

# The Integration of Public Information Systems (PIS) in Fraud Prevention within Government Agencies

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## Abstract

*The integration of Public Information Systems (PIS) plays a key role in enhancing transparency and preventing fraud within government agencies. This study analyzes the effect of PIS integration on fraud prevention by incorporating information quality and government accountability as mediating variables. The research employs a quantitative approach using PLS-SEM (SmartPLS). Data were collected from government employees who utilize PIS in administrative and financial management processes. The results indicate that PIS integration has a significant effect on information quality and government accountability. Both information quality and accountability are also shown to have a positive influence on fraud prevention. Meanwhile, the direct effect of PIS integration on fraud prevention is relatively moderate but becomes stronger through the mediating roles of these two variables. These findings emphasize that the effectiveness of PIS in preventing fraud is highly dependent on the accuracy of information and the accountability mechanisms generated by the system. This study implies that government agencies need to strengthen system integration, enhance interoperability, and ensure information reliability to sustainably reinforce fraud prevention efforts.*

**Keywords:** SIP Integrity, Information Quality, Accountability, Fraud Prevention.

## I. INTRODUCTION

Efforts to prevent fraud in the public sector constitute a strategic agenda for achieving clean, transparent, and accountable governance. Fraud frequently occurs due to weak internal controls, limited transparency, and the lack of accurate and real-time information in governmental administrative processes. In the context of bureaucratic digitalization, the Indonesian government has promoted the transformation of administrative systems through the implementation of Government Information Systems (GIS), which function to integrate various data processes and inter-unit services. The integration of GIS aims to minimize the potential for data manipulation, reduce manual errors, facilitate digital audits, and accelerate information flows to support decision-making. However, the use of public accounting as a management tool and a regional development strategy has not yet been fully optimized (Pratama & Maulina, 2025).

A high level of technological integration does not automatically guarantee a reduction in fraudulent practices if the information produced lacks quality and accountability mechanisms are not functioning optimally. Information quality is a critical factor, as the effectiveness of GIS largely depends on the accuracy, relevance, completeness, and timeliness of the data provided. Inaccurate or delayed information may instead create opportunities for data concealment, budgetary irregularities, and

flawed decision-making. Moreover, government accountability plays a crucial role, as integrated information systems must be capable of generating clear audit trails, facilitating oversight, and ensuring that every activity can be properly accounted for. Documentation analysis indicates that internal control systems have not yet been fully effective in preventing fraud cases. These findings suggest an urgent need to improve information transparency, strengthen accountability practices, and optimize fraud prevention systems (Rosidah, Kesumah, & Rizka, 2023).

Various previous studies indicate that digitalization and the integration of information systems in the public sector can enhance transparency and reduce opportunities for fraud. However, research examining the direct relationship between SIP integration, information quality, accountability, and fraud prevention remains limited, particularly in the context of government institutions in Indonesia. Most prior studies have focused solely on technological aspects or the effectiveness of internal control systems, while research testing a comprehensive model using the PLS-SEM approach is still scarce. Digitalization also improves transparency through real-time transaction tracking and supports open audits. Nevertheless, challenges persist related to interoperability, data security, and human resources. Overall, digitalization is an important strategy in public finance reform (Suryanto & Dai, 2025).

Therefore, this study is important to address the existing research gap by analyzing the effect of SIP integration on fraud prevention, as well as examining the role of information quality and accountability as mediating variables. Using a quantitative approach

with the SmartPLS-SEM method, this study is expected to provide strong empirical evidence regarding the contribution of integrated information systems in supporting fraud prevention within government institutions. Furthermore, the findings are expected to offer practical recommendations for the government in developing digitalization policies, enhancing the effectiveness of supervision through technology, and strengthening a culture of accountability. From a theoretical perspective, this study extends the literature on technology-based public governance and demonstrates that fraud prevention depends not only on technology itself, but also on the quality of information and the accompanying accountability mechanisms.

