

Enhancing Reporting Quality through Systems, Controls, and Efficiency

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Abstract: This study examines the role of accounting information systems (AIS) and internal control systems (ICS) in improving the quality of financial reporting (QFR), with the efficiency of accounting processes (EAP) serving as a mediating variable. Data were collected from 73 employees of the Regional Financial and Asset Management Agency (BPKAD) of Makassar City and analyzed using structural equation modeling. The results indicate that both AIS and ICS have a significant direct effect on QFR, with ICS exerting a more substantial influence. EAP was also found to significantly improve reporting quality and serve as a mediator between AIS, ICS, and QFR. The findings extend Decision Usefulness, Stewardship, and Institutional theories by demonstrating that reporting quality arises from the interaction of systems, controls, and efficiency. Practically, the study highlights the need for governments to align technology, control frameworks, and process efficiency to strengthen financial accountability.

Keywords: Accounting Information System; Internal Control System; Efficiency of Accounting Processes; Quality of Financial Reporting; Public Sector Accounting.

Abstrak: Penelitian ini mengkaji peran sistem informasi akuntansi (SIA) dan sistem pengendalian intern (SPI) dalam meningkatkan kualitas laporan keuangan (KLK), dengan efisiensi proses akuntansi (EPA) diuji sebagai variabel mediasi. Data diperoleh dari 73 pegawai Badan Pengelolaan Keuangan dan Aset Daerah (BPKAD, 2024) Kota Makassar dan dianalisis menggunakan model persamaan struktural. Hasil penelitian menunjukkan bahwa SIA dan SPI berpengaruh signifikan secara langsung terhadap KLK, dengan pengaruh SPI lebih kuat. EPA juga terbukti secara signifikan meningkatkan kualitas laporan dan berperan sebagai mediator antara SIA, SPI, dan KLK. Temuan ini memperluas penerapan teori Decision Usefulness, Stewardship, dan Institutional dengan menunjukkan bahwa kualitas laporan keuangan merupakan hasil interaksi antara sistem, pengendalian, dan efisiensi. Secara praktis, penelitian ini menekankan pentingnya penyelarasan teknologi, kerangka pengendalian, dan efisiensi proses untuk memperkuat akuntabilitas keuangan pemerintah daerah.

Kata Kunci: Sistem Informasi Akuntansi; Sistem Pengendalian Intern; Efisiensi Proses Akuntansi; Kualitas Laporan Keuangan; Akuntansi Sektor Publik.

INTRODUCTION

High-quality financial reporting is a crucial element in managing public sector finances, particularly at the regional government level. Through financial reports, local governments account for the use of public funds in a transparent and accountable manner to citizens and other stakeholders (Rakhman & Wijayana, 2024). The quality of local government financial reports serves as an important benchmark for accountability and transparency in financial management. It is often assessed by the audit opinions issued by the Supreme Audit Agency (BPK) (Raditya et al., 2022). An unqualified opinion (Wajar



Tanpa Pengecualian – WTP) indicates that the financial statements have been prepared in accordance with accounting standards and are free from material misstatements, thereby enhancing public trust in the government's financial performance. In contrast, other types of opinions signal weaknesses in financial governance (Hartanto et al., 2021; Kahar et al., 2023; Raditya et al., 2022). The ability to achieve and maintain high-quality financial reporting has thus become a central agenda in realizing good governance within local governments.

The quality of local government financial reporting in Indonesia remains a strategic issue in realizing transparent and accountable public financial management. According to the Summary of Audit Results for the Second Semester of 2023 (IHPS II 2023) published by the Audit Board of the Republic of Indonesia (BPK RI, 2024), out of a total of 542 local governments, 499 entities (92.070 per cent) received unqualified opinions (*Wajar Tanpa Pengecualian* – WTP) on their 2022 financial statements, an increase from 486 entities (89.670 per cent) in 2021. Nevertheless, 43 local governments (7.930 per cent) still received qualified or adverse opinions (*Wajar Dengan Pengecualian* – WDP) due to weaknesses in internal control systems, errors in asset recognition, and inadequate disclosure in accordance with the Government Accounting Standards (SAP). This condition indicates that although significant progress has been achieved at the national level, disparities in financial reporting performance across regions persist, influenced by the effectiveness of implementing Accounting Information Systems (AIS) and Internal Control Systems (ICS). In the context of Makassar City, such dynamics are also reflected in the fluctuation of audit opinions, as the city government received a qualified opinion (WDP) in 2020 before regaining unqualified opinions (WTP) consecutively from 2021 to 2023 (BPK RI, 2023). This evidence underscores that the sustainability of financial reporting quality is determined not only by compliance with accounting standards but also by the efficiency of accounting processes and the effectiveness of the information and internal control systems that underpin them.

Achieving reliable financial reporting requires the support of robust systems and mechanisms. One fundamental component is the Accounting Information System (AIS), which functions to collect, record, process, and report financial transaction data into useful information for decision-makers (Lutfi et al., 2022; Murugan et al., 2024). An effective AIS ensures that every transaction is accurately, completely, and promptly recorded, thereby producing trustworthy information. In practice, public organizations must establish adequate information systems, as these systems determine the quality of the financial information produced. (Anas et al., 2023). Another essential element is the Internal Control System (ICS), which safeguards the integrity and reliability of financial reporting through policies, procedures, and control activities. (Hamed, 2023; Madawaki et al., 2022). A well-implemented ICS enhances the reliability of accounting information, prevents inconsistencies in record-keeping, and facilitates the auditing process. Taken together, AIS provides the infrastructure for efficient recording, while ICS ensures that reporting processes comply with regulations and remain free from material errors. (Al-Okaily, 2024; Lutfi et al., 2022).

