

-RESEARCH ARTICLE-

**INFLUENCE OF QUALITY OF ACCOUNTING INFORMATION SYSTEM,
DEVELOPMENT OF ETHICAL CLIMATE AND ORGANIZATIONAL
CULTURE ON THE EFFECTIVENESS OF CORRUPTION RISK
MANAGEMENT AND ITS IMPACT ON THE LEVEL OF ORGANIZATIONAL
CORRUPTION AT GOVERNMENT AGENCIES IN INDONESIA**

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—Abstract—

The elimination of corruption in Indonesia remains ineffective. The implemented repressive measures must be supported by more extensive preventive measures spanning human, systemic, and cultural dimensions. Using structural equation modeling (SEM), the results of research on ministries, non-ministerial institutions, and provincial, district, and city governments demonstrate that the quality of Accounting Information Systems (AIS), the development of a principled ethical climate (EC), and the development of a hierarchical organizational culture (OC) influence the effectiveness of risk management, the level of organizational corruption, and the level of organizational corruption. This conclusion highlights the necessity of using the AIS application in the management of state and local finances as a tool for detecting and preventing corruption, as well as the significance of implementing bureaucratic reform, which includes the development of risk management and the internalization of anti-corruption values.

Keywords: corruption, accounting information system, government agencies, organizational culture, risk management

1. INTRODUCTION

Many corruption indices indicate that the level of corruption in Indonesia remains high (BPS, 2019; Transparency International, 2019). The prevalence of corruption has not lessened despite the continuation of anti-corruption measures. This study aims to investigate this phenomenon by analyzing several human, system, and cultural factors, namely the quality of accounting information systems (AIS), the development of an ethical principles climate, the development of a hierarchical organizational culture (OC), and corruption risk management (CRM).

The selection of these four parameters was influenced by several previous research findings. There is empirical evidence that the AIS influences the effectiveness of internal control (IC), specifically in the areas of monitoring, communication, and information. Importance of using AIS technology to detect and prevent fraudulent acts in terms of reporting and accountability for detecting fraudulent activity (Othman et al, 2015). Transparency, transparency, and accountability have also been proven to influence the implementation of good governance and the level of local government corruption (Sukmadilaga et al., 2015). The use of accounting as a weapon for managing corruption (Olukowade et al., 2015) and the implementation of forensic accounting demonstrates the significance of a trustworthy AIS in eradicating corruption (Haron et al, 2014; Joseph et al, 2016). Culture is also tied to corruption. The public is believed to indirectly support the culture of corruption in Indonesia. The increase in corruption cases in Indonesia appears to represent the nation's morality, and those who refuse to participate in corruption offenses are viewed as "pretentious." Giving money or things as a token of

appreciation to officers for services they should have gotten will result in the emergence of a culture that mandates the existence of giving in all public services.

In contrast, the code of ethics outlined in "Government Regulation Number 42 of 2004" regarding the Guidance of Esprit de Corps and "Code of Ethics for Civil Servants and Government of Indonesia Regulation Number 53 of 2010" regarding "Discipline of Civil Servants (PNS)" has not become a major concern in most institutions. This was supported by the Commissioner of the State Civil Apparatus Commission (KASN), who explained that the low number of reports of violations of the code of ethics related to corruption was due to the robust nature of public proclamation and the permissive value of the society, so that it was regarded as a normal occurrence. People in Indonesia are nonetheless aware of the ethical implications of corrupt behavior.

The ethical climate (EC), organizational climate (OC), and ethical intelligence system (AIS) do not stand alone. These three are organizational structures that are compatible with the CRM concept (COSO, 1992; Cotton et al, 2016; Moeller, 2011). Yet, the BPKP assessment of the application of risk management in government has yielded disappointing results. This is since government agencies continue to apply a compliance-based, rather than risk-based approach, where the emphasis is placed on high-risk operations in relation to the desired outcomes. The factors include a culture of low-risk awareness and a lack of interest in the organization's risk management programme. Considering the aforementioned events, the researcher recognizes the significance of an all-encompassing preventative strategy encompassing human, system, and cultural factors. This is also a reason for proposing improvements to anti-corruption tactics.

2. LITERATURE REVIEW

2.1 Quality of Accounting Information System

The COSO "IC" framework (COSO, 1992), COSO ERM (Moeller, 2011), and Fraud Risk Management (Cotton et al, 2016) make AIS an intrinsic component of organizational attempts to manage fraudulent behavior. In addition to segregation of functions, supervision, independent verification, audit trail, and access control, AIS is utilized as a control instrument. AIS is an integrated system and framework that collects, records, stores, and processes transaction data for the dissemination of operational and financial information to relevant parties (Romney et al., 2012; Wilkinson, 2000). AIS improves decision-making (Enrique Bonsón Ponte, 2000; Salehi, 2011) and prevents and identifies risk misappropriation at all management levels (lower, medium, and upper). A superior AIS can also enhance the significance of accounting data and reduce decision-making ambiguity (Fitriati et al., 2015; Salehi, 2011; Sambasivam, 2013).

This demonstrates that quality is advantageous for user-needs-based decision making in the context of AIS. Unique characteristics of the accessible data meet or surpass user expectations (Gelinas, 2012). These characteristics include correctness, timeliness,

relevance, completeness, and dependability of information about an economic entity (Hall, 2011; McLeod, 2007) in order to provide an accurate depiction of the rise in capital, revenue sources, and profit distribution (Dalci, 2002; Salehi, 2011). Being an articulation of financial concepts in quantitative, formal, and structured forms to support planning activities, as well as a preventive, detective, and corrective control, AIS is also judged by its role in management (Hall, 2011; Mitchell et al., 2000; Sacer, 2006)

In the context of customer relationship management, the AIS's reliability relates to its capacity to perform a four-dimensional function: (i) monitoring, (ii) controlling, (iii) tracking, and (iv) audibility (Ameen and Ahmad, 2013). The monitoring aspect of an AIS is the capacity to recognize and prevent corrupt behavior. The control dimension is reflected in the accounting cycle provisions of recording, analyzing, categorizing, summarizing, communicating, and interpreting financial data. The internal audit function then uses these requirements as compliance evaluation criteria (Khemani and Diamond, 2005). Many indicators show the dimensions of use, such as the frequency of use and the number of functions utilized to prevent, detect, and correct corrupt behavior (DeLone & McLean, 1992; Hall, 2011).

The literature analysis serves as the foundation for the creation of four dimensions and eight AIS quality indicators that will be tested in the future (see Table 1).