## II. RESEARCH METHODOLOGY

### A. Public Information System Integration (SIP)

Public Information System Integration (SIP) refers to the integration of various applications, processes, data, and technological infrastructure into a unified and interconnected system to support public services, budget management, reporting, and supervision. SIP integration enables data synchronization across work units, reduces redundancy, and enhances the efficiency of bureaucratic processes. According to Information Systems Integration theory, the quality of inter-system connectivity can improve an organization's ability to monitor, control, and analyze internal activities more quickly and accurately.

In the public sector context, SIP integration is closely related to the concept of e-government maturity, where governments are required to develop technology-based information systems capable of delivering transparent, accountable, and responsive services. SIP integration is believed to enhance digital audit trails, narrow opportunities for data manipulation, and clarify accountability by identifying who performs specific activities at particular times. Therefore, information system integration becomes a key element in strengthening internal control and supporting fraud prevention.

However, the implementation of SIPD is still constrained by limited training, technical errors, and restricted internet access. Efforts to address these challenges include technical guidance, human resource capacity building, and continuous supervision. Although regional financial management has been implemented effectively and in accordance with SIPD procedures, further strengthening through

enhanced training, infrastructure development, and policy adjustments is necessary to maximize its effectiveness in supporting the principles of good governance and financial accountability (Kahfi, Naufal, & Johannes, 2025)

### B. Information Quality

Information quality refers to the extent to which information generated by an information system meets users' needs, particularly in terms of accuracy, timeliness, completeness, reliability, and relevance. Referring to the DeLone and McLean Information System Success Model, information quality is one of the main determinants of the successful implementation of information systems. In the public sector, high-quality information is essential to support decision-making, budget preparation, performance monitoring, and auditing.

Poor information quality, such as inaccurate, incomplete, or inconsistent data, can create opportunities for misstatements, budget deviations, and manipulation of financial reports. Conversely, well-integrated data through SIP can enhance information validity and serve as an effective control tool for both internal and external auditors. Thus, information quality is not merely a technological output, but also a crucial mechanism for reducing vulnerability to fraud.

### C. Government Accountability

Government accountability refers to the obligation of public institutions to account for every activity, decision, and use of resources to the public and relevant stakeholders. Accountability can be viewed from administrative, legal, professional, and moral perspectives. In public accountability theory, transparency and audit trails are two key aspects that support the achievement of accountability. SIP integration plays a central role in supporting accountability by providing detailed, automated, and tamper-resistant electronic records. Integrated systems enable real-time supervision and allow auditors to trace information flows more accurately. Consequently, accountability can function as a control mechanism that reduces opportunities for irregularities and strengthens administrative discipline within government organizations. Information technology also helps improve access to information, enhance the efficiency of public services, encourage active public participation, and strengthen public trust in government. The utilization of e-government and electronic-based systems further contributes to preventing potential corruption through improved oversight and governance (Mauni, 2025)

### D. Fraud Prevention in Government Institutions

Fraud in the public sector can occur in various forms, such as asset misappropriation, manipulation of financial statements, budget misuse, and corruption in the procurement of goods and services. According to

Cressey's Fraud Triangle theory, fraudulent practices are caused by three main factors: pressure, opportunity, and rationalization. In a bureaucratic context, opportunities for fraud often arise due to weak internal controls, manual processes that are vulnerable to manipulation, limited transparency, and inadequate evaluation and monitoring.

The integration of Information Systems (IS) can reduce opportunities for fraud through process automation, digital audit trails, automated data validation, and increased transparency. In addition, interconnected data across work units can narrow the space for collusion, enhance early detection capabilities through analytics, and facilitate internal audit processes. Previous studies support that digitalization and integrated information systems significantly contribute to reducing fraud potential, although their effectiveness still depends on the quality of information and the strength of accountability mechanisms.

