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Governance and Performance in Village-Owned Enterprises: The Contingent Role of Accounting Information Systems

Taqiyudin Amri[a], Yesi Mutia Basri[a*], Hariadi Yasni[a], Nur Azlina[a]
[a]Department of Accounting, Faculty of Economics and Business, Universitas Riau, Indonesia
Emeil : yesimutiabasri@lecturer.unri.ac.id

Abstract
Research aims:
This study examines the effects of accountability and transparency on the performance of Village-Owned Enterprises (BUMDes) and evaluates the moderating role of Accounting Information Systems (AIS) in these relationships.
Design/Methodology/Approach:
A quantitative survey was conducted involving 121 BUMDes in Siak Regency. Data were collected through structured questionnaires and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with WarpPLS. The analysis included assessment of the measurement model, structural model, and moderation effects.
Research findings:
The results indicate that transparency has a positive and significant effect on BUMDes performance, whereas accountability does not show a significant effect. AIS strengthens the relationship between accountability and performance but weakens the relationship between transparency and performance. These findings suggest that AIS plays a dual role as both an enabling and a transforming mechanism within governance practices.
Theoretical contribution/Originality:
This study contributes to the literature by applying Stewardship Theory to explain governance–performance relationships and by positioning AIS not only as a supporting mechanism but also as a factor that can alter the effectiveness of governance practices. The findings offer a nuanced perspective on the non-linear interaction between governance and technology in community-based organizations.
Practical/Policy implications:
The findings highlight the importance of strengthening transparency practices and improving AIS implementation in managing BUMDes. Managers and local governments should enhance the integration between governance mechanisms and information systems to achieve sustainable performance improvements.
Research limitations/Implications:
This study is limited to a single regional context and relies on perception-based data; therefore, caution is required when generalizing the results. Future research is encouraged to extend the geographical scope and incorporate additional relevant variables.

Keywords: accountability; transparency; accounting information systems; performance; BUMDes; stewardship

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Introduction

Village-based economic development has become a central strategy of the Indonesian government to promote inclusive growth through decentralization. Empirical evidence indicates a substantial expansion of village economic institutions, reflected in the increasing number of Village-Owned Enterprises (BUMDes). The latest data from the Ministry of Villages show that as of January 2026, there are more than 71,000 BUMDes and Joint BUMDes (BUMDesma) nationwide, consisting of approximately 64,722 BUMDes and 6,427 BUMDesma (Bumdesapandanwangi, 2026). This growth signals a strong governmental commitment to strengthening local economies through village-based institutions.

However, this quantitative expansion has not been fully accompanied by improvements in organizational performance. Many BUMDes continue to face structural challenges, including low levels of operational activity, limited managerial capacity, and uneven institutional legality, despite the fact that a number of BUMDes have obtained formal legal status. These conditions suggest that the increase in the number of BUMDes does not automatically translate into effective economic performance at the village level, leaving significant portions of local economic potential underutilized (Sofyani et al., 2020).

In response to these conditions, the government has strengthened Village-Owned Enterprises (BUMDes) through Law No. 11 of 2020, which amends Law No. 6 of 2014. BUMDes are positioned as legal entities responsible for managing village assets, promoting investment, and enhancing community welfare. Their establishment aligns with the development paradigm of "building villages and villages building," emphasizing endogenous growth and local empowerment (Widiastuti et al., 2019). This role is further reinforced by Minister of Villages Regulation No. 4 of 2015, which outlines BUMDes objectives, including increasing village income, generating employment opportunities, and strengthening local economic resilience.

Despite this institutional framework, the development of BUMDes across regions remains uneven. In Siak Regency, the 2025 classification data indicate that out of 122 villages, only 27 BUMDes are categorized as advanced, while the majority fall into developing (31), growing (35), and basic (29) categories (Febrina et al., 2025). This distribution suggests that most BUMDes are still in transitional stages and have not yet achieved optimal performance. These conditions imply that the formal establishment of BUMDes has not been fully accompanied by effective management practices and performance outcomes. Field evidence further highlights limited business diversification, a strong reliance on savings and loan units, and weaknesses in organizational management and oversight systems.

These challenges are closely related to the quality of organizational governance. In the literature, accountability and transparency are widely recognized as two core principles influencing organizational performance, particularly in public and community-based entities. Accountability reflects the obligation of managers to justify the use of resources, while transparency refers to the openness of information to stakeholders (Mardiasmo, 2021). Theoretically, these mechanisms reduce information asymmetry, build trust, and improve the quality of decision-making (Sofyani et al., 2020; Basri et al., 2022, 2025).

However, empirical findings on the relationship between accountability and organizational performance remain inconsistent. Several recent studies report that accountability positively affects performance by enhancing managerial effectiveness, strengthening internal control systems, and supporting more systematic performance evaluation. Empirical evidence indicates that accountability improves both managerial and organizational performance through better monitoring and higher-quality information used in decision-making (Munasifa & Pratolo, 2024). In addition, accountability has been shown to enhance performance by reinforcing oversight mechanisms and promoting more efficient use of resources (Fitriani et al., 2024; Prasetya & Puspita, 2025; Widiastuti et al., 2026; Basri et al., 2023).

