Overview of Research on Factors Affecting the Effectiveness of Internal Audit in Public Universities

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ABSTRACT

Internal audit plays a pivotal role in ensuring transparency, risk management, and accountability within public universities amidst the shift toward greater autonomy. However, practical implementation faces significant constraints regarding resources, professional expertise, and the consistency of the legal framework. This paper synthesizes theoretical foundations - drawing upon Agency Theory, Institutional Theory, and the Resource-Based View (RBV) - to explore the factors influencing internal audit effectiveness. The study proposes a measurement model for internal audit effectiveness comprising four core independent variable groups: Internal audit independence, management support, auditor competence, and the application of information technology and artificial intelligence. By synthesizing academic literature to develop a conceptual framework and formulate research hypotheses, the paper lays the groundwork for future quantitative studies in Vietnam's public higher education institutions. The proposed model enriches the theoretical body of university governance in the digital era and offers practical implications, assisting administrators in their digital transformation journeys to enhance transparency and strengthen the standing of higher education.

Keywords: Internal audit effectiveness, Public universities, Autonomy, Digital transformation

INTRODUCTION

Internal audit (IA) serve as the most critical link in modern university governance models, ensuring that all autonomy-related decisions are grounded in integrity and efficiency. University autonomy is not merely a matter of budget cuts; it represents a fundamental shift in the relationship between the State and educational institutions, aiming to leverage internal capabilities while reducing direct intervention from regulatory bodies. However, greater autonomy also heightens the risk of abuse of power and misconduct. In reality, public universities' financial structures are undergoing significant transformation, with revenue streams now derived from tuition fees (accounting for over 70%), investment projects, services, and technology transfers. Operating as complex economic entities exposes these institutions to risks such as asset loss, unauthorized spending, and a lack of transparency in collaborative training programs. Recent state audit reports have highlighted numerous shortcomings, including the collection of unauthorized tuition fees amounting to tens of billions of VND and instances where lecturers exceeded their teaching quotas by as much as 200%. Unless the IA operates effectively to identify these risks early, the autonomy model faces serious legal and ethical threats.

Under the autonomy mechanism, reputation is an institution's most valuable asset, determining its ability to attract students and international partners. Accountability today extends beyond reporting budget utilization to the Ministry of Education and Training; it also means demonstrating to society at large the quality of educational outcomes and the integrity of the management structure. IA has evolved beyond simple compliance checks into a strategic advisory tool, helping university leadership identify "blind spots" in operational processes. An effective internal quality assurance system is the strongest evidence of a university's commitment to transparency, helping strengthen stakeholder confidence and elevate the standing of Vietnamese higher education on the regional and global stage.

Furthermore, fundamental changes in the legal framework and digital transformation strategies within the auditing sector have impacted the effectiveness of IA. Decree 05/2019/NĐ-CP and Circular 67/2020/TT-BTC

established a mandatory legal framework for IA applicable to eligible public service entities. However, implementation over the past five years has revealed significant challenges and uncertainty. Before 2026, many institutions struggled to determine whether the IA function should report to the Rector or the University Council to ensure independence. From 2026 onwards, the University Council model will no longer exist within

the operational organizational structure, and global IA guidelines have evolved; consequently, public universities face a new challenge: how to establish an IA management unit—aligned with international best practices—that operates effectively while safeguarding auditor independence?

Additionally, the Accounting and Auditing Strategy to 2030 sets a goal of comprehensive digital transformation. The rapid rise of AI and big data requires auditors to acquire new competencies to conduct data-driven audits and move away from outdated manual sampling methods. The gap between current personnel's digital capabilities and the requirements of modern risk control is a major "bottleneck" that must be addressed through a scientific analysis of the influencing factors.

Finally, while extensive research exists on IA in general, in-depth studies on the specific drivers of IA effectiveness (IAE) within public universities operating under the new autonomy mechanism remain scarce.

