

Budget Participation and Financial Statement Fraud: The Mediating Role of E-Budgeting and Ethical Climate

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ABSTRACT

Research aim

This study examines the effect of budget participation on financial statement fraud by analysing the mediating roles of e-budgeting adoption and ethical climate in local government budget management.

Design/methodology/approach

This study uses a quantitative approach with SEM-PLS analysis. Data were collected from 150 government officials involved in budget management within Regional Apparatus Organizations (OPD) of Pekanbaru City Government, Indonesia.

Findings

The results show that budget participation positively affects financial statement fraud and e-budgeting adoption. E-budgeting adoption also positively influences ethical climate. However, ethical climate does not significantly affect financial statement fraud and fails to mediate the relationship between e-budgeting adoption and financial statement fraud. Conversely, e-budgeting adoption successfully mediates the relationship between budget participation and ethical climate.

Research limitations/implications

This study is limited to a specific local government context and employs a cross-sectional design. Future research is encouraged to include broader institutional contexts and additional governance variables.

Practical implications

The findings highlight the importance of strengthening internal control systems, optimizing e-budgeting implementation, and improving organizational integrity to reduce fraud risk in local governments.

Originality/value

This study extends Agency Theory and Fraud Hexagon Theory by integrating budget participation, digital governance, and ethical climate into a single framework to explain financial statement fraud in the public sector.

Keywords: budget participation, digital governance, e-budgeting adoption, ethical climate, financial statement fraud.

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Introduction

Financial statement fraud remains a critical issue in public sector governance because it weakens transparency, accountability, and public trust in government institutions (Rezaee, 2002). In the public sector, such practices are commonly associated with corruption, abuse of authority, budget mark-ups, fictitious accountability reports, and the misuse of public funds (Hutajulu et al., 2024). Reports issued by BPK and KPK continue

to reveal irregularities in regional financial management, including within the Pekanbaru City Government, indicating that existing supervisory mechanisms have not been fully effective in preventing fraudulent practices.

The increasing complexity of local government financial management has heightened the risk of financial statement fraud. Local governments are required to manage large public budgets while ensuring that budgeting, implementation, and financial reporting processes are conducted transparently and accountably. Nevertheless, reports issued by the Supreme Audit Agency (BPK, 2022) and the Corruption Eradication Commission (KPK, 2021) continue to reveal numerous cases involving budget misuse, activity mark-ups, financial statement manipulation, and fictitious supporting documents within local government institutions. These findings indicate that public financial governance and supervisory mechanisms have not yet been fully effective in preventing fraudulent practices.

Such issues are also evident in the Pekanbaru City Government. Several cases have involved fictitious accountability reports, manipulation of activity budgets, and misuse of project funds that caused significant financial losses to the local government (BPK Representative Office of Riau Province, 2024; KPK, 2024). In addition, irregularities in construction projects and public procurement activities demonstrate that the risk of financial statement fraud remains a serious issue in local government budget management. These conditions indicate that fraudulent financial reporting may still occur despite the implementation of various regulations and supervisory systems.

From a theoretical perspective, Fraud Hexagon Theory explains that fraud is influenced by pressure, opportunity, rationalization, capability, arrogance, and collusion (Vousinas, 2019). Meanwhile, Agency Theory emphasizes that information asymmetry between government officials and the public may encourage opportunistic behaviour and financial manipulation (Scott, 2020). Prior studies also reported that weak internal control systems, opportunities for abuse of authority, and collusion significantly increase fraud risk in public sector organizations (Desviana et al., 2020; Basri et al., 2021).

One factor associated with financial statement fraud is budget participation. Participatory budgeting is expected to strengthen accountability, coordination, and organizational commitment (Lata, 2020). However, broader involvement in budgeting may also create opportunities for manipulation when transparency and control systems remain weak. Previous studies reported inconsistent findings regarding this relationship. Seri Suriani et al. (2024) found that budget participation positively affects financial statement fraud, whereas Luh Arshantya and Sujana (2022) found the opposite result. These inconsistencies indicate that budget participation may function as a double-edged governance mechanism, yet prior studies have largely focused on traditional governance variables such as internal control and information asymmetry, while limited attention has been given to the role of digital governance in shaping fraud risk.

In addition, digital governance through e-budgeting has become increasingly important in improving transparency and accountability in public financial management. E-budgeting enables budgeting and monitoring processes to be conducted electronically, thereby improving information traceability and reducing opportunities for manual manipulation (Bolívar et al., 2014). Previous studies mainly examined e-government

implementation from administrative efficiency and transparency perspectives (Safrizal et al., 2022; Ilma et al., 2025). However, empirical evidence regarding whether e-budgeting adoption effectively reduces financial statement fraud risk in local governments remains limited and inconclusive, particularly within developing country contexts characterized by complex bureaucracy and high discretionary authority.

Besides digital governance, ethical climate also plays an important role in shaping government officials' behaviour. Ethical climate reflects shared perceptions regarding ethical values and standards within organizations (Victor & Cullen, 1988). Organizations with stronger ethical climates are expected to encourage honest and accountable behaviour. Nevertheless, previous findings regarding the relationship between ethical climate and fraud remain inconsistent. Some studies found that ethical climate reduces fraud tendencies, while others argued that ethical values may not effectively prevent fraud when opportunities and organizational pressures remain high (Mohr & Kearney, 2021; Rajeswari & Rasmini, 2022). Moreover, prior studies generally positioned ethical climate as an independent or moderating variable, while limited studies have examined ethical climate as a mediating mechanism linking digital governance and fraud risk in the public sector.

Based on these issues, this study addresses several research gaps. First, previous findings regarding the relationship between budget participation and financial statement fraud remain inconsistent. Second, limited studies have integrated e-budgeting adoption into fraud research frameworks within local government institutions. Third, empirical evidence explaining how digital governance influences fraud risk through ethical climate remains scarce. Therefore, this study integrates budget participation, e-budgeting adoption, and ethical climate into a single framework to explain financial statement fraud in local governments. Unlike prior studies that examined these variables separately, this study emphasizes the interaction between participatory governance, digital governance, and ethical organizational environments in shaping fraud risk within public sector financial management.