A considerable body of prior research has examined the relationship between AIS, ICS, and the quality of financial reporting in the public sector. Most studies report a positive association, finding that the implementation of AIS significantly improves the accuracy and completeness of financial information, thereby enhancing the quality of financial statements. (Alharasis, 2025; Johri, 2025; Michael & Widjaja, 2024). Similarly, a strong



ICS is consistently associated with higher-quality financial reporting, as effective oversight improves staff performance and ensures that reports are produced more efficiently. For instance, (Sudarlan et al., 2024) and (Aswar et al., 2021) Demonstrated that strong internal controls positively affect the reliability of local government reporting. Nonetheless, the evidence across regions is not entirely consistent. Some studies indicate that AIS does not have a significant effect, and in some instances, even an adverse effect on financial reporting quality when system implementation is suboptimal. (Marzuki & Hidayah, 2023). Research in the Regional Financial and Asset Management Agency (BPKAD) of South Sumatra also reported that AIS had no significant impact, whereas ICS remained significantly positive (Oktapania & Falia, 2024). Such divergent findings suggest that other factors may shape the strength of the relationship between AIS, ICS, and financial reporting quality.

One factor that may explain these inconsistencies, yet remains underexplored in the literature, is the efficiency of accounting processes. Efficiency in accounting refers to the speed, accuracy, and optimal use of resources in recording and reporting financial transactions accurately and efficiently. (Alghazzawi, 2024). An efficient accounting process ensures that financial data is recorded quickly and accurately, enabling timely and reliable reports to be prepared. Well-implemented AIS should enhance efficiency by reducing manual tasks, minimizing input errors, and accelerating report preparation. (Al-Hashimy and Jinfang, 2024; Murugan et al., 2024). Similarly, practical ICS promotes orderly and controlled work procedures, enabling the accounting process to operate more efficiently (Hamed, 2023). However, the role of accounting process efficiency has rarely been examined as a mediating variable in previous studies. This gap underscores the need for further investigation into how efficiency moderates the impact of AIS and ICS on the quality of financial reporting.

This study introduces novelty by integrating accounting process efficiency as a mediating variable in the relationship between Accounting Information Systems (AIS), Internal Control Systems (ICS), and the quality of financial reporting in the public sector context. Unlike previous studies that mainly focused on the direct effects of AIS and ICS on reporting quality, this study highlights the internal mechanism that bridges system implementation and actual improvements in reporting outcomes. (Wu et al., 2022) By positioning accounting efficiency as an operational capability that enhances timeliness, accuracy, and reliability of financial data, this study expands the theoretical understanding of how information systems and controls interact to produce high-quality reporting. Empirically, this research provides new evidence from the context of the Regional Financial and Asset Management Agency (BPKAD) of Makassar City, where financial reporting performance is significantly influenced by both technological effectiveness and procedural efficiency. The integration of accounting process efficiency as a mediating variable offers a new theoretical and practical contribution to the public sector accounting literature by providing a more comprehensive explanation of how institutional systems drive sustainable financial reporting quality and accountability.

The relevance of this research is underscored in the context of the Regional Financial and Asset Management Agency (BPKAD) of Makassar City, which is responsible for managing local government finances. Makassar has consistently received unqualified audit opinions in recent years, indicating that its financial reporting meets the highest standards of accountability. Nonetheless, in 2020, the city received a qualified opinion, underscoring that sustaining high-quality financial reporting remains an ongoing challenge. (Pemerintah Kota Makassar, 2021). The complexity of local government financial transactions requires



not only robust AIS and strong ICS but also efficient accounting processes to ensure that reports are accurate, timely, and compliant with regulations. Continuous improvement in these areas is essential to minimize errors and reinforce financial accountability.

The purpose of this study is to examine the role of accounting process efficiency in mediating the relationship between AIS and ICS, as well as the quality of financial reporting, at BPKAD Makassar City. The study contributes theoretically by enriching the public sector accounting literature with a mediation model that is rarely tested. Empirically, the study provides evidence on the importance of accounting process efficiency as a mechanism linking systems to reporting outcomes. Practically, the findings are expected to provide recommendations for local governments, particularly BPKAD Makassar, on strengthening AIS and ICS, while emphasizing accounting efficiency to enhance the quality of financial reports. The remainder of this paper is structured as follows. The second section reviews the relevant literature and develops the study hypotheses. The third section describes the research methodology, including the design, data collection, and analytical techniques. The fourth section presents the empirical results and discussion. The final section presents the conclusion, discusses theoretical and practical implications, outlines limitations, and offers recommendations for future research.

THEORITICAL REVIEW

Accounting Information System and Financial Reporting Quality. High-quality financial reporting is widely regarded as a crucial foundation for accountability and transparency within organizations. Financial reports represent a key communication channel that reduces information asymmetry between managers and stakeholders, thereby strengthening confidence in financial governance (Rakhman & Wijayana, 2024; Raditya et al., 2022). According to *Decision Usefulness Theory*, the value of financial reports depends on the relevance, reliability, and timeliness of the information they provide. AIS contributes directly to these attributes by ensuring that financial transactions are systematically recorded, processed, and transformed into information suitable for decision-making (Al-Hattami, 2024; Arhinful et al., 2025). Consistent audit outcomes and user confidence can therefore be seen as reflections of effective AIS adoption. (Seethamraju & Hecimovic, 2023).

The importance of AIS also derives from the *Technology Acceptance Model (TAM)*, which emphasizes the role of system usefulness and ease of use in shaping adoption and effectiveness. A well-functioning AIS ensures that information is processed accurately and efficiently, providing managers with reliable outputs for both operational and strategic decision-making (Lutfi et al., 2022; Murugan et al., 2024). Studies confirm that when AIS is integrated with organizational culture and managerial support, its impact on reporting timeliness and reliability is amplified (Islam, 2024; Nurhayati et al., 2023). These findings highlight AIS not only as a technical tool but also as a socio-technical system that influences overall reporting quality.

The literature also documents contradictory evidence. Numerous studies have demonstrated the significant positive effects of AIS on financial reporting quality (Alharasis, 2025; Johri, 2025; Michael & Widjaja, 2024). Others show insignificant or even negative results when system implementation is incomplete, resources are lacking, or users are inadequately trained (Marzuki & Hidayah, 2023; Oktapania & Falia, 2024). Research in multiple contexts indicates that AIS effectiveness depends on factors such as system design,



user competence, and organizational readiness (T. H. Hoang et al., 2024). This variation suggests that AIS outcomes may often be indirect, realized through mediating processes rather than through direct effects on reporting.