Nevertheless, not all studies find a significant relationship between accountability and performance. Some research suggests that accountability may have a positive but insignificant effect, particularly when it is implemented merely as an administrative requirement and is not integrated into decision-making processes (Bovens, 2007; Messner, 2009). Other studies also indicate that certain accountability mechanisms fail to improve performance due to limited internal capacity and weak organizational support systems (Rosyidah et al., 2025; Tauda et al., 2025). These findings imply that accountability does not automatically enhance organizational performance; rather, its effectiveness depends on how it is implemented in practice.

Similarly, transparency is generally expected to improve performance by fostering trust and encouraging community participation (Setyaningrum et al., 2024; Nurhazizal et al., 2019). However, its impact is not always significant, particularly when it is not supported by adequate organizational capacity. Prior studies highlight that transparency without sufficient information quality, stakeholder interpretability, and integration into decision-making processes tends to have limited influence on performance outcomes (de Fine Licht, 2014; Cucciniello et al., 2017). In practice, transparency often functions merely as an information dissemination mechanism rather than a tool for performance improvement, thereby limiting its contribution to organizational effectiveness.

These conditions indicate a critical limitation in prior studies, which tend to treat accountability and transparency as direct and linear determinants of organizational performance, without adequately considering the contextual and organizational factors that may influence their effectiveness. In practice, however, the effectiveness of accountability and transparency is not determined solely by the existence of reports or formal procedures, but also by the quality of the systems that support reporting, monitoring, and evaluation processes (Romney et al., 2012; Trabulsi, 2018). This indicates the need for a contingency-based approach that integrates governance mechanisms with internal organizational capabilities

In this context, Accounting Information Systems (AIS) represent a critical organizational capability that enhances information quality, accelerates reporting processes, and strengthens internal control systems (Romney et al., 2012; Trabulsi, 2018). The presence of AIS enables accountability and transparency to move beyond administrative compliance and function as mechanisms that support evidence-based decision-making. Accordingly, AIS is expected to strengthen the relationship between accountability and organizational performance.

From the perspective of Stewardship Theory, organizational managers are assumed to act as stewards who prioritize collective interests (Donaldson & Davis, 1991). However, the effectiveness of such behavior depends heavily on the availability of systems that enable accountability to be implemented substantively. Without adequate system support, the information produced tends to be less accurate and less timely, limiting its usefulness in decision-making. In line with this, the Resource-Based View (RBV) emphasizes that organizational performance is shaped by internal capabilities, including the ability to manage and utilize information effectively (Barney, 1991).

Importantly, AIS does not only function as a supporting mechanism but may also alter the way governance operates in practice. While AIS can strengthen accountability through improved reporting quality and control systems, it may simultaneously reduce the marginal role of traditional transparency mechanisms by shifting information disclosure from manual and participatory processes to system-based processes. This dual role of AIS suggests that its influence on governance-performance relationships is not purely linear but potentially transformative.

Based on these arguments, a more explicit research gap can be identified. First, existing studies have not sufficiently explained the causes of the inconsistent effects of accountability and transparency on organizational performance. Second, prior research largely relies on linear models and overlooks the role of internal organizational capabilities. Third, the moderating role of Accounting Information Systems, particularly its potential dual role as both an enabling and a transforming mechanism remains underexplored, especially in the context of BUMDes as hybrid community-based organizations.

Therefore, this study aims to examine the effects of accountability and transparency on BUMDes performance and to test the moderating role of Accounting Information Systems within these relationships, using empirical evidence from BUMDes in Siak Regency.

Literature Review and Hypothesis Development

Theoretical Foundation

This study is grounded in Stewardship Theory, which posits that managers act as stewards who prioritize collective interests and organizational goals over personal gains (Donaldson & Davis, 1991). In the context of BUMDes, this perspective implies that managers are entrusted with responsibly managing village resources to enhance community welfare. Governance mechanisms such as accountability and transparency represent the operationalization of stewardship values within organizational practices.

However, the assumption of pro-organizational behavior in Stewardship Theory is not universally accepted. Agency Theory, for instance, argues that managers may act opportunistically when monitoring mechanisms are weak (Jensen & Meckling, 1976). This contrast suggests that governance effectiveness depends not only on managerial intentions but also on the presence of systems that ensure information reliability and control. In this regard, Accounting Information Systems (AIS) can be viewed as a bridging

mechanism that aligns stewardship behavior with control-based governance by improving information transparency and traceability (Romney et al., 2012; Trabulsi, 2018)

Within this framework, Accounting Information Systems (AIS) function as an enabling mechanism that allows stewards to perform their roles more effectively. AIS facilitates the provision of accurate, timely, and reliable information, thereby strengthening accountability and supporting informed decision-making (Romney et al., 2012). From a Resource-Based View (RBV) perspective, AIS can also be conceptualized as a strategic organizational capability that enhances efficiency and information quality, ultimately contributing to improved performance (Barney et al., 2021).

More importantly, AIS should not be understood merely as a supporting tool. Prior studies indicate that digital systems can reshape how control and governance are enacted within organizations (Granlund, 2011; Quattrone, 2016). In this sense, AIS not only improves efficiency but also changes the nature of accountability and transparency by shifting them from procedural practices toward data-driven processes. This implies that AIS plays a dual role: it strengthens governance mechanisms while simultaneously transforming how they operate.