In 2025, Vietnam had over 170 public universities. As Vietnamese higher education transitions toward autonomy under Decree No. 60/2021/ND-CP and Decree No. 111/2025/ND-CP, along with the higher education law (No. 125/2025/QH15), the accountability for their diverse funding sources has increased. These sources include government funding, tuition, research grants, and income from services, all while managing complex academic, research, and administrative operations. Vietnam's IA rules have changed significantly, particularly with Decree No. 05/2019/ND-CP, which governs IA in state agencies, public non-business units, and enterprises, and Circular No. 08/2021/TT-BTC, which sets Vietnamese standards and the Code of Ethics for IA. However, previous research shows that most public higher education institutions have not yet established a formal IA function. This is due to limited resources, a lack of skilled auditors, and governance challenges (Giang et al., 2023a).

This article provides an overview of research on IAE and the factors influencing it in public universities. Based on this review, the author develops hypotheses and a research model to assess how these factors affect IAE in public universities. Using this model, the author will collect survey data to conduct an empirical study at public universities in Vietnam. The article is structured into six sections: (1) Introduction; (2) Literature review; (3) Theoretical framework; (4) Hypothesis and research model development; (5) Research methodology; and (6) Conclusion.

LITERATURE REVIEW

Internal Audit Effectiveness

IA and IAE are not new concepts, and numerous studies have examined them. However, research in Vietnam within this field has largely been qualitative, relying on the analysis and assessment of the current situation at specific entities to propose recommendations for refining and enhancing the effectiveness of their IA functions (Luu Diem Chi, 2006; Phan Trung Kien, 2008; Nguyen Phu Giang, 2011; Nguyen Trong Nghia, 2013, etc.). Subsequently, some studies on IAE have emerged, yet they remain incomplete and focus primarily on business enterprises.

In the study "Proposing a model of the impact of internal audit quality factors on earnings management behavior in Vietnamese listed companies" (2019), Tang Thi Thanh Thuy quantified IA quality to establish the relationship between internal audit and financial statement quality. The study employed the modified Jones model to analyze discretionary accruals (DA) among listed companies. The results showed that high-quality IA reduced earnings management by 12.9%. A limitation of this research is that the DA model is unsuitable for measuring effectiveness in non-profit public sector entities.

Thu (2023) evaluated the IAE in Vietnamese private companies through the lens of demand-side factors. The

authors employed a mixed-methods approach: a qualitative phase involving interviews with 10 experts and a quantitative phase comprising a survey of 228 samples, analyzed using Exploratory Factor Analysis (EFA) and multiple regression. Effectiveness was measured based on perceived value (perceived efficiency). The findings validate a model for measuring IAE - specifically its capacity to enhance risk management, internal controls, and organizational governance - thereby offering fresh insights into measuring effectiveness from the perspective of audit service beneficiaries. A limitation of the study is its use of convenience sampling, which limits the generalizability of the results across enterprise types.

Lai Thi Thu Thuy et al. (2024) also investigated factors influencing IAE in enterprises during the digital transformation era. The authors utilized survey methods and linear regression to measure IAE based on reporting quality and the ability to prevent actual errors. While the study highlights the critical role of IT infrastructure, it does not distinguish between operational effectiveness and compliance effectiveness.

Several studies have also examined internal auditing in public sector entities, including those by Bui Thi Minh Hai (2019), Giang et al. (2023a). In the qualitative study "Internal auditing in fully autonomous public universities", Bui Thi Minh Hai (2019) evaluated effectiveness based on the robustness of internal regulatory systems and the supervisory role regarding the accountability of university councils. The findings indicated that effectiveness was positively correlated with the level of detail in control procedures. However, the study lacked quantitative KPIs to measure actual outputs.

Giang et al. (2023a) assessed the factors influencing the readiness to adopt IA in public universities, drawing on the Theory of Planned Behavior (TPB). The study employed a mixed-methods approach, combining a survey of 120 individuals across 15 autonomous universities with in-depth interviews. The results contribute to advancing the IA implementation roadmap in the public sector and enhancing accountability within universities. However, the study had limitations: it was conducted during the early stages of IA implementation, resulting in a small sample size due to the limited number of autonomous universities in Vietnam; furthermore, the sensitive nature of IA in the public sector made it difficult to access senior leadership.

