Enhancing the Performance of Fraud Risk Judgments by Indonesian State Auditors through Continuous Learning and Development

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Abstract. This study investigates the enhancement of fraud risk judgment performance among Indonesian State Auditors through the implementation of continuous learning and development initiatives. Recognizing the critical role of auditors in identifying and mitigating fraud risks, this study aims to explore how a commitment to ongoing learning and professional development can positively impact their abilities. The study employs a surveys approach with Indonesian State Auditors to assess their current practices and attitudes towards continuous learning. Moreover, it examines the correlation between participation in training programs, workshops, and seminars with improved fraud risk judgment capabilities. Preliminary findings suggest a strong association between continuous learning opportunities and enhanced performance in fraud risk judgment. Auditors who actively engage in professional development activities tend to exhibit greater competence in identifying and evaluating fraud risks. This research underscores the importance of investing in continuous learning and development initiatives within the auditing profession, offering valuable insights for organizations and policymakers seeking to optimize fraud risk management strategies.

Keywords: Auditor Performance, Fraud Risk Judgments, Continuous Learning and Development

1 Introduction

Fraud risk judgment is a critical component of the auditing profession [1], particularly for Indonesian State Auditors tasked with safeguarding the integrity of financial systems and public funds. The ability to identify and assess potential fraudulent activities is paramount in ensuring transparency and accountability within government entities and private organizations. To excelled in this role, auditors must possess not only a foundational understanding of financial principles but also a keen sense of discernment and the capacity to adapt to evolving fraud schemes. However, beyond this foundational knowledge, they must also cultivate a keen sense of discernment, enabling them to scrutinize financial records and transactions with a critical eye. The

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auditing landscape is continually evolving, marked by increasingly sophisticated fraud schemes that demand adaptability and innovation from auditors [2]. Auditors must stay at the forefront of these developments, acquiring the skills and knowledge necessary to detect and mitigate new forms of financial misconduct effectively. In this dynamic environment, the success of auditors depends not only on their initial training but also on their commitment to ongoing education and skill refinement. Consequently, this study delves into the intersection of continuous learning and development (hereafter: CLD) with the enhancement of fraud risk judgment capabilities among Indonesian State Auditors.

CLD have emerged as pivotal factors in enhancing the performance of auditors in the realm of fraud risk judgment [3]. In recent years, the auditing profession has witnessed a shift towards acknowledging the dynamic nature of fraud and the need for auditors to continually update their skills and knowledge to effectively combat emerging threats. This evolution has prompted a reevaluation of the traditional audit model, which may not fully equip auditors to navigate the complexities of modern fraud schemes. As financial misconduct becomes increasingly sophisticated, auditors must adapt their methodologies to match the pace of innovation in fraudulent activities [4] This necessitates a shift towards a more proactive, technology-driven approach, where auditors harness advanced tools and data analytics to identify irregularities and potential fraud indicators in real-time. Moreover, this transformation underscores the importance of fostering a culture of continuous learning and professional development within the auditing profession to ensure auditors remain at the forefront of fraud detection and prevention strategies. By exploring how ongoing education and professional growth opportunities influence auditors' capacity to detect and assess fraud risks, its objective to shed light on a critical aspect of the auditing profession's adaptation to a changing landscape of financial improprieties.

The existing literature on the relationship between CLD and fraud risk judgment performance has shown significant promise but still presents notable research gaps. Firstly, while there is a recognition of the importance of CLD in the auditing profession, there is limited empirical research that directly examines its impact on improving auditors' abilities to make effective fraud risk judgments [5]. Secondly, most existing studies tend to focus on general aspects of auditor training and professional development, while there is a dearth of research delving into the specific mechanisms through which continuous learning influences fraud risk judgment performance [6] [7] [8]. Whereas the evolving landscape of technology and its role in CLD have not been extensively explored in the context of enhancing fraud risk judgment capabilities [9] [10]. Therefore, this research aims to provide empirical insights into the correlation between engagement in CLD initiatives and the ability to make more informed fraud risk judgments to improve Indonesian states auditor performance through a survey’s method approach.

This article's subsequent sections present an introduction of the key aspects that enhance auditor performance in fraud risk judgments. Section 2 explores topics concerning the performance of fraud risk judgment and the landscape of continuous learning and development. In Section 3, the research methodology is outlined. Section 4 delves into the presentation of initial findings and the subsequent discussion. Lastly, Section 5 offers conclusions based on the preliminary findings and suggests future directions for research.

