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The influence of audit quality, the use of information technology, management support, and the application of guidelines on the effectiveness of internal audit in preventing and detecting fraud in hospitals

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Abstract: This study aims to identify the effect of internal audit quality, the use of information technology, management support, and the implementation of SPI guidelines on the effectiveness of internal audits in preventing and detecting fraud. Quantitative research using the Partial Least Squares-Structural Equation Modeling (PLS-SEM) method was conducted on 385 hospital internal auditors from all over Indonesia through online questionnaires filled out on Google Forms. The results of hypothesis testing with a Two-Tailed T-Test on the PLS-SEM inner model construct concluded that the variables of guideline implementation, audit quality, and management support have a significant influence on the effectiveness of internal audits in preventing and detecting fraud. The application of guidelines has a very high influence on the effectiveness of internal audits in preventing and detecting fraud at the structural level. Coefficient of Determination testing shows that the joint effect of audit quality, the use of information technology, management support, and the implementation of guidelines has a high effect on the effectiveness of internal audits in preventing and detecting fraud. This study provides practical implications for hospitals to improve audit quality, utilize information technology, enhance management support, and implement SPI organizational guidelines in the internal audit process to encourage internal audit effectiveness in fraud prevention and detection. Further research is expected to be developed by examining other factors that can affect the effectiveness of internal audits in preventing and detecting fraud.

Keywords: *Hospital SPI, Implementation of guidelines, Internal audit quality, Internal auditors, Management support, Use of information technology.*

1. Introduction

Internal auditors are responsible for carrying out the internal audit process to ensure the effectiveness of the internal control system in an organization. Internal audit is an activity that provides adequate assurance and provides consultation that has the potential to prevent fraud in the organization [1-4]. Billions of dollars are lost each year to fraud and corruption resulting in inefficiencies, project failures, financial constraints, organizational failures, and in extreme cases, humanitarian disasters [5]. There is no such thing as fraud, and there is no institution or company that is completely free from the possibility of fraud [6].

Every organization faces the risk of fraud. The 2024 Report to the Nations Occupational Fraud reports 1,921 cases of occupational fraud investigated from 138 countries, with 25 of them from Indonesia, causing a total loss of more than 3.5 billion dollars [6]. This report states that 43% of fraud cases are revealed due to information from whistleblowers, then internal audits (14%) and management reviews (13%). The results of the Indonesian Fraud Survey (SFI) show that the most common frauds that cause the largest losses in Indonesia are corruption (167 cases), misuse of state/corporate assets (50

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cases), and financial statement fraud (22 cases), with a total loss of 873,430,000,000 rupiah [6]. The report states that the top four fraud disclosure media are through reports (38.9%), internal audit (23.4%), other methods (15.1%), and external audit (9.6%).

Losses due to fraud in health facilities (including hospitals) have increased every year. ACFE's 2020 Report to the Nations Occupational Fraud reported 145 cases of fraud in health facilities (3.71%) out of a total of 2504 cases reported from 125 countries, and ranked fourth, with an average loss of 200 thousand dollars out of a total loss of 3.6 billion dollars [7]. In 2022, 130 cases of healthcare *fraud were* reported (6.16%) out of a total of 2110 cases from 133 countries, and ranked fourth, with an average loss of 100 thousand dollars out of a total loss of 3.6 billion dollars [8]. The latest report in 2024 stated that there were 117 cases of *fraud* in health facilities (6.09%) out of a total of 1921 cases reported from 138 countries with an average loss of 100 thousand dollars out of a total loss of 3.1 billion dollars [6]. In Indonesia, the value of losses due to *fraud* in health facilities in 2019 was 4.2% of the total loss of 873.43 billion rupiah, which was a calculation of 239 reported *fraud* cases [6].

Fraud in hospitals can occur due to the lack of role of the Internal Auditor / SPI on direct supervision of the internal control system in the Hospital. SPI is under and responsible to the main director of the hospital and was formed to improve and develop services and improve hospital performance [9]. However, there are many fundamental problems in the implementation of SPI in hospitals so that the Ministry of Health of the Republic of Indonesia then stipulates the Decree of the Director General of Health Services of the Ministry of Health of the Republic of Indonesia Number HK.02.02/D/19857/2023 concerning Guidelines for the Implementation of Hospital SPI within the Ministry of Health as a guide for the Ministry of Health and hospitals within the Ministry of Health in the implementation of SPI in hospitals; ensure hospitals organize an internal control system that runs effectively; and become a reference for SPI in carrying out its duties, functions and authorities [9].

Internal control affects *fraud* prevention in hospitals both simultaneously and partially and is significantly positively related to financial performance [10, 11]. Information developed by internal auditors can help management develop controls to prevent fraud [12]. The effectiveness of the internal audit process has been shown to be positively related to the detection of financial and administrative corruption and plays an important role in reducing *fraud* cases [13, 14]. The greater the role and better the resources of internal auditors can improve fraud prevention and fraud detection efforts [15, 16]. However, the SPI function of hospitals in Indonesia was found to be ineffective in risk assessment Widianto and Aryanto [17] and Fatimah and Octavia [16]. Wicaksono and Slamet [18]. SPI's role as a consultant and catalyst has not been implemented optimally [19]. SPI has not carried out JKN *fraud* prevention and detection procedures effectively because competencies have not been optimally utilized and have not been tested due to SPI's lack of competence in governance, risk, and control efforts [20, 21]. The internal audit team was found to be incompetent, had not participated in training, did not have detailed job descriptions, and still performed duplicate tasks [22].

The research states that the quality of internal audit work, the use of information technology, and management support in the internal audit process affect internal audit effectiveness. The quality of internal audit work is positively related to internal audit effectiveness [23-26]. Concluded that internal audit quality is a determinant of internal audit effectiveness. Recent research on local government internal auditors in Indonesia also proves that audit quality affects audit effectiveness for fraud prevention [27]. But on the contrary, a study conducted by Ta and Doan [28] on internal auditors of Vietnamese non-financial companies found that the quality of internal audit work has no effect on internal audit effectiveness.

Management support was identified as a factor affecting internal audit effectiveness. Management support has been shown to have a positive influence on internal audit effectiveness [29-31]. Increased engagement of the internal audit function with management positively affects the level of activities to prevent and detect fraud, while increased engagement of the internal audit function with the audit committee has the opposite effect [32]. Research by Ganesan, et al. [33] on internal auditors and chief

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audit executives in 12 Malaysian multinational companies also revealed that management support is related to internal audit effectiveness. In contrast, another study found evidence that management support does not significantly affect internal audit effectiveness [26]. Research in Indonesia on the internal auditors of the South Sumatra BPKP government concluded that management support has a positive effect on internal audit effectiveness, although it is not significant [34].

Internal audit techniques with information technology affect fraud prevention and detection. The use of accounting information system technology has a positive and significant effect on internal auditor performance [35]. Studies conducted by Bonrath and Eulerich [32] stated that the tendency of the internal audit function to be involved in fraud prevention and detection increases when the internal audit function applies technology-based audit techniques for risk identification. Internal auditors need to acquire knowledge and skills of computerized information systems for the purpose of planning, supervising, directing, reviewing the work performed and spending less time testing the content and accuracy of mathematical calculations of office accounts [26, 36, 37]. However, research Demeke and Kaur [26] shows that information technology has no significant effect on internal audit effectiveness.

Based on the formulation of the problem above, this study seeks to identify what influence the quality of internal audit, the use of information technology, management support, and the application of SPI organizing guidelines have on the effectiveness of internal audit in preventing and detecting *fraud* in hospitals.

2. Literature Review

2.1. Internal Audit

The Institute of Internal Auditors [5] defines internal auditing as an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. Internal audit strengthens corporate governance through risk-based audits that provide assurance and insight into the processes and structures that drive organizations to success [5]. Internal audit contributes to the overall stability and sustainability of the organization by providing assurance on operational efficiency, reporting reliability, compliance with laws and/or regulations, safeguarding assets, and ethical culture thereby fostering public confidence in the organization and the broader system of which it is a part The Institute of Internal Auditors [5]. The Institute of Internal Auditors [5]. Internal auditing is performed by professionals who have a deep appreciation for the importance of strong governance, an in-depth understanding of business process systems, and a fundamental drive to help the organization succeed [5].