### E. Conceptual Framework

The integration of Public Information Systems (PIS) serves as a digital foundation to enhance the effectiveness of data management, monitoring, and administrative oversight within public sector organizations. An integrated PIS enables data synchronization across work units, reduces duplication, and increases transparency as well as digital audit trails. With interconnected systems, information can be processed more quickly, accurately, and reliably, thereby supporting improvements in information quality.

Information quality then becomes a crucial element in ensuring that the data used for decision-making, reporting, and auditing truly reflects actual conditions. Timely, relevant, accurate, and reliable information strengthens government accountability. Strong accountability ensures that all activities can be properly justified and minimizes opportunities for administrative and financial irregularities. The relationships among PIS integration, information quality, and accountability—both directly and indirectly—contribute to fraud prevention. PIS integration creates transparency and automated control mechanisms, while accountability and information quality reduce opportunities for data manipulation and enhance early detection of anomalies. Therefore, this research model positions fraud prevention as an outcome influenced by technological factors and information governance.

This conceptual model examines three types of relationships:

1. Direct effects among the main variables.

2. Indirect effects through mediating variables (information quality and accountability).
3. The simultaneous effect of PIS integration on fraud prevention through two mediating pathways.

Thus, the conceptual framework illustrates a comprehensive relationship between digitalization, information governance quality, public accountability, and fraud prevention in government institutions.

### F. Research Conceptual Model

1. The variables in this model consist of: Information System Integration (PIS Integration) (X1)
2. Information Quality (X2)
3. Government Accountability (X3)
4. Fraud Prevention (Y)

The relationship flow in the model is as follows:

1. PIS Integration affects information quality and accountability.
2. Information quality affects accountability and fraud prevention.
3. PIS Integration is also assumed to have a direct effect on fraud prevention.

### G. Research Hypotheses

H1: PIS Integration has a positive effect on Information Quality.

H2: PIS Integration has a positive effect on Accountability.

H3: Information Quality has a positive effect on Fraud Prevention.

H4: Accountability has a positive effect on Fraud Prevention.

H5: PIS Integration has a direct positive effect on Fraud Prevention.

### H. Research Design

This study adopts a quantitative approach using the Partial Least Squares–Structural Equation Modeling (PLS-SEM) method. PLS-SEM is selected because it is capable of testing complex relationships among latent variables, accommodates relatively small sample sizes, and provides accurate estimates for both reflective and formative models. In addition, this method is appropriate when the research focuses on prediction and theory development, particularly in examining the effects of Public Information System (PIS) integration, information quality, and accountability on fraud prevention.

In PLS-SEM, this research consists of two main models:

1. **Outer Model (Measurement Model)**

This model is used to evaluate the validity and reliability of the research instruments through the following tests:

- Convergent validity (loading factor, Average Variance Extracted – AVE)
- Discriminant validity (Fornell–Larcker criterion and HTMT)
- Construct reliability (Cronbach's Alpha and Composite Reliability)

## 2. Inner Model (Structural Model)

This model is used to examine the strength of relationships among latent variables through:

- Coefficient of determination ( $R^2$ )
- Path coefficients
- Effect size ( $f^2$ )
- Predictive relevance ( $Q^2$ )
- Bootstrapping for hypothesis significance testing

Thus, this research design allows for an in-depth investigation of both the direct and indirect effects of PIS integration on fraud prevention through the mediating variables of information quality and accountability.

## I. Population, Sample, and Sampling Technique

### 1. Research Population

The population of this study comprises all members of the public who use public services based on Public Information Systems (PIS). The public is selected as the population because they directly experience the impact of public information system integration, including service transparency, the quality of information received, as well as their perceptions of government accountability and fraud prevention.

This population includes:

- Users of population administration services (Civil Registration/Dukcapil)
- Users of online-based licensing services
- Users of government healthcare services
- Users of tax and local retribution services based on application systems
- Members of the public who have accessed digital public information provided by the government

By selecting the public as the population, this study focuses on public perceptions regarding the effectiveness of PIS integration in preventing fraud within government institutions.