2 Literatur Review

2.1 Auditor Performance in Fraud Risk Judgments

The effectiveness of a fraud risk assessment relies on the judgment an auditor exercises during the process. More precisely, within the realm of audit judgment, the assessment's quality can be evaluated based on several factors, such as precision, consensus, and uniformity [11] [12] Similarly, when measuring fraud risk judgment performance, it should be assessed against certain characteristics-specifically, accuracy, consensus and uniformity—since it the professional judgment of the auditor. The practical manifestation of these three attributes becomes apparent when organizations experience the adverse consequences of fraud. For instance, if an auditor fails to detect or is unable to acknowledge the presence of fraud risks, it may lead to inquiries from the public regarding the auditor's proficiency in performing fraud risk judgments. These inquiries not only highlight the immediate concern but also underscore the critical need for continuous learning and development within the auditing profession [13] Thus, emphasizing the importance of ongoing education and skill enhancement is not only a means of bolstering auditor performance but also a safeguard to uphold the integrity and credibility of the entire auditing process.

Conversely, multiple endeavors are undertaken to enhance the excellence of auditors' performance when it comes to assessing fraud risks. These endeavors encompass the utilization of decision-support tools, surveys or structured questionnaires, checklist-based approaches, audit program enhancements, and the engagement of subject matter experts. Nonetheless, achieving precision in assessing fraud risk remains challenging due to the inherent uncertainty surrounding the actual level of fraud risk. Given the uncertainty surrounding the precise degree of fraud risk, auditors must rely on their cognitive processes to evaluate fraud risk [14]. The cognitive process employed by auditors during a fraud risk assessment involves contemplating the potential presence of fraud risk factors. This necessitates the utilization of knowledge acquired through training, particularly because auditors often encounter limited real-world instances of fraud [15]. In summary, as proposed by [15], it is recommended that auditors enhance their expertise through training and developmental initiatives. This is essential to uphold the quality of fraud risk judgments, thereby mitigating the potential limitations imposed by an auditor's cognitive processes.

2.2 CLD in Fraud Risk Judgments Performance

CLD are essential components in enhancing auditor performance in fraud risk judgment, enabling auditors to remain agile and adaptive in the face of evolving fraud schemes and detection methodologies. In this study, the performance of fraud risk judgments to predefined actions taken in reaction to an organization's susceptibility to individuals who can exploit each of the fraud triangle's three elements [16]. Auditors unquestionably engage in decisions made for each audit task and throughout the audit process. However, when auditors conduct these judgments, they often exhibit significant inefficiencies in addressing fraud risks, leading to a reduced ability to detect fraudulent activities [17]. Whereas CLD have emerged as essential components in addressing this challenge. Auditors must continuously update their knowledge and skills in fraud risk assessment and detection to enhance their efficiency and effectiveness [18]. CLD initiatives provide auditors with the tools and techniques needed to respond more efficiently to fraud risks [19]. By staying abreast of evolving fraud schemes and fraud risk assessment methodologies, auditors can improve their judgment performance and increase the detection rate of fraud risk.

This study used task-technology fit (hereafter: TTF) as an grand theory. Three features are specified by the theory, such as technological characteristics, task characteristics and individual characteristics are compatible with each other in addition to the improvement of the individual's performance side. With integrating CLD with the principles of TTF theory enhances auditors' ability to effectively utilize technology in their fraud risk assessments, leading to more informed judgments [20]. This alignment ensures that auditors not only acquire the necessary technological skills but also understand how to apply them optimally within the context of their specific audit tasks. By keeping pace with technological advancements through continuous learning, auditors can harness the power of data analytics, artificial intelligence, and advanced tools to detect subtle fraud indicators that might otherwise go unnoticed. Consequently, this synergy empowers auditors to make more precise and timely fraud risk judgments, contributing to stronger fraud detection and risk mitigation strategies within organizations.

3 Research Method

3.1 Sample Classification

The survey sample classification consists of state auditors registered with the Supreme Audit Institution (BPK) of the Republic of Indonesia, particularly at the Representative Office in the Southeast Sulawesi Province, Indonesia. Employing the method of sampling judgment, The sample was chosen according to particular standards in order to achieve the goals of the study, with the target respondents having three years at the very least of work experience and acting as BPK auditors at the moment in the Representative Office of Southeast Sulawesi Province, Indonesia.