Research in Vietnam regarding IAE remains generally limited and lacks specific measurement models; existing studies primarily focus on the reliability of financial information and asset safeguarding, the capacity to improve risk management, controls, and organizational governance, and the oversight role regarding the accountability of university councils - with very few studies addressing autonomous public universities. In contrast to Vietnam, researchers globally have developed various multidimensional indicator systems to assess IAE for both business enterprises and public sector entities. The Institute of Internal Auditors (IIA) defines internal audit as "an independent, objective assurance and consulting activity designed to add value and improve an organization's operations" (IIA, 2024). IA helps organizations achieve their objectives by providing a systematic, disciplined approach to evaluate and improve the effectiveness of governance, risk management, and control processes.

Barišić & Tušek (2016) argue that criteria for measuring IAE vary across organizations, indicating a lack of common standards for IAE. Dittenhofer (2001) defines IAE as achieving IA objectives and creating measurable value for the organization. IAE is sometimes defined by management or stakeholder perceptions and assessments of the function's ability to support decision - making and improve organizational performance. Under objective measurement approaches (using specific indicators for evaluation), IAE is measured via metrics such as the plan completion rate (the percentage of audits conducted against the annual plan), the recommendation implementation rate (the extent to which management accepts and implements solutions proposed by auditors), timeliness (the time required to complete audits and issue reports), and report quality (the number of accurate audit findings and conclusions contributing to organizational value)... (Grima et al., 2023; Doda, 2023; Turetken et al., 2019). Under approaches based on perceived value (subjective methods), IAE is measured according to the following criteria: improvements in risk management and control (the extent to which internal audit helps detect fraud and errors and improves internal control systems), stakeholder satisfaction (assessments by audit committees, management, and external auditors regarding the quality of IA services), and perceived value-added (perceived improvements in organizational performance and workflows

following the audit); IA quality: encompasses staff expertise, the scope of services, and the effectiveness of audit planning and execution (Chenjerai et al., 2024; Grima et al., 2023; Doda, 2023; Turetken et al., 2019).

Research on IA in public universities has highlighted several benefits. Specifically, IA improves governance within these institutions (Christopher, 2015), fosters accountability (Fonseca et al., 2020), and supports risk management. It also strengthens internal control systems (Adetoso & Akinselure, 2016), aiding fraud detection and prevention, while supporting quality and management processes (Muslianti et al., 2024). Recent frameworks for measuring IAE in higher education have evolved significantly. Chenjerai et al. (2024) operationalize IAE through auditee assessments of audit quality, covering aspects such as the auditor's professional judgment and technical accuracy; the relevance and practicality of audit findings for operational managers; the adequacy and depth of the audit scope; and the timeliness of audit reports. Furthermore, IAE in public universities is evaluated based on the timely identification of material errors, poor financial management, and corrupt practices regarding public asset management (Pizzi et al., 2021), as well as stakeholder satisfaction—measured through subjective assessments by university governing boards, audit committees, or auditees regarding the value derived from internal audit functions (Doda, 2023).

Some Case Studies

In the study "Internal auditing effectiveness: an approach proposition to develop the theoretical framework", Dittenhofer (2001) defined IAE. This work is considered seminal, as it laid the foundation for subsequent research by proposing a theoretical framework. The findings confirmed that IAE is measured by the extent to which defined objectives are achieved; however, a limitation lies in the lack of quantitative guidance for qualitative objectives.

Arena et al. (2006) studied the drivers of IAE. Through a survey of 153 Italian companies, they established a three-level measurement framework comprising Process, Output, and Outcome. This study standardized a multidimensional IAE scale, though it was limited by its heavy focus on the European private sector. In their study "Internal audit effectiveness: An Ethiopian public sector case study," Mihret and Yismaw (2007) evaluated IAE in the public sector using a case study approach within an Ethiopian university. Their findings indicated that IAE is assessed based on report quality and the capacity to improve risk management systems. A limitation of the study is that it was influenced by the country's specific political context.