### 2. Sampling Technique

This study employs a purposive sampling technique, which is a sampling method based on specific criteria to ensure that respondents are truly relevant to the variables being examined. The criteria for respondents are as follows:

- Individuals who have used public services based on PIS within at least the past one year.
- Individuals who have interacted with government service portals, service applications, or digital administrative systems (e.g., OSS, Dukcapil applications, regional tax applications, health information systems, e-ticketing, and regional government information services).
- Aged at least 17 years.
- Possess basic knowledge of information quality and government digital services.

Purposive sampling is chosen to ensure that respondents have real experience in using government digital services, so their perceptions are valid for assessing the influence of PIS integration on fraud prevention.

### 3. Data Sources

Primary data are collected through the distribution of online questionnaires (Google Forms) to members of the public who meet the specified criteria. This method is chosen because public access to Public Information System (PIS)-based services is relatively widespread, making online questionnaire distribution more efficient and enabling a broader reach of respondents.

Secondary data consist of supporting documents such as government SPBE (Electronic-Based Government System) index reports, public transparency reports, publications on digital public services, and sectoral supervision or oversight data.

### 4. Variables and Indicators

#### •PIS Integration (X)

X1–X4: Interoperability, Data Integration, Real-Time Access, Automation

#### •Information Quality

K1–K4: Accuracy, Timeliness, Relevance, Completeness

#### •Accountability (M2)

A1–A3: Transparency, Responsibility, Audit Trail



## •Fraud Prevention (Y)

F1–F4: Internal Control, System Transparency, Data Traceability, Compliance

## III. RESEARCH AND DISCUSSION

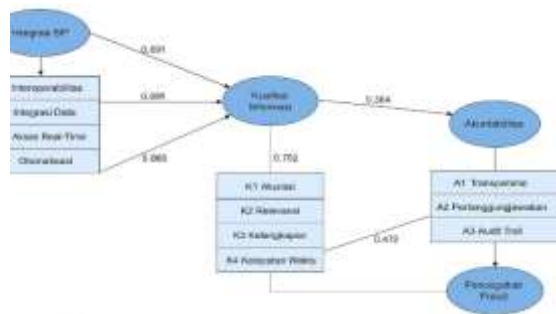


Figure 1. Research Result

## A. Convergent Validity (Outer Loadings)

Tabel 1. Convergent Validity

Indikator	Loading	Description
X1	0.842	VALID
X2	0.873	VALID
X3	0.816	VALID
X4	0.861	VALID
K1	0.884	VALID
K2	0.891	VALID
K3	0.866	VALID
K4	0.802	VALID
A1	0.881	VALID
A2	0.903	VALID
A3	0.879	VALID
F1	0.865	VALID
F2	0.892	VALID
F3	0.857	VALID
F4	0.873	VALID

(all > 0.70 = valid)

## B. Average Variance Extracted (AVE)

Tabel 2. Average Variance Extracted

Variable	AVE	Description
SIP integration	0.722	Valid
Information Quality	0.771	Valid
Accountability	0.796	Valid
Fraud Prevention	0.754	Valid

All > 0.50 = Valid)

## C. Composite Reliability and Cronbach Alpha

Tabel 3. Reliability

Variable	Cronbach	Composite	Description
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	Alpha	Reability	
SIP	0.873	0.912	Realibel
Integration			
Information	0.895	0.928	Realibel
Qualibility			
Accountabilit	0.881	0.925	Realibel
y			
Fraud	0.884	0.927	Realibel
Prevention			

## D. Fornell-Larckel

Tabel 4. Fornell-Larcker

Variable	ISIP	KI	AK	PF
SIP Integration	0.849	-	-	-
Information	0.691	0.878	-	-
Qualibility				
Accountability	0.702	0.715	0.892	-
Fraud	0.684	0.745	0.766	0.868
Prevention				