Scholars increasingly argue that AIS enhances reporting quality when it improves organizational processes such as efficiency, integration, and control. Studies show that system adoption enhances decision-making and reporting reliability primarily through improvements in accuracy, timeliness, and user trust. (Lutfi et al., 2022). These insights strengthen the rationale for testing AIS not only as a direct determinant of reporting outcomes but also within models that account for mediation.

H1: The implementation of AIS positively influences the quality of financial reporting.

Internal Control System and Financial Reporting Quality. Internal Control Systems (ICS) constitute a cornerstone of reliable financial governance. Based on the *COSO Internal Control Framework*, ICS encompasses control environment, risk assessment, control activities, information and communication, and monitoring. (Chan et al., 2021). Within organizations, ICS ensures that resources are safeguarded, transactions are accurately recorded, and reports are compliant with standards. This aligns with Stewardship Theory and Accountability Theory, which underline the responsibility of managers to act as custodians of stakeholders' interests by producing trustworthy financial information (Hamed, 2023; Madawaki et al., 2022).

Strong ICS establishes discipline in financial management and strengthens confidence in reported information. Control mechanisms, such as segregation of duties, standardized procedures, and consistent monitoring, minimize the risks of fraud and error, thereby improving audit readiness and credibility. Empirical studies show that robust ICS enhances compliance and fosters trust in financial reports (Al-Okaily, 2024; Lutfi et al., 2022; Sudarlan et al., 2024; Aswar et al., 2021). These findings reinforce ICS as a critical determinant of reporting quality by ensuring that processes are consistent and transparent (Johri, 2024; Oktorina et al., 2022).

Evidence also shows that the effectiveness of ICS varies depending on the quality of enforcement and implementation. Some organizations may exhibit strong internal control frameworks on paper, but their practical enforcement is often weak. In such cases, ICS has been found to have little or no significant effect on reporting outcomes. (Oktorina et al., 2022). These variations underscore the importance of examining how ICS interacts with other organizational factors, rather than viewing it as an isolated mechanism.

Research has begun to demonstrate that ICS achieves its full potential when integrated with efficient processes. Studies indicate that controls improve reporting reliability not only directly but also indirectly by ensuring that accounting procedures are efficient and orderly (H. Hoang & Phang, 2021; T. H. Hoang et al., 2024). These findings underscore the value of incorporating efficiency as a mediating mechanism in ICS-reporting models.

H2: The implementation of Internal Control Systems positively influences the quality of financial reporting.

Efficiency of Accounting Processes as a Mediator. Efficiency in accounting processes explains how systems and controls translate into reliable reporting. According to *Organizational Performance Theory*, efficiency is achieved when objectives are met with



minimal resource consumption while maintaining effectiveness. (Kavila et al., 2023). In accounting, efficiency means that data are processed quickly, accurately, and consistently, thereby improving reliability. (Alghazzawi, 2024). AIS contributes to efficiency by automating processes and minimizing manual interventions (Al-Hashimy and Jinfang, 2024; Murugan et al., 2024). ICS enhances efficiency by enforcing standardized procedures that reduce irregularities and inconsistencies (Hamed, 2023).

Empirical evidence shows that efficiency mediates the relationship between system implementation and reporting outcomes. Studies have demonstrated that the digitalization of accounting processes enhances the timeliness and accuracy of financial reports. (Kusumawardhani et al., 2024). Efficiency has also been found to improve reporting reliability and punctuality across different organizational contexts significantly (Mustaqmah & Putri, 2022). Research further indicates that AIS enhances performance outcomes primarily through improvements in efficiency. (Sunarta & Astuti, 2023). These findings suggest that AIS and ICS are most impactful when they enhance efficiency in accounting.

Many studies continue to examine only the direct influence of systems and controls, leaving unexplained inconsistencies in outcomes. Evidence indicates that AIS produces expected benefits only when efficiency gains are realized (Murugan et al., 2024), while ICS influences reliability when efficiency underpins its processes (Hamed, 2023). Additional literature further supports this relationship. AIS has been shown to improve decision usefulness indirectly by fostering efficient accounting practices (Widjayanti et al., 2024). Efficiency also plays a central role in mediating the effects of systems on reporting reliability, as confirmed in public sector contexts. (Lustrilanang et al., 2023; Tran et al., 2021). These insights offer a robust theoretical rationale for examining efficiency as a mediator between AIS, ICS, and reporting quality.

H3: The efficiency of accounting processes mediates the relationship between AIS and the quality of financial reporting.

H4: The efficiency of accounting processes mediates the relationship between ICS and the quality of financial reporting.

Quality of Financial Reporting in the Public Sector. The quality of financial reporting is the ultimate measure of accountability in financial governance. *Agency Theory* emphasizes that reporting reduces information asymmetry between principals (stakeholders) and agents (managers), while *Accountability Theory* stresses the obligation to provide transparent and reliable information (Mio et al., 2020; Sun et al., 2022). Reports that meet attributes of reliability, relevance, comparability, and timeliness enhance trust and support decision-making. Audit outcomes and stakeholder perceptions reflect the degree to which reporting quality is achieved (Raditya et al., 2022).

Research indicates that reliable reporting enhances governance, while poor-quality reporting erodes institutional legitimacy. Studies reveal that reliable reports directly improve trust and decision-making. (Starke & Baber, 2020). International examples also illustrate that unreliable reports can lead to significant governance challenges, such as the refusal of certification by oversight bodies due to poor financial data. (Starke & Baber, 2020). Other evidence shows that reporting reliability is determined by both system design and process efficiency. (Cohen & Karatzimas, 2022). These findings highlight that single



elements do not determine reporting quality, but by the interaction of AIS, ICS, and efficiency.

Further contributions to the literature confirm that recurring audit weaknesses often stem from inadequate systems, ineffective controls, and inefficient processes. Consistency in reporting quality requires integration of technology, effective control frameworks, and efficiency in execution. High-quality reporting, therefore, emerges as the cumulative result of these interdependent mechanisms..