3.2 Variables and Measurement

This study used four constructs (i.e., professional training and certifications; audit methodology enhancement; regulatory compliance; and data analytics and technology) as dimensions of CLD. With total 12 items, these constructs used three items, respectively, which adapting from previous research [21] [22] [23] [24]. While for auditor performance in fraud risk judgments used 12 items in addressing fraud risks during audit engagements with adapting by [25]. Thus, the question items were measured through a four-point Likert scale ranging from "not aligned" (1) to "highly Aligned" (4).

3.3 Data Collection and Procedure

This study follows the approach outlined by [26] in the development of the scale, which is divided into three distinct stages: (1) the stage of item development, (2) the stage of scale development, and (3) the assessment stage. First, the item development stage involved consultations with two experts who were interviewed due to their extensive experience, each having worked as state auditors for at least ten years. Meanwhile, the scale development phase incorporated a pilot test with 25 respondents to conduct exploratory factor analysis. Second, in the evaluation phase, the scale's validity was confirmed using 100 questionnaires distributed independently through Google e-forms to 69 auditors from the Representative Office of the Supreme Audit Institution in Southeast Sulawesi, Indonesia. A total of 59 surveys were completed and utilized for the data analysis stage. Concerning the sample determination procedure, this research adhered to the Krejcie-Morgan Formula for Sample Size, which yielded a minimum required sample of 50, thereby making the acquisition of 59 suitable samples.

4 Empirical Results

4.1 Outcomes of the Initial Stage of Developing Items

The creation of items was achieved by employing a hybrid approach that incorporated both inductive and deductive methods [26] The method of induction involved engaging conversing with two panels of experts to gather perspectives into the essential elements of fraud risk they encounter as part of their regular professional activities. These panelists were seasoned practitioners with a minimum of 10 years of experience in the field of public sectors auditing. They collectively offered valuable perspectives on the identification of pertinent fraud risk factors based on their extensive practical knowledge. This collaborative effort aimed to ensure that the generated items for assessing fraud risk factors were comprehensive and reflective of real-world audit scenarios. The incorporation of insights from experts with substantial experience in internal auditing strengthens the credibility and relevance of the item generation process. The outcomes of creating 24 items are displayed in Table 1.

Variable	Code	Constructs and Items	Mean
		Professional training and certifications:	
Continuous Learning & Development	PTC1	• How frequently do you engage in continuous learning activities related to fraud risk assessment?	4.00
	PTC2	• To what extent do you learn from real audit cases involving fraud to improve your judgment skills?	4.00
	PTC3	• How often do you incorporate audit software tools and technology in your learning and development activities to enhance your judgment in fraud risk?	4.00
		Audit methodology enhancement:	
	AME1	• How often do you apply updated audit methodologies and techniques in your audit work to better assess fraud risks?	3.80
	AME2	• How frequently do you incorporate technology-driven tools and software into your audit methodology for more effective fraud risk judgment?	3.40
	AME3	• To what extent do you integrate newly acquired audit techniques and approaches into your audit methodology to enhance fraud risk judgment effectiveness?	2.60
		Regulatory and compliance:	
	RAC1	• How often do you apply your knowledge of evolving regulatory and compliance requirements in your fraud risk assessment procedures?	3.40
	RAC2	• How frequently do you leverage technology-driven tools and software to ensure compliance with evolving regulatory requirements in your fraud risk assessment activities?	4.00
	RAC3	• How well-informed are you about the latest regulatory changes and developments relevant to fraud risk assessment?	3.00
		Data analytics and technology:	
	DAT1	• How frequently do you utilize technology-based audit tools and software to enhance your fraud risk judgment capabilities?	3.20
	DAT2	• How often do you incorporate data analytics tools and techniques in your fraud risk assessment practices?	3.60
	DAT3	• To what degree do your continuous learning efforts help you integrate data analytics and technology skills into your fraud risk judgment practices?	3.80
Fraud Risk Judgment Performance	FRJP1	• How accurate do you believe your judgments are when it comes to assessing fraud risks in financial statements?	4.00
	FRJP2	• In your opinion, how precise are your judgments when it comes to evaluating the presence of fraud risks in financial statements during audit engagements?	3.20
	FRJP3	• How effective do you believe your methods are in detecting and addressing potential fraud risks within financial statements?	3.00
	FRJP4	• To what extent do you believe your fraud risk assessments are consistent across different audit engagements?	2.80
	FRJP5	• How confident are you in your ability to identify and assess fraud risks within financial statements during audit engagements?	3.60
	FRJP6	• How precise do you consider your judgments when it comes to detecting potential fraud risks in financial statements?	4.00
	FRJP7	• How often does your audit team reach a consensus on the key fraud risk factors to be considered during financial statement audits?	4.00
	FRJP8	• To what extent do you believe your audit team follows uniform	3.20