This study contributes to the literature in several ways. First, it extends the discussion of financial statement fraud determinants by incorporating digital governance and ethical climate into the analysis. Second, it introduces ethical climate as a mediating mechanism linking e-budgeting implementation and fraud risk. Third, the study contributes to the development of Agency Theory and Fraud Hexagon Theory by demonstrating that fraud risk in local governments is influenced not only by opportunity and organizational pressure, but also by the interaction between participatory governance systems and digital governance mechanisms. Finally, this study provides empirical evidence from the Indonesian local government context, particularly within Pekanbaru City Government

Literature Review and Hypothesis Development

Agency Theory

Agency Theory explains the contractual relationship between principals and agents, in which principals delegate authority to agents to manage organizational resources on their behalf (Jensen & Meckling, 1976; Scott, 2020). In the public sector context, society acts as the principal, while government officials function as agents responsible for

managing public budgets and preparing local government financial reports. Agency problems emerge when government officials pursue personal interests that differ from organizational objectives and public interests.

Agency conflicts become more complex under conditions of information asymmetry, where government officials possess greater access to information than the public or external stakeholders (Scott, 2020). This imbalance creates opportunities for opportunistic behaviour, including budget manipulation and misleading financial reporting. Officials directly involved in budget preparation possess broader authority and access to financial information, allowing them to influence budget allocation and reporting practices for particular interests.

Agency Theory also emphasizes the importance of governance mechanisms in reducing opportunistic behaviour among agents (Jensen & Meckling, 1976). In this context, digital governance through e-budgeting systems is considered a monitoring mechanism capable of improving transparency, accountability, and financial information traceability, thereby reducing agency conflicts in local government financial management. Previous studies by Safrizal et al. (2022) and Ilma et al. (2025) further demonstrated that the implementation of information technology and e-government strengthens accountability and governance quality within public sector organizations.

Fraud Hexagon Theory

Fraud Hexagon Theory was developed by Vousinas (2019) as an extension of Fraud Triangle Theory introduced by Cressey (1953) and Fraud Pentagon Theory proposed by Crowe (2011). The theory explains that fraudulent behaviour is influenced by six dimensions: pressure, opportunity, rationalization, capability, arrogance, and collusion (Vousinas, 2019).

Within the public sector, opportunities for fraud frequently arise because of weak internal supervision, extensive discretion among budget officials, and limited transparency in local government financial management (Hutajulu et al., 2024). Rationalization also enables individuals to justify manipulative actions as acceptable organizational behaviour. Furthermore, collusion among actors within government institutions may intensify the likelihood of financial statement manipulation. Desviana et al. (2020) found that pressure, opportunity, and collusion are dominant factors contributing to fraud in village fund management. Similarly, Basri, Fadilla, and Al Azhar (2021) reported that weak control systems and abuse of authority significantly increase fraud risk within village government administration.

Fraud Hexagon Theory is highly relevant in explaining financial statement fraud in local governments because public financial management involves substantial financial resources, complex bureaucratic procedures, and multiple actors involved in budgeting and reporting processes (Vousinas, 2019). Therefore, organizational governance and ethical organizational environments become important factors influencing the risk of fraudulent financial reporting.

Hypothesis Development

The Effect of Budget Participation on Financial Statement Fraud

Budget participation refers to the extent to which individuals are involved in budget preparation and target-setting processes within organizations (Brownell, 1982; Sandi et al., 2021). Participatory budgeting is generally considered capable of improving planning quality, organizational coordination, and employees' commitment toward budget achievement (Lata, 2020). The involvement of government officials in budgeting processes allows organizations to obtain more accurate information regarding operational needs and program priorities.

However, from the perspective of Agency Theory, extensive involvement in budgeting processes may also create opportunistic behaviour (Jensen & Meckling, 1976). Government officials with greater authority and information access in budget preparation may exploit the process to influence budget targets and allocations according to their personal interests (Scott, 2020). Such conditions create opportunities for budget manipulation and fraudulent financial reporting.

Moreover, Fraud Hexagon Theory explains that opportunity is one of the primary drivers of fraudulent behaviour (Vousinas, 2019). Higher involvement in budgeting processes increases opportunities to manipulate financial information, particularly when organizational control systems remain ineffective. Seri Suriani et al. (2024) found that budget participation positively affects financial statement fraud because greater involvement in budgeting creates broader opportunities for manipulation. In contrast, Luh Arshantya and Sujana (2022) reported that budget participation reduces fraud tendencies by strengthening organizational responsibility and commitment. These inconsistent findings indicate that the relationship between budget participation and financial statement fraud requires further empirical investigation.

Based on the above discussion, the following hypothesis is proposed:

H1: Budget participation affects financial statement fraud.

The Effect of Budget Participation on E-Budgeting Adoption

Digital governance through e-budgeting implementation represents an important governance mechanism designed to improve transparency, accountability, efficiency, and monitoring effectiveness in public sector financial management (Bolívar et al., 2014). E-budgeting systems enable budgeting, implementation, and monitoring processes to be conducted electronically, thereby improving financial information traceability and reducing opportunities for manual manipulation. In the public sector context, e-budgeting is not merely an administrative digitalization tool but also a governance control mechanism aimed at minimizing discretionary behaviour and strengthening financial supervision.

The effectiveness of e-budgeting implementation depends not only on technological infrastructure but also on the involvement of government officials in budgeting processes. Government officials actively participating in budget preparation tend to

possess better understanding of organizational procedures, budgeting mechanisms, and operational needs. Such involvement may strengthen employees' acceptance of digital systems and reduce organizational resistance toward technological transformation (Venkatesh et al., 2003).

From the perspective of Agency Theory, digital governance implementation functions as a monitoring mechanism capable of reducing information asymmetry and agency conflicts within local government financial management (Jensen & Meckling, 1976). Participatory budgeting may encourage stronger organizational ownership of digital systems because employees feel directly involved in organizational decision-making and governance transformation processes. Consequently, higher budget participation is expected to improve the effectiveness of e-budgeting adoption in public sector organizations.

Previous studies also support this argument. Bolívar et al. (2014) explained that successful digital governance implementation depends heavily on organizational involvement and administrative readiness. Similarly, Safrizal et al. (2022) found that information technology utilization strengthens governance quality and accountability in public sector financial management. Therefore, government officials' participation in budgeting processes is expected to positively influence e-budgeting adoption. Based on the above discussion, the following hypothesis is proposed:

H2: Budget participation affects e-budgeting adoption.

The Effect of E-Budgeting Adoption on Ethical Climate

Digital governance refers to the implementation of digital systems to improve transparency, accountability, and administrative effectiveness in public sector organizations (Bolívar et al., 2014). Through e-budgeting systems, budgeting and financial reporting processes become more transparent, traceable, and systematically documented, thereby strengthening monitoring effectiveness and reducing opportunities for financial manipulation. In local government institutions, e-budgeting implementation also functions as a governance mechanism that encourages procedural compliance and strengthens accountability in financial management practices.