Presidential Regulation of the Republic of Indonesia Number 77 of 2015 concerning Hospital Organization Guidelines states that the organizational element in charge of carrying out the Hospital's internal performance audit work is SPI. SPI is tasked with improving the effectiveness of the implementation of organizational governance, risk management, and internal control in accordance with the provisions of laws and regulations [38]. Regulation of the Minister of Home Affairs of the Republic of Indonesia Number 79 of 2018 concerning Regional Public Service Agencies mandates that supervision of organizations in the form of Regional Public Service Agencies (BLUD) be carried out by the SPI and the Supervisory Board. SPI is responsible to the Hospital Director by carrying out the functions of monitoring and evaluating the implementation of risk management in the Hospital work unit, assessing the control system, management, and monitoring the effectiveness and efficiency of systems and procedures in the field of service administration, as well as general and financial administration, carrying out special tasks within the scope of internal supervision assigned by the head of the Hospital or Hospital Director, monitoring the implementation and accuracy of the implementation of follow-up on audit reports, and providing consultation, advocacy, guidance, and assistance in the implementation of Hospital operational activities [39]. The task of SPI is to assist management to safeguard assets, create accurate financial information systems, create efficiency,

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productivity and encourage compliance with management policies in the application of sound business practices [38].

2.2. Internal Audit Effectiveness in Fraud Prevention and Detection

The Institute of Internal Auditors [5] defines *fraud* as any intentional act characterized by deception, concealment, dishonesty, misuse of assets or information, forgery, or breach of trust committed by individuals or organizations to obtain unfair or illegal personal or business gain. The act of *fraud* is not an easy case, nor is it an incident that occurs accidentally [40]. The vigilance of internal auditors in detecting fraud or malicious intent of a person or group of employees is needed in order to supervise company operations. *Fraud examination* is the process of resolving allegations of fraud from inception to disposition, and it is the primary function of *anti-fraud* professionals [41]. The *fraud examination stage* consists of *fraud prevention*, *fraud detection* and *fraud investigation. Fraud prevention* can be pursued by creating a culture of honesty, openness and helpfulness, and eliminating opportunities for fraud.

The results of the ACFE [6] show that the *hotline/whistle blower system* method is still seen as a fairly effective *fraud* prevention tool for respondents with a percentage of 22.6%, which is accompanied by consistency in the implementation of *anti-fraud* policies in organizations at 13.8%. These two elements must go hand in hand to provide confidence for those reporting *fraud*. In *fraud* detection, 38.9% of the media that contribute most to the detection of *fraud* in Indonesia are reports, and the second place is internal audit, at 23.4% ACFE [6]. The ACFE [6] states that 43% of fraud cases are revealed due to information from whistleblowers. This is three times more than any other detection mechanism. Other common detection methods include internal audit (14%) and management review (13%). Collectively, these three detection methods account for 70% of cases. Internal audit is one of the controls that organizations have to minimize *fraud* [6]. Thus, internal audit acts as one of the early detection media that is quite reliable by the organization.

The greater the role of internal auditors can increase efforts to prevent, detect, and control fraud Tamimi [15] and Fatimah and Octavia [16]. Hassan, et al. [14] concluded that internal control plays an important role in reducing the occurrence of fraud, but other research from Tian and Sun [42] on the contrary stated that internal control plays a negative role in financial fraud promoted by corporate financialization. Another study in the Iraqi Public Sector revealed the effectiveness of the internal audit process has a positive relationship with the detection of financial and administrative corruption. [13]. Research Chaari, et al. [4] on 5,613 US public companies shows that the presence of internal auditors and independent members on the audit committee has the potential to reduce the risk of *fraud*. Research in 78 private hospitals in the Kingdom of Saudi Arabia shows a significant positive relationship between internal control and financial performance [11]. In Indonesia, Zarlis [10] proves that internal control affects *fraud* prevention in hospitals both simultaneously and partially, while internal control affects *fraud* prevention in hospitals.

2.3. Internal Audit Quality Affects the Effectiveness of Internal Audit in Fraud Prevention and Detection

Several studies have attempted to identify the effect of internal audit quality on internal audit effectiveness, and some of them have proven that there is a positive relationship between the quality of internal audit work and internal audit effectiveness [23-25]. Research Mahyoro and Kasoga [24] revealed that audit quality has a significant positive effect on the effectiveness of internal audit services. Demeke and Kaur [26] identified that internal audit quality is a determining factor for internal audit effectiveness. Research on local government internal auditors in Indonesia also proves that audit quality affects audit effectiveness for fraud prevention [27]. In contrast, research by Ta and Doan [28] in Vietnam found that the quality of internal audit work has no effect on internal audit effectiveness. The determinants that shape the audit quality landscape are diverse, including important factors such as

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audit tenure, audit fees and auditor size [21, 43]. From the literature that has been described, researchers establish the first hypothesis of this study, namely:

H_1: there is an effect of internal audit quality on the effectiveness of internal audit in preventing and detecting fraud.

2.4. Information Technology Affects Internal Audit Effectiveness in Fraud Prevention and Detection

Recent developments in information technology have had a major impact on the field of auditing [44]. There is little research examining the effect of information technology on internal audit effectiveness. Internal auditors need to acquire knowledge and skills of computerized information systems for the purpose of planning, supervising, directing, reviewing the work performed and spend less time testing the content and accuracy of mathematical calculations of office accounts Al-Refaee and Saim [36] and Jemaneh and Regasa [37]. Found that the positive impact of information technology use on internal audit independence and privacy. Research Jemaneh and Regasa [37] shows the results that the use of information technology by internal auditors as a significant factor affecting internal audit quality. Recent research from Hassan, et al. [14] proved that strong information technology techniques significantly help detect and reduce fraudulent activities. However, there are studies that identify information technology as having no significant effect on internal audit effectiveness [26]. From the explanation above, the second hypothesis of this study is:

H_2: there is an effect of the use of information technology on the effectiveness of internal audit in preventing and detecting fraud.

2.5. Management Support Affects Internal Audit Effectiveness in Fraud Prevention and Detection

Mihret and Yismaw [29] examined how internal audit quality, management support, organizational arrangements, auditee attributes, and the interaction between these factors, affect internal audit effectiveness and found that internal audit effectiveness is strongly influenced by internal audit quality and management support. Other research from Sanni [30]; Ganesan, et al. [33] and Kesto and Yisehak [31] also found that top management support has a positive influence and is related to internal audit effectiveness. In Indonesia, Mahmudah [45] and Dyhati and Tertiarto [34] identified management support as having a positive effect on internal audit effectiveness. Other studies on the contrary concluded the opposite result where management support does not significantly affect internal audit effectiveness [26]. From the literature described above, researchers have established the third hypothesis of this study, namely:

H_3: there is an effect of management support on the effectiveness of internal audit in preventing and detecting fraud.

2.6. Implementation of Guidelines Affects the Effectiveness of Internal Audit in Fraud Prevention and Detection

The Indonesian Hospital Association President of the Republic of Indonesia [39] compiled the Hospital SPI Guidelines as a basis for hospital SPI in carrying out routine and special tasks and ensuring that all SPI activities run properly and correctly in accordance with applicable regulations and encourage SPI to play an active role in efforts to improve systems and procedures in improving financial performance and service performance [39]. However, there are many fundamental problems in organizing SPI in hospitals, namely: 1. inappropriate appointment and dismissal of SPI personnel so that SPI cannot maximally carry out its functions; 2. the complexity of the scope of SPI's work which affects the independence and objectivity of decision making; 3. recommendations for SPI audit results that are not followed up by the hospital's main director; 4. concurrent positions of SPI personnel which make the implementation of SPI's duties and functions not optimal; 5. unequal levels of SPI Human Resources positions; and 6. SPI personnel who are less competent so that they affect overall capability [46].