## E. R-Square (Model Fit)

Tabel 5. R-Square

Variable Endogen	R2	Description
Information Quality	0.478	Moderate
Accountability	0.492	Moderate
Fraud Prevention	0.671	Strong

## F. Path Coefficients

1. PIS Integration → Information Quality  
The relationship between PIS integration and information quality shows a coefficient of 0.691, a T-statistic of 12.884, and a P-value of 0.000. These results indicate that PIS integration has a positive and significant effect on information quality. Therefore, H1 is accepted, meaning that better PIS integration leads to higher information quality.
2. PIS Integration → Accountability  
The effect of PIS integration on accountability has a coefficient of 0.702, a T-statistic of 13.221, and a P-value of 0.000. This demonstrates a positive and significant effect; thus, H2 is accepted. PIS integration enhances government accountability through increased transparency, audit trails, and clearer responsibility mechanisms.
3. Information Quality → Fraud Prevention  
The relationship between information quality and fraud prevention shows a coefficient of 0.364, with a T-statistic of 5.881 and a P-value of 0.000. This indicates that information quality has a positive and significant effect on fraud prevention. Accordingly, H3 is accepted, suggesting that accurate, relevant, and timely information supports early detection of potential fraud.
4. Accountability → Fraud Prevention  
The effect of accountability on fraud prevention has a coefficient of 0.472, a T-statistic of 7.022, and a P-value of 0.000. These results confirm a positive

and significant effect; therefore, H4 is accepted. Strong accountability reduces opportunities for fraud through enhanced supervision and institutional responsibility.

5. PIS Integration → Fraud Prevention  
The direct relationship between PIS integration and fraud prevention shows a coefficient of 0.223, with a T-statistic of 3.015 and a P-value of 0.000. This finding confirms that PIS integration has a direct, positive, and significant effect on fraud prevention; thus, H5 is accepted.

All hypotheses H1–H5 are accepted.

## G. DISCUSSION

This study discusses the results of the PLS-SEM structural model analysis regarding the influence of Government Information System (GIS) integration, information quality, and government accountability on fraud prevention, based on public perceptions as users of digital public services. The research model demonstrates that technological factors, data quality, and information governance have significant relationships in strengthening fraud prevention within government institutions.

### H. The Effect of PIS Integration on Information Quality

The research results indicate that PIS integration has a positive effect on information quality. This finding suggests that the better the integration and interconnectivity among systems in public services, the higher the quality of information received by the public. PIS integration helps ensure that the data presented to the public are consistent, accurate, and easily accessible.

The public perceives that digital services interconnected across work units—for example, population administration services that are directly integrated with tax or licensing services—produce more reliable information. This finding is consistent with the DeLone and McLean IS Success Model, which states that system integration improves information quality through data consistency across processes.

### I. The Influence of SIP Integration on Government Accountability

The integration of SIP has been shown to enhance the public's perception of government accountability. The interconnected digital system allows service delivery and data processing to become more transparent,

minimizes direct contact, and clarifies the audit trail. The public can observe that system-based services tend to be more standardized and are not reliant on the subjectivity of employees.

This reinforces the assumption that the utilization of digital technology provides room for public oversight and compels the government to be more accountable for every service provided. These findings align with the literature on public accountability, which states that system transparency is a crucial component in building public trust.

### J. The Influence of Information Quality on Government Accountability

Research has found that Information Quality has a positive effect on Government Accountability. Accurate, clear, and easily understandable information provides the community with a more realistic view of the public service delivery process. With high-quality information, the public can assess whether a service has been carried out according to procedures or if there are indications of irregularities.

Timely information also enables the public to exercise social control more effectively. These findings reinforce the theory of information governance, which states that quality information is the fundamental foundation for creating accountability.