Table 1. Dimensions and Indicators Quality of Accounting Information Systems

Dimensions	Indicators	
Auditability	1	Contribution to the efficiency and effectiveness of operations
	2	Contribution to compliance improvement
Monitoring	3	Ability to detect corrupt behaviour
	4	Use for cross-checking information
Controlling	5	Restriction of discretionary powers
	6	Criteria for assessing compliance
Tracking	7	Assistance in proving irregularities
	8	Deterrent Effect

2.2 Development of Climate Ethical Principles

The EC is a shared concept of how an organization should address an ethical dilemma (Sims, 1992) and how its members determine what is right or wrong (Victor et al., 1988). The EC establishes the ethical principles that govern the conduct that results from corporate policies, procedures, and leadership (Schminke et al, 2007; Simha, 2012). (Trevio et al., 1998), ethical growth entails the formation of behavior impacted by the individual's and society's features where he resides and works.

According to [Victor and Cullen \(1988\)](#), the EC model consists of I three components of ethical theory (ethical philosophy), specifically egoism, kindness, and principles, and (ii) three loci of analysis, specifically individual, local, and cosmopolitan (sociological theory of reference groups). This study focuses on the EC principles. Principle (principle) is an ethical framework that emphasizes impersonal standards of conduct (general). Personal morality, organizational norms and procedures, as well as legislation and professional codes of ethics, manifest the principles of conduct. In the 'principles' dimension, the guidelines used by an employee in an organization with an EC of 'personal morality,' 'rules and SOPs,' and 'laws and professional codes' are reflected in the sources of the principles, namely I individual personal ethics, (ii) organizational policies such as rules of conduct and procedures, and (iii) external sources such as professional codes of ethics or religious values (see [Table 2](#))

Table 2. Dimensions and Indicators Ethical Climate Development

Dimensions	Indicators	
Principles	15	Individual morality
	16	Regulations and laws
	17	Code of ethics and professional standards

2.3 Hierarchical Organizational Culture Development

OC is a system of shared meanings and perceptions among organization members. OC is unique and was created by an organization because it has shown to be effective enough to be implemented and taught to new members so that they may learn how to think and feel ([Davis, 1989](#)). OC can also be viewed as a common value system that defines what is desirable and considered significant, as well as norms that define acceptable attitudes and behaviors and serve as guides for group members. OC is expressed in things of value, such as the prevailing leadership style, the language and symbols employed, the procedures and routines, and the definition of success that makes an organization distinctive ([Cameron and Quinn, 2011](#)).

A hierarchical culture is an organizational culture (OC) that stresses stability and control over management and structure via rigid command structures, regulations, and formal procedures. The management of personnel stresses consistency, dependability, predictability, and job security. Workers place a premium on position and authority. Managers serve as coordinators and organizers who supervise closely. Efficiency, formality, reason, order, and submission are greatly cherished. The literature research identifies six hierarchical OC indicators that will be investigated further in this study:

1. Dominant character
2. Leadership
3. Human resource management

4. Organizational bond booster
5. Strategy
6. Success criteria

2.4 Corruption Risk Management Effectiveness

CRM is a process for planning and identifying organizational measures to reduce the likelihood of corruption instances, including detection, prevention, and response. CRM encompasses preventing corruption, detecting it early if it does occur, and responding effectively with corrective actions in accordance with applicable rules and regulations (KPMG, 2014). In this study, the effectiveness of CRM is defined as (a) the level of corruption risk that can be controlled to an acceptable level, (b) the ability to conduct early detection of corruption incidents, and (c) the implementation of law enforcement and loss recovery in response to corruption incidents.

The dimensions and indicators for measuring CRM are based from the COSO and ACFE-developed concepts of IC and enterprise risk management and fraud risk management. The effectiveness of risk management is operationalized through the following five dimensions:

- a. Fraud risk governance is the application of exemplary leadership in maintaining integrity and ethical values, the establishment of an anti-corruption ideology, management style, the application of authority, accountability, and discipline, integrity, ethical values, and competence.
- b. Fraud risk evaluation is a dynamic and iterative process involving risk assessment.
- c. Fraud control activities consist of rules and processes that guarantee leadership directions to limit fraud risk through prevention and detection efforts.
- d. Investigation and corrective action, i.e., an organization's response to stop losses that have already occurred, prevent additional losses from occurring, and develop corrective actions.
- a. Fraud risk management monitoring activities consist of periodic evaluations of IC performance. Continuous monitoring, separate evaluation, or a combination of the two may be employed (COSO/ACFE, 2016).

2.5 Level of Organizational Corruption

Based on the notion of the fraud tree, corruption is one of three types of fraud: financial statement fraud and theft of assets. Fraud is the dishonest pursuit of gains or the infliction of losses by deception or other means that violate the applicable laws. According to the Organization of Certified Fraud Examiners, occupational fraud is the intentional misuse of organizational resources or assets to benefit oneself through the utilization of a position (ACFE, 2010). In addition, the ACFE (2016) defines corruption as the misuse

of influence to achieve benefits for the perpetrator or others in violation of their commitments or the rights of others. According to Transparency International (TI, 1996), corruption is the aim of employees who improperly and illegally benefit themselves or others by exploiting their authority.

Pinto et al. (2008) formulated two forms of organization corruption: corrupt organizations and organizations comprised of corrupt individuals. I the dimensions of the perpetrator (one individual or two or more individuals) and (ii) the dimensions of the corruption's beneficiaries characterize the two types of organizational corruption (individuals or organizations). Organization of corrupt individuals (OCI) refers to a significant proportion of organizational personnel who act corruptly for their own gain, whereas corrupt organization (CO) is an act of corruption committed for the organization's benefit. With both types of corruption, the organization serves as the central element. Individual, social, organizational, and environmental levels can however be included in measurement and analysis (Pinto et al, 2008).

In this study, organizational corruption is defined as I corrupt leaders and employees of organizations and (ii) corrupt ministries, institutions, and local governments. Each of these variables is operationalized with two indicators: a. occurrence indicators (intensity and frequency of corrupt behavior) and b. the characteristic indicator of the occurrence (actors and beneficiaries of OCI and CO).

3. RESEARCH HYPOTHESES

Several prior research have demonstrated the correlation between information system quality and risk management. It has been demonstrated that the quality of information positively affects the efficiency and effectiveness of construction management (Lee and Yu, 2012); similarly, research on e-learning has shown that the technical quality of the system, the quality of information, and the quality of services all positively affect the achievement of goals (Hassanzadeh et al, 2012). Management information systems have also proven to be a vital aspect of organizational decision-making, planning, and control (Rasid et al, 2014). The research findings indicate the connection between AIS and CRM (Best et al., 2009), demonstrating that a successful AIS can avoid fraud. In this instance, the AIS ERP system can avoid fraud by incorporating controls such as function separation and continuous monitoring. Due to audit tracking, notifications, and access limitations, all transactions are watched and documented electronically, making them more difficult to falsify (Best et al, 2009). Given the above description, it can be deduced that:

Hypothesis 1: The quality of the Accounting Information System has a positive effect on the effectiveness of corruption risk management.