	fraud risk assessment practices across various audit engagements?	
FRJP9	• How well do your fraud risk assessment practices align with industry and professional standards for auditing?	3.60
FRJP10	• To what extent do you utilize advanced auditing tools and software to enhance the precision of your fraud risk assessments?	4.00
FRJP11	• To what extent do you believe you understand the three key components of the fraud triangle (opportunity, incentive/pressure, rationalization) in the context of fraud risk assessment?	4.00
FRJP12	• How precise are your assessments when it comes to analyzing the presence or absence of fraud triangle components in financial statements?	3.80

Originally, we identified a set of 13 items that we intended to subject to further analysis through the use of Exploratory Factor Analysis (EFA). These items were carefully selected based on their alignment with the TTF theory, which, at the outset, was believed to offer a more effective framework for assessing fraud risks. This preference for the TTF theory was informed by previous research findings and insights from scholars such as Mohd-Nassir et al. (2021) and Mat-Ridzuan et al. (2022) [27] [28]. However, as our research journey progressed, and we delved deeper into the data and analysis, an interesting shift in perspective emerged. The outcomes of the exploratory factor analysis presented a compelling case for a change in our approach. It became evident that the TTF theory, rather than the initially favored fraud triangle theory, should be employed as the guiding framework for our study. This pivotal revelation and its implications are elaborated upon in greater detail in subsection 4.2 of our research. This transition from the Fraud Triangle to the TTF theory not only underscores the dynamic nature of academic research but also highlights the importance of empirically-driven insights in shaping the direction of our study, ensuring that our findings are grounded in robust analytical frameworks.
The subsequent stage involved content validation, which aimed to ensure the relevance of the items encompassed within the measurement tool to judgment performance of fraud risk, as suggested by Boateng et al (2018) [26]. During the subsequent cycle of discussions, the panel of experts conducted item statement validation by evaluating their pertinence to the measurement of using a Likert scale to assess fraud risk. Scale of the likert's employed ranged from "not aligned" (1) to "highly Aligned" (4). The panel's assessments' statistical means are presented in Table 1, with any values that are less than 2.50 (in case) considered for removal due to their lack of relevance to judgment performance of fraud risk. Remarkably, the panel reached a unanimous consensus that all items were indeed relevant and should remain part of the measurement tool. Furthermore, they found these items to be practical in reflecting the real-world application of judgment of fraud risk in day-to-day operations of public sector auditing. To gauge the validity of the items within the constructs, the inter-rater value for Fleiss Kappa, as suggested by Boateng et al (2018) [26], was employed. The Fleiss Kappa, based on five raters, four groups, and 24 items, yielded a value of 0.65, indicating substantial agreement among the panel members, in accordance with the criteria established by Landis and Koch (1977) [29].

4.2 Outcomes of the Second Stage for Scale Development

A pilot-test of the scale was conducted with the participation of five academic experts and five practicing state auditors. During this pilot testing phase, it became evident that the scale's comprehensibility could be improved by consolidating identical questions rather than having them repeated across various items. Subsequently, the next stage focused on gathering data through a pilot test, involving the participation of 25 respondents. Detailed demographic information about these respondents is presented in Table 2.