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Research in Indonesia found that SPI has not carried out JKN *fraud* prevention and detection procedures effectively because competence has not been optimally utilized due to competency gap constraints Aprilia [20]. Yousefi Nejad, et al. [21] concluded that SPI's competence in preventing and detecting *fraud* in the JKN program has not been tested because SPI lacks competence in governance, risk, and control efforts. Research Arso & Putro (2022) at RSUD in Central Java Province found that the internal audit team was not competent, there was no training, the staff job description was not detailed and the auditor team concurrently performed additional duties. Other findings from this study also revealed that the audit function is more focused on aspects of financial compliance and accountability, while the function of evaluating performance and compliance with regulations has not been carried out. Based on the search results, there are currently no studies that identify what effect the implementation of the Hospital SPI Implementation Guidelines has on the effectiveness of internal audit in preventing and detecting *fraud in* hospitals. The researcher enforces the fourth hypothesis of this study, namely:

H_4: there is an effect of the application of guidelines on the effectiveness of internal audit in preventing and detecting fraud.

3. Materials and Methods

This study is a quantitative study with a *cross sectional* design to identify and analyze the effect of audit quality, use of information technology, management support and implementation of guidelines on the effectiveness of internal audit in preventing and detecting *fraud* in hospitals. Data collection was conducted on 385 hospital internal auditors from all over Indonesia using *snowball sampling* technique. The data source in this study is in the form of primary data questionnaires distributed *online* on *Google Form*. The research instrument in the form of a questionnaire consists of Questionnaire B to measure internal audit quality, Questionnaire C to measure the use of information technology, Questionnaire D to measure management support, Questionnaire E to measure the application of guidelines, and Questionnaire F to measure the effectiveness of internal audit in preventing and detecting *fraud*.

Data collection was carried out from July 12 to August 12, 2024 and then processed using SmartPLS v.4.1.08 software. Univariate analysis of demographic data variables / respondent characteristics was carried out with frequency distribution . Hypothesis testing in this study used the *Partial Least Square* (PLS)-Structural *Equation Modeling* (SEM) method approach. Model evaluation in PLS-SEM consists of *outer model* evaluation, *inner model* evaluation and overall model evaluation (goodness and fit of the model). *Outer model* evaluation is an evaluation of the relationship or causality between latent variables and the indicators that measure them. *Outer model* evaluation is measured using validity and reliability testing. Validity and reliability tests are carried out by testing *convergent validity*, *composite reliability*, and *discriminant validity*. *Inner model* evaluation is carried out to examine the effect of internal audit quality, use of information technology, management support, implementation of guidelines on the effectiveness of internal audit in prevention and prevention with six stages of testing, namely the *Path Coefficient* Test, *R-Square Test (Coefficient of Determination)*, *T-Statistic* Test (*Bootstrapping*), *F-Square* Test, *R-Square Test (Predictive Relevance*), and multicollinearity check with *inner* VIF value. After the estimated model meets the *outer model* and *inner model* criteria, the next step is to evaluate the fit / goodness of the model with the *Standardized Root Mean Square Residual (SRMR) and* PLS *Predict* measurements.

4. Results

4.1. Demographic Data Results

Demographic data/characteristics of Internal Auditors/SPIs in this study include gender, age, hospital origin, education, auditor professional qualifications, positions in hospital SPI, functional positions, and concurrent positions other than SPI. Hospital Internal Auditor/SPI characteristics use

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categorical data. An overview of the characteristics of Hospital Internal/SPI Auditors can be seen in Table 1.

Table 1.
Characteristics of Hospital Internal Auditors/SPIs (n = 385).

Characteristics	Frequency (n)	Percentage (%)
Gender:		
Male	150	39.0
Female	235	61.0
Age:		
18-24	53	13.8
25-30	103	26.8
31-35	73	19.0
36-40	50	13.0
41-45	36	9.4
46-50	27	7.0
51-55	29	7.5
>55	14	3.6
Hospital Origin:		
Private Hospital	238	61.8
District/City Hospital	113	29.4
Provincial Hospital	28	7.3
Vertical Hospital/Ministry of Health	3	8
More	3	8
Education:		
DI/DII/DIII/DIV Economics/Accounting	24	6.2
DI/DII/DIII/DIV Others	17	4.4
S1 Economics/Accounting	144	37.4
S1 Others	124	32.2
Accounting Profession	11	2.9
Master of Accounting Economics	21	5.5
S2 Others	42	10.9
More	2	0.5
Auditor Professional Qualifications:		
None	106	27.5
ACCA	68	17.7
ICAN	37	9.6
ANAN	13	3.4
JFA	65	16.9
QIA	24	6.2
CIA	60	15.6
More	12	3.1
Position in Hospital SPI:		
Chair	61	15.8
Person in Charge	119	30.9
Member	187	48.6
More	18	4.7
Functional Position in Hospital		
Auditor	333	86.5
More	52	13.5
Concurrent Position Other than in SPI		
Yes	244	63.4
No	141	36.6

Table 1 shows that the majority of Hospital Internal Auditors / SPIs are female, namely a total of 235 people (61%), the majority are in the age range of 25-30 years (26.8%), the majority come from private hospitals, namely a total of 238 people (61.8%), the majority have a Bachelor of Accounting Economics education of 144 people (3.4%), the majority have followed the auditor's professional

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qualification certification of 279 people (72.5%) including ACCA of 68 people (1,.7%), JFA totaling 65 people (16.8%), CIA totaling 60 people (15.6%), ICAN totaling 37 people (9.6%), QIA totaling 24 people (6.2%), ANAN totaling 13 people (3.4%), and other professional auditor certifications totaling 12 people (3.1%). The majority of Hospital Internal Auditors / SPIs have functional positions as Auditors, namely a total of 333 people (86.5%), the majority in SPI in the Member position of 187 people (48.6%) and the majority have concurrent positions other than SPI, namely a total of 244 people (63.4%).

4.2. PLS-SEM Analysis Results

Factors affecting the effectiveness of internal auditors in *fraud* prevention and detection were identified using PLS-SEM analysis.

4.3. Outer Model Evaluation

The outer model is adjusted to the conceptual framework where the variable components are adjusted to the sub variables. Measurement of the value of *convergent validity* can be seen from the correlation between the indicator score and the criteria for the *loading factor* value of each indicator, if it is greater than 0.70 it can be said to be valid and for the *p-value* if <0.05 is considered significant [17]. Furthermore, the convergent validity value is seen from the *Average Variance Extracted* (AVE) root with a minimum value of 0.50. The results of the *outer model* analysis were carried out several times by eliminating invalid indicator variables starting with the indicator variable with the lowest *outer loading factor* value until the *outer model* as depicted in Figure 1 below:

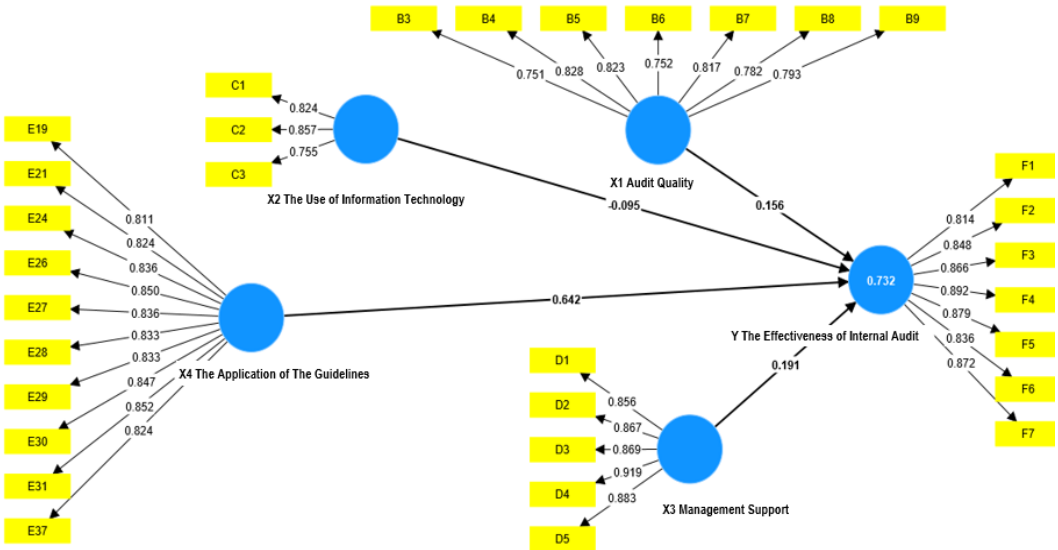

Figure 1.
Outer Model PLS-SEM.

