital transformation contributes to administrative reform and public sector modernization, particularly when supported by organizational restructuring and capacity building initiatives ([MIMBAR, 2025](#); [JHSS, 2025](#)). The findings of the present study provide additional empirical evidence supporting these arguments by demonstrating that digitalization alone may not automatically improve organizational performance unless supported by effective accountability mechanisms.

#### 4.2.5 Organizational and Managerial Implications

Another important implication of this research relates to the role of human resource capacity and organizational readiness in digital transformation processes. Digitalization requires employees to adapt to new technologies, workflows, and organizational practices. Without adequate training and support, digital systems may be underutilized or may even create additional operational challenges.

Recent studies emphasize that digital transformation success depends on organizational learning, staff competencies, and institutional readiness ([Maulana & Dečman, 2023](#); [Mangai & Ayodele, 2025](#)). Employees must possess sufficient digital literacy and technological skills to effectively utilize digital administrative systems.

Furthermore, accountability systems may also influence employee motivation in adopting digital technologies. When employees operate within a transparent and accountable governance framework, they tend to demonstrate higher responsibility and performance orientation. Research by [Hassan Sain et al. \(2025\)](#) confirms that digital

accountability systems improve performance measurement and encourage responsible use of technology in public organizations.

Overall, the findings of this study highlight that the success of digital transformation in public organizations depends on the integration of three key elements: digital technology, accountability mechanisms, and human resource capacity. Without alignment among these factors, digitalization initiatives may fail to achieve their intended performance improvements.

#### 4.2.6 Implications for Public Sector Governance

From a governance perspective, this study emphasizes that digital technology should not be viewed merely as a technical tool but rather as part of a broader institutional reform process. Effective digital transformation requires strong governance structures that integrate transparency, accountability, and performance monitoring.

This perspective is consistent with digital-era governance theory, which highlights the importance of integrating technology with institutional reform to improve public sector performance ([Verhoest et al., 2022](#); [Wirtz et al., 2022](#)). Digital transformation should therefore be accompanied by governance reforms that strengthen accountability frameworks and institutional capacity.

In the case of the Department of Social Affairs, Women's Empowerment, and Child Protection, strengthening the interaction between digitalization and accountability mechanisms appears to be essential for achieving sustainable improvements in organizational efficiency. By integrating digital administrative systems with transparent reporting mechanisms, structured oversight, and continuous staff training, public organizations can maximize the benefits of digital transformation while maintaining accountability and operational effectiveness.

Therefore, policymakers and organizational leaders should prioritize not only technological investment but also

institutional reforms that strengthen governance structures, accountability systems, and organizational capacity in public sector institutions.

## 5. Conclusion

The conclusion synthesizes the main findings of this study regarding the relationship between administrative digitalization, performance accountability, and performance efficiency in public sector organizations. The results demonstrate that digital transformation alone does not automatically produce efficiency improvements. Instead, the effectiveness of digital administrative systems depends largely on the presence of strong accountability mechanisms that guide implementation and ensure responsible utilization of technology. By examining the moderating role of accountability, this study provides a more comprehensive understanding of how digital governance initiatives influence organizational performance in regional public institutions.

### 5.1 Summary of Key Findings

This study aimed to analyze the effect of administrative digitalization on performance efficiency and to examine the moderating role of performance accountability in public sector organizations within the Department of Social Affairs, Women's Empowerment, and Child Protection of Nunukan Regency.

The empirical findings reveal several important results. First, administrative digitalization significantly influences performance efficiency, indicating that the adoption of digital systems in administrative processes can improve organizational effectiveness through faster information processing, reduced manual procedures, and improved coordination. However, the moderated regression model shows that the direct effect of digitalization becomes negative when accountability interaction is introduced, suggesting that digital transformation may initially create operational challenges during the implementation phase.

Second, performance accountability also demonstrates a significant influence on performance efficiency. Although accountability mechanisms are essential for ensuring transparency and responsible governance, they may increase administrative workload when implemented without efficient digital support systems.

