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Development of an Internal Control and Internal Audit Model to Strengthen Good Governance and Prevent Corruption in Public and Private Sector Organizations in Northeastern Thailand

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Abstract:

This study aimed to (1) examine the current state, problems, and factors influencing the effectiveness of internal control and internal audit systems and their relationship to good governance and corruption prevention; (2) develop and test an integrated model aligned with international standards and suitable for the Northeastern Thailand context; and (3) formulate policy recommendations for sustainable implementation. A Mixed Methods Research design (Explanatory Sequential Design) integrated with Research and Development (R&D) was employed across four phases. A quantitative sample of 490 respondents was drawn using Yamane's formula from public and private sector personnel across 20 Northeastern provinces, with proportionate stratified random sampling. Data were collected via a 5-point Likert scale questionnaire and analyzed using descriptive statistics and Structural Equation Modeling (SEM/AMOS). Qualitative data were gathered through 32 in-depth interviews and 5 focus group discussions (n = 74), with model validation by 11 experts and pilot implementation at 7 organizations over 8 months. Results revealed that organizations had moderate-level internal control (M = 3.24, SD = 0.78), with risk assessment (M = 2.96) and monitoring activities (M = 2.88) as primary weaknesses. SEM analysis identified top management support as the most influential factor (β = 0.34), followed by staff competency (β = 0.26–0.32), IT systems (β = 0.18–0.24), organizational structure (β = 0.22), and organizational culture (β = 0.20). Internal control effectiveness positively influenced good governance (β = 0.42) and negatively influenced fraud risk (total effect β = −0.50). The IICIAM-NETH model—comprising six components and validated with an IOC index of 0.86—demonstrated significant improvements after implementation: internal control completeness increased 29.6%, internal audit quality 31.2%, governance levels 22.2%, and fraud risk decreased 34.2% ($p < .001$ for all). The model, integrating COSO 2013 and IIA IPPF standards with local context, proved effective in enhancing governance and reducing corruption risk across both sectors.

Keywords: Internal control, Internal audit, Good governance, Corruption prevention, Northeastern Thailand

1. Introduction

Internal control and internal audit are internationally recognized mechanisms for ensuring financial reliability, operational efficiency, and regulatory compliance. Their importance became particularly evident after the collapses of Enron and WorldCom (2001–2002), which led to the Sarbanes-Oxley Act (Sarbanes & Oxley, 2002). The 2008–2009 global financial crisis further highlighted systemic weaknesses, with GDP contracting 1.7% in 2009 (IMF, 2010). INTOSAI (2019) estimates that weak internal controls cost approximately USD 2.6 trillion annually—5% of global GDP—while PwC (2022) reports that 46% of organizations worldwide experienced fraud or economic crime due to inadequate internal control mechanisms.

In Thailand, the Office of the Auditor General (OAG, 2022) reported that 18.21% of 6,847 audited entities received adverse opinions in FY2022, with total damages of THB 18,542 million. The NACC (2022) recorded 8,934 corruption complaints—a 13.72% year-on-year increase. Northeastern Thailand presents greater challenges: 21.8% of audited entities received adverse opinions (vs. 18.21% nationally), the region accounted for 31.87% of national corruption complaints, and 57.7% of local government organizations lacked formal internal audit mechanisms (Ministry of Finance, 2022). In Sisaket Province alone, 25.65% of audited entities received adverse opinions and damages totaled THB 287 million (OAG Sisaket, 2022).

Prior research confirms that effective internal control positively correlates with governance and reduces fraud risk, grounded in COSO's Integrated Framework (2013), IPPF of the IIA, and Cressey's Fraud Triangle (1953). However, significant research gaps remain: most Thai studies focus on Bangkok or resource-rich regions; few examine both public and private sectors simultaneously; existing models lack genuine integration of international standards with local context; and most proposed models have not been empirically tested. This study addresses these gaps by developing and testing the IICIAM-NETH model.