In firms with a principled EC, employees think and act independently or are directed by stringent internal and external regulations or standards of conduct that ban corrupt

conduct. Moral decisions are made on the basis of self-assurance or conformance with these internal and external rules. This EC is positively associated with organizational commitment among employees who do not want to cause harm to the organization. Past study has demonstrated that an EC influences ethical/unethical workplace behavior (Appelbaum et al, 2005; Newman et al, 2017). Climate and sound ethical practices have also been shown to be an intrinsic aspect of risk management, hence reinforcing formal requirements for establishing and sustaining ethical enterprises (Francis and Armstrong, 2003; Schminke et al, 2007). Given the above description, it can be deduced that:

Hypothesis 2: The development of a climate of ethical principles has a positive effect on the effectiveness of corruption risk management.

In a hierarchical society, discretion is limited, there are stringent checks and balances, and there is a system of accountability for the assigned authority and resources. In addition, there is a system for early detection of corruption and the threat of real punishment. This standard will limit the likelihood of employees engaging in corrupt actions. Moreover, the internal audit role is more successful if the OC has a high compliance with legislation and policies. Members of bureaucratic organizations that accept the internal audit procedure are compliant with the level of power (Kimemia, 2013; Wright, 2009).

Hechanova et al. (2014) examined the dimensions of cultural development in predicting attitudes and norms of corruption and discovered the significance of clearly articulating integrity as values, standards of behavior, exemplary leaders and systems, and integrity structures, involving employees in the cultural development process. Regarding risk management, Bo (2014) proposes that a risk-averse culture must be replaced with a more flexible emphasis on strategic issues and less formal processes. Wright (2009) contends that a strong bureaucratic/hierarchical culture is reflected in a strong desire to comply with regulations, and that it is the responsibility of top management to appear accountable and transparent, whereas middle management is more concerned with fraud committed by low-level employees. Given the above description, it can be deduced that:

Hypothesis 3: The development of a hierarchical organizational culture has a positive effect on the effectiveness of corruption risk management.

Several research have demonstrated the correlation between fraud risk management and corrupt conduct. Korea's failure to control corruption is attributable to a lack of political will (Kim, 2008). Political will is the determination of government actors to take measures to fight corruption seriously and to periodically build, develop, and preserve its sustainability. In evaluating this political will, Kim (2008) uses two key factors, namely seriousness and sustainability, and five indicators, namely a) the level of early seriousness, b) the ranking of targets and the credibility of sanctions, c) a long-term strategy, d) the frequency of efforts implemented, and e) the mobilization of support

(Kim, 2008). This study reveals the strong association between political intention to implement CRM and corruption levels.

A risk factor for corruption in the procurement process is the absence of fraud risk management in the form of intrinsic oversight, monitoring, and broad discretionary authority for procurement personnel under the guidance of management (Ekwo, 2013). Additionally, it has been demonstrated that the ineffectiveness of anti-corruption policy disclosure is connected to the extent of corruption exposure (Barkemeyer et al, 2015). The results demonstrated that auditors prioritized hard control over soft control in order to prevent and detect fraud. An audit of the feature of hard control is viewed as an endeavor to decrease corruption opportunities. A study of 20 instances of corruption in the United States Navy demonstrates that tone at the top, a culture of honesty during the activation process, separation of functions, job rotation, anti-fraud ethics training, activity evaluation, and implementation of a system of checks and balances are significant fraud deterrents (Tan, 2013).

The connection between IC weaknesses and instances of fraud and corruption is also apparent in a number of other areas, including the procurement of goods and services (Tan, 2013), the capital market (Kinyua, 2016), the chemical industry (Almici, 2015), the state treasury (Joseph et al, 2015), state-owned enterprises (Shu et al, n.d.), banking (Omonyemen et al, 2017), public accounting (Pirvan and Nisulescu, 2017). Given the previous description, the following conclusion can be drawn:

Hypothesis 4: The effectiveness of corruption risk management has a negative effect on the level of organizational corruption.

One of the objectives of utilizing IT is to promote transparency in the context of eradicating corruption in many domains, such as government budgets (Cimpoeru and Cimpoeru, 2015), public services (Sturges, 2004), and the procurement of products and services (Cimpoeru and Cimpoeru, 2015). (Ishak and Said, 2015). According to Klitgaard (1988), corruption is an issue of asymmetric knowledge and incentives when someone has a monopoly on information and administers activities with discretion and without accountability. From this perspective, Technology can diminish the information monopoly. Technology can also eradicate the corruptive discretion that disintermediation produces. The greater the availability of information, the larger the responsibility, and hence the smaller the degree of corruption. This also drives study on the influence of AIS and the creation of an EC and OC on the level of organizational corruption risk.

Traditional non-ICT techniques, such as law enforcement and administrative change, must be supplemented by an ICT strategy in order to combat corruption (Gronlund, 2010; Hellstrom, 2010; Sasaki and Heacock, 2010; Shim and Eom, 2009). It is considered that the ICT method to combating corruption has a favorable impact in four areas: monopoly, discretion, accountability, and ethical climate. Technology can

alleviate monopolistic issues, prevent discretion, enhance the moral climate, and eliminate corruption (Rumel, 2004). By providing alternate outlets, these electronic services can help to promote competition. Hence, users can select and avoid corrupt agents. This is exemplified by the prevalence of computerized accounting systems in public sector organizations (Amaefule and Iheduru, 2014; Güneş, 2019). Moreover, the implementation of an AIS can enhance the prevention of fraudulent financial reporting via IC. Given the above description, it can be deduced that:

Hypothesis 5: The quality of the Accounting Information System has a negative effect on the level of organizational corruption.

Balc et al. (2012) found a correlation between organizational corruption and an EC in which personnel in organizations without an ethical code prioritize their own interests over those of the public. In addition, research on deviant behavior in the workplace in the United States demonstrates that firms believed to place less priority on compliance with rules and regulations are more likely to misappropriate company property (Peterson, 2002).

Moreover, research on high-ranking officials and corporate personnel in South Korea indicates that the EC influences organizational citizenship behavior (Shin, 2012). At seven Polish hospitals, the law and code climate were associated negatively with organizational corruption, but the instrumental and caring climate was associated positively with organizational corruption (Stachowicz-Stanusch and Simha, 2013). Given the above description, it can be deduced that:

Hypothesis 6: The development of a climate of principled ethics has a negative effect on the level of organizational corruption.