Ethical climate reflects shared perceptions among organizational members regarding ethical values, norms, and acceptable behaviour within the workplace (Victor & Cullen, 1988). Organizations characterized by transparent governance systems and effective monitoring mechanisms are more likely to foster disciplined, accountable, and ethically oriented behaviour among employees. Arnaud (2010) explained that organizational systems emphasizing accountability and ethical standards contribute to the internalization of ethical values into employees' daily work practices.

From the perspective of Agency Theory, e-budgeting implementation may reduce opportunistic behaviour by limiting information asymmetry and increasing organizational transparency. Digital systems allow financial transactions and budgeting processes to be electronically monitored and traced, thereby encouraging employees to comply with organizational procedures and ethical standards. Consequently, e-budgeting implementation is expected to contribute not only to administrative efficiency but also to the development of stronger ethical organizational environments.

Previous studies also provide empirical support for this argument. Fade et al. (2022) found that organizational governance systems and ethical culture significantly influence ethical behaviour and fraud prevention within government institutions. Similarly, Ilma et al. (2025) emphasized that digital governance implementation improves accountability and transparency in regional government administration. Therefore, organizations implementing effective e-budgeting systems are expected to develop stronger ethical climates characterized by integrity, procedural compliance, and organizational accountability. Based on the above discussion, the following hypothesis is proposed:

H3: E-budgeting adoption affects ethical climate.

The Effect of Ethical Climate on Financial Statement Fraud

Ethical climate reflects organizational members' shared perceptions regarding ethical standards and acceptable behaviour within the workplace (Victor & Cullen, 1988). Organizations with strong ethical climates are more likely to encourage honest, transparent, and responsible behaviour, thereby reducing tendencies toward fraudulent financial reporting.

From the perspective of Fraud Hexagon Theory, rationalization is one of the important factors influencing fraudulent behaviour (Vousinas, 2019). Individuals are more likely to commit fraud when they can morally justify their actions. Therefore, stronger ethical climates are expected to reduce rationalization toward manipulative behaviour in local government financial management.

Organizations that emphasize integrity and compliance may also function as informal control mechanisms encouraging employees to act according to ethical values and public accountability principles (Arnaud, 2010). Rajeswari and Rasmini (2022) found that organizational culture and integrity reduce accounting fraud tendencies. However, Mohr and Kearney (2021) argued that ethical values may not effectively suppress fraud when organizational pressure and opportunities for manipulation remain high.

Based on the above discussion, the following hypothesis is proposed:

H4: Ethical climate affects financial statement fraud.

The Mediating Role of Ethical Climate in the Relationship Between E-Budgeting Adoption and Financial Statement Fraud

The implementation of digital governance through e-budgeting systems is expected not only to improve transparency and budget monitoring effectiveness but also to create more ethical organizational environments (Bolívar et al., 2014). Transparent and well-documented digital systems encourage employees to behave more accountably because all budgeting processes can be electronically monitored and traced.

In this study, ethical climate is positioned as a mechanism explaining how e-budgeting adoption influences the risk of financial statement fraud. The implementation of e-budgeting is expected to first strengthen organizational transparency and accountability through information openness, improved monitoring, and procedural compliance. Subsequently, stronger ethical climates are expected to influence employees' behaviour in local government financial management and reporting (Victor & Cullen, 1988; Arnaud, 2010).

Although many studies have examined ethical factors and fraud, limited research has specifically investigated ethical climate as a mediating variable linking e-budgeting adoption and financial statement fraud, particularly within Indonesian local governments. Therefore, examining the mediating role of ethical climate is important for explaining how digital governance influences fraud risk in the public sector.

Based on the above discussion, the following hypothesis is proposed:

H5: Ethical climate mediates the effect of e-budgeting adoption on financial statement fraud.

The Mediating Role of E-Budgeting Adoption in the Relationship Between Budget Participation and Ethical Climate

Budget participation reflects the extent to which government officials are involved in organizational budgeting and decision-making processes. Such involvement allows employees to better understand organizational needs, budgeting procedures, and financial management mechanisms (Brownell, 1982). In the public sector context, higher participation in budgeting processes may also strengthen acceptance of digital governance transformation.

The implementation of e-budgeting adoption as part of digital governance enables budgeting processes to become more transparent, documented, and integrated. The system improves not only administrative efficiency but also organizational monitoring and accountability mechanisms (Bolívar et al., 2014). Government officials actively involved in budget preparation tend to adapt more easily to digital systems because they possess better understanding of organizational budgeting procedures.

Furthermore, e-budgeting adoption is expected to foster stronger ethical climates within organizations. Transparent and traceable digital systems enable organizations to establish more disciplined, accountable, and procedure-oriented working cultures. According to Victor and Cullen (1988), ethical climate develops through shared perceptions regarding acceptable organizational behaviour. In this context, e-budgeting implementation may strengthen integrity and compliance through enhanced control mechanisms and information transparency.

Accordingly, budget participation is expected to influence ethical climate not only directly but also indirectly through e-budgeting adoption. Greater involvement in budgeting processes is likely to improve the effectiveness of e-budgeting implementation, which subsequently contributes to the development of stronger ethical organizational environments.

Based on the above discussion, the following hypothesis is proposed:

H6: E-budgeting adoption mediates the effect of budget participation on ethical climate.

Research Method

Research Design

This study employs a quantitative approach using an explanatory research design to examine the effects of budget participation and e-budgeting adoption on financial

statement fraud and to analyse the mediating role of ethical climate within local government institutions. A quantitative approach was selected because this study focuses on testing causal relationships among variables through numerical measurement and inferential statistical analysis (Sekaran & Bougie, 2016). The explanatory research design was adopted to explain the structural relationships among variables based on the theoretical framework developed from Agency Theory and Fraud Hexagon Theory. This study applied a cross-sectional design in which data were collected at a single point in time through questionnaire distribution to research respondents.

Population and Sample

The population of this study consists of local government officials involved in budget management within Regional Apparatus Organizations (OPD) of the Pekanbaru City Government. The population includes both structural officials and administrative staff directly involved in budget preparation and financial management activities.

The sampling technique employed in this study was purposive sampling, in which respondents were selected based on specific criteria relevant to the research objectives (Sugiyono, 2022). Purposive sampling was considered appropriate because not all government officials possess direct involvement or adequate understanding of budget management and e-budgeting implementation.