2. Research Objectives

The research aimed to: (1) examine the current state, problems, and factors influencing internal control and internal audit effectiveness and their relationship to good governance and corruption prevention in public and private organizations in Northeastern Thailand; (2) develop and test an integrated model aligned with international standards and suitable for the Northeastern context; and (3) formulate policy recommendations and guidelines for effective and sustainable implementation.

3. Methodology

3.1 Research Design: This study used Mixed Methods Research (Explanatory Sequential Design) integrated with Research and Development (R&D), based on Creswell & Plano Clark (2018) and Borg & Gall (1989). The research was conducted in four phases: (1) quantitative survey; (2) qualitative inquiry; (3) model development and expert validation; and (4) pilot implementation and effectiveness evaluation. Triangulation (Denzin, 1978) was applied throughout.

3.2 Population and Sample: The quantitative sample of 490 respondents was calculated using Yamane's (1967) formula at 95% confidence level (e = 0.05), adjusted by 25% for non-response per Krejcie & Morgan (1970), and confirmed adequate for SEM per Hair et al. (2010). Proportionate stratified random sampling yielded 368 public and 122 private sector respondents. Qualitative informants comprised 32 in-depth interview participants and 5 focus groups (n = 74), purposively sampled until data saturation (Glaser & Strauss, 1967). The expert panel consisted of 11 specialists; 7 pilot organizations (4 public, 3 private) participated over 8 months.

3.3 Research Instruments and Data Analysis: A structured questionnaire based on COSO 2013, IIA IPPF, Good Governance framework, and Fraud Triangle (Cressey, 1953) was developed using a 5-point Likert scale. Quantitative analysis used SPSS and AMOS v.26: descriptive statistics, t-test, CFA, SEM, Extended SEM, and Multi-group Analysis. Model fit was assessed using χ^2/df, CFI, TLI, RMSEA, and SRMR. Model validation used IOC scoring (Lynn, 1986) with a 2-round Delphi technique. Pilot effectiveness used paired-samples t-test and Cohen's d.

4. Results

4.1 Respondent Profile: Of 490 questionnaires distributed, 466 were valid for analysis (95.10%). Most respondents were female (57.5%), aged 31–40 (39.9%), held a bachelor's degree in accounting (63.9%), worked in the public sector (75.3%), and had 5–10 years' experience (36.1%). Qualitative data were gathered from 74 key informants with a mean experience of 14.6 years.

4.2 Current State of Internal Control and Internal Audit Systems: Overall internal control was at a moderate level (M = 3.24, SD = 0.78). Information and communication scored highest (M = 3.58), while monitoring activities (M = 2.88) and risk assessment (M = 2.96) were the weakest components (Table 1). Private sector organizations scored significantly higher than public sector (M = 3.52 vs. 3.16; t = 4.26, p <

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.001). Only 64.8% of organizations had formal internal audit units. Overall internal audit quality was moderate (M = 3.18, SD = 0.86), with integrity and objectivity scoring highest (M = 3.86) and technology use lowest (M = 2.42).

Table 1 Internal Control System Components (COSO Framework)

Component	M	SD	Level
Information & Communication	3.58	0.82	Moderate
Control Environment	3.42	0.86	Moderate
Control Activities	3.28	0.91	Moderate
Risk Assessment	2.96	0.94	Moderate
Monitoring Activities	2.88	0.98	Moderate
Overall	**3.24**	**0.78**	**Moderate**

4.3 SEM Results: Factors Influencing System Effectiveness

The CFA model showed good fit ($\chi^2/df = 2.18$, CFI = 0.942, TLI = 0.936, RMSEA = 0.051, SRMR = 0.048). All factor loadings ranged 0.58–0.89 ($p < .001$); AVE: 0.52–0.68; CR: 0.78–0.92. The full SEM ($\chi^2/df = 2.24$, CFI = 0.938, RMSEA = 0.052) explained 68% of internal control variance ($R^2 = 0.68$) and 64% of internal audit variance ($R^2 = 0.64$). The SEM path diagram is shown in Figure 1 and quantitative results in Table 2.