A formal bureaucratic organization, meaning one that sets and enforces a code of ethics and written regulations, should have extensive control over its employees' ethical conduct. It is a tool for regulating ethical decisions. Even if they disagree with a superior's directives, subordinates obey authorized officials and commands. The findings indicated that the function of management in a company with a hierarchical culture significantly affected the effectiveness of control. Utilizing policies and procedures, organizational leaders organize, coordinate, and oversee all organizational activities to guarantee compliance with set rules and procedures (Nakiyaga and Anh, 2017). Given the above description, it can be deduced that:

Hypothesis 7: The development of a hierarchical organizational culture has a negative effect on the level of organizational corruption.

Recent research has demonstrated that the attributes of a trustworthy AIS have a beneficial impact on the efficacy of risk management (see H1). On the other side, the

effectiveness of CRM has a negative impact on the amount of organizational corruption (see H4), as does the quality of the AIS (see H5). Hence, it can be stated:

Hypothesis 8: The quality of the Accounting Information System has a positive effect on the effectiveness of corruption risk management and a negative impact on the level of organizational corruption.

Prior study has demonstrated that the introduction of an EC (X2) improves the efficacy of risk management (see H2). On the other side, the efficacy of CRM has a negative impact on the level of organizational corruption (see H4), as does the development of a key form of EC (X2) (see H6). Hence, it can be stated:

Hypothesis 9: The development of a climate of principled ethics has a positive effect on the effectiveness of corruption risk management and a negative impact on the level of organizational corruption.

Prior study has demonstrated that the use of a hierarchical OC (X3) improves the efficacy of risk management (see H3). In contrast, the efficacy of CRM has a negative impact on the amount of organizational corruption (see H4), as does the development of a hierarchical OC (X3) (see H7). Hence, it can be stated:

Hypothesis 10: The development of an organizational culture has a positive effect on the effectiveness of corruption risk management and a negative impact on the level of organizational corruption.

1. Research Methodology

The analysis of verification employs a structural equation modeling (SEM) technique. The SEM study continued with the measurement and structural models after building the theoretical model and flowchart. The following equation describes the efficiency of CRM:

$$Y = \gamma_1 X_1 + \gamma_2 X_2 + \gamma_3 X_3 + z_1$$

Descriptions:

- Y : Effectiveness of Corruption Risk Management
- X1 : Quality of Accounting Information System
- X2 : Development of a Principled Ethical Climate
- X3 : Hierarchical Organizational Culture Development
- γ_1 : The regression coefficient of AIS Quality on Effectiveness of Corruption Risk Management

γ_2 : The regression coefficient of the development of ethical climate principles on the effectiveness of Corruption Risk Management

γ_3 : The regression coefficient of Hierarchical Organizational Culture Development on the Effectiveness of Corruption Risk Management

z_1 : estimation error between X1, X2, and X3 to Y

The equation model for the level of organizational corruption is as follows:

$$Z = \gamma_4 Y + \gamma_5 X_1 + \gamma_6 X_2 + \gamma_7 X_3 + z_2$$

Descriptions:

Z : Level of Organizational Corruption

Y : Effectiveness of Corruption Risk Management

X1 : Quality of Accounting Information System

X2 : Development of a Principled Ethical Climate

X3 : Hierarchical Organizational Culture Development

γ_4 : The regression coefficient of the Effectiveness of Corruption Risk Management on the Level of Organizational Corruption

γ_5 : The regression coefficient of the Quality of Accounting Information Systems on the Level of Organizational Corruption

γ_6 : The regression coefficient of the development of a climate of ethical principles on the level of organizational corruption

γ_7 : The regression coefficient of Hierarchical Organizational Culture Development on the Level of Organizational Corruption

Z_2 : estimation error between Y, X1, X2, and X3 to Z

This study's verification analysis employs a structural equation model (SEM) with two testing phases, namely the analysis of the measurement model and the analysis of the structural model. The initial phase involves confirmatory factor analysis (CFA). CFA is intended to test the unidimensionality of a theoretical construct, namely whether the observed indicators and dimensions constituting the latent construct are valid and reliable indicators and dimensions as measures of the latent construct and can be grouped into each group of latent variables stated in the model.

3.1 RESEARCH DATA

From July to October 2020, questionnaire-based survey data collecting was conducted for four months. Given that the Covid-19 outbreak was still ongoing, the questionnaire was created and circulated utilizing information technology. 628 organizational units of ministries, non-ministerial government agencies, provincial governments, district governments, and municipal governments in Indonesia comprise the population of this study. This study surveyed 134 government agency officials as managers of corruption risk, representing 21 ministries and organizations, 10 province governments, and 103 district/city administrations.

4. RESULTS AND DISCUSSION

4.1 Testing Normality, Validity, and Reliability of Research Instruments

Because the p-value and chi-square of skewness and kurtosis are larger than 0.05, the data are regularly distributed. According to the findings of the univariate normality test, the skewness and kurtosis p-values are less than 0.05 for the indicators KSIA-2, KSIA-3, TKO3, and TKO4. There are at least five commonly employed parameter estimation methods in SEM, including maximum likelihood (ML), weighted least squares (WLS), generalized least squares (GLS), and unweighted least squares (ULS) (ULS). According on the distribution, sample size, and scale of the data, as well as the underlying assumptions, each method has a distinct application. The ML and GLS algorithms assume that the data possess double normality. The WLS and ULS approaches, in contrast, do not require the premise of double normalcy. The ULS approach was chosen since it does not require a double normality assumption. Hence, maximum likelihood estimation can be used to maintain the data assumptions for SEM analysis.

For the five variables, the confirmatory factor analysis (CFA) method was used to assess the validity and reliability of the study instrument. The t-value > 1.96 and the standardized factor loadings > 0.70 imply that the instrument's validity and reliability are rated as good. Before testing the structural model, a model fit level test was undertaken to determine if the model was constructed to suit the acquired empirical data well. Based on the application Lisrel's model fit test results, the outcomes were outstanding. Ten of the twelve indicators scored extremely well. According to [Hair et al. \(2010\)](#), a model is deemed acceptable if it satisfies four to five goodness-of-fit (GOF) requirements, provided that all absolute, incremental, and parsimony criteria are met. Consequently, it can be stated that the model developed in this study is consistent with the questionnaire results. The sample data demonstrate that the outcomes are representative of population statistics. Utilizing sample data, study conclusions can be extrapolated to the entire population (see [Table 3](#)). Hence, hypothesis testing is possible. As depicted in [Figure 1](#), the value of the route coefficient indicates the magnitude of the relationship between the variables examined in this study.