The respondent criteria included: (1) government officials involved in OPD budgeting processes, (2) individuals possessing knowledge regarding e-budgeting systems or local government financial management, (3) employees with a minimum working experience of one year, and (4) officials working in finance, planning, or program management divisions within local government institutions. These criteria were established because the selected respondents were considered to have relevant knowledge and practical experience related to budget management, e-budgeting adoption, and the risk of financial statement fraud in public sector organizations.

Data Collection Technique

Data collection was conducted through direct distribution of questionnaires to research respondents. The research instrument employed a five-point Likert scale to measure respondents' levels of agreement with each research statement, ranging from 1 = strongly disagree to 5 = strongly agree. The use of the Likert scale was intended to facilitate the quantitative measurement of respondents' perceptions regarding the indicators of each research variable.

Operational Definition of Variables

Financial Statement Fraud

Financial statement fraud refers to the intentional manipulation of financial reports in which presented financial information does not reflect actual conditions for the purpose of obtaining particular benefits, either for individual or organizational interests (Rezaee, 2002). In the public sector context, financial statement fraud may include budget realization manipulation, fictitious accountability reports, budget inflation, and concealment of financial information that potentially harms the government or society.

This variable was measured based on respondents' perceptions regarding the tendency of financial statement manipulation within local government budget management. The measurement indicators were adapted from previous studies concerning public sector fraud and fraudulent financial reporting behaviour (ACFE, 2022; Rezaee, 2002).

Budget Participation

Budget participation refers to the extent to which individuals are involved in organizational budgeting and target-setting processes (Brownell, 1982). Budget participation reflects the degree to which government officials are provided opportunities to contribute ideas, propose recommendations, and participate in organizational budgeting decisions. Participation in budgeting processes is considered capable of improving organizational coordination, budget information quality, and employees' responsibility toward organizational goals (Milani, 1975; Brownell, 1982). In this study, budget participation was measured based on respondents' involvement in budgeting and budget decision-making processes within Regional Apparatus Organizations (OPD).

E-Budgeting Adoption

E-budgeting adoption refers to the implementation of digital systems in organizational governance processes to improve transparency, accountability, effectiveness, and efficiency in public administration (Bolívar et al., 2014). In this study, digital governance is operationalized through the implementation of e-budgeting systems within local government institutions. E-budgeting enables budgeting, implementation, and budget monitoring processes to be conducted electronically, thereby improving financial information traceability and reducing opportunities for budget manipulation. The implementation of digital systems also facilitates broader information access and strengthens organizational supervision mechanisms (Heeks, 2006). This variable was measured based on respondents' perceptions regarding the effectiveness of e-budgeting implementation in improving transparency, data accuracy, information accessibility, and supervision of local government budget management.

Ethical Climate

Ethical climate refers to shared perceptions among organizational members regarding ethical values, norms, and standards of behaviour within the organizational environment (Victor & Cullen, 1988). Ethical climate reflects how organizations establish working environments that emphasize integrity, honesty, responsibility, and compliance with organizational regulations. Arnaud (2010) explained that organizational ethical climate influences individual behaviour through the internalization of ethical values and norms into daily work activities. Within the public sector, ethical climate plays an important role in encouraging transparent and accountable behaviour among government officials in local financial management. This variable was measured based on respondents' perceptions regarding organizational ethical conditions, including compliance with ethical values, leadership role models, enforcement of ethical sanctions, and organizational encouragement to act according to ethical norms.

Data Analysis Technique

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software assistance. PLS-SEM was selected because it is capable of simultaneously analysing relationships among latent variables, testing mediation models, and accommodating complex research models with data that do not necessarily follow normal distribution assumptions (Hair et al., 2021).

The PLS-SEM analysis in this study consisted of two primary stages: measurement model evaluation (outer model) and structural model evaluation (inner model). The outer model evaluation was conducted to assess the validity and reliability of the research instruments. Convergent validity was examined using loading factor values and Average Variance Extracted (AVE). Indicators were considered valid when loading factor values exceeded 0.70 and AVE values exceeded 0.50 (Hair et al., 2021). Reliability testing was conducted using Composite Reliability and Cronbach’s Alpha values, in which constructs were considered reliable when values exceeded 0.70.

After the measurement model satisfied validity and reliability criteria, the next stage involved evaluating the inner model to examine relationships among latent variables. The structural model evaluation employed R-square, path coefficients, effect size (f-square), and predictive relevance (Q-square) values.

Hypothesis testing was conducted using the bootstrapping procedure to obtain t-statistics and p-values. Hypotheses were accepted when t-statistics values exceeded 1.96 and p-values were below 0.05 at a 5% significance level (Hair et al., 2021). In addition to testing direct effects, this study also examined indirect effects to analyse the mediating role of ethical climate in the relationship between e-budgeting adoption and financial statement fraud.

Results

A total of 165 questionnaires were distributed to research respondents. Of these, 156 questionnaires were successfully returned. After conducting a screening process to evaluate the completeness and consistency of responses, 150 questionnaires were considered valid and suitable for data analysis, while six questionnaires were excluded because of incomplete and inconsistent responses. Accordingly, the questionnaire response rate in this study reached 94.54%, while the usable response rate accounted for 90.90% of the total distributed questionnaires.

Table 1. Descriptive Statistics

Variabel	Mean	Std. Deviation	Minimum	Maximum
Budget Participation (PB)	4.558	0.537	2.000	5.000
E-Budgeting Adoption / Digital Governance (EB)	4.563	0.540	1.000	5.000
Ethical Climate (EC)	4.566	0.526	3.000	5.000
Financial Statement Fraud (FSF)	3.825	0.947	1.000	5.000

Table 1 presents the descriptive statistics of the research variables and indicates that all variables have relatively high mean values. The ethical climate variable shows the highest mean value of 4.566 with a standard deviation of 0.526, indicating that respondents perceive the ethical environment within local government institutions as being well implemented. Furthermore, the e-budgeting adoption variable has a mean value of 4.563 with a standard deviation of 0.540, suggesting that digital governance implementation in budget management has been effectively applied.

The budget participation variable also demonstrates a relatively high mean value of 4.558 with a standard deviation of 0.537, reflecting a high level of government officials' involvement in budgeting processes. Meanwhile, the financial statement fraud variable records a mean value of 3.825 with a standard deviation of 0.947. This result indicates that respondents' perceptions regarding the potential occurrence of financial statement manipulation remain at a moderate level compared to the other variables. Overall, the relatively low standard deviation values indicate that respondents' answers tend to be homogeneous.