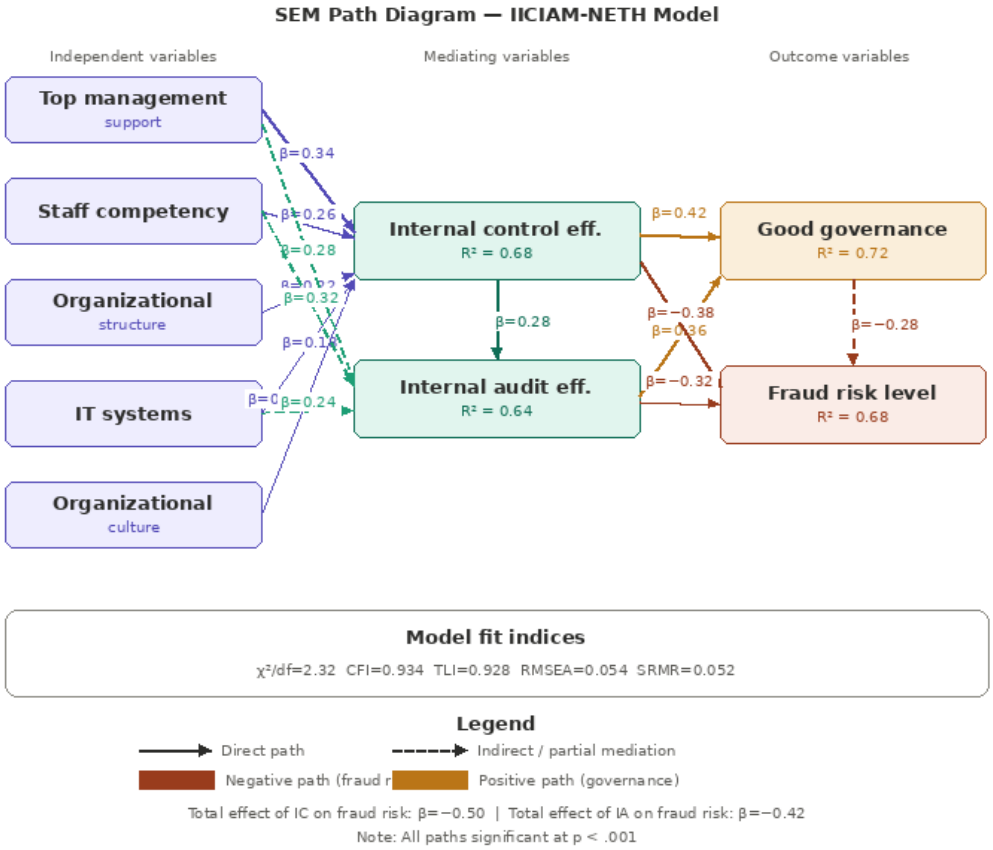

Figure 1 SEM Path Diagram of the IICIAM-NETH Model showing standardized path coefficients (β). Solid arrows = direct paths; dashed arrows = indirect/mediation paths. All paths $p < .001$.

Table 2 SEM Results: Factors Influencing Internal Control (IC) and Internal Audit (IA) Effectiveness

Factor	Effect on IC (β)	Effect on IA (β)
Top Management Support	0.34***	0.28***
Staff Competency	0.26***	0.32***
Organizational Structure	0.22***	0.08 (n.s.)
IT Systems	0.18**	0.24***
Organizational Culture	0.20***	0.06 (n.s.)
IC Effectiveness & IA Effectiveness	—	0.28***

*Note: ***p < .001, **p < .01, n.s. = not significant*

4.4 Relationship with Governance and Fraud Prevention

Extended SEM ($\chi^2/df = 2.32$, CFI = 0.934, RMSEA = 0.054) explained 72% of governance variance ($R^2 = 0.72$) and 68% of fraud risk variance ($R^2 = 0.68$). Internal control had a stronger positive effect on governance (β = 0.42) than internal audit (β = 0.36). The total effect of internal control on fraud risk reached β = −0.50, while internal audit showed β = −0.42. Governance functioned as a partial mediator between both systems and fraud prevention.