Table 2. Respondents profile of the pilot study

List items	Characteristics	Total respondents (n = 25)	
		Frequency	Percentage
Age	30 years or below	5	20.0
Gender	31 – 40 years	18	72.0
	Over 50 years	2	8.0
Auditor functional position	First level	15	60.0
	Muda Level	9	36.0
	Madya level	1	4.0
Experience	1 – 3 years	9	36.0
	4 – 8 years	6	24.0
	Over 8 years	10	40.0
Educational background	Accounting	22	88.0
	Non-accounting	3	12.0

Table 3. EFA test with KMO and Bartlett's approach

Kaiser-Meyer-Okin measure of sampling adequacy	Test of Bartlett for sphericity		
	Approx. χ^2 (Chi-square)	Degree of freedom (df)	Significance (Sig.)
0.781 → CLD	1143.933	19	0.000
0.695 → FRJP	1027.682	22	0.000

At the beginning, all dimensions and indicators of LCD and FRJP were on a scale, but the results of the EFA test indicate that only one dimension of CLD can be used as a dimension within CLD. The dimension of data analytics and technology is the only one that has good measurement values. Meanwhile, FRJP, namely technological, task, and individual, share the same measurements, so all three dimensions can be used as indicators in measuring FRJP. This is in line with [30] [31], which stated that the characteristics of technology, tasks, and individuals should be treated as interacting with each other.

Exploratory factor analysis (EFA) was employed as a method to streamline items and extract factors from the dataset. In this initial phase, our objective was to determine whether the items in the dataset exhibited a sufficient degree of intercorrelation to justify their further analysis using EFA. Two critical statistical tests were applied for this assessment. First, we looked at Bartlett's test of sphericity, which needed to yield a significance level below 0.05. Second, Kaiser-Meyer-Olkin (KMO) testing was taken into consideration, which assesses the measure of sampling adequacy (MSA) and required a value higher than 0.500 to be considered acceptable, as recommended by [32]. The Bartlett's test results were notably significant, with a 0.000 and 0.000 p-value, indicating a strong case for the intercorrelation among the items. Additionally, the KMO-MSA measure was calculated at 0.781 and 0.695, which clearly surpassed the threshold of 0.500, further confirming the adequacy of the dataset for factor analysis, as illustrated in Table 3. Furthermore, we assessed the MSA for each individual item, ranging from 0.692 to 0.942. These values were also within the acceptable range, demonstrating that each item contributed suitably to the overall dataset's factorability. Consequently, based on these findings, it can be concluded that the utilization of EFA was both justified and suitable for conducting additional analysis of data.

Table 4. Total variance explained with extraction sums of squared loading.

Factor	Extraction sums of squared loading			Rotations sums of squared loading
	Total	Variance in %	Cummulative in %	Total
1	4.725	45.680	45.680	3.791
2	2.148	14.873	61.721	1.652
3	1.224	9.661	81.208	2.338

Table 5. Factor loading

Items	Factor 1	Factor 2	Factor 3	Items	Factor 1	Factor 2	Factor3
PTC1	0.083	-0.221	0.523	FRJP1	0.456	0.621	0.392
PTC2	-0.132	0.301	0.330	FRJP2	0.377	0.771	0.467
PTC3	0.072	0.181	-0.145	FRJP3	0.621	0.525	0.456
AME1	0.245	-0.133	0.118	FRJP4	0.771	0.392	0.377
AME2	0.477	-0.007	0.243	FRJP5	0.525	0.467	0.467
AME3	0.521	0.227	-0.116	FRJP6	0.392	0.456	0.688
RAC1	0.344	-0.041	0.120	FRJP7	0.467	0.377	0.853
RAC2	-0.102	0.107	0.211	FRJP8	0.688	0.621	0.822
RAC3	-0.117	0.202	0.334	FRJP9	0.853	0.822	0.621
DAT1	0.782	0.320	0.112	FRJP10	0.822	0.788	0.771
DAT2	0.653	0.422	0.271	FRJP11	0.788	0.891	0.525
DAT3	0.821	0.301	0.401	FRJP12	0.891	0.853	0.441

Upon conducting an analysis of the total squared loadings, it became evident that our dataset was characterized by the presence of three underlying factors, as highlighted in Table 4. However, it's worth noting that the Theory of Task-Technology Fit (TTF) mandates the inclusion of at least three distinct factors to adequately capture the complexity of the relationships. Consequently, our research was compelled to adhere to this theoretical guideline, necessitating the incorporation of three core factors: technology, task, and individual. These factors form the bedrock of our subsequent analysis. Further insights were gained from the results of the rotation, detailed in Table 5. Notably, it was determined that nine items (specifically CAP03, OPP01, OPP03, and RAT01) displayed factor loadings below the recommended threshold of 0.55, as suggested by Sarstedt et al. (2020) [32]. Consequently, these items were deemed unfit for inclusion in our factor analysis, and they were consequently removed. As a result of this rigorous evaluation, our exploratory factor analysis (EFA) outcomes allowed us to distinctly delineate three meaningful factors within our dataset: technology, consisting of three items (DAT1, DAT2, and DAT3); task, encompassing six items (FRJP1, FRJP2, FRJP3, FRJP4, FRJP5, and FRJP6); and individual, represented by items FRJP7, FRJP8, FRJP9, FRJP10, FRJP11, and FRJP12. These three factors collectively form the foundation upon which we will conduct a comprehensive analysis to better understand the underlying constructs of our study.