Common Method Bias Test

The common method bias test in this study was conducted using Harman's Single Factor Test. This procedure aims to identify whether common method variance exists due to the use of a single data source during the data collection process. The test results indicate that the eigenvalue of the first component is 5.806 with a variance proportion value of 24.2%. This finding demonstrates that the first factor explains only 24.2% of the total variance in the research data. According to Podsakoff et al. (2003), common method bias becomes a serious concern when a single dominant factor explains more than 50% of the total research variance.

Since the cumulative variance explained by the first factor remains below the 50% threshold, it can be concluded that this study does not suffer from significant common method bias. These findings indicate that the research data are relatively free from measurement bias caused by the use of the same data collection method.

Outer Model Results

Outer model evaluation was conducted to assess the validity and reliability of the constructs used in this study. In the PLS-SEM approach, outer model evaluation aims to ensure that each indicator accurately and consistently represents its corresponding latent construct. The evaluation generally includes convergent validity, discriminant validity, and construct reliability testing (Hair et al., 2021).

Convergent validity testing was conducted by examining the factor loading values of each indicator, as presented in Table 2.

Convergent validity was assessed by examining the factor loading values of each indicator. According to Hair et al. (2021), indicators are considered to achieve convergent validity when loading values exceed 0.70, although loading values between 0.50 and 0.60 are still acceptable in exploratory or model development research.

Table 2. Factor Loadings

	Budget Participation	E-Budgeting Adoption	Ethical Climate	Financial Statement Fraud
EB1		0.651		
EB2		0.513		
EB3		0.717		
EB4		0.572		
EB5		0.688		
EC1			0.723	
EC2			0.558	
EC3			0.720	
EC4			0.579	
EC5			0.742	
FSF 1				0.771
FSF 2				0.896
FSF 3				0.762
FSF 4				0.883
FSF 5				0.728
PB 1	0.655			
PB 2	0.714			
PB 3	0.698			
PB 4	0.612			
PB 5	0.778			
PB 6	0.652			
PB 7	0.551			
PB 8	0.709			
PB 9	0.713			

Based on Table 2, the Financial Statement Fraud variable demonstrates the highest loading values, ranging from 0.728 to 0.896, indicating that the indicators have a strong ability to represent the construct. The Ethical Climate variable shows loading values ranging from 0.558 to 0.742, while the E-Budgeting Adoption variable records loading values between 0.513 and 0.717. Furthermore, the Budget Participation variable has loading values ranging from 0.551 to 0.778.

Overall, all indicators in this study have factor loading values above 0.50, indicating that they satisfy the criteria for convergent validity and are appropriate for further analysis. These findings demonstrate that each indicator adequately explains the latent construct being measured in accordance with the measurement model criteria in PLS-SEM analysis (Hair et al., 2021).



Discriminant Validity

Discriminant validity testing was conducted to ensure that each construct in the study possesses distinct characteristics and can be empirically differentiated from other constructs. This assessment employed the Fornell and Larcker criterion by comparing the square root of the Average Variance Extracted (AVE) for each construct with the correlations among constructs. A construct is considered to satisfy discriminant validity when the square root of AVE is greater than its correlations with other constructs (Fornell & Larcker, 1981).

Table 3. Fornell and Larcker Criterion

	Budget Participation	E-Budgeting Adoption	Ethical Climate	Financial Statement Fraud
Budget Participation	0.679			
E-Budgeting Adoption	0.379	0.633		
Ethical Climate	0.225	0.395	0.669	
Financial Statement Fraud	0.383	0.254	0.137	0.811

Based on the Fornell and Larcker criterion presented in Table 3, all constructs in this study satisfy the requirements for discriminant validity. This is indicated by the square root of the Average Variance Extracted (AVE) for each construct being greater than the correlations with other constructs in the model.

The Budget Participation construct has a square root of AVE value of 0.679, which is higher than its correlations with E-Budgeting Adoption (0.379), Ethical Climate (0.225), and Financial Statement Fraud (0.383). The E-Budgeting Adoption construct records a value of 0.633, which is also greater than its correlations with other constructs. Furthermore, the Ethical Climate construct has a square root of AVE value of 0.669, exceeding its inter-construct correlations. Financial Statement Fraud demonstrates the highest value of 0.811, indicating strong discriminant capability.

These findings indicate that each construct possesses sufficient distinctiveness and explains its own indicators more effectively than indicators associated with other constructs in the research model. Therefore, the research model satisfies the discriminant validity criteria based on the Fornell and Larcker approach (Fornell & Larcker, 1981).

Reliability

Reliability testing was conducted to evaluate the internal consistency of the indicators in measuring the research constructs. In PLS-SEM analysis, construct reliability is commonly assessed using Cronbach’s Alpha and Composite Reliability values. A construct is considered reliable when Cronbach’s Alpha and Composite Reliability values exceed 0.70, indicating that the indicators consistently measure the latent construct (Hair et al., 2021).

The results of construct reliability testing in this study are presented in Table 4.

Table 4. Reliability Test Results

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
Budget Participation	0,856	0,914	0,884
E-Budgeting Adoption	0,619	0,621	0,767
Ethical Climate	0,689	0,700	0,800
Financial Statement Fraud	0,869	0,885	0,905

Based on Table 4, most constructs in this study demonstrate satisfactory reliability levels. The Budget Participation variable has a Cronbach’s Alpha value of 0.856 and a Composite Reliability value of 0.884, indicating excellent internal consistency. The Financial Statement Fraud variable also shows high reliability with a Cronbach’s Alpha value of 0.869 and a Composite Reliability value of 0.905.

Furthermore, the Ethical Climate variable records a Cronbach’s Alpha value of 0.689, which is slightly below the recommended threshold but still close to the acceptable minimum level, while its Composite Reliability value of 0.800 satisfies the reliability criterion. The E-Budgeting Adoption variable has a Cronbach’s Alpha value of 0.619; however, its Composite Reliability value of 0.767 indicates that the construct remains reliable within the PLS-SEM framework. According to Hair et al. (2021), Composite Reliability is more strongly recommended in PLS-SEM analysis because it provides a more accurate estimate of internal consistency than Cronbach’s Alpha.

Overall, the reliability test results indicate that all variables in this study satisfy the reliability criteria and are appropriate for subsequent structural model analysis. After all constructs were confirmed to be valid and reliable through outer model evaluation, the next stage involved inner model assessment.