From the analysis results in Figure 1, an overview of the size of the validity of the latent variable indicator variables based on the measurement results of the latent variable *loading factor* values in the first estimation PLS-SEM model can be seen in Table 2.

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Table 2.
Results of *Outer Loading Factor* Measurement of Latent Variables in the PLS-SEM *Outer Model* (n = 385).

Latent Variable	Indicator Variable	Loading Factor	Conclusion
Audit Quality (X1)	B3	0.751	Valid
	B4	0.828	Valid
	B5	0.823	Valid
	B6	0.752	Valid
	B7	0.817	Valid
	B8	0.782	Valid
	B9	0.793	Valid
Use of Information Technology (X2)	C1	0.824	Valid
	C2	0.857	Valid
	C3	0.755	Valid
Management Support (X3)	D1	0.856	Valid
	D2	0.867	Valid
	D3	0.869	Valid
	D4	0.919	Valid
	D5	0.883	Valid
Implementation of Guidelines (X4)	E19	0.811	Valid
	E21	0.824	Valid
	E24	0.836	Valid
	E26	0.850	Valid
	E27	0.836	Valid
	E28	0.833	Valid
	E29	0.833	Valid
	E30	0.847	Valid
	E31	0.852	Valid
	E37	0.824	Valid
Internal Audit Effectiveness in *Fraud* Prevention and Detection (Y)	F1	0.814	Valid
	F2	0.848	Valid
	F3	0.866	Valid
	F4	0.892	Valid
	F5	0.879	Valid
	F6	0.836	Valid
	F7	0.872	Valid

Based on the analysis results in Table 2, it is found that all research indicator variables remain valid with the *outer loading factor* value of all indicator variables> 0.70. The Audit Quality Variable (X1) is measured by seven valid indicator variables with an *outer loading factor* value between 0.751-0.828, the Information Technology Usage Variable (X2) is measured by three valid indicator variables with an *outer loading factor* value between 0.755-0.857, the Management Support Variable (X3) is measured by five valid indicator variables with an *outer loading factor* value between 0.856-0.919, and the Guidelines Implementation Variable (X4) is measured by ten valid indicator variables with an *outer loading factor* value between 0.814-0.852. Table 3 shows that all indicator variables are valid and able to reflect the measurement of each variable. The results of the analysis on each indicator variable can be seen in Table 3.

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Table 3.
Analysis of Indicator Variables *Outer Model* PLS-SEM (n = 385).

Latent Variable	Indicator Variable		*Mean*	Standard Deviation
Audit Quality (X1)	B3	Audits are conducted based on the priority order of audits that require *assurance* services and management system improvements.	4.571	0.638
	B4	I was able to complete the audit work on time.	4.307	0.803
	B5	I conducted the examination in accordance with applicable *auditing* standards.	4.548	0.664
	B5	I was able to find material errors that occurred in the accounting system and audited financial statements.	4.288	0.752
	B7	I follow up periodically to check the actions taken by the audited party to rectify the issues found.	4.418	0.695
	B8	Internal auditors communicate openly with local leaders about audit recommendations.	4.520	0.662
	B9	Internal auditor recommendations and findings are used by local leaders as a consideration in making decisions.	4.504	0.674
	Average		4.451	0.554
Use of Information Technology (X2)	C1	In the hospital where I work. information technology plays an important role in fraud detection	4.353	0.869
	C2	In the hospital where I work. funding for the information technology department/field has changed significantly over the past three years	4.208	0.880
	C3	In the hospital where I work. high pressure is put on information technology staff to meet organizational goals.	3.990	1.053
	Average		4.184	0.759
Management Support (X3)	D1	Top management strongly supports	4.457	0.728
	D2	Top management cooperates fully with the internal audit unit	4.369	0.756
	D3	Senior management recognizes the need for internal audit	4.353	0.750
	D4	Senior management supports internal audit personnel	4.397	0.754
	D5	Top Management provides the necessary resources to conduct the audit	4.374	0.810
	Average		4.390	0.668
Implementation of Guidelines (X4)	E19	Your Hospital's Internal Audit Standards include a set of principles and *mandatory* requirements consisting of basic requirements for the professional practice of internal audit and guidelines for evaluating the effectiveness of performance at the organizational and individual levels. interpretation. and implementation.	4.400	0.740
	E21	The PKTPI SPI Plan in your Hospital at least contains information and background regarding the object of the inspection. the implementation of the follow-up of the previous recommended inspection results and the impact of the follow-up. the scope of the inspection. the object of the inspection. the inspection techniques to be used. the allocation of resources and the schedule.	4.346	0.799
	E24	The implementation of *assurance* activities in your Hospital is carried out based on guidelines as a reference for work standards which at least consist of a legal basis. basis for assignment. procedures. time period. financing. assignment *output*. infrastructure. competence of implementers. internal control. number of implementers.	4.423	0.711
	E26	There is a Quality Assurance and Development Program that includes ongoing monitoring of the performance of the internal audit activity and periodic assessment by self-assessment or assessment by others within SPI with sufficient knowledge of internal audit practices in your Hospital.	4.291	0.819
	E27	Development and quality assurance at your Hospital is carried out externally through SPI peer reviews from other hospitals where the Review Team must have internal audit professional practice competencies (including an in-depth understanding of the IPPF) and QAIP external assessment processes.	4.203	0.971

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Latent Variable	Indicator Variable		*Mean*	Standard Deviation
	E28	The implementation of Peer Review by other APIP (external assessment) is carried out at least 1 (one) time in 5 (five) years. while the implementation of Peer Review between SPIs in your Hospital is carried out at least 1 (one) time in 3 (three) years coordinated by the Head of SPI.	4.088	0.996
	E29	The budget for the implementation of internal audit activities in your Hospital is adjusted to the annual work program of internal audit. improvement and maintenance of competence and provision of infrastructure facilities are explicitly allocated in the hospital's DIPA.	4.304	0.868
	E30	SPI in your Hospital has a minimum SPI Performance Indicator target of 80% percentage of conformity of *assurance* activities and 80% percentage of conformity of *consulting* activities.	4.213	0.896
	E31	Optimal planning of SPI human resource needs is based on workload analysis in accordance with the scope and type of your Hospital.	4.307	0.835
	E37	The performance outcomes of the Head of SPI in your Hospital are determined based on the performance targets and performance indicators that have been outlined in the performance contract made between the Head of SPI and the hospital's Managing Director. while the performance outcomes of the Person in Charge of Supervision and SPI Members are made based on the performance agreement agreed with the Head of SPI.	4.255	0.859
Average			4.283	0.709
Internal Audit Effectiveness in *Fraud* Prevention and Detection	F1	Internal auditors in audit engagements have an understanding of the auditee's business processes and business risks.	4.457	0.691
	F2	Internal auditors act as facilitators and encourage auditors who do not yet have risk management and risk registers to implement them immediately.	4.408	0.709
	F3	Internal auditors socialize and educate auditees to implement FCP.	4.358	0.798
	F4	Internal auditors evaluate the audited party's implementation of the FCP.	4.322	0.781
	F5	Internal auditors conduct honesty audits of high-risk Goods and Services Procurement (PBJ) activities.	4.369	0.800
	F6	Internal auditors provide advice on the ongoing Procurement of Goods and Services (PBJ) process.	4.330	0.818
	F7	Internal auditors evaluate the implementation of the auditee's internal control system	4.457	0.714
	Average		4.386	0.651

After all indicator variables are valid, the analysis is carried out again to see the *Average Variance Extracted* (AVE), *Composite Reliability* and *Cronbach's Alpha* values to assess the validity of the data so that the data is believed to be able to explain. The results of reliability testing on each latent variable with the help of SmartPLS *software* can be seen in Table 4.