However, AIS may also transform the way stewardship is enacted in practice. The increasing reliance on system-based information processing can reduce dependence on conventional transparency mechanisms, particularly those based on direct interaction and manual disclosure. This shift suggests that the effectiveness of governance in improving performance depends not only on stewardship behavior but also on the organization's internal capability to manage and utilize information systems effectively.

Hypothesis Development

Accountability and BUMDes Performance

Accountability represents a fundamental pillar of governance, particularly in public and hybrid organizations such as BUMDes, where resource management involves collective ownership and social responsibility. Within the framework of Stewardship Theory, managers are expected to act as responsible stewards who align their actions with organizational and community interests (Donaldson & Davis, 1991). Accountability mechanisms—including transparent reporting, performance disclosure, and answerability—serve as instruments to ensure that managerial actions remain consistent with these expectations.

From an operational perspective, accountability reduces information asymmetry and constrains opportunistic behavior, thereby improving decision quality and resource allocation efficiency (Mardiasmo, 2009; Fauziah et al., 2026). In the context of BUMDes, accountability extends beyond financial reporting to encompass social responsibility, particularly in ensuring that village assets are managed effectively for community welfare.

Empirical evidence largely supports the positive role of accountability in enhancing organizational performance. Prior studies demonstrate that accountability improves performance by strengthening monitoring mechanisms, enhancing control systems, and increasing the quality of information used in decision-making (Sofyani et al., 2020; Muktiadji et al., 2020; Oladimeji, 2024).

However, accountability does not always lead to improved performance. In some cases, accountability is implemented mainly as a formal requirement, without being integrated into managerial processes. Under such conditions, accountability may not function as an effective control mechanism, limiting its contribution to performance. This indicates that the effectiveness of accountability depends on how it is implemented and supported within the organization.

Based on these arguments, accountability is expected to enhance both the financial and social performance of BUMDes.

H₁: Accountability positively affects BUMDes performance.

Transparency and BUMDes Performance

Transparency plays a critical role in improving governance quality by ensuring that relevant information is accessible, accurate, and timely. Within governance theory, transparency reduces information asymmetry between managers and stakeholders, enabling effective monitoring and fostering trust (Efunniyi et al., 2024).

In the context of BUMDes, transparency facilitates community participation and oversight, which are essential for maintaining legitimacy and ensuring alignment with local development objectives. By providing stakeholders with reliable information regarding organizational activities, financial conditions, and policy outcomes, transparency enhances the quality of decision-making processes.

From a theoretical perspective, transparency complements accountability by strengthening external control mechanisms. Within stewardship-oriented settings, transparency reinforces trust-based relationships while simultaneously enabling community-based monitoring systems (Hanifa et al., 2026; Rahmah & Nor, 2025).

Empirical evidence consistently indicates that transparency has a positive and significant effect on organizational performance (Setyaningrum et al., 2024; Nurhazizal et al., 2019). Nevertheless, transparency does not automatically improve performance. Its effectiveness depends on the quality of information and how it is used by stakeholders. When transparency is limited to information disclosure without being linked to decision-making processes, its impact on performance tends to be limited. This suggests that transparency requires supporting mechanisms to be effective.

Based on these arguments, transparency is expected to improve the performance of BUMDes.

***H₂*:** Transparency positively affects BUMDes performance.

The Moderating Role of Accounting Information Systems in the Relationship between Accountability and Performance

Accountability in public and hybrid organizations does not depend solely on managerial commitment but also on the quality of systems that support reporting and control processes. From the perspective of Stewardship Theory, managers are expected to act in the collective interest; however, the effectiveness of such behavior requires mechanisms that ensure transparency and traceability of organizational activities (Donaldson & Davis, 1991). Without adequate system support, accountability practices tend to remain administrative, characterized by limited data accuracy and delayed reporting.

Accounting Information Systems (AIS) provide an infrastructure that enables organizations to manage information systematically. AIS functions to identify, record, and report transactions in an integrated manner, thereby improving the quality of information used in decision-making (Romney et al., 2012). From a Resource-Based View (RBV) perspective, information systems represent organizational capabilities that enhance efficiency and operational effectiveness when properly utilized (Barney, 1991).

In the context of BUMDes, the use of AIS allows accountability processes to become more substantive. Reporting becomes faster, more accurate, and easier to verify by stakeholders, thereby strengthening monitoring functions and reducing the risk of resource mismanagement.

More importantly, AIS enables accountability to move from a procedural activity to a more integrated part of decision-making. With better data availability and structured reporting, accountability can be used more effectively as a control mechanism, rather than merely as a reporting requirement.

Empirical evidence also shows that well-implemented information systems improve internal control effectiveness and organizational performance (Trabulsi, 2018; Alnajjar, 2017).

Thus, AIS not only has a direct effect on performance but also strengthens the relationship between accountability and organizational performance.

***H_3*:** Accounting Information Systems positively moderate the relationship between accountability and BUMDes performance.

The Moderating Role of Accounting Information Systems in the Relationship between Transparency and Performance

Transparency is a fundamental principle of governance in public and hybrid organizations, including BUMDes. It allows stakeholders to access relevant information about organizational activities, thereby reducing information asymmetry and increasing public trust (Cucciniello et al., 2017; Grimmelikhuijsen et al., 2013). In the context of BUMDes, transparency plays a vital role in encouraging community participation and strengthening organizational legitimacy at the local level.