Inner Model Result

Inner model evaluation was conducted to assess the structural model’s capability to explain the relationships among latent variables in the study. The inner model assessment in this research involved examining R-square values to evaluate the explanatory power of exogenous variables on endogenous variables, f-square values to determine the effect size among constructs, and Q²predict, RMSE, and MAE values to assess the predictive capability of the model.

The R-square value reflects the explanatory strength of the model for endogenous variables. Higher R-square values indicate stronger explanatory capability of the model toward dependent variables. Furthermore, the f-square value was used to evaluate the magnitude of effect among variables, where values of 0.02, 0.15, and 0.35 indicate small, medium, and large effect sizes, respectively. In addition, a Q²predict value greater than zero indicates that the model possesses adequate predictive relevance.

The results of the inner model evaluation in this study are presented in Table 5.

Table 5. Inner Model Evaluation Results (R-Square, F-Square, and Predictive Relevance)

	R-square	f-square	Q ² predict	RMSE	MAE
E-Budgeting Adoption	0,143		0,113	0,949	0,784
Ethical Climate	0,156		0,037	0,987	0,789
Financial Statement Fraud	0,149		0,117	0,960	0,710
Budget Participation -> E-Budgeting Adoption		0,167			
Budget Participation -> Financial Statement Fraud		0,153			
E-Budgeting Adoption -> Ethical Climate		0,185			
Ethical Climate -> Financial Statement Fraud		0,003			

Based on Table 5, the R-square value for the E-Budgeting Adoption variable is 0.143, indicating that Budget Participation explains 14.3% of the variance in E-Budgeting Adoption, while the remaining variance is explained by other variables outside the research model. The Ethical Climate variable has an R-square value of 0.156, meaning that 15.6% of its variance is explained by the constructs influencing it. Furthermore, the Financial Statement Fraud variable records an R-square value of 0.149, indicating that the model explains 14.9% of the variance in financial statement fraud. Overall, the R-square values in this study can be categorized as weak to moderate; however, such values remain acceptable in social science and organizational behaviour research.

In the effect size (f-square) assessment, the relationship between Budget Participation and E-Budgeting Adoption has an f-square value of 0.167, while the effect of Budget Participation on Financial Statement Fraud records a value of 0.153. In addition, the influence of E-Budgeting Adoption on Ethical Climate has an f-square value of 0.185. These three relationships indicate moderate effect sizes. Meanwhile, the relationship between Ethical Climate and Financial Statement Fraud has an f-square value of only 0.003, indicating a very weak effect.

Furthermore, the predictive relevance results show that all endogenous variables have Q²predict values greater than zero, namely 0.113 for E-Budgeting Adoption, 0.037 for Ethical Climate, and 0.117 for Financial Statement Fraud. These findings indicate that the research model possesses adequate predictive capability. The relatively low RMSE and MAE values also suggest that the model has a satisfactory level of predictive accuracy in explaining the relationships among the research variables

Hypothesis Testing Results

Hypothesis testing was conducted to examine the direct and indirect relationships among variables in the structural model. The analysis employed the bootstrapping procedure in PLS-SEM to obtain path coefficient values, t-statistics, and p-values. A hypothesis is considered supported when the t-statistics value exceeds 1.96 and the p-value is below 0.05 at the 5% significance level (Hair et al., 2021).

The hypothesis testing in this study includes both direct effect and indirect effect analysis to evaluate the mediating roles of E-Budgeting Adoption and Ethical Climate within the

proposed research model. In addition, Figure 1 illustrates the structural relationships among the variables examined in this study. The results of hypothesis testing are presented in Table 6.

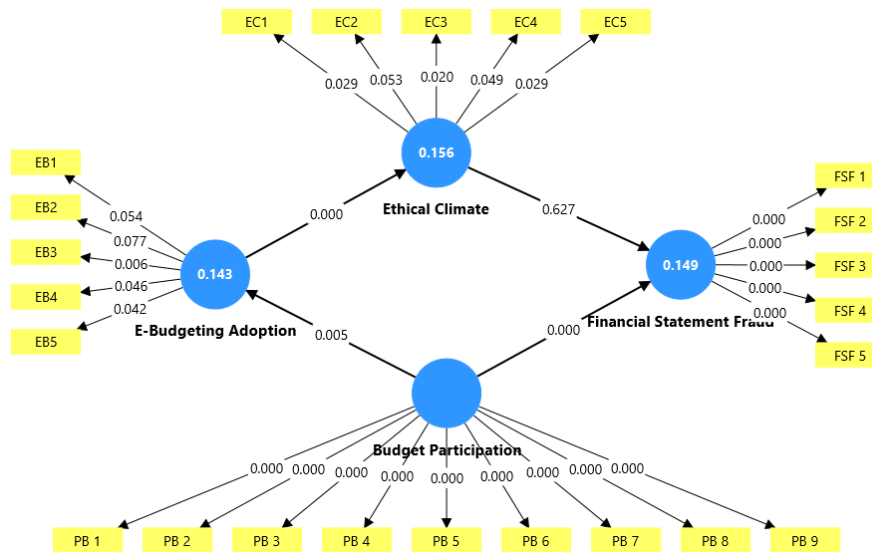


Figure 1. PLS-SEM Structural Model

Table 6. Hypothesis Testing Results

Hypothesis	Relationships among Variables	Original Sample (O)	T Statistics	P Values	Decisions
H1	Budget Participation → Financial Statement Fraud	0.370	4.628	0.000	Supported
H2	Budget Participation → E-Budgeting Adoption	0.379	2.838	0.005	Supported
H3	E-Budgeting Adoption → Ethical Climate	0.395	3.876	0.000	Supported
H4	Ethical Climate → Financial Statement Fraud	0.054	0.487	0.627	Not Supported
H5	E-Budgeting Adoption → Ethical Climate → Financial Statement Fraud	0.021	0.413	0.680	Not Supported
H6	Budget Participation → E-Budgeting Adoption → Ethical Climate	0.150	2.300	0.021	Supported

Based on Table 6, the hypothesis testing results indicate that Budget Participation has a positive and significant effect on Financial Statement Fraud, with a path coefficient value of 0.370, a t-statistics value of 4.628, and a p-value of 0.000. These findings suggest that higher involvement of government officials in budgeting processes increases the potential for financial statement manipulation. Therefore, H1 is supported. Furthermore, the effect of Budget Participation on E-Budgeting Adoption shows a coefficient value of 0.379, a t-statistics value of 2.838, and a p-value of 0.005. These results indicate a positive and significant relationship, supporting H2. This finding demonstrates

that greater participation of government officials in budget preparation processes enhances the effectiveness of e-budgeting implementation within public sector organizations.