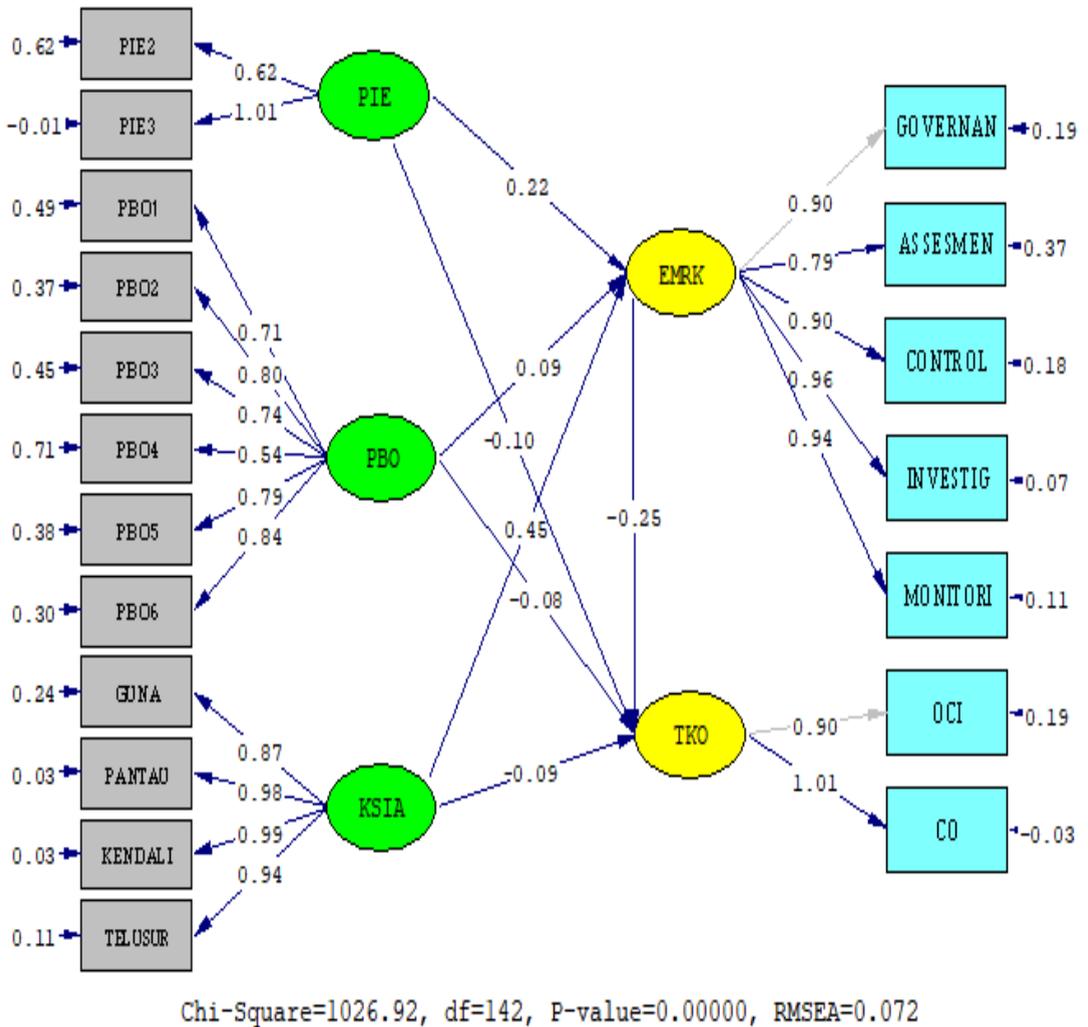


Figure 1: Overall Structural Model

Source: Research results (Lisrel output)

4.2 Statistical Hypothesis Testing

The following step is to test the research hypothesis, which is summarized in Table 3 and Figure 2. The model fit test method is utilized to evaluate the absolute fitness volume test, incremental fitness test, and parsimonious fitness test. In Table 3, the description is described in depth.

Table 3. Model Fit Test Results

No.	Fit Index	Cut-off Value	Model Estimation Result	Model Decision
Absolute Fitness Volume Test				
1	Chi-square	$p\text{-value} \geq 0.05$	0.00	Marginal Fit
2	GFI	$GFI \geq 0.90$	0.97	Good Fit
3	RMSEA	$RMSEA \leq 0.08$	0.36	Marginal Fit
Incremental Fitness Test				
4	CFI	$CFI \geq 0.90$	1.00	Good Fit
5	IFI	$IFI \geq 0.90$	1.00	Good Fit
6	RFI	$RFI \geq 0.90$	1.00	Good Fit
7	AGFI	$AGFI \geq 0.90$	0.96	Good Fit
Parsimonious Fitness Test				
9	PGFI	The bigger, the better	0.75	Good Fit
10	PNFI	The bigger, the better	0.86	Good Fit
11	AIC	The bigger, the better	3245.24	Good Fit
12	CAIC	The bigger, the better	3428.44	Good Fit

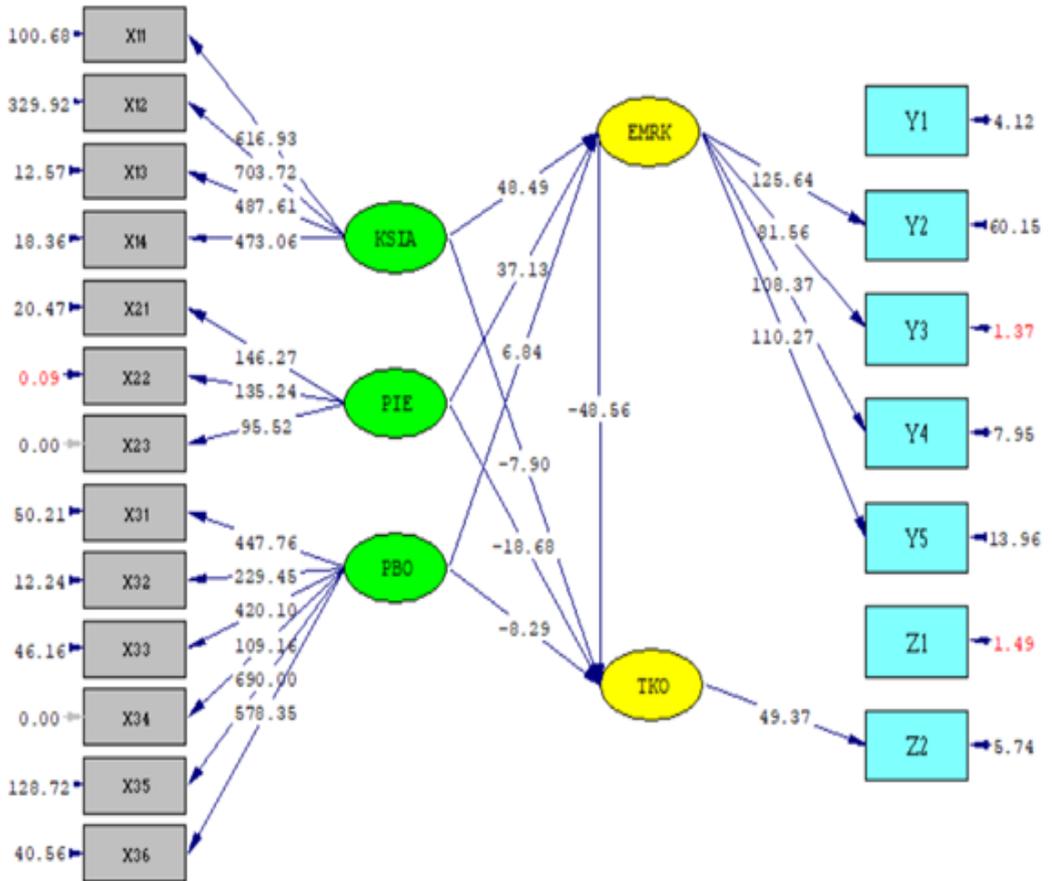
Source: Research results (Lisrel output).