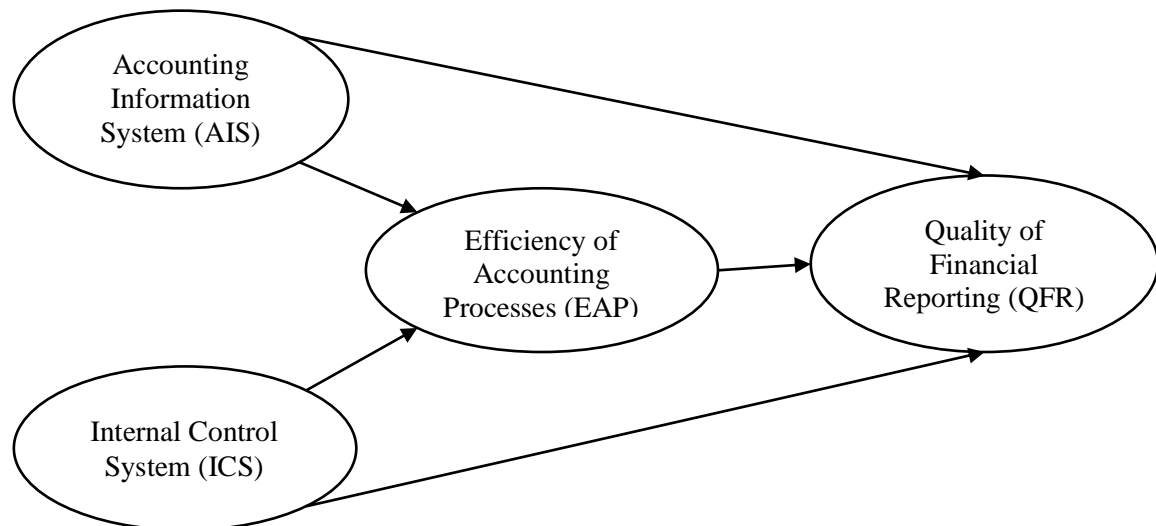


Figure 1. Reaserch Model

METHODS

This study employed a quantitative research design with a survey approach to examine the causal relationships among the variables under investigation. A quantitative approach was considered appropriate because it enabled the measurement of causal associations in numerical form and allowed the use of inferential statistics to test the hypotheses, as commonly applied in public sector accounting research (Lutfi et al., 2022; Al-Okaily, 2024). The unit of analysis was the Regional Financial and Asset Management Agency (BPKAD) of Makassar City, with the population consisting of all 73 employees. Given the relatively small number of employees and the feasibility of including them all, a census technique was employed, treating the entire population as the study sample. This strategy ensured a comprehensive representation of the organizational context and minimized sampling bias (Creswell & Creswell, 2018).

Data were collected through a structured questionnaire distributed directly to the respondents. The instrument used a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to capture the degree of agreement with statements related to the study variables. To ensure instrument quality, the questionnaire underwent expert validation prior to administration, with a focus on clarity, relevance, and content validity (Hair et al., 2022). A pilot test was also conducted with a limited group of respondents outside the sample to refine the wording of several items and confirm the instrument's reliability. After these procedures, the questionnaire was formally distributed to all employees in the sample.

The study examined four variables: the Accounting Information System (AIS), the Internal Control System (ICS), the Efficiency of Accounting Processes (EAP), which served as the mediating variable, and the Quality of Financial Reporting (QFR), which served as the dependent variable. Each variable was defined and operationalized based on prior international literature to ensure theoretical rigor and comparability with previous research. The detailed operational definitions, including conceptual underpinnings, measurement approaches, and supporting references, are summarized in **Table 1** (Arhinful et al., 2025; Biehl, 2024; Boulhaga, 2022; Monteiro et al., 2024).

The analysis was conducted in several stages to ensure methodological robustness. Descriptive statistics were first used to summarize the demographic characteristics of respondents and to provide an overview of the distribution of responses across the measured variables. Reliability and validity tests were then conducted to evaluate the adequacy of the measurement instrument. Cronbach’s alpha and composite reliability were used to assess internal consistency, while the average variance extracted (AVE) was used to assess convergent validity. Discriminant validity was evaluated using the Fornell–Larcker criterion and the heterotrait–monotrait (HTMT) ratio, as recommended in PLS-SEM literature. (Hair et al., 2022).

Once the measurement model was confirmed, the structural model was tested using Structural Equation Modeling with the partial least squares approach (SEM-PLS). SEM-PLS is considered appropriate because it is well-suited for analyzing mediation models with relatively small sample sizes, does not require the data to meet strict multivariate normality assumptions, and can simultaneously estimate both measurement and structural relationships (Hair et al., 2022). The mediating role of accounting process efficiency was specifically examined using a bootstrapping procedure with 5,000 resamples to evaluate the significance of indirect effects. (Hair et al., 2022). All statistical analyses were performed using SmartPLS software, and results were evaluated at a 5 per cent significance level.

Table 1. Operational Definition of Variables

Variable	Indicators	Scale	Source
AIS (Accounting Information System)	System performance, Information accuracy, Timeliness of reporting, User satisfaction	Likert (1–5)	(Monteiro et al., 2024)
ICS (Internal Control System)	Control environment, Monitoring quality, Effectiveness of control activities, Compliance/fraud prevention	Likert (1–5)	(Boulhaga et al., 2022)
EAP (Efficiency of Accounting Processes)	Speed of completing accounting tasks, Accuracy of accounting records, Consistency of accounting procedures, Reduction of redundant effort, and Improved reporting timeliness	Likert (1–5)	(Arhinful et al., 2025)
QFR (Quality of Financial Reporting)	Reliability, Compliance with standards, Timeliness, Usefulness for decision-making	Likert (1–5)	(Biehl et al., 2024)

RESULTS

The empirical analysis of this study was based on a total sample of seventy-three respondents, consisting of employees of the Regional Financial and Asset Management Agency (BPKAD) of Makassar City. This figure represents the entire population of the agency, as the total workforce is relatively small. A census method was therefore employed



to ensure that all 73 employees were included in the study. This approach provided full coverage of the organizational population, minimized potential sampling bias, and enhanced the reliability of the findings. By incorporating both administrative staff and structural officials, the dataset offers a comprehensive picture of the agency's human resources profile. The demographic characteristics of respondents are presented in **Table 2**.