Under conventional conditions, transparency tends to have a positive effect on organizational performance. The availability of open information supports effective monitoring, enhances decision-making quality, and strengthens accountability in resource management (Cucciniello et al., 2017; Grimmelikhuijsen et al., 2013).

However, the effectiveness of transparency is not static and is influenced by technological development, particularly the implementation of AIS. AIS enables organizations to generate, process, and disseminate information more quickly, accurately, and systematically (Romney et al., 2012). When AIS adoption is still limited, transparency and AIS tend to complement each other, as AIS enhances the quality of disclosed information and strengthens the impact of transparency on performance.

Conversely, when AIS is highly developed, the role of conventional transparency may diminish. Information that was previously conveyed through manual or participatory mechanisms becomes automatically available through system-based processes.

This condition may reduce the role of traditional transparency practices, particularly those based on direct interaction and community involvement. Although information becomes more accessible, the participatory aspects that support trust and engagement may decline, which can weaken the contribution of transparency to performance.

In the context of BUMDes, varying levels of AIS adoption lead to inconsistent relationships between transparency and performance. In organizations with limited system implementation, transparency remains a key driver of performance. However, in organizations with more advanced systems, the role of transparency may shift as it is partially replaced by more efficient information systems.

Based on these arguments, AIS is expected to moderate the relationship between transparency and BUMDes performance.

***H_4*:** Accounting Information Systems moderate the relationship between transparency and BUMDes performance.

Research Method

Research Design

This study employs a quantitative approach with an explanatory research design to examine the causal relationships between accountability, transparency, and BUMDes performance, as well as the moderating role of Accounting Information Systems (AIS). The research was conducted in Siak Regency, Indonesia, which was selected due to its significant development of BUMDes alongside persistent governance challenges.

A quantitative approach is appropriate as it enables the empirical testing of relationships among variables using structured statistical models (Sekaran, 2006; Sekaran & Bougie, 2016).

Population and Sample

The population of this study consists of all BUMDes registered with the local government in Siak Regency, totaling 121 units. Given the relatively small population size, a census (total sampling) technique was applied, where all population members were included as research samples (Sugiyono, 2017). The selection of Siak Regency as the research setting is based on its variation in BUMDes development levels, which allows this study to capture differences in governance practices and organizational performance across varying stages of institutional maturity.

The respondents comprise managerial personnel of BUMDes, including directors, secretaries, treasurers, and supervisors. These individuals were selected because of their direct involvement in organizational management and decision-making processes, ensuring the relevance of the information provided.

Data Collection Technique

Data were collected using structured questionnaires distributed to the respondents. The questionnaire employed a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5), to measure respondents' perceptions of the variables under study. This method allows for systematic measurement of latent variables and facilitates quantitative statistical analysis.

To minimize potential bias, respondents were assured of confidentiality and anonymity, which reduces the likelihood of socially desirable responses and enhances the reliability of the data collected.

Operational Definition and Measurement of Variables

This study includes one dependent variable, two independent variables, and one moderating variable.

BUMDes Performance

Organizational performance is defined as the extent to which organizational goals are achieved, encompassing both financial and non-financial aspects (Halim, 2012). The measurement of BUMDes performance is based on financial and non-financial indicators tailored to the characteristics of BUMDes and relevant regulations (Basri et al., 2021a; Basri et al., 2021b). The selection of these indicators reflects the hybrid nature of BUMDes, which simultaneously pursue economic and social objectives, thereby requiring a broader performance measurement approach

Accountability

Accountability refers to the obligation of an organization to provide responsibility for the management of resources to relevant stakeholders (Mardiasmo, 2009). This variable is measured through four dimensions: planning, implementation, supervision, and reporting (Basri et al., 2023). These dimensions capture both procedural and substantive

aspects of accountability, allowing a more comprehensive assessment of how accountability is implemented in practice

Transparency

Transparency refers to the openness of an organization in providing relevant, accurate, and accessible information to stakeholders (Mardiasmo, 2009). It is measured through indicators of openness, accessibility, and clarity of information. These indicators are designed to reflect not only the availability of information but also its usability and relevance for stakeholders.

Accounting Information Systems (AIS)

AIS is defined as a system used to identify, record, process, and report organizational transactions (Romney et al., 2012). It is measured using four key indicators: human resources, technological infrastructure, application systems, and procedures and documentation. Human resources reflect task segregation and user competence in operating the system. Technological infrastructure indicates the availability of hardware supporting system operations. Application systems are assessed based on their ability to generate accurate and well-structured information. Procedures and documentation reflect standardized recording processes that ensure traceability of information. These indicators suggest that AIS effectiveness depends on the integration of people, technology, and processes.

Data Analysis Technique

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with WarpPLS software. This method is suitable for analyzing complex models involving latent constructs, multiple indicators, and moderating relationships within a single framework (Hair et al., 2019). The use of PLS-SEM is appropriate given its ability to handle relatively small sample sizes and complex models with interaction effects.

Prior to model testing, a common method bias (CMB) assessment was performed using Harman's single-factor test. This involved conducting exploratory factor analysis on all indicators. If no single factor dominates or explains more than 50% of the total variance, CMB is considered not to be a significant issue (Podsakoff et al., 2003).