### K. The Influence of Information Quality on Fraud Prevention

Information Quality has been shown to have a significant impact on Fraud Prevention. The community believes that transparent, clear, and accountable information reduces the likelihood of data manipulation or administrative deviations. When information regarding requirements, costs, procedural flows, and service status is easily accessible to the public, the opportunities for fraud, such as illegal charges, process manipulation, and abuse of authority, can be minimized. This finding supports the Fraud Triangle perspective, which states that transparency reduces the opportunity for fraud to occur.

### L. The Influence of Government Accountability on Fraud Prevention

The research findings indicate that Government Accountability has a strong positive influence on Fraud Prevention. Citizens who perceive the government as acting transparently, responsibly, and consistently in its services will find it more difficult to identify potential fraud occurrences. High accountability strengthens both internal and external oversight systems, promoting a cleaner public service environment. Accountability also creates social and moral pressure for government employees to maintain their integrity. These findings

support the governance literature that states accountability is a mechanism for controlling organizational behavior.

#### **M. Direct Impact of SIP Integration on Fraud Prevention**

The direct integration of SIP also influences fraud prevention. Integrated digital public services narrow the space for data manipulation, minimize manual errors, and enhance monitoring efficiency. The public perceives that the more often services are conducted digitally without direct intermediary personnel, the lower the chances of illegal levies or other unofficial transactions occurring. These findings align with previous research that indicates digitalization is one of the most effective strategies in combating administrative fraud within the government.

#### **N. The Role of Mediation by Information Quality and Government Accountability**

The research also demonstrates the presence of mediation effects:

1. Information Quality mediates the relationship between SIP Integration → Fraud Prevention.

SIP Integration enhances information quality, which in turn reinforces fraud prevention. This means that an integrated system does not automatically prevent fraud, but when it is capable of producing high-quality information, its preventive effect becomes more significant.

2. Accountability mediates the relationship between SIP Integration → Fraud Prevention.

SIP Integration improves accountability, which ultimately strengthens efforts to prevent fraud. This indicates that technology functions as a governance instrument to promote public responsibility.

3. Chain Mediation: SIP Integration → Information Quality → Accountability → Fraud Prevention.

This chain mediation indicates that the influence of SIP Integration on fraud prevention becomes stronger when both information quality and accountability are improved. This finding is significant as it explains the mechanism by which digitalization works to reduce fraud through two governance pathways.

#### **O. Theoretical Implications**

1. The research enriches the literature on the integration of information systems in the context of the public sector.

2. The research model demonstrates that information quality is a key variable that bridges technology and governance.

3. The findings expand the understanding of the role of accountability as an important factor in modern fraud prevention models.

4. The research confirms the effectiveness of PLS-SEM in testing the complex relationships between technology and governance.

#### **P. Practical Implications**

1. The government needs to expand the integration of SIP (System Information Public) among agencies to ensure that data flows are more transparent and easier to monitor.

2. Improving the quality of information should be a priority, particularly in terms of clarity, accuracy, and ease of access.

3. Public accountability must be strengthened through digital audits, transparency dashboards, and application-based service monitoring.

4. The digitalization of public services has proven to be an effective strategy for fraud prevention and should continue to be expanded across various service sectors.

## **IV. CONCLUSION**

This research aims to analyze the impact of Government Information System Integration (SIP) on fraud prevention, as well as evaluate the roles of information quality and accountability as mediating variables, involving the public as the research population to assess the effectiveness of SIP implementation from a public perspective. The analysis results using the SmartPLS-PLS-SEM method provide several important findings that enrich the literature on technology-based government governance.

First, this research demonstrates that SIP integration significantly affects information quality, indicating that the more integrated a system is, the better the information presented to the public and internal stakeholders. Good integration minimizes data redundancy, accelerates access to information, and enhances data reliability in government administration processes. This finding underscores that government digitalization is not only related to process efficiency but also to the improvement of data quality, which is a fundamental basis for public decision-making.