4.5 IICIAM-NETH Model Validation and Pilot Results

Expert validation (n = 11) yielded mean IOC = 0.86, with overall suitability improving from M = 4.27 to M = 4.64 (SD = 0.48) in Delphi Round 2 with unanimous consensus. All pre-post comparisons showed statistically significant improvements ($p < .001$) with large effect sizes (Cohen's $d > 0.80$), as shown in Table 3.

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Table 3 Pre-Post Comparison of Pilot Implementation Results (n = 7 organizations)

Variable	Pre M (SD)	Post M (SD)	Change (%)	t	Cohen's d
IC Completeness	3.18 (0.84)	4.12 (0.62)	+29.6%	8.94***	1.28
IA Quality	3.08 (0.92)	4.04 (0.68)	+31.2%	7.86***	1.18
Good Governance	3.42 (0.76)	4.18 (0.58)	+22.2%	9.24***	1.12
Fraud Risk Level	3.68 (0.82)	2.42 (0.64)	−34.2%	−10.86***	1.68

*Note: ***p < .001, df = 6; Cohen's d > 0.80 indicates a large effect size*

5. Discussion

The finding that top management support was the most influential factor (β = 0.34 for IC; β = 0.28 for IA) aligned with COSO (2013) and is consistent with Hazaea et al. (2024), who found management support as the primary determinant of internal audit system performance in 34 commercial banks using Structural Equation Modeling (SEM). These findings are consistent with the studies of Nadirsyah et al. (2024) and Sirathanakul et al. (2023) who demonstrated that IAF positively influences governance via fraud prevention as mediator. Staff competency's stronger impact on IA (β = 0.32) than IC (β = 0.26) reflects specialized expertise requirements, corroborating Novatiani & Rusmawan (2024). Technology's significant role in audit effectiveness (β = 0.24) aligns with Hazaea et al. (2025).

The total effect of IC on fraud risk (β = −0.50) supports Cressey's Fraud Triangle (1953) by reducing opportunity for fraud, and corroborates Nadirsyah et al. (2024), Channuwong et al. (2024) and Yulianti et al. (2024). The 34.2% reduction in fraud risk (Cohen's d = −1.68) is attributable to the model's strong preventive orientation, closing control gaps in procurement and financial management—areas most problematic in Northeastern Thailand (NACC Region 4, 2022). IICIAM-NETH's high expert acceptance reflects grounding in field research, a 2-round Delphi process, and context-appropriate tools, aligning with Ahmed et al. (2025), Oyedotun et al. (2025) and Lenz & Chesshire (2023) and Bangbon et al. (2023). Limitations include geographic specificity, 8-month pilot duration, self-reported measures, and absence of a control group.

6. Conclusion

This study demonstrated that IICIAM-NETH—integrating COSO 2013 and IIA IPPF with Northeastern Thailand context—significantly improves governance (+22.2%) and reduces fraud risk (−34.2%) within 8 months, with all results statistically significant (p < .001) and large effect sizes. All three hypotheses were confirmed, with SEM explaining 72% of governance variance and 68% of fraud risk variance. The model is immediately applicable through 28 ready-to-use tools, scalable across organization sizes, and empirically validated—distinguishing it from theoretical models alone. The IICIAM-NETH model may serve as a blueprint for strengthening governance and preventing corruption across developing regions in ASEAN, contributing to SDG 16.