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Table 4.
Results of Convergent Reliability and Validity Tests on the PLS-SEM *Outer Model* (n = 385).

Variables	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Audit Quality (X1)	0,902	0,904	0,922	0,629
Use of Information Technology (X2)	0,744	0,757	0,854	0,662
Management Support (X3)	0,926	0,927	0,945	0,773
Implementation of Guidelines (X4)	0,952	0,952	0,958	0,697
Internal Audit Effectiveness in Fraud Prevention and Detection (Y)	0,940	0,941	0,951	0,737

The results of the *PLS-SEM outer model* reliability test show satisfactory results where the *Cronbach's Alpha* value, and *Composite* Reliability> 0.70 [47]. These results indicate that the reliability or internal consistency of the measurement of indicator variables that measure all research variables is reliable. The research variables have indicator variables that are reliable and reliable in measuring research variables. Furthermore, convergent validity still shows satisfactory results with the AVE value for each variable> 0.50, so convergent validity is met. Indicators included in the model in measuring each variable are strongly correlated so that the resulting convergent validity is acceptable. Furthermore, the discriminant validity check is carried out with HTMT and *Fornell Lacker*. The results of the discriminant validity test with HTMT on the fourth estimated measurement model can be described in Table 5.

Table 5.
Results of Discriminant Validity Test with HTMT on PLS-SEM *Outer Model* (n=385).

Variables	Audit Quality (X1)	Use of Information Technology (X2)	Management Support (X3)	Implementation of Guidelines (X4)	Internal Audit Effectiveness (Y)
Audit Quality (X1)					
Use of Information Technology (X2)	0.769				
Management Support (X3)	0.805	0.712			
Implementation of Guidelines (X4)	0.757	0.759	0.790		
Internal Audit Effectiveness in *Fraud* Prevention and Detection (Y)	0.745	0.632	0.777	0.880	

Table 5 shows that the HTMT value of all variables in the PLS-SEM *outer model* <0.90, so it can be concluded that discriminant validity is met. These results indicate that the variables divide the variation into each indicator that measures it higher than the other indicators [48]. Furthermore, the discriminant validity check was carried out with *Fornell Lacker*. The results of the discriminant validity test with *Fornell Lacker* on the fourth estimated PLS-SEM measurement model can be described in Table 6.

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Table 6.
Discriminant Validity Test with Fornell Lacker Criteria on PLS-SEM *Outer Model* (n = 385).

Variables	Audit Quality (X1)	Use of Information Technology (X2)	Management Support (X3)	Implementation of Guidelines (X4)	Internal Audit Effectiveness (Y)
Audit Quality (X1)	0.793				
Use of Information Technology (X2)	0.639	0.814			
Management Support (X3)	0.737	0.597	0.879		
Implementation of Guidelines (X4)	0.708	0.643	0.742	0.835	
Internal Audit Effectiveness in *Fraud* Prevention and Detection (Y)	0.691	0.532	0.726	0.834	0.858

From the results of the analysis in Table 6, it is concluded that the value of discriminant validity with the *Fornell Lacker* Criterion is met in the measurement model (*outer model*) PLS-SEM this fourth estimate, where the AVE square root value for all variables is greater than the correlation value with the dependent variable audit effectiveness in *fraud* prevention and detection *(Y)*, which is 0.834.

4.4. Inner Model Evaluation

After the estimated model meets the *Outer Model* criteria, the next step is to test the *inner model*. *Inner model* evaluation relates to hypothesis testing of the influence between previously hypothesized research variables. Structural model evaluation is carried out by checking multicollinearity with *Inner VIF*, checking the test of influence between variables, and checking the *Effect Size (F-Square)* test.

4.5. Multicollinearity Check with Inner VIF Value

Multicollinearity check is known by looking at the tolerance value and with *Inner* VIF where the *Inner* VIF value < 5 indicates no potential multicollinearity. The results of the *Inner* VIF test of the PLS-SEM structure model (*inner model*) can be explained in Table 7 below:

Table 7.
Inner VIF Test Results Inner Model PLS-SEM (n = 385).

Variables	VIF
Audit Quality (X1) -> Internal Audit Effectiveness (Y)	2.704
Use of Information Technology (X2) -> Internal Audit Effectiveness (Y)	1.945
Management Support (X3) -> Internal Audit Effectiveness (Y)	2.809
Implementation of Guidelines (X4) -> Internal Audit Effectiveness (Y)	2.764

Based on the analysis results in Table 7 above, it can be seen that the *Inner* VIF value of all variables is <5, so it can be concluded that the multicollinearity between variables is low. These results indicate that the estimated parameters of the resulting PLS-SEM model are acceptable or the estimated parameters of the PLS-SEM model are unbiased [49].

4.6. Examination of Influence Testing between Variables (Hypothesis Testing)

Examination of the effect between variables (hypothesis testing) where if the *p-value* <0.05 then the effect between variables is significant. This study uses a *two-way* hypothesis test (*two tailed test*) where if the t statistical value> 1.96 then the influence between variables is significant. The results of hypothesis testing with the *Two-Tailed T-Test* on the PLS-SEM *inner model* construct can be described in Table 8 below:

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Table 8.
Hypothesis Test on *Inner Model* PLS-SEM (n = 385).

Variables	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	p-values
Internal Audit Quality (X1) -> Internal Audit Effectiveness in Fraud Prevention and Detection (Y)	0.156	0.158	0.071	2.185	0.029
Use of Information Technology (X2) -> Internal Audit Effectiveness in Fraud Prevention and Detection (Y)	-0.095	-0.084	0.064	1.480	0.139
Management Support (X3) - Internal Audit Effectiveness in Fraud Prevention and Detection (Y)	0.191	0.178	0.081	2.347	0.019
Guideline Implementation (X4) -> Internal Audit Effectiveness in Fraud Prevention and Detection (Y)	0.642	0.645	0.076	8.467	0.0005

Based on the results of hypothesis testing analysis with *Two-Tailed T-Test* in Table 8, the following results can be concluded:

1. The first hypothesis (H1) is accepted, namely that there is a significant effect of internal audit quality (X1) on the effectiveness of internal audit in preventing and detecting *fraud* (Y) with a *path coefficient* value = 0.156, t-statistic = 2.185 (t-statistic> 1.96), *p-value* = 0.024 (*p-value* <0.05).
2. The second hypothesis (H2) is rejected where there is no significant effect of the use of information technology (X2) on the effectiveness of internal audit in preventing and detecting *fraud* (Y) with a *path coefficient* value = -0.095, t-statistic = 1.480 (t-statistic < 1.96), *p-value* = 0.139 (p-value> 0.05).
3. The third hypothesis (H3) is accepted, namely that there is a significant effect of management support (X3) on the effectiveness of internal audit in preventing and detecting *fraud* (Y) with a *path coefficient* value = 0.191, t-statistic = 2.347 (t-statistic> 1.96), *p-value* = 0.019 (*p-value* <0.05).
4. The Fourth Hypothesis (H4) is accepted, namely that there is a significant effect of implementing guidelines (X4) on the effectiveness of internal audit in preventing and detecting *fraud* (Y) with a *path coefficient* value = 0.642, t-statistic = 8.467 (t-statistic> 1.96), *p-value* = 0.0005 (*p-value* <0.05).