Cohen and Sayag (2010) conducted an empirical study of Israeli organizations to develop a scale to measure IAE and its determinants. Through a quantitative survey of 108 organizations—collecting effectiveness data from management and determinant data from auditors—they identified three dimensions of IAE: audit quality, auditee assessment, and value-added contribution. Because the study was based on the Israeli context, exercise caution when applying its findings to other countries.

In 2019, Turetken et al. developed a modern measurement model in their study titled "Internal audit effectiveness: Operationalization and influencing factors." The authors synthesized effectiveness indicators and influencing factors from a systematic literature review (SLR) of 37 publications spanning 2000 to 2019. The study identified 11 effectiveness indicators (such as recommendation implementation rates and stakeholder satisfaction) and 20 influencing factors, offering an integrated framework to help organizations self-assess and enhance audit performance. However, the study had limitations, notably excluding "grey literature" and research focused specifically on financial auditing or accounting.

Grima et al. (2023) also designed a "Characteristics effectiveness model" to measure the value added by IA. Employing a systematic literature review (SLR) based on PRISMA standards and a global survey of 402 respondents, the authors used structural equation modeling (SEM) to validate a model comprising five key factor groups for measuring effectiveness, including follow-up processes and adherence to standards. While the study provided a standardized toolkit for organizations to self-assess IAE, a limitation was that the variable "use of Big Data" failed to achieve statistical significance within the overall model.

Freitas de Jesus et al. (2025) identified the organizational factors determining IAE at Brazilian federal universities. Their methodology involved applying Lenz’s four-dimensional model, surveying 62 heads of IA,

and utilizing factor analysis and cluster analysis. The results indicate that performance metrics fall into three categories—fully relevant, partially relevant, and marginally relevant—thereby enabling education administrators to prioritize resources for the indicators with the greatest impact. A limitation of the study is that its scope is confined to the federal education network of a single country. Consequently, this research assesses IAE across five key dimensions: (1) the quality of IA work; (2) the capacity to detect risks and fraud; (3) the timeliness of reporting; (4) the implementation of recommendations; and (5) the levels of stakeholder trust.

Factors Affecting Internal Audit Effectiveness

In Vietnam, while numerous studies have examined the factors influencing IAE in business enterprises, research on public sector entities - including universities - remains limited. Notable studies include the following:

In their empirical study titled "Factors affecting internal audit effectiveness: Empirical evidence from Vietnam" (2022), Thu Trang Ta and Thanh Nga Doan conducted an online survey of 144 auditors. They employed logistic regression and Exploratory Factor Analysis (EFA) via SPSS to measure IAE based on five indicators: organizational productivity, recommendation implementation rate, goal alignment, risk management, and risk-based planning. The findings revealed that auditor independence and management support exert a clearly positive influence. However, the study was limited by a sample restricted to listed non-financial companies and failed to demonstrate the impact of auditor competence.

Lai Thi Thu Thuy et al. (2024) employed multivariate regression analysis to demonstrate that IT application and its relationship with external audit are pivotal, accounting for 35% of the impact on audit outcomes. A limitation is that the study was conducted solely within business enterprises; consequently, its findings may not be directly applicable to universities in Vietnam.

Tran Kim Ngan and Ho Tuan Vu (2026), in "Factors affecting the effectiveness of internal audit and its impact on sustainability information disclosure," utilized the PLS-SEM model - surveying 209 managers - to analyze IAE within an ESG context. They identified management support as the strongest influencing factor, noting that audit independence could be undermined without substantive authority from senior leadership. This study also extends the analysis to sustainability governance.

Nguyen Phuc Sinh (2023) assessed revenue control through quantitative analysis in the study "The impact of internal control and information technology on revenue management effectiveness in public service units." The results highlighted information technology as a positive moderator of IAE. This study offers valuable insights for enhancing financial transparency in universities; however, its scope was limited to the tuition fee collection process and did not encompass the full spectrum of operational risks.