References

Ahmed, M., AL-Riyami, S.N., Husain, W.R., Juhdi, N.B., Al-Shuwaikh, F., & Haji, A. (2025). Examining the moderating effect of perceived government support on e-business adoption among Omani SMEs. *International Journal of Information Management Data Insights, 5*, 100378. https://doi.org/10.1016/j.jjimei.2025.100378

Bangbon, P., Channuwong, S., Amponstira, F., Rungsuk, A. & Snongtaweeporn, T. (2023). The influence of transformational leadership on organizational sustainability: A case study of business companies in Bangkok. *Journal of Namibian Studies, 33*, 4077-4095.

Channuwong, S., Chaetnaloa, P., Wongwisutthirat, K., Weerachareonchai, P. (2024). Good governance principles in Buddhism for business and politics administration. *Migration Letters, 21*(S1), 818-827.Borg, W. R., & Gall, M. D. (1989). Educational research: An introduction (5th ed.). Longman.Committee of Sponsoring Organizations (COSO). (2013). Internal control—Integrated framework. COSO.

Cressey, D. R. (1953). Other people's money. Free Press.

Creswell, J. W., & Plano Clark, V. L. (2018). Designing and conducting mixed methods research (3rd ed.). SAGE.

Denzin, N. K. (1978). The research act (2nd ed.). McGraw-Hill.

Glaser, B. G., & Strauss, A. L. (1967). The discovery of grounded theory. Aldine de Gruyter.

Grant, J., & Davis, L. (1997). Research in Nursing & Health, 20(3), 269–274.

Hair, J. F., et al. (2010). Multivariate data analysis (7th ed.). Prentice Hall.

Hazaea, S. A., et al. (2024). Humanities and Social Sciences Communications, 11, 1231. https://doi.org/10.1057/s41599-024-03835-3

Hazaea, S. A., et al. (2025). SAGE Open, 15(1). https://doi.org/10.1177/21582440251318071

Institute of Internal Auditors (IIA). (2024). Internal auditing and fraud (3rd ed.). The IIA.

International Monetary Fund. (2010). World economic outlook: Rebalancing growth. IMF.

INTOSAI. (2019). INTOSAI global survey on internal control. INTOSAI.

Jensen, M. C., & Meckling, W. H. (1976). Journal of Financial Economics, 3(4), 305–360.

Krejcie, R. V., & Morgan, D. W. (1970). Educational and Psychological Measurement, 30(3), 607–610.

Lenz, R., & Chesshire, L. (2023). International Journal of Auditing, 27(3), 412–428.

Lynn, M. R. (1986). Nursing Research, 35(6), 382–385.

Ministry of Finance, Thailand. (2022). Annual report on financial management FY2022. Ministry of Finance.

Nadirsyah, N., et al. (2024). Cogent Business & Management, 11(1), 2382389. https://doi.org/10.1080/23311975.2024.2382389

National Anti-Corruption Commission (NACC). (2022). Annual statistics report 2022. NACC.

National Anti-Corruption Commission Region 4. (2022). Annual report 2022. NACC Region 4.

Novatiani, R. A., & Rusmawan, D. (2024). Cogent Business & Management, 11(1), 2409339. https://doi.org/10.1080/23311975.2024.2409339

Office of the Auditor General (OAG). (2022). Annual audit report FY2022. OAG.

Office of the Auditor General, Sisaket. (2022). Annual audit report FY2022. OAG Sisaket.

Oyedotun, S. A., et al. (2025). Journal of Science Research and Reviews, 2(2), 76–85.

PricewaterhouseCoopers (PwC). (2022). Global economic crime and fraud survey 2022. PwC.

Sarbanes, P., & Oxley, M. (2002). Sarbanes-Oxley Act of 2002 (Pub. L. No. 107-204). U.S. GPO.

Sirathanakul, K., Harnpanich, B., Channuwong, S., Bangbon, P., Niangchaem, L., Sutthadaanantaphokin, K. (2023). The influence of human resource management on educational administration of Thai Private Universities. Migration Letters, 20 (S1), 423-436.

Yamane, T. (1967). Statistics: An introductory analysis (2nd ed.). Harper & Row.

Yulianti, Y., et al. (2024). Frontiers in Business and Economics, 3(1), 39–54.