The evaluation process consisted of two stages: measurement model (outer model) and structural model (inner model). The measurement model was assessed for validity and reliability, including convergent validity indicated by factor loadings above 0.70 (Hair et al., 2021), discriminant validity assessed through cross-loadings and Average Variance Extracted (AVE) (Fornell & Larcker, 1981), and construct reliability measured using composite reliability and Cronbach's alpha with values above 0.70 (Hair et al., 2021).

The structural model was evaluated using the coefficient of determination (R^2) to assess explanatory power and path coefficients to determine the direction and strength of relationships between variables. Multicollinearity was examined using the Variance Inflation Factor (VIF), with values below 3.3 indicating no multicollinearity issues.

Hypothesis testing was conducted using bootstrapping, with criteria of t-statistic > 1.96 and p-value < 0.05. The moderating effect was tested through interaction terms between AIS and the independent variables (accountability and transparency) to determine whether AIS strengthens or weakens their influence on BUMDes performance (Hair et al., 2021).

Results

A total of 363 questionnaires were distributed to respondents in this study. Of these, 126 were returned, resulting in a response rate of 35%, while 237 questionnaires (65%) were not returned. All returned questionnaires were deemed valid and suitable for analysis, yielding a final sample of 126 respondents. Although the response rate did not reach half of the total distribution, the number of responses remains adequate for further analysis, particularly in quantitative studies employing PLS-SEM, which does not require a large sample size.

Descriptive Statistics

Descriptive statistical analysis was conducted to provide an initial overview of the data characteristics. The results presented in Table 1 report the mean and standard deviation values, which indicate the central tendency of respondents' answers and the dispersion of data across each variable prior to further analysis.

Table 1. Descriptive Statistics

Variable	Mean	Std. Deviation	Min	Max
Accountability (A)	4.399	0.572	1.000	5.000
Transparency (T)	4.289	0.694	1.000	5.000
Accounting Information System (AIS)	4.296	0.612	1.000	5.000
Performance (P)	4.159	0.683	1.000	5.000

Based on Table 1, all variables exhibit mean values above 4, indicating that respondents perceive accountability, transparency, accounting information systems, and BUMDes performance at a high level. Accountability shows the highest mean value (4.399), followed by accounting information systems (4.296) and transparency (4.289), while BUMDes performance has the lowest mean (4.159). The relatively moderate standard deviation values suggest a fairly homogeneous distribution of responses, although some variation remains. Overall, these findings indicate that governance practices and the use of information systems have been implemented relatively well; however, they have not been fully translated into optimal performance outcomes.

Common Method Bias Test

The results of Harman's single-factor test indicate that a single factor explains only 49% of the total variance, which is below the recommended threshold of 50% (Podsakoff et al., 2003). This finding suggests that no single dominant factor accounts for the majority of the variance, indicating that common method bias (CMB) is not a significant concern

in this study. Therefore, the data can be considered sufficiently free from common method bias and suitable for further model analysis.

Outer Model Results

Following the descriptive statistical analysis, the next step involves evaluating the measurement model (outer model) to ensure that the research instruments meet the criteria of validity and reliability. This assessment aims to determine the extent to which the indicators accurately and consistently reflect the constructs being measured.

The results of the measurement model evaluation are presented in detail in Table 2 and Table 3. Table 2 reports the results of convergent validity through factor loadings and Average Variance Extracted (AVE) for each indicator, as well as reliability measures. Table 3 presents the results of discriminant validity using cross-loadings.

Table 2. Outer Model Evaluation Results

Indicators	Accountability	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
A1	0.817	0.855	0.859	0.855	0.695
A2	0.790				
A3	0.880				
A4	0.845				
P1	0.827	0.862	0.891	0.899	0.606
P2	0.612				
P3	0.552				
P4	0.827				
P5	0.917				
P6	0.863				
SIA1	0.838	0.915	0.921	0.934	0.720
SIA2	0.854				
SIA3	0.830				
SIA4	0.850				
SIA5	0.766				
SIA6	0.883				
T1	0.571	0.820	0.913	0.869	0.575
T2	0.786				
T3	0.828				
T4	0.831				
T5	0.745				

Table 3. Crossloading

Indicators	Accountability	Accounting Information System	Bumdes Performance	Transparancy
A1	0.817	0.552	0.584	0.636
A2	0.790	0.661	0.489	0.606
A3	0.880	0.626	0.427	0.676
A4	0.845	0.639	0.558	0.764
P1	0.540	0.621	0.827	0.504
P2	0.456	0.381	0.612	0.485
P3	0.235	0.405	0.552	0.274
P4	0.594	0.652	0.827	0.563
P5	0.503	0.639	0.917	0.560
P6	0.535	0.655	0.863	0.503
SIA1	0.578	0.838	0.521	0.523
SIA2	0.594	0.854	0.679	0.639
SIA3	0.679	0.830	0.571	0.640
SIA4	0.663	0.850	0.674	0.492
SIA5	0.633	0.766	0.543	0.471
SIA6	0.591	0.883	0.668	0.637
T1	0.519	0.270	0.260	0.571
T2	0.785	0.745	0.723	0.786
T3	0.567	0.498	0.429	0.828
T4	0.559	0.417	0.325	0.831
T5	0.484	0.380	0.367	0.745

Based on the results presented in Table 2, the constructs in this study generally meet the criteria for validity and reliability. The values of Cronbach's alpha and composite reliability for all variables exceed the minimum threshold of 0.70, indicating good internal consistency (Hair et al., 2021). The Accounting Information Systems (AIS) variable demonstrates the highest reliability (CR = 0.934; AVE = 0.720), followed by performance (P) (CR = 0.899; AVE = 0.606) and accountability (A) (CR = 0.855; AVE = 0.695), suggesting that these constructs explain a substantial proportion of variance in their respective indicators.