In this research, the theories are evaluated further. All ten (10) routes, including direct and indirect effects, are examined. From H1 through H4 are acceptable. Yet, the results do not support hypotheses H5 through H7. Also, [Table 4](#) contains a discussion of indirect effects.

5. DISCUSSION

The findings of the test of Hypothesis 1 indicate that the quality of the AIS has a positive influence on the efficacy of CRM, such that the greater (lower) the quality of the AIS, the higher (lower) the efficacy of CRM. The AIS quality value of 0.40 suggests that CRM effectiveness is influenced positively by 40%.

This conclusion is followed by the demonstration of Hypothesis 8, which states that the quality of AIS has a positive effect on the efficiency of CRM and a negative effect on the level of organizational corruption. This is an indirect consequence of the existence of CRM effectiveness. The greater the level of CRM effectiveness, the greater the impact of AIS quality on minimizing organizational corruption. Similarly, the results of the test of Hypothesis 5 indicate that the quality of AIS has a direct negative and statistically significant influence of 27% on the degree of organizational corruption, such that a higher (lower) quality of AIS is demonstrated to reduce the amount of organizational corruption (higher).



Chi-Square=3151.24, df=163, P-value=0.00000, RMSEA=0.371

Figure 2: T-test SEM Model
Source: Research results (Lisrel output).

Table 4. Hypothesis Testing Results

Ha	Path	Path Coeff.	T-value	Significance and Conclusion H ₀ and H _a	Verification
	Direct Effect				
H1	Quality of AIS (X1) → Effectiveness of Corruption RM (Y)	0.40	48.49	- Significant - Reject H ₀ - Accept H _a	Proven to have a positive effect
H2	Development of a Principled Ethical Climate (X2) → Effectiveness of Corruption Risk Management (Y)	0.47	37.13	- Significant - Reject H ₀ - Accept H _a	Proven to have a positive effect
H3	Organizational Culture Development (X3)→ Effectiveness of Corruption Risk Management (Y)	0.09	6.84	- Significant - Reject H ₀ - Accept H _a	Proven to have a positive effect
H4	Effectiveness of Corruption Risk Management (Y) → Level of Organizational Corruption (Z)	-0.08	-7.90	- Significant - Reject H ₀ - Accept H _a	Proven to have a positive effect
H5	Quality of AIS (X1) → Level of Organizational Corruption (Z)	-0.27	-18.68	- Significant - Reject H ₀ - Accept H _a	Proven to have a negative effect
H6	Development of a Principled Ethical Climate (X2) → Level of Organizational Corruption (Z)	-0.10	-8.29	- Significant - Reject H ₀ - Accept H _a	Proven to have a negative effect
H7	Organizational Culture Development (X3)→ Level of Organizational Corruption (Z)	-0.42	-48.56	- Significant - Reject H ₀ - Accept H _a	Proven to have a negative effect
	Indirect Effect				
H8	Quality of AIS (X1) → Effectiveness of Corruption Risk Management (Y) → Level of Organizational Corruption (Z)	-0.17	-38.83	- Significant - Reject H ₀ - Accept H _a	Proven that the Quality of AIS has a positive effect on the Effectiveness of Corruption RM and has a negative impact on LOC
H9	Development of a Principled Ethical Climate (X2) → Effectiveness of Corruption Risk Management (Y) → Level of Organizational Corruption (Z)	-0.20	-33.41	- Significant - Reject H ₀ - Accept H _a	Proven that the Development of a Principled Ethical Climate has a positive effect on the Effectiveness of Corruption RM and has a negative impact on LOC
H10	Organizational Culture Development (X3)→ Effectiveness of Corruption Risk Management (Y) →Level of Organizational Corruption (Z)	-0.04	-6.60	- Significant - Reject H ₀ - Accept H _a	Proven that the Organizational Culture Development has a positive effect on the Effectiveness of Corruption Risk Management and has a negative impact on LOC

Interviews and focus group discussions corroborate the findings of this investigation. Good CRM is important for transforming the AIS into a tool for controlling corruption. Without corruption RM, AIS is less capable of becoming an effective anti-corruption tool. Integrating AIS quality into corruption risk management is essential, particularly for prevention and early detection. FGD participants also highlighted the function of AIS, which is integrated with corruption RM in order to trace the traces of corrupt acts. On the other hand, the absence of CRM during the design and implementation of an AIS can present an opportunity for corruption. Respondents shared their perspectives on AIS practices linked to government procurement of goods and services and public services. AIS, which is not coupled with CRM, is also a tool for covering the traces of corruption in instances when the criminals have entered inaccurate data into the AIS.

The implementation of corruption control in the AIS, such as the separation of the functions of authorization, recording, and receipt and disbursement of money or the treasury, demonstrates the positive impact of the quality of AIS on the efficacy of CRM, as evidenced by the findings of interviews and focus group discussions. The data generated by the AIS, such as budget realization reports and cash flow reports, are utilized by organizational leaders for ongoing monitoring. In addition, the contemporary AIS records and monitors transactions electronically, making manipulation more difficult due to audit tracking and access restrictions. The interviews and FGDs demonstrate that the data supplied by the AIS has been holistically utilized for decision-making, planning, and corruption control within companies. According to FGD respondents, AIS implementations that are not connected with CRM are unsuccessful at combating corruption. According to the respondents, the AIS is deficient when it is only intended for formal compliance and discretionary constraints in the field of financial accounting standards. Respondents believe that AIS has not been well developed to identify and prevent corruption. This increases the risk of corruption within an institution. In addition, AIS is deemed incapable of covering the origins of intrinsic IC flaws, notably collusion and management neglect.