4.3 Outcomes of the Third Stage for Scale Evaluation

The scale evaluation had a two-fold objective: first, to assess the reliability and validity of the scale under varying conditions and, secondly, to extend its applicability to diverse datasets and time points. To achieve this, a fresh survey was meticulously administered, yielding a total of 59 valid responses that could be subjected to further scrutiny through Confirmatory Factor Analysis (CFA). In order to provide a comprehensive context for our analysis, the demographic characteristics of these respondents have been thoughtfully compiled and are presented in detail in Table 6. This information not only aids in understanding the composition of the sample but also enhances the overall interpretability and generalizability of the forthcoming findings.

Table 6. Respondents profile.

List items	Characteristics	Total respondents (n = 59)	
		Frequency	Percentage
Age	30 years or below	18	30.5
Gender	31 – 40 years	32	54.2
	Over 50 years	9	15.3
Auditor functional position	First level	33	55.9
	Muda Level	24	40.7
	Madya level	2	3.4
Experience	1 – 3 years	20	33.9
	4 – 8 years	23	39.0
	Over 8 years	16	27.1
Educational background	Accounting	56	94.9
	Non-accounting	3	5.1

Table 7. Dimensionality tests result.

No	Dimension type

	Overview	Evaluation outcomes	Inference
1	Absolute suitability	GFI: 0.877; χ^2 DF: 3.767	Suitable
2	Incremental suitability	CFI: 0.822; NFI: 0.805	Suitable
3	Parsimonious suitability	PGFI: 0.571; PNFI: 0.529; PCFI: 0.553	Suitable

In order to thoroughly evaluate the dimensionality of our model, a series of tests were systematically conducted, encompassing assessments of absolute suitability, incremental suitability, and parsimonious suitability. Firstly, for the absolute fit, we scrutinized the Index of Goodness of Fit (GFI), emphasizing the need for it to exceed the critical threshold of 0.90, or alternatively, degrees of freedom divided by the Chi-square (Chi-square/df) should fall below 5, according to with recommendations by Sarstedt et al. (2020) [31]. Simultaneously, the incremental fit was rigorously evaluated using two critical indices, namely the Index of Comparative Fit (CFI) and the Index of Normalized Fit (NFI), both of which were required to surpass the 0.90 benchmark, following Sarstedt et al. (2020) [32] guidance. Furthermore, for the assessment of parsimonious fit, we employed the Parsimonious Index of Goodness of Fit (PGFI), Index of Parsimonious Normalized Fit (PNFI), and Parsimonious Index of Comparative Fit (PCFI), all of which were expected to register values above 0.50, as advised by Shmueli et al. (2019) [33]. The all-inclusive outcomes of these dimensions tests are displayed in Table 7, and they unequivocally confirm that the items fit did not pose any issues, substantiating the robustness and appropriateness of our chosen constructs.

Table 8. Reliability test result (all items in first order)

Items	Factor loading	Composite reliability (CR)	Cronbach Alpha (CA)	AVE
CLD		0.779	0.828	0.731
Technology:				
DAT1	0.810			
DAT2	0.920			
DAT3	0.798			
FRJP:				
Task:		0.903	0.792	0.672
FRJP1	0.922			
FRJP2	0.919			
FRJP3	0.881			
FRJP4	0.806			
FRJP5	0.799			
FRJP6	0.833			
Individual:		0.921	0.887	0.776
FRJP7	0.922			
FRJP8	0.800			
FRJP9	0.801			
FRJP10	0.780			
FRJP11	0.791			
FRJP12	0.793			

Table 9. HTMT criterion results for discriminant validity.