Nguyen Thi Hong Lam (2023) investigated the factors influencing IA implementation in Vietnamese entities, based on the legal framework of Decree 05/2019/NĐ-CP and using a multivariate regression model on a sample of 265 units. The study confirmed that independence has the strongest positive impact, underscoring its critical role in governance. A major limitation, however, is that the research focused solely on the initial stage of internal audit establishment and did not examine the University Council's moderating role within the new governance model.

Global empirical studies have focused on identifying the "drivers" of IAE across various organizations, including non-profits. The literature has identified several influencing factors, such as management commitment, internal auditor competence, independence and objectivity, audit quality, information technology (IT), legal regulations, external audit, and audit committees, among others (Alkebsi & Aziz, 2017; Turetken et al., 2019; Alqudah et al., 2017; Grima et al., 2023; Zhang et al., 2024).

Mihret and Yismaw (2007) conducted a case study at an Ethiopian university, using surveys, interviews, and document reviews, to identify factors affecting IAE in the public sector. Their findings showed that audit quality and management support had the strongest impact, while the characteristics of the audited unit had less

influence. These results support recommendations to enhance technical competence and reduce staff turnover to maintain effectiveness. However, the study's generalizability is limited as it was conducted at a single institution. In their study "The effectiveness of internal auditing: An empirical examination", Cohen and Sayag (2010) used multivariate regression analysis in Israel to identify the determinants of IAE. Their results showed that management support was a "universal" factor driving all other elements, highlighting the critical role of senior management. A limitation of this study was that it surveyed only the private sector.

Alzeban and Gwilliam (2014) identified key influencing factors within public sector organizations. Using multiple regression analysis on data from 79 Saudi Arabian entities, they found five factors affecting IAE, with management support being the most significant. The study offers valuable insights for public sector research, though a limitation lies in the distinct political context of the Middle East compared to ASEAN.

Oussii and Taktak (2018) also investigated the relationship between IA department characteristics and internal control quality. Using regression analysis on data from 59 chief internal auditors at Tunisian listed companies, they demonstrated that IA competence, follow-up processes, and Audit committee involvement are positively correlated with control quality. These findings help managers restructure IA departments to minimize material errors in financial reports. A limitation of the study is its small sample size, resulting from the limited scale of the Tunisian stock market (fewer than 80 companies).

Abdelrahim and Al-Malkawi (2022) categorized these factors into five groups, each comprising specific aspects: Organizational characteristics, including the independence and size of the IA department; IA relationships, such as connections with the audit committee and support from senior management; IA processes, specifically the application of risk-based audit methods and quality assurance programs; IA resources, including auditor professional competence and the use of outsourcing; and IA coordination, concerning leadership roles in implementing combined assurance and coordinating with external audits.

Prasad et al. (2022) investigated the impact of IA on corporate governance in Fiji, assessing the relationship between IA and organizational governance through the lenses of institutional theory and Marxist theory. Employing a mixed-methods approach (27 questionnaires and 13 interviews), the authors demonstrated that IA in private sector firms in Fiji was less developed than in public sector entities; resource constraints and limited independence hindered audit outcomes. Consequently, they proposed that IA should be viewed as a service to the Board of Directors and must remain independent of senior management. A limitation of the study was that institutional theory focuses heavily on structures and external pressures, thereby overlooking the internal dynamics of the enterprises.

Doda and Murthy (2023) evaluated trends in IAE across public universities in Ethiopia over five years (2017–2022). Quantitative analysis of internal and external audit reports from nine universities revealed that 80% of the institutions had ineffective IA functions that failed to detect material errors, with an audit recommendation implementation rate of only 56%. These findings highlight gaps in risk governance and a lack of commitment from university leadership. However, the study was limited by the level of detail in secondary data and a geographic focus restricted to universities in southern Ethiopia.