4.7. Effect Size (F-Square) Test Check

Furthermore, to see the effect of variables at the structural level, the *Effect Size (F-Square)* can be used where the *F-Square* value can be interpreted as low influence (*F-Square* = 0.02), moderate influence (*F-Square* = 0.15), and high influence (*F-Square* = 0.35). (Hair et al. 2022). The results of the PLS-SEM *inner model F-Square* test can be seen in Table 9 below:

Table 9.
F- Square Test on PLS-SEM Inner Model (n = 385).

Variables	*F-Square*
X1 Audit Quality -> Y Internal Audit Effectiveness	0.033
X2 Information Technology Use -> Y Internal Audit Effectiveness	0.017
X3 Management Support -> Y Internal Audit Effectiveness	0.049
X4 Implementation of the Code -> Y Internal Audit Effectiveness	0.557

Based on the analysis of the *F- Square* test results on the PLS-SEM *inner model* in Table 9, the following results can be concluded:

1. The effect of audit quality (X1) on the effectiveness of internal audit in preventing and detecting *fraud* (Y) at the structural level has an *Effect Size (F-Square)* value of 0.033 which is classified as a low influence.

2. The effect of the use of information technology (X2) on the effectiveness of internal audit in preventing and detecting *fraud* (Y) at the structural level has an *Effect Size (F-Square)* value of 0.017 which is classified as a very low or negligible effect.
3. The effect of management support (X3) on the effectiveness of internal audit in preventing and detecting *fraud* (Y) at the structural level has an *Effect Size (F-Square)* value of 0.049 which is classified as a low influence.
4. The effect of implementing guidelines (X4) on the effectiveness of internal audit in preventing and detecting *fraud* (Y) at the structural level has an *Effect Size (F-Square)* value of 0.557 which is classified as a very high influence.

4.8. Evaluation of Goodness and Fit of the Model

PLS-SEM analysis is a variance-based SEM analysis with the aim of testing model theory that focuses on prediction studies. To show this, several measures were developed to declare the proposed PLS model acceptable. Some of the measures used are *R-Square*, *Q-Square* predict, SRMR and PLS Predict [49].

4.9. Coeffient of Determination (*R- Square*) Test

The *R-Square* statistical measure illustrates the amount of variation in endogenous variables that can be explained by other exogenous or endogenous variables in the model. According to Chin [50] the qualitative interpretation value of *R-Square* is 0.19 (low influence), 0.33 (moderate influence), and 0.66 (high influence). The results of the *R-Square* test on the PLS-SEM *inner model* are depicted in Table 10 below:

Table 10.
R-Square Test on PLS-SEM *Inner Model* (n = 385).

Variables	R-square	Adjusted R-square
Internal Audit Effectiveness (Y)	0.732	0.729

Table 10 shows the *R-Square* value in the PLS-SEM *inner model* is 0.732, so it can be concluded that the joint influence of Audit Quality (X1), Use of Information Technology (X2), Management Support (X3) and Implementation of Guidelines (X4) on the effectiveness of Internal Audit in *Fraud* Prevention and Detection (Y) is 73.2% (high influence).

4.10. Predictive Relevance Test *(Q-Square Predict)*

The Predictive Relevance (Q-Square Predict) test is a form of validity in PLS to state the suitability of model predictions (*predictive relevance*) [47]. The *Q-Square Predict* measure describes a measure of predictive accuracy, namely how well each change in exogenous variables is able to predict endogenous variables. *Q-Square Predict* value> 0 means highly recommended. The results of the *Q-Square* test on the structure model (*inner model*) are described in Table 11 below:

Table 11.
Q-Square Test on PLS-SEM *Inner Model* (n = 385).

Variables	Q-square predict
Internal Audit Effectiveness (Y)	0.707

Table 11 shows that the *Q-Square Predict* value in the SEMP PLS *inner model* is 0.707 (*Q-Square* Predict> 0), so it can be concluded that this research model has high predictive accuracy or *predictive relevance* is accepted.

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4.11. Measuring Standardized Root Mean Square Residual (SRMR)

SRMR measurement is done by comparing the estimated model correlation matrix with the empirical data correlation matrix. Hair, et al. [47] stated that the recommended SRMR value is <0.08 to be able to state that the model meets the *goodness of fit* measure. The results of the PLS-SEM *inner model* SRMR measurement are described in Table 12.

Table 12.
SRMR Test *Inner Model* PLS-SEM (n = 385).

	Saturated model	Estimated model
SRMR	0.050	0.050

Table 12 shows that the SRMR value in the PLS-SEM *inner model* is 0.707 (*SRMR* <0.08), so it can be concluded that the PLS-SEM model in this study is an acceptable *fit* or the model is acceptable with a good level of fit.

4.12. PLS Predict

PLS *predict* is a new measure in PLS-SEM that was developed as a form of model validation to show how well the predictive power of the PLS model it proposes is. (Shmueli et al., 2016).. To show that the PLS-SEM model results have a good measure of predictive power, the PLS-SEM algorithm needs to be compared with other model algorithms, namely the linear regression model (LM) [51]. The PLS-SEM model is said to have high predictive power if the RMSE (*Root Mean Squared Error*) or MAE (*Mean Absolute Error*) measure or the PLS model prediction error is lower than the linear regression model. The results of the PLS *Predict* measurement on the PLS-SEM structure model (*inner model*) are described in Table 13 below:

Table 13.
PLS *Predict Inner Model* PLS-SEM (n = 385).

	Q^2predict	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE
F1	0.498	0.490	0.341	0.501	0.334
F2	0.495	0.504	0.349	0.526	0.355
F3	0.532	0.547	0.356	0.590	0.383
F4	0.582	0.506	0.348	0.541	0.359
F5	0.535	0.546	0.360	0.583	0.378
F6	0.443	0.611	0.394	0.658	0.435
F7	0.544	0.483	0.323	0.511	0.334

The evaluation results as described in Table 13 show that all indicators of the endogenous variable of internal audit effectiveness in *fraud* prevention and detection (Y), namely indicator variables F1, F2, F3, F4, F5, F6, F7 from the PLS-SEM model have an RMSE value lower than the LM (linear regression) model, and the majority of indicators of endogenous variables of internal audit effectiveness in *fraud* prevention and detection (Y), namely indicator variables F2, F3, F4, F5, F6, F7 from the PLS-SEM EM PLS model have an MAE value lower than the LM model (linear regression). The results of this test indicate that the PLS-SEM model proposed in this study has *high predictive power*. Based on the results of the evaluation of the entire model, it shows that the PLS-SEM model proposed in this study is accepted, so it can be concluded that the empirical data is able to translate the influence between variables with a high level of fit and high predictive power.

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5. Discussion

5.1. The Effect of Audit Quality on Internal Audit Effectiveness in Fraud Prevention and Detection

Based on the results of hypothesis testing analysis with *Two-Tailed T-Test* and *F-Square* on the PLS-SEM *inner model* constructs described in Table 8 and Table 9, it can be concluded that there is a significant effect of audit quality on the effectiveness of internal audit in preventing and detecting *fraud* with a *path coefficient* value = 0.156, t-statistic = 2.185 (t statistic> 1.96), p-value = 0.024 (p-value <0.05), and at the structural level the effect of audit quality on the effectiveness of internal audit in preventing and detecting *fraud* is classified as having a low influence (F-Square <0.05). 1.96), *p-value* = 0.024 (*p-value* <0.05), and at the structural level the effect of audit quality on the effectiveness of internal audit in preventing and detecting *fraud* is classified as having a low influence *(F-Square* = 0.033). This finding refutes previous research by Ta and Doan [28] on 144 internal auditors of non-financial companies listed on the Vietnamese stock market, which concluded that internal auditor independence and internal audit support management have a positive influence on internal audit effectiveness, while internal auditor competence and internal audit work quality have no effect on internal audit effectiveness.