Table 2 show the demographic characteristics of respondents, providing essential contextual information for this study. The gender composition, consisting of 53.420 percent male and 46.580 percent female employees, indicates a relatively balanced workforce. This balance suggests a level of gender diversity that may foster more inclusive perspectives in the use of Accounting Information Systems (AIS) and Internal Control Systems (ICS). In terms of age, nearly seventy percent of employees are between thirty-one and fifty years old, representing a predominance of individuals in their most productive working years. This distribution implies that most respondents possess professional maturity and adaptability to organizational procedures, which may strengthen the reliability of financial reporting processes.

Table 2. Demographic characteristics of respondents

Characteristics	Category	Frequency	Percentage
Gender	Male	39	53.424
	Female	34	46.575
Age	21 to 30 years	12	16.438
	31 to 40 years	27	36.986
	41 to 50 years	24	32.876
	More than 50 years	10	13.698
Education	Diploma/Bachelor	44	60.273
	Master/Doctorate	29	39.726
Years of Service	Less than 5 years	8	10.958
	5 to 10 years	21	28.767
	11 to 15 years	23	31.506
	More than 15 years	21	28.767
Position	Staff/Administrative Personnel	61	83.561
	Structural Officials (Section/Division Heads)	12	16.438

Source: Survey data, 2025

Regarding education, 60.270 percent of employees hold bachelor's degrees, while 39.730 percent possess postgraduate qualifications. This relatively high level of education suggests that most respondents have a strong understanding of accounting mechanisms and control systems, thereby supporting high-quality data processing and compliance with financial reporting standards. In terms of tenure, more than sixty percent of respondents have worked for five to fifteen years, reflecting organizational stability and substantial institutional experience. Such continuity likely reinforces the consistency of internal control implementation and the effective use of accounting information systems. Furthermore, the job distribution shows that 83.560 percent of respondents are administrative staff, while 16.440 percent serve as structural officials such as section or division heads. This distribution indicates that the respondents are predominantly operational employees directly involved in implementing accounting systems and preparing financial reports.

The study employed the PLS-SEM approach, which involves two stages of analysis: the measurement model (outer model) and the structural model (inner model). The outer



model links observed indicators to their respective latent constructs, while the inner model specifies the hypothesized causal paths among constructs. As illustrated in **Figure 2**, the outer model demonstrates the measurement structure for AIS, ICS, EAP, and QFR.

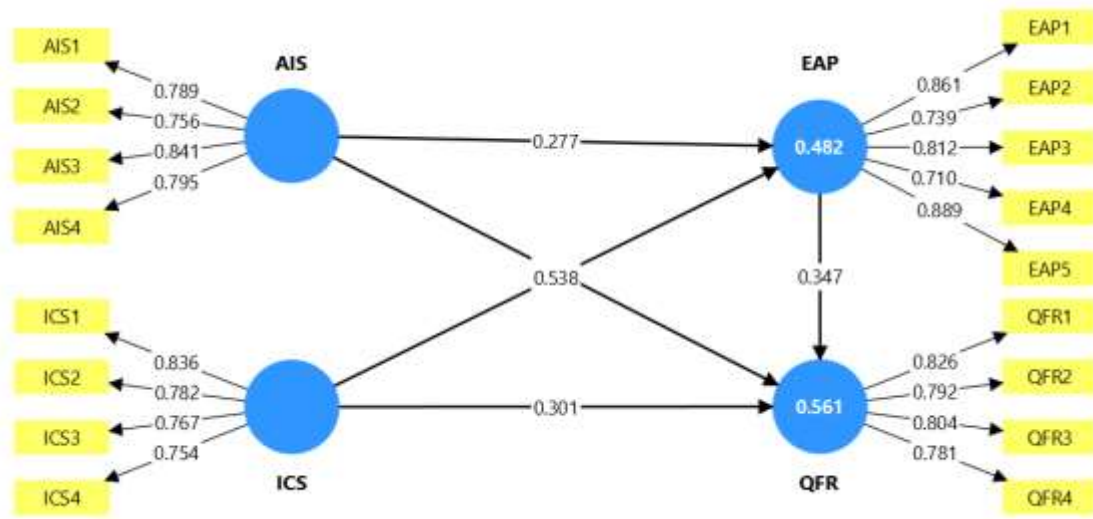


Figure 2. Measurement model (outer model)

Source: SmartPLS output, 2025

Measurement Model (Outer Model). The reliability and validity of the constructs were assessed before evaluating the structural relationships. As presented in **Table 3**, Cronbach’s alpha values ranged from 0.792 to 0.862, while composite reliability values exceeded 0.800 for all constructs, confirming internal consistency. In addition, the AVE values were all above 0.600, surpassing the 0.500 threshold and establishing convergent validity.

Table 3. Construct reliability and validity

Construct	Cronbach’s Alpha	Composite Reliability (ρ_a)	Composite Reliability (ρ_c)	AVE
AIS	0.807	0.816	0.873	0.633
EAP	0.862	0.869	0.902	0.648
ICS	0.792	0.797	0.865	0.617
QFR	0.814	0.820	0.877	0.642

Source: SmartPLS output, 2025

Discriminant validity was further examined. The HTMT ratios in **Table 3** were all below 0.8500, ranging between 0.480 and 0.786. Likewise, the Fornell–Larcker criterion in **Table 4** indicates that the square roots of AVE were greater than the inter-construct correlations. Together, these findings confirm that the constructs are empirically distinct.

Table 4. Heterotrait–Monotrait ratio (HTMT)

Relationship	HTMT Value
EAP ↔ AIS	0.569



ICS ↔ AIS	0.480
ICS ↔ EAP	0.770
QFR ↔ AIS	0.660
QFR ↔ EAP	0.786
QFR ↔ ICS	0.773

Source: SmartPLS output, 2025

Table 4 shows the results of the discriminant validity test using the Heterotrait Monotrait Ratio (HTMT) approach. Discriminant validity is necessary to ensure that each construct in the model truly measures concepts that are distinct from one another. Based on the calculation results, the HTMT values ranged from 0.480 to 0.786. All of these values were below the threshold of 0.900 as suggested by (Syah et al., 2025), which means that there were no discriminant validity issues. Relatively low values, such as the HTMT ratio between ICS and AIS (0.480), indicate a clear distinction between the two constructs, while higher values, such as between QFR and EAP (0.786), remain within the acceptable range. Thus, it can be concluded that each construct in the model demonstrates good discriminant validity and is empirically distinguishable by respondents.