For H3, the relationship between E-Budgeting Adoption and Ethical Climate records a coefficient value of 0.395, a t-statistics value of 3.876, and a p-value of 0.000. The results indicate a positive and significant effect, meaning that H3 is supported. This finding suggests that the implementation of e-budgeting contributes to the development of a more transparent, accountable, and ethically oriented organizational environment.

Meanwhile, H4 shows that Ethical Climate does not have a significant effect on Financial Statement Fraud. This result is reflected in the coefficient value of 0.054, a t-statistics value of 0.487, and a p-value of 0.627. Therefore, H4 is rejected. These findings indicate that the existence of an ethical organizational climate is not sufficient to directly reduce the occurrence of financial statement fraud within local government institutions.

In the mediation analysis, H5 examines the indirect effect of E-Budgeting Adoption on Financial Statement Fraud through Ethical Climate. The results show a coefficient value of 0.021, a t-statistics value of 0.413, and a p-value of 0.680. Since the relationship is not statistically significant, H5 is rejected. Accordingly, Ethical Climate does not mediate the relationship between E-Budgeting Adoption and Financial Statement Fraud.

Furthermore, H6 examines the indirect relationship between Budget Participation and Ethical Climate through E-Budgeting Adoption. The results indicate a coefficient value of 0.150, a t-statistics value of 2.300, and a p-value of 0.021. These findings demonstrate a positive and significant indirect effect, supporting H6. This result explains that E-Budgeting Adoption successfully mediates the relationship between Budget Participation and Ethical Climate within public sector organizations.

Overall, the hypothesis testing results indicate that H1, H2, H3, and H6 are supported, whereas H4 and H5 are not supported.

Robustness Test

Robustness testing was conducted to ensure that the research findings are free from endogeneity issues that could affect the accuracy of the relationships among variables in the research model. Endogeneity occurs when reciprocal relationships, omitted variables, or measurement errors lead to biased coefficient estimates. In PLS-SEM analysis, endogeneity testing can be performed using the Gaussian Copula approach (Kock, 2020).

According to Kock (2020), a model is considered free from endogeneity problems when the Gaussian Copula relationships are not statistically significant, indicated by p-values greater than 0.05. Therefore, this test aims to ensure that the hypothesis testing results obtained in the study are stable and robust.

The results of the endogeneity test in this study are presented in Table 7.

Table 7. Endogeneity Test Results

	Original sample (O)	T statistics (O/STDEV)	P values
GC (Budget Participation -> E-Budgeting Adoption) -> E-Budgeting Adoption	-0.102	0.669	0.504
GC (Budget Participation -> Financial Statement Fraud) -> Financial Statement Fraud	-0.137	0.476	0.634
GC (E-Budgeting Adoption -> Ethical Climate) -> Ethical Climate	0.278	0.949	0.343
GC (Ethical Climate -> Financial Statement Fraud) -> Financial Statement Fraud	-0.237	1.109	0.267

Based on the robustness test results, all variable relationships show p-values above 0.05. The relationship between Budget Participation and E-Budgeting Adoption has a p-value of 0.504, while the relationship between Budget Participation and Financial Statement Fraud records a p-value of 0.634. Furthermore, the relationship between E-Budgeting Adoption and Ethical Climate has a p-value of 0.343, whereas the relationship between Ethical Climate and Financial Statement Fraud shows a p-value of 0.267.

The robustness test using the Gaussian Copula approach was conducted to detect potential endogeneity problems within the PLS-SEM model. A model is considered free from endogeneity issues when the Gaussian Copula relationships are not statistically significant (p-values > 0.05) (Kock, 2020).

The findings indicate that all Gaussian Copula relationships are statistically insignificant, suggesting that there is no indication of endogeneity problems in the research model. Therefore, the research model can be considered stable, and the relationships among variables generated in the primary hypothesis testing can be regarded as consistent and robust (Hair et al., 2021).

Discussion

The findings indicate that Budget Participation has a positive and significant effect on Financial Statement Fraud. This result suggests that higher involvement of government officials in budgeting processes increases the likelihood of financial statement manipulation. From the perspective of Agency Theory, this condition occurs because government officials as agents possess greater authority and information access than principals, thereby creating information asymmetry that may encourage opportunistic behaviour (Jensen & Meckling, 1976; Scott, 2020). Officials directly involved in budgeting processes have broader opportunities to influence budget allocation and financial reporting according to their own interests. These findings also support Fraud Hexagon Theory, which emphasizes that opportunity is a major factor driving fraudulent behaviour (Vousinas, 2019). This result is consistent with Seri Suriani et al. (2024), who found that higher budget participation increases the risk of financial statement manipulation within public sector organizations. In addition, Desviana et al. (2020) explained that opportunities and collusion within public financial management significantly contribute to fraudulent behaviour in government institutions.

From a practical perspective, local government budget management involves substantial administrative discretion, ranging from budget planning and allocation to budget realization reporting. Such conditions provide government officials directly involved in budgeting processes with broader access to financial information and budget modifications. In Indonesian public sector bureaucracy, weak internal supervision and high administrative complexity frequently create opportunities for budget document manipulation and misleading financial reporting. Basri et.al (2021) also emphasized that weak control systems and abuse of authority increase fraud risk in government administration. Therefore, high budget participation without effective control mechanisms may increase the risk of financial statement fraud.

Furthermore, the findings reveal that Budget Participation positively and significantly affects E-Budgeting Adoption. This result indicates that the involvement of government officials in budgeting processes improves the effectiveness of digital system implementation in local government financial management. Officials actively engaged in budget preparation tend to possess better understanding of administrative procedures and organizational needs, making them more receptive to e-budgeting systems. From the perspective of Agency Theory, e-budgeting implementation functions as a governance mechanism capable of reducing agency conflicts through greater transparency, accountability, and financial information traceability. These findings support Bolívar et al. (2014), who explained that the success of digital governance implementation is strongly influenced by organizational actors' involvement in public administrative processes. Similarly, Safrizal et.al (2022) found that the use of information technology strengthens governance quality and accountability in public sector financial management.

In practice, e-budgeting implementation within the public sector often faces challenges such as employee resistance, limited technological competence, and bureaucratic cultures that remain highly administrative. However, the involvement of government officials in budgeting processes may strengthen organizational ownership of digital systems, thereby facilitating more effective organizational adaptation. Ilma, Basri, and Azlina (2025) also emphasized that the success of e-government implementation depends heavily on organizational readiness and employee acceptance of digital transformation. These conditions indicate that organizational participation represents an important factor in the success of digital transformation in local government financial management.