Third, the interaction between administrative digitalization and performance accountability has a positive and statistically significant effect on performance efficiency. This result confirms that accountability strengthens the impact of digitalization on organizational performance. When digital administrative systems operate within a structured accountability framework, they become more transparent, controlled, and outcome-oriented.

Overall, the findings confirm that digital transformation in public sector organizations becomes more effective when technological innovation is integrated with strong governance and accountability mechanisms.

### 5.2 Theoretical Contributions

This study contributes to the development of public administration and digital governance literature by integrating administrative digitalization and accountability theory within a single analytical framework. While previous studies primarily focused on the direct relationship between digital transformation and organizational performance, this research demonstrates that the effectiveness of digitalization depends on governance mechanisms that regulate and monitor its implementation.

The identification of performance accountability as a moderating variable provides an important theoretical insight into how institutional control systems influence the outcomes of digital governance initiatives. The findings suggest that digital transformation should be understood not merely as a technological innovation but as an institutional

reform process that requires governance structures to support its effectiveness.

By empirically confirming the interaction effect between digitalization and accountability, this study extends existing theoretical perspectives on digital-era governance and public sector performance management. The research also contributes to filling the gap in empirical studies focusing on regional public sector organizations, particularly in developing country contexts where digital transformation processes often face institutional and capacity challenges.

### 5.3 Practical and Policy Implications

The findings of this study provide several important implications for policymakers, public managers, and organizational leaders involved in public sector reform and digital governance initiatives.

First, government institutions should prioritize the integration of digital administrative systems with performance accountability frameworks. Digital technologies should not be implemented as standalone tools but should be aligned with structured monitoring, evaluation, and reporting mechanisms that ensure responsible use and effective performance management.

Second, public organizations need to strengthen institutional capacity through employee training and digital literacy development. Human resource readiness is essential for ensuring that digital systems are utilized effectively and contribute to improved administrative efficiency.

Third, policymakers should design accountability systems that balance transparency requirements with operational efficiency. Excessively complex reporting procedures may create administrative burdens that reduce productivity. Therefore, accountability mechanisms should be supported by integrated digital platforms that simplify reporting, monitoring, and evaluation processes.

Finally, regional governments should adopt a holistic approach to digital transformation that

combines technological investment, organizational reform, and governance strengthening to achieve sustainable improvements in public sector performance.

### 5.4 Limitations of the Study

Despite its contributions, this study has several limitations that should be acknowledged. First, the research was conducted within a single public sector institution in Nunukan Regency, which may limit the generalizability of the findings to other government organizations or regional contexts.

Second, the study relied primarily on questionnaire-based data collected from employees, which reflects perceptions of digitalization, accountability, and efficiency. Although this approach provides valuable insights into organizational dynamics, it may not fully capture objective performance outcomes.

Third, the relatively small sample size of 50 respondents may limit the statistical power of the analysis and the ability to explore more complex relationships among variables. While the use of total sampling ensures full representation of the organization, future studies may benefit from larger and more diverse samples.

These limitations suggest that the findings should be interpreted within the specific institutional context of the study.

### 5.5 Directions for Future Research

Future research should expand the scope of investigation by examining digital transformation and accountability mechanisms across multiple public sector institutions and regional governments. Comparative studies across different sectors such as health services, education, or public administration agencies may provide a broader understanding of how digital governance influences organizational performance.

Additionally, future studies could employ mixed-method approaches that combine quantitative analysis with qualitative methods

such as interviews or case studies. Such approaches would provide deeper insights into the organizational processes and challenges associated with digital transformation in public institutions.

Further research may also explore additional moderating or mediating variables, such as organizational culture, leadership support, technological readiness, and employee digital competence. These factors may provide a more comprehensive explanation of how digitalization affects performance outcomes in complex public sector environments.

Finally, longitudinal studies examining the long-term impacts of digital governance reforms would be valuable for understanding how digital transformation evolves over time and how institutional learning processes influence sustainable improvements in public sector efficiency.

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