Table 5. Fornell–Larcker criterion

Construct	AIS	EAP	ICS	QFR
AIS	0.796			
EAP	0.486	0.805		
ICS	0.389	0.646	0.785	
QFR	0.544	0.667	0.626	0.801

Source: SmartPLS output, 2025

Table 5 presents the results of the discriminant validity test using the Fornell–Larcker criteria based on a comparison between the square root of Average Variance Extracted (AVE) and the correlation between constructs. The diagonal values representing the square root of AVE, namely 0.796 for AIS, 0.805 for EAP, 0.785 for ICS, and 0.801 for QFR, are all greater than the correlation values between constructs in the same row and column. This indicates that each construct is better able to explain the variance of its own indicators than the variance explained by other constructs. In other words, each construct in the model is unique and does not overlap conceptually with other constructs. Therefore, it can be concluded that the Fornell–Larcker criteria have been met and the discriminant validity of this research model is acceptable.

Structural Model (Inner Model). After establishing measurement quality, the structural model was evaluated to examine the hypothesized causal paths. The inner model specifies the hypothesized causal paths among constructs, including both direct and mediated relationships.

After confirming the adequacy of the measurement model, the next step was to evaluate the structural model. The structural model assessment was carried out to test the hypothesized causal relationships among the constructs, including both direct and indirect effects. The evaluation focused on several key indicators. Path coefficients were examined to determine the magnitude and direction of the relationships between variables. Statistical significance was assessed using t-statistics and p-values generated through a bootstrapping procedure with 5,000 resamples. The indirect effects were analyzed to test the mediating



role of efficiency of accounting processes (EAP) in the relationship between accounting information systems (AIS), internal control systems (ICS), and quality of financial reporting (QFR). Finally, the coefficient of determination (R-squared) was used to evaluate the explanatory power of the model, measuring the proportion of variance in the dependent variable explained by the predictors.

As shown in **Table 6**, the internal control system (ICS) demonstrated the most substantial direct effect on the efficiency of accounting processes (EAP), with a path coefficient of 0.538 and a t-statistic of 10.089, indicating a highly significant relationship. The accounting information system (AIS) also showed a positive and significant effect on EAP, although the magnitude was smaller, with a coefficient of 0.277. These results suggest that both systems play important roles in improving process efficiency, but the contribution of ICS is more substantial.

Table 6. Structural model results

Construct	Original Sample	Sample Mean	Standard Deviation	T Statistic	P Value
AIS → EAP	0.277	0.280	0.057	4.870	0.000
AIS → QFR	0.259	0.257	0.073	3.553	0.000
EAP → QFR	0.347	0.346	0.077	4.482	0.000
ICS → EAP	0.538	0.541	0.053	10.089	0.000
ICS → QFR	0.301	0.303	0.070	4.335	0.000
AIS → EAP → QFR	0.096	0.097	0.031	3.147	0.002
ICS → EAP → QFR	0.187	0.186	0.042	4.399	0.000
Model	R-square	R-square			
EAP	0.482	0.482			
QFR	0.561	0.561			

EAP, in turn, significantly influenced the quality of financial reporting (QFR), with a coefficient of 0.347 and a t-statistic of 4.482. This confirms that efficient accounting processes are crucial for producing accurate and reliable financial reports. Both AIS and ICS also had direct effects on QFR, with coefficients of 0.259 and 0.301, respectively, which indicates that these systems contribute independently to reporting outcomes beyond their indirect impact through process efficiency.

The mediation analysis revealed that EAP served as a significant channel linking AIS and ICS to QFR. The indirect effect of ICS through EAP was 0.187, nearly twice that of AIS at 0.096, highlighting the greater importance of internal controls in strengthening reporting quality when mediated by efficient processes. The coefficient of determination further showed that AIS and ICS together explained 48.200 percent of the variance in EAP. When EAP was included in the model, the variance explained in QFR increased to 56.100 percent, suggesting that the model provides moderate explanatory power and meaningful insights into the mechanisms that shape financial reporting quality in the public sector.

DISCUSSION

Accounting Information System and Financial Reporting Quality. The results confirmed that the accounting information system (AIS) has a direct and significant effect on the quality of financial reporting (QFR). AIS ensures that financial transactions are recorded systematically, processed efficiently, and transformed into information that



enhances accuracy and completeness (Lutfi et al., 2022; Murugan et al., 2024). High-quality financial reporting serves as a key mechanism for reducing information asymmetry and enhancing governance accountability, and AIS plays a central role in achieving this outcome (Rakhman & Wijayana, 2024; Raditya et al., 2022). According to Decision Usefulness Theory, financial reports are most valuable when they are relevant, reliable, and timely, and AIS directly contributes to these dimensions by improving transaction recording and reporting practices (Al-Hattami, 2024; Arhinful et al., 2025). The findings confirm that when AIS is effectively integrated, it contributes not only to technical accuracy but also to strengthening institutional trust.

AIS also enhances transparency and auditability. A well-functioning system provides auditors with records that are consistent, traceable, and compliant with accounting standards, which reduces the risk of material misstatements. Studies have highlighted that the quality of local government reports, often assessed through audit opinions, reflects the effectiveness of the underlying information systems (Raditya et al., 2022; Hartanto et al., 2021; Kahar et al., 2023). Furthermore, organizations with reliable AIS are more likely to achieve unqualified audit opinions, which signal the accuracy and credibility of financial information (Anas et al., 2023; Al-Okaily, 2024). This demonstrates that AIS supports both internal efficiency and external assurance, making it a crucial element of accountability frameworks. Reliable systems also reduce the workload of auditors, enabling evaluations to focus on governance rather than error detection.

However, the literature documents mixed evidence. While many studies report that AIS improves reporting quality significantly (Alharasis, 2025; Johri, 2025; Michael & Widjaja, 2024), other findings indicate that AIS has insignificant or even adverse effects when implementation is weak or when users lack sufficient competence (Marzuki & Hidayah, 2023; Oktapania & Falia, 2024). This variation suggests that the success of AIS is conditional on effective system design, user training, and organizational readiness. Where these conditions are absent, AIS may fail to enhance the quality of reporting. These contradictions provide a rationale for considering mediating factors such as the efficiency of accounting processes. In this regard, AIS outcomes may be best understood as the result of interactions between systems and organizational capabilities rather than as direct effects alone.