In terms of convergent validity, most indicators have loading values above 0.70 and are therefore considered valid. However, several indicators exhibit relatively lower loadings, such as P2 (0.612), P3 (0.552), and T1 (0.571), indicating weaker contributions in reflecting their respective constructs. Nevertheless, all constructs maintain AVE values above 0.50, indicating that convergent validity is still acceptable overall (Fornell & Larcker, 1981).

The results in Table 3 show that each indicator has a higher loading on its respective construct compared to other constructs. This finding confirms that the model satisfies the criteria for discriminant validity, indicating that each construct is empirically distinct from the others (Fornell & Larcker, 1981; Hair et al., 2021). Thus, no issues are identified in the cross-loading assessment, and the model is deemed suitable for further analysis.

Overall, the outer model meets the required standards of validity and reliability. All indicators are valid, the constructs are reliable, and no issues are found regarding discriminant validity. Therefore, the model is appropriate for proceeding to the next stage of analysis.

Inner Model Results

After confirming that the measurement model (outer model) satisfies the required criteria, the next step is to evaluate the structural model (inner model). This analysis aims to examine the relationships among variables in the model and to test the proposed hypotheses. The evaluation of the inner model includes assessing the coefficient of determination (R^2), path coefficients, and the significance of relationships among variables. In addition, the model's predictive relevance and potential multicollinearity issues are also examined. The results presented in Table 4 provide insights into the model's explanatory power in predicting BUMDes performance, as well as the roles of independent and moderating variables.

Table 4. Model Predictive Relevance and Collinearity Assessment

	Q^2predict	RMSE	MAE	R Square	VIF
Bumdes Performance	0,560	0,677	0,495	0,639	
Accountability -> Bumdes Performance					3,821
Accounting Information System -> Bumdes Performance					2,389
Transparancy -> Bumdes Performance					3,267

Based on Table 4, the Q^2predict value of 0.560 indicates that the model has good predictive relevance, as it is greater than zero (Hair et al., 2019). The R-square value of 0.639 suggests that the model explains 63.9% of the variance in BUMDes performance, which can be considered substantial (Ghozali, 2018). In addition, the RMSE (0.677) and MAE (0.495) values indicate relatively low prediction errors. The Variance Inflation Factor (VIF) values are also below 5, suggesting that there are no serious multicollinearity issues in the model (Hair et al., 2019). Overall, the model demonstrates adequate predictive capability and is suitable for further hypothesis testing.

Hypothesis Testing Results

After confirming that the data are free from common method bias based on Harman's single-factor test, the next step involves hypothesis testing. This stage aims to examine the direct relationships among variables as well as the moderating role of Accounting Information Systems in the relationships between accountability, transparency, and BUMDes performance.

The results of the hypothesis testing, presented in Table 5 and Figure 1, are based on the path coefficients, t-statistics, and p-values to determine the significance of the relationships among variables in the research model.

Table 5. Hypothesis Testing Results

		Original sample (O)	T statistics (|O/STDEV|)	P values	Decision
H1	Accountability -> Bumdes Performance	-0.085	0.453	0.651	Rejected
H2	Transparancy -> Bumdes Performance	0.350	2.152	0.031	Accepted
H3	Accounting Information System x Accountability -> Bumdes Performance	0.676	2.754	0.006	Accepted
H4	Accounting Information System x Transparancy -> Bumdes Performance	-0.578	2.653	0.008	Accepted