The results of this study are in line with research Cohen and Sayag [23]; Mahyoro and Kasoga [24] and Marfo-Yiadom, et al. [25] which concluded that there is a positive relationship between internal audit quality and internal audit effectiveness. Other research by Demeke and Kaur [26] also states that internal audit quality is a determining factor for internal audit effectiveness with the results showing that the quality of internal audit work is significant at the 1% significance level for audit quality (p = 0.000). In Indonesia itself, research on local government auditors in Indonesia found that audit quality affects audit effectiveness for fraud prevention [27].

The results of the analysis of respondents' answers as described in Table 3, on the audit quality variable show that the average answer to respondents' statements on seven indicator variables is 4.451 with a standard deviation of 0.554. The highest mean value was given by respondents to the indicator variable statement B3, namely the statement 'audits are carried out based on the priority order of audits that require *assurance* services and management system improvements' (*mean* = 4.571). The mean of respondents' answers to each statement of the variable use of information technology is in the range of 4.20-5.00, so it can be concluded that the majority of respondents give a very good perception of the quality of internal audit in the hospital where they work [52].

5.2. The Effect of Information Technology Use on Internal Audit Effectiveness in Fraud Prevention and Detection

Table 8 and Table 9 regarding hypothesis testing analysis with *Two-Tailed T-Test* and *F-Square* on the PLS-SEM *inner model* construct concludes that there is no significant effect of the use of information technology on the effectiveness of internal audit in preventing and detecting *fraud* (*path coefficient* = -0.095, t statistic = 1.480, *p-value* = 0.139), and at the structural level the significant effect of the use of information technology on the effectiveness of internal audit in preventing and detecting *fraud* is very low or negligible (*F-Square* = 0.017). These findings support research Demeke and Kaur [26] which also concluded that information technology has no significant effect on internal audit effectiveness.

The findings in this study contradict previous research from Hassan, et al. [14] which states that strong information technology techniques significantly help detect and reduce fraudulent activities by minimizing opportunities, rationalization, pressure, and the ability of potential employees to commit fraud, and internal control also plays an important role in reducing fraud. Previous research by Jemaneh and Regasa [37] in 15 commercial banks in Ethiophia believes performance, competence and the use of information technology by internal auditors as significant factors affecting the quality of internal audits, as well as the quality of internal audit. Al-Refaee and Saim [36] who found a positive impact of information technology use on internal audit independence and privacy.

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Hall and Tommie [44] stated that recent developments in information technology have had a major impact on the field of auditing. Internal auditors need to acquire knowledge and skills of computerized information systems for the purpose of planning, supervising, directing, reviewing the work performed and spending less time testing the content and accuracy of mathematical calculations of office accounts [36, 37]. The results of the analysis of respondents' answers as described in Table 3 on the variable use of information technology show that the average answer to the respondent's statement on the three indicator variables is 4.184. The highest mean value was given by respondents to the statement of indicator variable C1, namely the statement 'in the hospital where I work, information technology plays an important role in fraud detection' (*mean* = 4.353). The mean on this statement shows that the majority of respondents view information technology in the hospital where they work as playing an important role in fraud detection. The mean of respondents' answers to each statement of the information technology usage variable is in the range of 3.40-4.20, so it can be concluded that the majority of respondents give a good perception of the use of information technology in the hospital where they work [52].

5.3. The Effect of Management Support on Internal Audit Effectiveness in Fraud Prevention and Detection

The results of hypothesis testing with the *Two-Tailed T-Test* on the PLS-SEM *inner model* construct in Table 8 and the *F-Square Test* on the PLS-SEM *inner model* construct in Table 9 show that there is a significant effect of management support on the effectiveness of internal audit in preventing and detecting *fraud* with a *path coefficient* value = 0.191, t statistic = 2.347 (t statistic> 1.96), *p-value* = 0.019 (*p-value* <0.05), with an effect at a low structural level *(F-Square* = 0.049). The results of this study prove previous findings which found that management support has a positive effect on the effectiveness of internal audit in preventing and detecting fraud. Kesto and Yisehak [31]; Dyhati and Tertiarto [34]. Ganesan, et al. [33] also revealed that management support is related to internal audit effectiveness. The findings in this study refute the research results Demeke & Kaur (2021) which states that management support does not significantly affect internal audit effectiveness.

Internal audit effectiveness is strongly influenced by internal audit quality and management support, while organizational arrangements and auditee attributes do not have a strong impact on audit effectiveness Mihret and Yismaw [29]. Sanni [30] found that top management support, auditor training & development, and auditor promotion and rewards are important predictors of internal audit effectiveness. In Indonesia, Mahmudah [45] proved that the internal control system and management support have a positive effect on internal audit effectiveness.

Based on the analysis of respondents' answers as described in Table 3, the management support variable shows that the average answer to respondents' statements on five indicator variables is 4.390 with a standard deviation of 0.668. The highest mean value was given by respondents to the indicator variable statement D1, namely the statement 'Top management is very supportive' (*mean* = 4.457). The mean of respondents' answers to each statement of the management support variable is in the range of 4.20-5.00, so it can be concluded that the majority of respondents give a very good perception of management support in the hospital where they work [52].

5.4. The Effect of Guidelines Implementation on Internal Audit Effectiveness in Fraud Prevention and Detection

The results of hypothesis testing with *Two-Tailed T-Test* on the PLS-SEM *inner model* construct in Table 8 that there is a significant effect of implementing guidelines on the effectiveness of internal audit in preventing and detecting *fraud* with a *path coefficient* value = 0.642, t statistic = 8.467 (t statistic> 1.96), *p-value* = 0.0005 (*p-value* <0.05). The *Effect Size* (*F-Square*) test on the PLS-SEM *inner model* in Table 9 concludes that at the structural level the effect of implementing guidelines on the effectiveness of internal audit in preventing and detecting *fraud* is very high with an *F-Square* value of 0.557. The implementation of SPI implementation guidelines in hospitals is intended to be a guide for the Ministry of Health and hospitals within the Ministry of Health in organizing SPI in hospitals; ensuring that

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hospitals organize an internal control system that runs effectively; and become a reference for SPI in carrying out its duties, functions and authorities [9].

The Indonesian Hospital Association has previously compiled the Hospital SPI Guidelines in 2017 as a basis for hospital SPI in carrying out routine and special tasks and ensuring that all SPI activities run properly and correctly in accordance with applicable regulations and encourage SPI to play an active role in efforts to improve systems and procedures in improving financial performance and service performance [39]. However, there are many fundamental problems in organizing SPI in hospitals, namely: 1. inappropriate appointment and dismissal of SPI personnel so that SPI cannot maximally carry out its functions; 2. the complexity of the scope of SPI's work which affects the independence and objectivity of decision making; 3. recommendations for SPI audit results that are not followed up by the hospital's main director; 4. concurrent positions of SPI personnel which make the implementation of SPI's duties and functions not optimal; 5. unequal levels of SPI Human Resources positions; and 6. SPI personnel who are less competent so that they affect overall capability [46].

This is the basis for the Ministry of Health of the Republic of Indonesia to establish Guidelines for the Implementation of Hospital SPI within the Ministry of Health based on the Decree of the Director General of Health Services of the Ministry of Health of the Republic of Indonesia Number HK.02.02/D/19857/2023. The implementation of the Hospital SPI Implementation Guidelines is intended to: 1. serve as a guide for the Ministry of Health and hospitals within the Ministry of Health in organizing SPI in hospitals; 2. ensure that hospitals organize an internal control system that runs effectively; and 3. serve as a reference for SPI in carrying out its duties, functions and authorities.