Taken together, the findings reinforce the conclusion that AIS has both direct and conditional effects on financial reporting quality. Theoretically, this supports Decision Usefulness Theory and the Technology Acceptance Model by demonstrating that AIS enhances reporting credibility when effectively implemented. Practically, organizations should integrate AIS into governance strategies and provide continuous training to ensure that system adoption translates into accurate, timely, and transparent financial reporting (Lutfi et al., 2022; Murugan et al., 2024; Anas et al., 2023). Policymakers are also encouraged to develop standards that promote consistent implementation of AIS across institutions. Furthermore, aligning AIS adoption with organizational culture and managerial support ensures that the system achieves long-term effectiveness.

Efficiency of Accounting Processes and Financial Reporting Quality. The findings also demonstrated that the efficiency of accounting processes (EAP) has a significant impact on the quality of financial reporting. Efficient accounting practices ensure that data are processed accurately and quickly, thereby improving the timeliness and reliability of reporting (Alghazzawi, 2024; Murugan et al., 2024). High-quality reports enhance accountability by providing stakeholders with timely and trustworthy information, thereby



reinforcing governance standards (Rakhman & Wijayana, 2024; Raditya et al., 2022). This relationship is consistent with Organizational Performance Theory, which defines efficiency as the ability to achieve objectives with minimal resource consumption while maintaining effectiveness (Kavila et al., 2023). The findings suggest that efficiency is both a technical and strategic resource, shaping an organization's capacity to meet external reporting expectations.

EAP also has implications for audit outcomes. Research indicates that inefficiencies in accounting frequently lead to qualified audit opinions, which erode public trust in financial management. In contrast, efficient processes reduce errors and inconsistencies, thereby increasing the likelihood of unqualified opinions (Hartanto et al., 2021; Kahar et al., 2023). These findings suggest that process efficiency is not only an operational advantage but also a determinant of audit credibility and reporting trustworthiness. Efficient reporting enables auditors to allocate resources to testing governance compliance rather than correcting errors. Consequently, efficiency strengthens both the technical quality of reports and the broader governance context in which reporting occurs.

From an operational standpoint, efficient processes enhance integration across accounting activities. Streamlined workflows reduce duplication, minimize input errors, and accelerate reporting cycles, enabling organizations to meet deadlines without compromising accuracy (Kusumawardhani et al., 2024; Mustaqmah & Putri, 2022). Prior studies also confirm that efficient accounting practices lead to improvements in both reporting punctuality and reliability (Sunarta & Astuti, 2023; Widjayanti et al., 2024). These operational improvements directly enhance the quality of financial statements and increase stakeholders' confidence in the reported information. The evidence shows that efficiency reduces transaction costs and increases organizational responsiveness to external audit demands. As such, efficiency not only improves technical outputs but also institutional credibility.

Theoretically, these results enrich Organizational Performance Theory by positioning efficiency as the mechanism that connects internal practices to governance outcomes. Practically, the findings underscore the need for organizations to invest in automation, process redesign, and staff training to enhance efficiency. When efficiency is prioritized, financial reporting becomes more reliable, transparent, and timely, which supports accountability in governance (Lustrilanang et al., 2023; Tran et al., 2021). Furthermore, efficiency reduces pressure on employees, enabling them to focus on strategic tasks rather than repetitive activities. Organizations should therefore recognize efficiency as a dynamic resource that underpins sustainable improvements in reporting quality.

Internal Control System and Financial Reporting Quality. The study also found that the internal control system (ICS) has a direct and significant impact on the quality of financial reporting. Adequate internal controls safeguard financial resources, reduce irregularities, and ensure compliance with standards, thereby enhancing the reliability of reports (Hamed, 2023; Madawaki et al., 2022). According to Stewardship Theory and Accountability Theory, managers are expected to act as custodians of stakeholders' interests, and strong internal controls help fulfill this responsibility by producing trustworthy reports (Chan et al., 2021). These theories underline that governance quality depends on both oversight and the credibility of reporting outcomes. ICS is therefore not only a preventive tool but also a mechanism for reinforcing accountability.

ICS also establishes discipline in financial management through mechanisms such as segregation of duties, standardized procedures, and consistent monitoring. These practices



reduce risks of fraud and error, thereby strengthening audit readiness and the credibility of reported information. Empirical evidence shows that robust ICS enhances compliance and improves reporting outcomes (Al-Okaily, 2024; Lutfi et al., 2022; Sudarlan et al., 2024; Aswar et al., 2021). These findings emphasize that reporting credibility reflects not only technological systems but also the strength of institutional controls. Moreover, ICS helps establish an environment of trust by embedding consistent norms and practices in financial management.

Nonetheless, the literature acknowledges that the effectiveness of ICS depends on the quality of enforcement. Some organizations formally implement control frameworks but fail to enforce them effectively, resulting in little to no significant impact on reporting outcomes (Oktorina et al., 2022). This variation explains why ICS is highly effective in some cases but weak in others. The differences suggest that controls must be embedded in organizational culture and consistently applied to yield improvements in reporting quality. Without such integration, even well-designed frameworks may not lead to credible reporting. The empirical evidence thus suggests that enforcement is as important as formal system design.

Overall, these findings confirm that ICS is a cornerstone of financial governance, directly contributing to the quality of reporting. Theoretically, this supports Stewardship and Accountability theories, which emphasize the central role of managerial responsibility and oversight. Practically, organizations should view ICS not only as a compliance requirement but also as a governance strategy to ensure transparency and accountability in financial reporting (Johri, 2024; Oktorina et al., 2022). Furthermore, institutions should continuously monitor and update internal control mechanisms to adapt to changes in regulatory and operational environments. Strengthening ICS should therefore be seen as a continuous, adaptive process that ensures the sustainability of reporting quality.