Transparency, information monopoly, and discretion were discussed in interviews and focus groups. Respondents feel that AIS, particularly ICT-based AIS, cannot eliminate organizational corruption unless it is transparent and breaks the information monopoly. Respondents also value ICT-based AIS, which can restrict the discretion of public officials. Respondents also cited a number of instances in which AIS with ICT integrated into the public service system and government purchase of goods/services could be used to combat corruption. On the other hand, AIS designs with fundamental flaws, such as systems that are not based on ICT and application security flaws, likely to provide personnel with possibilities for corruption. According to [Best et al. \(2009\)](#), AIS in the form of good enterprise resource planning can reduce fraud through AIS audit tracking, notifications, and access limitations. Our findings are consistent with those findings ([Best et al, 2009](#)). The results of the study ([Seetharaman et al., 2004](#)) also indicate that

the connection between fraud and the information system and financial reporting is uncovered through CRM features such as audits, investigations, and whistleblowing.

The results of the test of Hypothesis 2 indicate that the construction of a principled EC has a 47% positive impact on CRM effectiveness. This is consistent with the findings of the descriptive analysis, which indicate that the dimensions of the principles have undergone rather large changes. The principles dimension is an EC dimension that measures whether employee conduct is guided by various organizational policies, standard operating procedures, implementation guidelines, technical instructions, professional codes of ethics, and behavioral guidelines. Some FGD participants opined that this condition must be supplemented by additional elements that strengthen the association between the primary kind of EC and CRM. FGD respondents stressed the importance of exemplary leadership or tone at the top in order to integrate the Application of this principle into the administration, decision-making, and development of government. In addition, respondents believe that the professional code of ethics and rules of behavior applicable to available positions stop at regulations. A code of ethics and behaviour for professionals has not been followed by implementation. This demonstrates a favorable correlation between the evolution of the primary kind of EC and the efficacy of risk management. To control corruption, there must be legislation and their enforcement, as well as good leadership.

In contrast, the results of the test of Hypothesis 6 indicate that the development of the principal type of EC has a negative impact on the level of organizational corruption, such that the greater (lesser) the development of the principal type of EC, the lower (greater) the level of organizational corruption. A coefficient of development of EC principles of -0.10 suggests a 10% reduction in organizational corruption. The findings of the test of Hypothesis 9, which combines the three variables, indicate that the growth of the primary type of EC has a favorable influence on the efficiency of CRM and a negative effect on the level of organizational corruption. The effectiveness of CRM functions as a mediator that strengthens the relationship between the growth of an ethical culture and the degree of organizational corruption. According to Hypothesis 2 and Hypothesis 6, this is the case. This demonstrates that fostering an ethical culture can directly minimize organizational corruption. In this instance, the primary sort of EC manifests itself in the leadership and employees of the organization as they implement the organization's policies and operations.

If information monopoly and discretion are facilitators of corruption, then the most common kind of EC exacerbates corruption. Respondents to a focus group discussion believed that written regulations, codes of ethics, and explicit norms of conduct reduced the potential for corruption. Employees can utilize these regulations to govern their behavior, including distinguishing between corrupt and other activities. In accordance with the principles-based creation of an EC, respondents to a focus group believe the potential and justification for corruption will diminish. Respondents also believe that

firms that establish a principled EC encourage employees not to rationalize wrongdoing and to prioritize compliance with anti-corruption rules and ideals. When presented with a decision-making dilemma, employees would prioritize compliance with formal regulations and view it as an integral component of the value of efficiency and effectiveness in attaining corporate objectives.

Some EC developments, such as selfishness or collective selfishness (egoism), tend not to diminish the level of organizational corruption, such as when employees refrain from reporting instances of corruption out of fear of retaliation. On the other hand, an EC that prioritizes the organization's interests discourages employees from engaging in corrupt behavior, because they want to retain, among other things, the organization's reputation, and good relationships with coworkers. The results of the FGD also indicated that the principles-based nature of an EC is represented by a strong commitment to complying with legislation in order to build a clean, accountable, and transparent organization. CRM governance applies the administration of government that refers to stringent, rigid, official, hierarchical, and disciplined norms. In accordance with the organizational structure and levels of corruption risk owners, organizational leaders create CRM policies hierarchically. A formal policy approach, coupled with tight enforcement and discipline, expedites the implementation of corruption risk management processes, such as a corruption risk assessment and the development of control action plans.

The principles type of EC is also deemed suitable for organizational leaders to enforce employee compliance with government corruption prevention programmes, such as the obligation to report state administrator assets, tax obligations, gratification reporting obligations, integrity zone programmes, and corruption-free areas, and the implementation of bureaucratic reform. Conversely, the results of interviews and FGDs indicate that efforts to establish a principled type of EC through anti-corruption socialization and communication supplied by organizational leaders might be counterproductive if they are not followed by the design and implementation of CRM. Anti-corruption views without CRM, according to respondents, are merely "discourse" and "rhetoric." According to the interviewees, this can result in staff disinterest. Additionally, the organization's leadership must implement a principles-based EC to demonstrate its anti-corruption commitment in the CRM governance policy and promote anti-corruption attitudes. Consistent with the findings of this study are investigations (Said et al., 2017) that strive to integrate ethical ideals with the fraud triangle hypothesis in the context of the Malaysian banking industry. According to the research, the EC has a detrimental impact on employee fraud. Opportunity and rationalization, two aspects of the fraud triangle, positively promote fraud. This demonstrates the significance of EC principles in limiting the risk of fraud.

The findings of the test for Hypothesis 3 reveal that the establishment of a hierarchical OC has a beneficial impact on the efficacy of CRM. The efficiency of CRM increases (decreases) with the level of development of a hierarchical OC. A hierarchical OC

development coefficient of 0.90 suggests a 9 percent increase in CRM effectiveness. In light of these findings, the test of Hypothesis 7 indicates that the development of a hierarchical OC has a negative and statistically significant influence on the level of organizational corruption, namely a 42% reduction. The conclusions of Hypotheses 3 and 7 are consistent with the results of Hypothesis 10, which demonstrates that the development of a hierarchical OC has a favorable effect on the efficiency of CRM and a negative effect on the level of organizational corruption. It has been demonstrated that the establishment of a hierarchical OC boosts the efficiency of CRM and reduces organizational corruption.