Until now there has been no research that identifies what effect the implementation of the Hospital SPI Implementation Guidelines has on the effectiveness of internal audit in preventing and detecting *fraud* in hospitals. The results of these findings are the first in Indonesia to identify that there is an effect of the implementation of SPI implementation guidelines on the effectiveness of internal audit in preventing and detecting *fraud*. Several studies have concluded that there is still a lack of SPI's role in carrying out *fraud* prevention and detection procedures. Aprilia [20] found that SPI has not played a role in effectively carrying out JKN *fraud* prevention and detection procedures because competence has not been optimally utilized due to competency gap constraints. Yousefi Nejad, et al. [21] also concluded that SPI's competence in preventing and detecting *fraud* in the JKN program has not been tested because SPI lacks competence in governance, risk, and control efforts. Research Arso and Putro [22] at RSUD in Central Java Province found that the internal audit team was not competent, there was no training, the staff job description was not detailed and the auditor team concurrently performed additional duties. This study also revealed that the audit function is more focused on aspects of financial compliance and accountability, while the performance evaluation function and compliance with regulations have not been carried out. From this study, it was found that the obstacles faced by SPI in carrying out its duties were due to the limited number of personnel and concurrent work, monitoring and evaluation of the internal audit unit had not been carried out intensively.

Based on the analysis of respondents' answers as described in Table 3, the variable application of guidelines shows that the average answer to respondents' statements on ten indicator variables is 4.283 with a standard deviation of 0.709. The highest mean value was given by respondents to the indicator variable statement E24, namely the statement 'The implementation of *assurance* activities at your hospital is carried out based on guidelines as a reference for work standards which at least consists of a legal basis, basis for assignment, procedures, time period, financing, assignment *output*, infrastructure, implementing competence, internal control, number of implementers (*mean* = 4.423). The average respondent's answer to each variable statement on the application of the guidelines is in the range of 4.20-5.00, so it can be concluded that the majority of respondents give a very good perception of the application of SPI implementation guidelines in the hospital where they work [52].

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5.5. The Effect of Audit Quality, Use of Information Technology, Management Support and Implementation of Guidelines on Internal Audit Effectiveness in Fraud Prevention and Detection

Table 10 regarding the *Coeffient of Determination* (*R-Square*) test on the PLS-SEM *inner model* shows the *R-Square* value in the structural model is 0.732, meaning that the joint effect of audit quality, use of information technology, management support and implementation of guidelines on the effectiveness of internal audit in preventing and detecting *fraud* is 73.2% or has a high influence.

Based on the analysis of respondents' answers as described in Table 3 on the variable effectiveness of internal audit in preventing and detecting *fraud*, it shows that the average answer to respondents' statements on seven indicator variables is 4.386 with a standard deviation of 0.651. The highest mean value was given by respondents to the F1 and F7 indicator variable statements, namely the statements 'Internal auditors in audit assignments have an understanding of the auditee's business processes and business risks' and 'Internal auditors evaluate the implementation of the auditee's internal control system' (*mean* = 4.457). The average respondent's answer to each statement of the internal audit effectiveness variable in *fraud* prevention and detection is in the range of 4.20-5.00, so it can be concluded that the majority of respondents give a very good perception of the application of internal audit effectiveness in *fraud* prevention and detection in the hospital where they work [52].

6. Conclusion

Based on the results of hypothesis testing analysis with *Two-Tailed T-Test* on the construct of the PLS-SEM *inner* model structure, it can be concluded that the variable implementation of SPI implementation guidelines has a significant influence on the effectiveness of internal audit in *fraud* prevention and detection (*path coefficient* = 0.642, t statistic = 8.467, *p-value* = 0.0005) and at the structural level is classified as having a very high influence with an *F-Square* value = 0.557. Hypothesis testing also concluded that the audit quality variable (*path coefficient* = 0.156, t statistic = 2.185, *p-value* = 0.024) and management support (*path coefficient* = 0.191, t statistic = 2.347, *p-value* = 0.019) have a significant influence on the effectiveness of internal audit in *fraud* prevention and detection and at the structural level is classified as having a low influence with an *F-Square* value = 0.033 for the audit quality variable and *F-Square* = 0.049 for the management support variable. In contrast, the results of hypothesis testing on the PLS-SEM *inner* model construct concluded that there was no effect of the use of information technology on the effectiveness of internal audit in preventing and detecting *fraud* (*path coefficient* = -0.095, t statistic = 1.480, *p-value* = 0.139) and the effect of the variable use of information technology at the structural level had a very low or negligible effect with an *Effect Size (F-Square)* value = 0.017. The results of testing the *Coeffient of Determination* (*R-Square*) in the PLS-SEM *inner model* show that the joint effect of audit quality, use of information technology, management support, and implementation of guidelines on the effectiveness of internal audit in preventing and detecting *fraud* is high at 73.2%.

Factors such as auditor ability, independence in conducting audits, use of appropriate methodologies, and quality of reporting audit results are part of internal audit quality. High-quality internal audit means that the audit process is conducted carefully, honestly, and in accordance with applicable professional standards. Auditors can analyze data more efficiently, find anomalous patterns, and conduct audits in *real-time* with the help of information technology. In practice, information technology helps them process and analyze large amounts of data, increase accuracy, and reduce manual errors, all of which are critical to detecting and preventing fraud.

Management's role in ensuring that internal audit has everything it needs to operate includes providing adequate resources, building an organizational culture that supports audits, and ensuring that audit recommendations are implemented. Hospital management must understand that supporting the internal audit process is essential to maintaining organizational integrity and transparency. The implementation of SPI guidelines that refer to the use of standards, policies, procedures, or best

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practices designed to guide the internal audit process can provide a systematic and structured framework for internal auditors in carrying out their duties, ensuring that the audit process runs according to recognized principles and minimizing errors or deviations. when guidelines are well implemented, internal auditors have clear tools and references to evaluate internal control systems and detect potential *fraud* risks more effectively.

6.1. Implications

6.1.1. Practical Implications

1. Internal audit quality is proven to affect the effectiveness of *fraud* prevention and detection. Hospital management can improve internal auditor training, adopt more sophisticated audit technology, and ensure the integrity and independence of the audit team to improve the quality of internal audit so as to achieve better results in *fraud* prevention and detection efforts;
2. Hospitals recognize that investment in information technology for internal audit is critical. By using appropriate information technology in the internal audit process, auditors will be able to more easily discover and prevent fraud, reducing the organization's financial and reputational risk. Hospitals should ensure that internal auditors are properly trained in using information technology to support the internal audit process;
3. Management support for the internal audit process has been shown to influence the effectiveness of *fraud* prevention and detection. Hospital management can seek to increase support for the internal audit process and ensure that internal audit has everything it needs to operate, including providing adequate resources, building an organizational culture that supports audits, and ensuring that audit recommendations are implemented. Hospital management should understand that support for the internal audit process is important for maintaining organizational integrity and transparency;
4. The implementation of SPI organizational guidelines in the internal audit process is proven to affect the effectiveness of *fraud* prevention and detection. Hospital management must ensure that internal audit guidelines are properly implemented. These guidelines should be updated regularly to keep them relevant to changes in regulations and industry practices.

6.2. Theoretical Implications

The results of this study enrich science, especially in the field of auditing and can be a reference in the development of science regarding the effect of internal audit quality, use of information technology, management support and implementation of guidelines on the effectiveness of internal audit in preventing and detecting *fraud in* hospitals based on *evidence-based practice*. The results of this study can be used as reference material and scientific evidence for the development of further research on the effect of internal audit quality, use of information technology, management support and implementation of guidelines on the effectiveness of internal audit in preventing and detecting *fraud in* hospitals. Further research is expected to be developed by examining other factors that can affect the effectiveness of internal audit in preventing and detecting *fraud*.

6.3. Limitations

This study has certain limitations. Extrapolating the results to other jurisdictions is not possible, so more research in this area may be by comparing the results in different countries can expand knowledge. The results showed that the joint effect of audit quality, the use of information technology, management support, and the application of guidelines on the effectiveness of internal audit in *fraud* prevention and detection was high at 73.2% and the rest was influenced by other factors. This study does not cover all factors relevant to internal audit effectiveness, so it does not identify other unmeasured or unobserved factors, such as corporate governance, internal audit procedures, internal audit charters, auditee attributes, auditor performance, auditor competence, auditor promotions and

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rewards, organizational independence, and management perceptions of organizational culture or external influences.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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