AIS, Efficiency, and Financial Reporting Quality. The mediation analysis revealed that the efficiency of accounting processes plays a significant role in linking AIS to reporting quality. AIS enhances efficiency by automating transactions, reducing manual interventions, and minimizing errors, which in turn translate into more reliable and timely reports (Al-Hashimy & Jinfang, 2024; Murugan et al., 2024). This finding is consistent with Decision Usefulness Theory, which argues that the usefulness of financial reports depends on timeliness and reliability. Prior studies confirm that AIS enhances reporting outcomes indirectly by strengthening efficiency in accounting workflows (Sudarlan et al., 2024; Aswar et al., 2021). This suggests that efficiency is the channel through which AIS achieves governance outcomes.

This relationship also explains why previous findings on AIS effectiveness have been inconsistent. While some studies report strong positive effects, others show insignificant or adverse outcomes when efficiency improvements are not realized (Marzuki & Hidayah, 2023; Oktapania & Falia, 2024). The mediation effect suggests that AIS contributes to reporting quality primarily when it enhances efficiency. Without such improvements, AIS alone may not deliver the expected governance benefits. These results, therefore, highlight the importance of considering mediating variables in empirical models to explain variations in outcomes. In this sense, efficiency provides the missing link between system adoption and governance improvements.

The indirect effect of AIS through efficiency, though smaller than that of internal controls, remains meaningful. It confirms that efficient processes must complement technology adoption to produce reliable reporting outcomes. Studies emphasize that AIS



adoption improves decision-making and reporting quality only when embedded within efficient accounting practices (Widjayanti et al., 2024; Lustrilanang et al., 2023). The results also highlight the importance of organizational readiness, as efficiency gains depend on both technical infrastructure and user competence. When these elements align, AIS produces significant improvements in reporting credibility.

Theoretically, this mediation enriches the literature by clarifying that AIS impacts reporting quality through efficiency as a key pathway. Practically, this suggests that organizations should not treat AIS as a stand-alone solution, but rather integrate it with training and workflow improvements to realize its full potential in enhancing reporting quality (Tran et al., 2021). These findings encourage policymakers to view efficiency not only as an operational target but also as a governance mechanism. The integration of AIS and efficiency-oriente

reforms can thus deliver sustained improvements in reporting reliability.

Internal Control System, Efficiency, and Financial Reporting Quality. The study also demonstrated that efficiency mediates the relationship between internal control systems and the quality of reporting. Strong internal controls establish standardized procedures, monitoring mechanisms, and disciplined practices that improve the efficiency of accounting processes. These efficiency gains directly enhance the timeliness, accuracy, and reliability of reporting (Hamed, 2023; Madawaki et al., 2022). Institutional Theory explains this outcome by highlighting the role of formal structures and norms in shaping organizational practices and reporting outcomes. This suggests that the benefits of ICS are realized not only through compliance but also through efficiency improvements that underpin the quality of reporting.

The mediation analysis further showed that the indirect effect of internal controls through efficiency is more potent than that of AIS. This suggests that internal controls are not only compliance tools but also enablers of process discipline and efficiency, which in turn produce higher-quality financial reports (Sudarlan et al., 2024; Aswar et al., 2021). Efficiency provides the operational pathway through which controls influence the credibility of reporting. In practice, this means that control activities such as monitoring, segregation of duties, and routine oversight reduce redundancies and irregularities, making processes more efficient. This efficiency, in turn, contributes to reporting accuracy and timeliness.

This relationship highlights the interdependence between governance mechanisms and operational outcomes. Internal controls provide the structural framework, efficiency functions as the mechanism, and reporting quality emerges as the final result. Prior studies argue that audit weaknesses often reflect deficiencies in both controls and efficiency, indicating that improvements in one area must be supported by the other (Raditya et al., 2022; Rakhman & Wijayana, 2024). This interpretation also suggests that internal control reforms must go beyond documentation to focus on practical enforcement and efficiency gains. Without this alignment, the potential benefits of ICS will not be fully realized.

Theoretically, these results enrich Institutional Theory by demonstrating that internal control systems exert their influence through efficiency pathways. Practically, the findings emphasize that organizations should design internal control frameworks with a dual focus on compliance and process optimization. By strengthening both controls and efficiency, organizations can ensure that reporting outcomes are reliable, timely, and transparent, thereby reinforcing accountability (Kusumawardhani et al., 2024; Mustaqmah & Putri, 2022). This reinforces the argument that efficiency is the central link that enables controls



to translate into credible governance outcomes. Institutions should therefore treat efficiency improvements as an inseparable part of internal control reforms.

CONCLUSION

The findings of this study emphasize the interrelated roles of accounting information systems, internal control systems, and the efficiency of accounting processes in shaping the quality of financial reporting. From a theoretical standpoint, the results extend existing frameworks such as Decision Usefulness Theory, the Technology Acceptance Model, Stewardship Theory, and Institutional Theory by showing that reporting quality is influenced not only by systems and controls directly but also through their indirect effects via efficiency. This perspective helps clarify inconsistencies in prior research, where systems alone did not consistently improve reporting outcomes.

From a practical perspective, the study highlights that the implementation of AIS and ICS must be supported by efficiency improvements to achieve reliable and transparent financial reporting. AIS adoption should be accompanied by user training, workflow integration, and managerial support, while ICS must be enforced consistently to enhance both compliance and process efficiency. Efficiency emerged as a critical factor, indicating that even strong systems and controls cannot deliver their full benefits without streamlined processes. Managers should therefore view efficiency as both an operational priority and a governance mechanism.

At the policy level, the findings provide valuable insights for regulators and audit institutions. Policies that standardize AIS implementation, integrate efficiency indicators, and strengthen the enforcement of internal controls can contribute to sustained improvements in the quality of reporting. Capacity building and continuous monitoring are essential to ensure that reforms extend beyond compliance and address efficiency and timeliness. By aligning systems, controls, and efficiency strategies, policymakers can establish a more comprehensive framework for accountability and transparency in reporting.

In summary, the study demonstrates that the quality of financial reporting is best understood as the outcome of complementary mechanisms, where systems, controls, and efficiency operate together. The integration of these elements provides a pathway toward more reliable, transparent, and timely reporting, thereby enhancing accountability and reinforcing public trust in financial governance.

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