In general, governance characterized by rigid, formal, hierarchical, and disciplined norms that are carefully followed is viewed as more effective at preventing corruption in organizations. Government entities that undertake activities without referencing regulations and standard operating procedures and leaders who do not foster efficiency, formality, reason, order, and compliance encourage subordinates to engage in corrupt behavior. The hierarchical culture followed by the establishment of an ethical atmosphere (see Hypothesis 2) enables the implementation and operationalization of numerous organizational regulations. When corruption occurs, several organizational laws and formal, hierarchical chains of command that are typically seen in government entities are implemented. Centralized and formal bureaucratic organizations maintain strict supervision over employee conduct. Yet, FGD respondents viewed this circumstance as a tool to motivate employees to engage in anti-corruption behavior. In addition, bosses exercise stringent control over employee conduct to ensure subordinate conformity.

Respondents feel that a hierarchical OC must be accompanied by ethical leadership characterized by commitment and excellent anti-corruption practices as part of risk management in order to lower the level of organizational corruption. FGD participants believe that the development of a hierarchical OC must be followed by the establishment of integrity principles, which can be used to perpetuate an anti-corruption culture within the organization. Human resource management in a hierarchical OC that stresses job security can make employees less susceptible to corruption pressure. Based on the findings of interviews and FGDs, it can be concluded that a robust hierarchical OC can produce the desired effect. Tight command structures, centralized decision-making, inflexible formal procedures, and stringent inherent control prevent the emergence of a corrupt collusive process.

The results of the test for Hypothesis 4 indicate that the effectiveness of CRM has a negative and statistically significant effect on the level of organizational corruption, such that the greater (lesser) the effectiveness of corruption RM, the lower (greater) the level of organizational corruption. A CRM effectiveness coefficient of -0.08 shows an 8% reduction in the level of corruption inside a firm. This association demonstrates that the presence and execution of CRM in government agencies are directly linked to the

reduction of organizational corruption. Interviews and focus group discussions demonstrate that the relevance of governmental commitment to CRM can effectively prevent organizational corruption. Respondents stressed the significance of implementing CRM, a complete corruption prevention strategy, and stakeholder support to fulfill this goal. In addition, a number of topics pertaining to internal supervision, mentoring and escorting, implementation of fraud risk assessment, and capacity building were discussed - the Government Internal Supervisory Apparatus in the field of inquiry.

Nevertheless, they also showed flaws in IC that may also exist in CRM, such as collusion, managerial neglect, and interference. Respondents emphasized the significance of monitoring and reviewing the design and implementation of risk management in order to ensure that it stays effective and sustainable over time. The company must foresee the form of corruption that will emerge in response to developments in information technology. Similarly, the scope of corruption control actions must be changed based on the outcomes of periodic and ongoing risk assessments. Several studies have examined the relationship between CRM elements and corruption, including the role of the control environment (Kim, 2008; Tan, 2013), the role of monitoring elements in the context of the procurement process (Ekwo, 2013), governance fraud risk (Barkemeyer et al., 2015), and audits. This study's findings corroborate the conclusion of previous research highlighting the significance of the three pillars of a CRM strategy, namely preemptive/educational, preventative, and investigative, which are integrated into the notion of a fraud control plan. The Ministry of Finance's corruption control model is likewise consistent with the findings of this study. Implementing the corruption control policy at the Ministry of Finance demonstrates the significance of risk management, as evidenced by the role of the Government Internal Supervisory Apparatus, an integrated corruption control programme, and leadership, integrity, and anti-corruption values from the perspective of management and employees in preventing corruption.

6. CONCLUSION, IMPLICATIONS, LIMITATIONS AND SUGGESTIONS

6.1 Conclusion and Implications

The results confirmed ten hypotheses, including the quality of AIS, the growth of the primary type of EC, and the development of a hierarchical OC, which demonstrated to influence the effectiveness of CRM and the level of organizational corruption. CRM has also been demonstrated to impact corporate corruption.

The first policy implication is to the quality of the AIS, which must be enhanced and enlarged to account for the danger of fraud in the system's architecture, including redefinition of the AIS in the state's financial management regulation. It is necessary to build a link between the AIS and the employee behavior monitoring system to enable the cross-checking of information. The Institutional Level Financial Accounting System, for instance, should serve as a means for work units to support the implementation of

the State Treasury and Budget System and other IC systems for financial management and the prevention of irregularities, from the planning stages to budget accountability.

The discretionary capabilities must be restricted by (i) minimizing the interaction between people and the AIS and (ii) limiting the use of non-electronic documents as input to the AIS. In more local governments, the AIS and Cash Management System should be integrated. CMS is one of the financial management system services held by banks, and it employs the Online SP2D System, which combines the local government's financial management system with banks that have used CMS. Including integration with electronic-based IC in the context of Continuous Auditing Continuous Monitoring (CACM) implementation, the AIS must play a more effective role in aiding efforts to uncover abnormalities.

The second policy implication is the requirement to build an OC and the primary type of EC in order to implement bureaucratic reform and cultivate a work culture. As the objective of bureaucratic reform, anti-corruption values emphasize changes in the thinking and behavior of state machinery. This is also consistent with fostering a culture of integrity among business players, as outlined in Presidential Regulation No. 54 of 2018 pertaining to the National Plan for Corruption Prevention. This regulation has a sufficient foundation, which must be supplemented by educational initiatives and the absorption of anti-corruption concepts. During implementation, it is vital to emphasize the principles type of an EC and to avoid developing a hierarchical OC that is incompatible with the CRM development.

The third implication is the need to develop CRM in order to implement Government Regulation No. 60 of 2008 regarding the Government IC System, Minister of State Apparatus Empowerment Regulation and Bureaucratic Reform Regulation No. 18 of 2021 regarding the Road Map of Bureaucratic Reform of the Ministry of State Apparatus Empowerment and Bureaucratic Reform in 2020–2024, and Regulation of the Minister of State Apparatus Empowerment Regulation No. 10 of 2019 regarding the Ministry of State Apparatus Em The demonstrated impact of CRM on reducing organizational corruption and the significance of integrating it with the AIS, an ethical principles-based culture, and a hierarchical OC can serve as a starting point for stimulating the development of more effective national policies on CRM. Government Regulation Number 60 of 2008 pertaining to the Government's IC System must be changed immediately to reflect regulatory changes, theoretical advancements, and best practices.

6.2 RESEARCH LIMITATIONS

This study has several weaknesses and limitations identified from the discussion of research results, including the fact that the data used in this study were collected at a single point in time (cross section), so they do not fully describe whether or not there are changes in the EC, OC, or level of organizational corruption.

6.3 Research Suggestions

As per the policy implications and research limitations described above, the following suggestions can be made:

1. For policymakers in government, it is recommended to improve the quality of the AIS, develop an EC of principles and a hierarchical OC and integrate them with the implementation of CRM effectively.
2. For researchers in conducting further research, it is recommended to collect and use time-series data, namely measuring the development of an EC, OC, or levels of organizational corruption at different times.

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