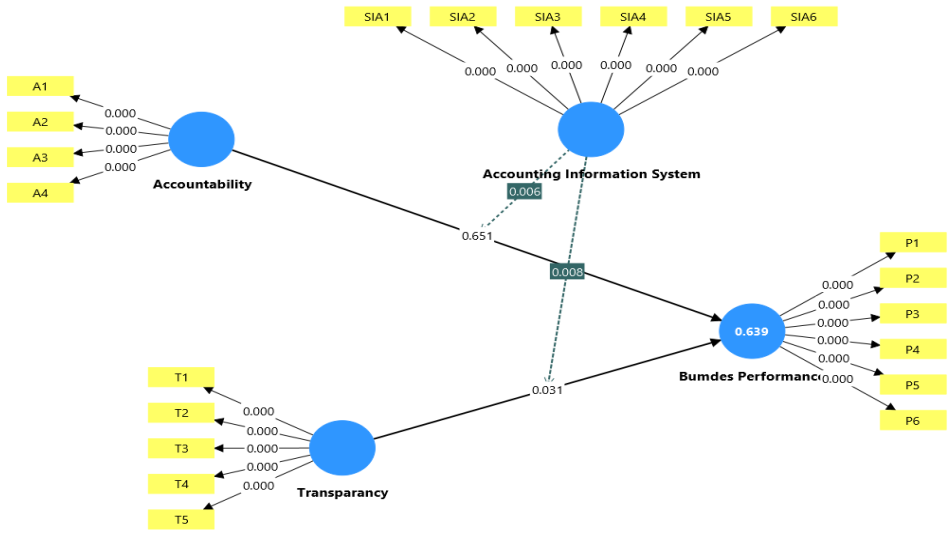

Figure 1. Bootstraping Model

Based on the results presented in Table 5, the hypotheses can be concluded as follows. The first hypothesis (H1) indicates that accountability does not have a significant effect on BUMDes performance (p = 0.651 > 0.05); therefore, H1 is rejected. The second hypothesis (H2) shows that transparency has a positive and significant effect on BUMDes performance (p = 0.031 < 0.05); thus, H2 is supported. The third hypothesis (H3) demonstrates that Accounting Information Systems significantly moderate the relationship between accountability and BUMDes performance (p = 0.006 < 0.05); hence, H3 is supported. The fourth hypothesis (H4) indicates that Accounting Information Systems significantly moderate the relationship between transparency and BUMDes performance in a negative direction (p = 0.008 < 0.05); therefore, H4 is supported.

Robustness Test

A robustness test using the Gaussian Copula approach was conducted to detect and correct potential endogeneity issues in the empirical model without relying on instrumental variables. Following the method proposed by Park and Gupta (2012), independent variables that are not normally distributed are transformed into copula functions and incorporated into the model as additional variables. The significance of the copula coefficients indicates the presence of endogeneity (Risher & Hair, 2017).

Based on the results presented in Table 6 and Figure 2, the copula coefficients for all main variables are not statistically significant, indicating no evidence of endogeneity affecting the model estimation. Furthermore, the direction and significance of the relationships among variables remain consistent after incorporating the copula components. These findings suggest that the model estimates are robust and free from substantial endogeneity bias.

Table 6. Endogeneity Test Results

	Original sample (O)	T statistics (|O/STDEV|)	P values
Accountability -> Bumdes Performance	-0,366	1,306	0,192
Transparancy -> Bumdes Performance	0,172	0,657	0,511

Based on the p-values, all relationships exceed the 0.05 significance threshold, with accountability (p = 0.192) and transparency (p = 0.511). In the context of endogeneity testing using the Gaussian Copula approach proposed by Park and Gupta (2012), non-significant p-values indicate that the copula components do not have a statistically significant effect.

Therefore, there is no evidence of endogeneity in the variables included in the model, suggesting that the estimated results are free from endogeneity bias and can be considered robust.

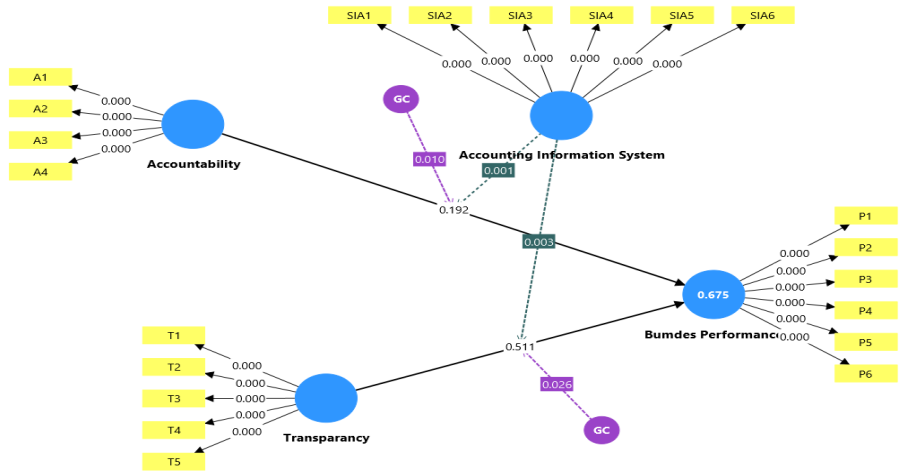

Figure 2. Gaussian Copula Model

Discussion

The findings indicate that accountability does not have a significant effect on BUMDes performance, suggesting that existing accountability practices have not yet translated into measurable performance improvements. From the perspective of Stewardship Theory, managers (stewards) are expected to act in the collective interest and be responsible for managing organizational resources (Caló et al., 2021). However, the results imply that stewardship values have not been fully internalized in BUMDes practices.

More specifically, accountability in many BUMDes appears to function as a form of administrative compliance rather than as a substantive control mechanism. Reporting activities are carried out to fulfill formal requirements, but the information generated is not effectively utilized in managerial decision-making processes. This condition reflects what can be understood as symbolic or ceremonial accountability, where accountability exists in form but has limited impact on organizational outcomes.

Accountability remains largely administrative, focusing on the preparation of accountability reports without being utilized as a basis for decision-making. Consequently, accountability has not functioned as an effective control mechanism to enhance performance (Mardiasmo, 2009; Roberts, 2009; Messner, 2009) .

In contrast, transparency is found to have a positive and significant effect on BUMDes performance, consistent with Stewardship Theory. Transparency reflects the commitment of stewards to build trust and maintain relationships with stakeholders.