The next finding demonstrates that E-Budgeting Adoption positively and significantly affects Ethical Climate. This result indicates that the implementation of e-budgeting systems contributes to the development of more transparent, accountable, and ethically supportive organizational environments. Digital systems enable budgeting and financial reporting processes to be electronically documented, thereby strengthening organizational supervision and reducing opportunities for financial information manipulation. From the perspective of Agency Theory, digital governance functions as a control mechanism capable of limiting opportunistic behaviour through greater information openness and organizational monitoring. These findings are consistent with Arnaud (2010), who explained that organizational systems emphasizing transparency and accountability contribute to the formation of more ethical work environments.

Furthermore, Fade et.al (2022) found that ethical organizational culture significantly influences ethical behaviour and fraud prevention within government institutions.

Empirically, the implementation of e-budgeting within local governments encourages budget management processes to become more documented and traceable. These conditions make government officials more cautious in performing administrative activities because all financial transactions can be monitored through digital systems. In public sector organizations, information transparency and financial transaction traceability contribute to the development of more disciplined, procedure-oriented, and accountable working cultures.

However, the findings also reveal that Ethical Climate does not significantly affect Financial Statement Fraud. This result suggests that the existence of an ethical organizational environment alone is insufficient to directly reduce financial statement manipulation. From the perspective of Fraud Hexagon Theory, fraudulent behaviour is influenced not only by rationalization but also by opportunity, pressure, capability, arrogance, and collusion (Vousinas, 2019). This finding indicates that fraud may still occur even within organizations possessing strong ethical climates when opportunities for manipulation, weak supervision, and collusive practices remain present. The result supports Mohr & Kearney (2021), who argued that organizational ethics may not effectively reduce fraud when organizational pressure and opportunities for manipulation remain high.

In practice, ethical codes and organizational integrity values within public sector institutions often remain formal administrative requirements that have not been fully internalized into employees' daily behaviour. Pressure to achieve budget targets, hierarchical bureaucratic cultures, and weak sanction enforcement may encourage manipulative behaviour despite the existence of formal ethical values. Furthermore, collusion and close interpersonal relationships within bureaucratic structures may weaken the effectiveness of ethical climate in preventing financial statement fraud. Desviana et al. (2020) also emphasized that collusion remains a dominant factor contributing to fraud within public sector financial management.

In the mediation analysis, Ethical Climate does not mediate the relationship between E-Budgeting Adoption and Financial Statement Fraud. This result indicates that although e-budgeting implementation contributes to the development of more ethical organizational environments, such improvements are not sufficiently strong to directly suppress fraudulent behaviour among government officials. In public sector organizations, digital systems frequently function more as administrative instruments rather than mechanisms for behavioural transformation. Consequently, improvements in digital transparency are not always followed by stronger organizational culture and integrity reinforcement.

Conversely, the findings demonstrate that E-Budgeting Adoption successfully mediates the relationship between Budget Participation and Ethical Climate. This result indicates that government officials' involvement in budgeting processes contributes to the formation of stronger ethical organizational environments through effective e-budgeting implementation. From the perspective of Agency Theory, digital governance functions as a governance mechanism capable of strengthening transparency and accountability, thereby encouraging more ethical organizational behaviour. These findings support

Heeks (2006), who emphasized that successful public sector digital transformation depends heavily on employee involvement and organizational acceptance of digital systems.

Practically, government officials' involvement in e-budgeting implementation improves understanding of digital procedures and encourages stronger administrative compliance within organizations. When employees feel involved in organizational system changes, resistance toward digital systems tends to decline, making technology-based governance implementation more effective. These conditions contribute to the development of more transparent, disciplined, and accountable organizational environments in local government financial management.

Conclusion

This study aims to analyse the effect of Budget Participation on Financial Statement Fraud by considering the roles of E-Budgeting Adoption and Ethical Climate within public sector organizations. The findings indicate that Budget Participation positively and significantly affects Financial Statement Fraud. This result suggests that higher involvement of government officials in budgeting processes may increase opportunities for financial statement manipulation when not accompanied by effective supervisory systems.

In addition, Budget Participation positively and significantly affects E-Budgeting Adoption. This finding indicates that government officials' involvement in budgeting processes enhances the effectiveness of digital system implementation in local government financial management. Furthermore, E-Budgeting Adoption positively and significantly affects Ethical Climate, suggesting that digital system implementation contributes to the formation of more transparent, accountable, and ethically supportive organizational environments.

However, Ethical Climate does not significantly affect Financial Statement Fraud. This result indicates that ethical organizational environments alone are insufficient to directly suppress financial statement manipulation. The findings also reveal that Ethical Climate does not mediate the relationship between E-Budgeting Adoption and Financial Statement Fraud, suggesting that digital governance implementation has not yet been fully effective in reducing fraud through ethical climate mechanisms.

Conversely, E-Budgeting Adoption successfully mediates the relationship between Budget Participation and Ethical Climate. This finding demonstrates that government officials' involvement in budgeting processes strengthens the development of ethical organizational environments through effective e-budgeting implementation.

Theoretically, this study extends the application of Agency Theory and Fraud Hexagon Theory within the context of digital governance in the public sector. The findings indicate that digital transformation through e-budgeting is more effective in strengthening transparency and ethical organizational environments than directly reducing financial statement fraud. Practically, the results highlight the importance of strengthening internal supervisory systems, optimizing e-budgeting implementation, and reinforcing

organizational integrity to minimize the risk of financial statement fraud in local governments.

This study has several limitations. First, the research was conducted only within public sector organizations in a specific regional area, limiting the generalizability of the findings. Second, the study employed a cross-sectional approach and therefore could not capture long-term organizational behavioural changes. Third, the variables were measured using perception-based questionnaires, creating the possibility of response bias. In addition, the relatively low R-square values indicate that other factors outside the research model may influence Financial Statement Fraud.

Therefore, future studies are encouraged to expand the research scope across different regions or conduct comparative studies among public sector organizations to obtain more comprehensive findings. Future research may also incorporate additional variables such as internal control systems, organizational culture, political pressure, whistleblowing systems, and ethical leadership to improve the explanatory power of the model regarding Financial Statement Fraud. Furthermore, the use of mixed methods approaches or actual audit data may provide deeper understanding of fraud practices in public sector financial management.

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