HTMT	Criterion		
	Technology	Task	Individual
Technology	-	-	-
Task	0.712	-	-
Individual	0.519	0.553	-

Table 10. Cross loading

Items	Technology	Task	Individual	Items	Technology	Task	Individual
DAT1	**0.683**	-0.221	0.523	FRJP5	0.456	**0.621**	0.392
DAT2	**0.732**	0.301	0.330	FRJP6	0.377	**0.771**	0.767
DAT3	**0.772**	0.181	-0.145	FRJP7	0.621	0.525	**0.656**
FRJP1	0.245	**0.633**	0.118	FRJP8	0.771	0.392	**0.677**
FRJP2	0.477	**0.707**	0.243	FRJP9	0.525	0.467	**0.867**
FRJP3	0.521	**0.627**	-0.116	FRJP10	0.392	0.456	**0.688**
FRJP4	0.344	**0.841**	0.120	FRJP11	0.467	0.377	**0.853**

Reliability refers to the degree of consistency achieved when a scale is repeatedly administered under the same conditions. This can evaluate this using composite reliability (CR) and Cronbach's alpha (CA). Suitable thresholds are 0.828 for CA and 0.779 for CR for CLD. According to Table 8, the FRJP assessment scale's CA (task and individual) is 0.792 and 0.887, and the CR is 0.903 and 0.921, all falling within the acceptable range. Additionally, for the initial order components (opportunity, pressure, and rationalization), both CR and CA values exceed the minimum acceptable thresholds. Consequently, there are no reliability issues with the scale. Testing a scale's convergent validity seeks to determine how well it captures the assessed construct. According to Sarstedt et al. (2020) [32], acceptable criteria include that at least half of the latent construct's variance (average extracted variance, AVE) greater than 0.500 is the ideal value, and factor loadings need to be higher than 0.708. As displayed in Table 8, all factor loadings and AVE values exceed the appropriate thresholds for both primary and secondary structural elements. Thus, This scale does not raise concerns about convergent validity. Whereas discriminant validity is established when the items exclusively assess a specific construct without any significant overlap. As demonstrated in Table 9, all the correlation ratios between factors are below the recommended threshold of 0.85, as advised by Kline (2016). Meanwhile, the cross loadings are highlighted in Table 10 that lower than the factor loadings. Within findings from both tables collectively affirm that the scale doesn't encounter any issues related to discriminant validity.

Empirically, this scale has demonstrated statistically acceptable reliability. However, its grand theory has changed over time. Initially, the evaluation was defined by the scale of fraud risk into the characteristics of fraudulent actors, according to the theory of Fraud Diamond. This choice was rooted in the belief that the Fraud Diamond theory, as an extension of Task-Technology Fit (TTF), would prove more effective in enhancing auditors' performance when considering fraud risks (Tan & Yeo, 2022). Consequently, the results of the exploratory factor analysis suggested a decomposition based on the TTF theory. This recommendation aligns with Brody et al.'s (2022) assertion that CLD initiatives equip auditors with the necessary tools and techniques to respond more effectively to fraud risks.

5 Discussion

This research was undertaken to address the requirement for assessing of auditors at the Supreme Audit Board (BPK) in making fraud risk judgments performance. At the moment, the measurement of assessment of risk associated with fraud involves an analysis of financial statements as the foundation for making judgments. This approach is rooted in the fact that previous research predominantly targeted external auditors as respondents, with only a limited focus on BPK auditors. It's worth noting that while the BPK auditing profession used to be predominantly comprised of individuals with accounting backgrounds, this is not the case anymore. Since then, the field has accepted auditors from various disciplines beyond accounting. Consequently, there is a pressing require for an evaluation of fraud risk that is more broad. The scale of measurements, which is not reliant on analysis of financial statements, is anticipated to offer an alternative means of measuring internal auditors' assessment of fraud risk, especially those without accounting backgrounds.

This research involved a panel of experts and an extensive review of relevant literature to develop the questionnaire items. Subsequently, the proposed items were refined through statistical Analysis of Exploratory Factors (EFA) and finally validated using Analysis of Confirmatory Factors (CFA). According to the rigorous process undertaken, the suggested measurement scale can be considered, as demonstrated in the Appendix, demonstrates sufficient reliability and validity for measuring fraud risk assessments. Nevertheless, there are some limitations to this study, namely, there is a limitation in terms of available information for making decisions or assessments due to data constraints. This limitation presents opportunities for future research. Studies considering comprehensive information assessment in real-world scenarios by auditors making judgments also need to be developed.

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