This finding indicates that transparency in BUMDes operates not only as an information disclosure mechanism but also as a relational process that facilitates interaction between managers and the community. Through village meetings and public reporting, transparency encourages participation and strengthens social control, which in turn contributes to better organizational performance.

In the context of BUMDes, information disclosure through village meetings and report publication encourages community participation, which in turn improves operational effectiveness. Transparency also enables stakeholders to access relevant information, thereby reducing information asymmetry and increasing public trust (Mardiasmo, 2009; Cucciniello et al., 2017; Grimmelikhuijsen et al., 2013) . These findings suggest that when stewardship values are realized through transparency, organizations can strengthen legitimacy and improve performance.

Furthermore, the results show that Accounting Information Systems (AIS) strengthen the relationship between accountability and BUMDes performance. Within the framework of Stewardship Theory, AIS serves as a supporting mechanism that enables stewards to perform their responsibilities more effectively.

More importantly, AIS transforms accountability from a procedural activity into a more substantive governance mechanism. The availability of timely, structured, and verifiable information allows accountability to be embedded in decision-making processes, rather

than being treated as a post hoc reporting activity. This transformation enhances monitoring effectiveness and reduces information asymmetry, thereby improving organizational performance.

Without adequate system support, accountability tends to remain formal and less impactful. However, with the implementation of AIS, information becomes more accurate, timely, and accessible, thereby supporting better decision-making and improving organizational performance (Romney & Steinbart, 2018; Trabulsi, 2018; Alnajjar, 2017) . This finding indicates that technology reinforces the practical implementation of stewardship values.

However, AIS is also found to negatively moderate the relationship between transparency and performance. From a stewardship perspective, transparency is typically manifested through direct interaction between managers and the community.

This finding highlights that transparency is not solely about information availability, but also about the relational processes that underpin trust and participation. When AIS is implemented effectively, conventional transparency mechanisms—such as face-to-face meetings and participatory discussions—are increasingly replaced by system-based information delivery. While this improves efficiency and accessibility, it may reduce the intensity of social interaction that plays a critical role in building trust and collective engagement.

When AIS is implemented effectively, conventional transparency mechanisms are increasingly replaced by automated systems that provide information in real time. This creates a substitution effect, where technology replaces certain functions of traditional transparency, thereby reducing the intensity of social interaction that is central to stewardship relationships (Granlund, 2011; Quattrone, 2016) .

As a result, although information becomes more readily available, the social and participatory dimensions of transparency may weaken, leading to a reduced impact on performance. This explains why AIS, while beneficial in improving information systems, can simultaneously diminish the effectiveness of transparency as a governance mechanism.

Overall, these findings indicate that Stewardship Theory in the context of BUMDes operates contingently, where governance effectiveness depends not only on steward behavior but also on system support.

These results extend Stewardship Theory by demonstrating that the effectiveness of stewardship-based governance is not universal but contingent upon organizational capabilities, particularly the presence of information systems

Transparency reflects stewardship values, while accountability requires technological support to be effective. From a Resource-Based View (RBV) perspective, Accounting Information Systems represent an organizational capability that enhances information quality and performance (Barney, 1991).

Furthermore, this study highlights the dual role of AIS as both an enabling mechanism that strengthens accountability and a substituting mechanism that can weaken the effectiveness of transparency. This duality provides a more nuanced understanding of how technology interacts with governance practices in shaping organizational performance.

Therefore, the integration of governance practices and technological capabilities becomes essential for improving BUMDes performance.

Conclusion

This study examines the effects of accountability and transparency on BUMDes performance, incorporating the moderating role of Accounting Information Systems (AIS). The findings reveal that transparency has a positive and significant effect on performance, whereas accountability does not have a direct significant effect. Additionally, AIS strengthens the relationship between accountability and performance but weakens the relationship between transparency and performance.

These findings indicate that governance-performance relationships are not linear but contingent upon the presence and quality of technological systems that support organizational processes.

These results highlight that governance effectiveness is not solely determined by governance practices but also by the technological systems supporting organizational operations.

This study has several limitations. First, the use of perception-based data collected through questionnaires may introduce subjective bias, although common method bias has been tested. Second, the study focuses on a single region, Siak Regency, limiting the generalizability of the findings. Third, the variables examined are limited to governance and information systems, which may not fully capture the complexity of factors influencing BUMDes performance.

From a theoretical perspective, this study contributes by demonstrating that the relationship between governance and performance is contextual and influenced by technological capabilities.

More specifically, this study extends Stewardship Theory by showing that stewardship effectiveness depends on system support, and it enriches the RBV perspective by positioning AIS as a capability that not only enhances performance but also reshapes governance mechanisms.

From a practical standpoint, the findings suggest that BUMDes managers and local governments should not only strengthen accountability and transparency practices but also improve the quality of AIS implementation.

Practical efforts should focus on integrating information systems with participatory governance processes, ensuring that technological efficiency does not replace the relational aspects that are essential for building trust and community engagement.

Future research is recommended to expand the geographical scope to improve generalizability. Further studies may also incorporate additional variables such as human resource capacity, organizational culture, or government support as potential determinants of BUMDes performance. The use of mixed methods approaches could also provide deeper insights into the dynamics of governance and information system implementation in practice.

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