Second, the study finds that SIP integration has a positive effect on accountability, showing that the utilization of information technology can strengthen oversight, clarify accountability pathways, and reduce the opportunities for misuse of authority. An integrated system allows for easy tracking of audit trails, thereby minimizing the room for manipulative actions. This indicates that technological integration plays a strategic role in supporting good governance mechanisms.

Third, information quality and accountability significantly contribute to fraud prevention, with

accountability having the strongest influence. Survey participants felt that the availability of accurate information and transparent accountability processes could reduce the risk of deviations. This finding reinforces the theory that technology will only be effective if supported by a bureaucratic environment that is responsible and transparent.

Fourth, the research also shows a significant indirect impact of SIP integration on fraud prevention through information quality and accountability. This confirms that technology integration does not directly prevent fraud, but rather through improving data quality and strengthening accountability mechanisms. In other words, the success of government digitalization heavily depends on the system's ability to produce quality information and encourage accountable behavior among officials.

Overall, this study provides empirical evidence that SIP integration is a vital element in building a transparent and fraud-free government system. However, technology cannot stand alone without a commitment to information quality and accountability. The government needs to ensure that SIP development continues to be directed toward interoperability, ease of access, and public involvement as participatory oversight.

From a practical standpoint, the results of this study can serve as a basis for government agencies to improve the design and implementation of SIP, enhance the digital literacy of the public, and strengthen technology-based oversight processes. Meanwhile, the theoretical contribution of this research lies in the integration of the concepts of information system integration, information quality, accountability, and fraud prevention within a comprehensive model that can be referenced for future research.

Future studies are recommended to expand the geographical scope, add moderating variables such as organizational culture or digital competency of officials, and utilize mixed methods approaches to better capture the dynamics of bureaucratic behavior in greater depth. Thus, the research results can further enrich the understanding of how government digitalization plays a role in sustainably reducing fraud practices.

## V.RECOMMENDATION

Based on research results regarding the impact of Information System Integration (SIP) on fraud prevention involving the community as the research population, several recommendations can be provided to

government authorities, system developers, academics, and future researchers.

### A. Recommendations for Government and SIP Implementing Agencies:

#### 1. Enhance Interoperability Between Systems

The government needs to expedite integration among platforms such as SIPD, SIMDA, e-Budgeting, e-Planning, e-Procurement, and internal monitoring systems, so that data can be interconnected in real-time. Strong interoperability will close data manipulation gaps and strengthen accountability.

#### 2. Strengthen Technological Infrastructure and System Security

Strengthening IT infrastructure, including server upgrades, data security based on encryption, and regular security audits, is crucial to prevent illegal access that could present fraud opportunities.

#### 3. Increase Information Transparency to the Public

The government is advised to expand public access to budget information, realization reports, procurement of goods and services, and civil service performance through easily accessible SIP portals. This transparency will enhance community-based oversight.

#### 4. Ongoing Training for Apparatus

Government officials should be provided with routine training on the use of SIP, digital ethics, and the importance of accountability. Human resource competencies are essential so that the systems are not only available but are also utilized optimally.

### B. Recommendations for SIP Developers and Administrators:

#### 1. Improve User Experience (UX) and System Usability

Developers need to simplify the SIP interface to make it easier for both officials and the public to use, especially in features related to reporting, data searching, and analytics dashboards.

#### 2. Ensure the Quality of Information Generated by the System

Developers must strengthen data validation modules to ensure that incoming data is consistent, complete, and accurate, so that the quality of information produced truly supports fraud prevention.

#### 3. Add More Detailed Audit Trail Features

Adding features to track user activity in detail will strengthen internal control mechanisms and facilitate tracking indications of fraud.

### C. Recommendations for the Community as Users of Public Information:

#### 1. Encourage Active Participation in Public Oversight



The community is expected to be more active in using SIP to access information, monitor budget usage, provide reports, or assess government performance.

## 2. Improve Community Digital Literacy

The government should provide educational programs to enhance the community's ability to understand budget data, public information, and the use of digital monitoring systems so that community-based oversight can be more effective.

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