Kifflee et al. (2023) also examined the influence of auditor competence and internal control systems on the IAE within the context of public sector governance in Malaysia. Using Pearson correlation analysis within the context of Malaysian public sector entities, the authors found that internal control effectiveness exhibits the strongest positive correlation ($r = 0.761$) with IAE; consequently, they recommend prioritizing the recruitment of CIA-certified personnel and fostering affiliation with the IIA to enhance the governance standing of the IA function. The study did not delve into moderating variables such as political pressure or organizational culture.

Chenjerai et al. (2024) examined IAE from the perspective of auditees - including both academic and administrative staff - at universities in Zimbabwe. They found that IAE in these institutions was closely linked to three key factors: (1) the technical skills of auditors and their understanding of academic operations; (2) the independence of the IA function within the organization, particularly its reporting structure to governing bodies; and (3) the clear commitment of university leadership to implementing audit recommendations and providing the necessary resources for the IA function.

Freitas de Jesus et al. (2025) utilized the model proposed by Lenz (2013). They found that IAE was most strongly influenced by the independence of the IA function and the Chief Audit Executive (CAE), the nature of the function's relationships with key stakeholders (such as senior management and the board), and senior management support. Furthermore, the IAE process was significantly affected by factors such as process optimization—specifically the use of computer-assisted techniques, risk-based auditing, and monitoring recommendations.

Muguti et al. (2025) investigated the critical factors influencing IAE in public universities. Their findings indicate that IA independence, auditor competence, senior management support, organizational structure, and coordination with external assurance providers are the most influential determinants of IAE.

Kamaran et al. (2025) evaluated IAE in Erbil's public sector in their study in their study, "Factors influencing internal audit effectiveness: An analytical study in the public sector of Erbil". Using EFA, the study identified "auditor autonomy" as a core determinant of quality. These findings are significant for developing regions; however, a limitation is that the regulatory environment differs from Vietnam's.

In the context of artificial intelligence (AI) adoption, many researchers have proposed incorporating AI-related factors when assessing AI's impact on IAE.

Alkebsi & Aziz (2017) conducted a study titled "IT usage and management support" to examine the impact of IT usage and management support on IAE, surveying 104 auditors at private companies in Yemen. The results showed a strong positive correlation between IT usage, management support, and audit effectiveness, with management support having a stronger influence. These findings encouraged businesses to invest in audit software and IT training for their personnel. However, the study was limited by its focus solely on financial companies, making it unrepresentative of the entire private sector, and by a low response rate (35%).

According to Wassie & Lakatos (2024), key factors include the control environment and the CACS analytical framework (Commitment, Access, Capability, and Skill development). Machine learning models enhance internal audit quality by enabling auditors to engage more deeply in the process. Karagiorgos et al. [25] emphasize the importance of IT skills and management authorization - allowing internal auditors to use modern software and consult with experts - to achieve high-quality standards.

These studies have advanced understanding of IAE and the models of factors influencing it in Vietnam. However, prior research has limitations in sample selection, target subjects, and study scope (including the surveyed entities). Furthermore, empirical assessment of the factors affecting IAE in public universities within the context of institutional autonomy remains limited; this gap forms the basis for the authors' research.

THEORETICAL FRAMEWORK

Agency Theory, Institutional Theory, and the Resource-Based View (RBV) provide three theoretical lenses for understanding the function of IA in universities. According to Agency Theory, when a principal, such as society (represented by the UC and governmental bodies), delegates authority to an agent, such as the rector and executive board, information asymmetry and divergent incentives can lead the agent to prioritize their own interests over those of the principal. Adams (1994), Khaled & Mustafa (2013), and Giang et al. (2023b) recognize that IA functions as a monitoring tool designed to address information asymmetry.

This, in turn, facilitates the identification and prevention of agency problems, safeguards the principal's interests, and promotes the efficient distribution of resources. Specifically, within a university environment, an effective IA system reduces information asymmetry by providing the UC with independent verification of the management of public funds and adherence to governance policies.

Institutional Theory suggests that organizations adopt certain practices and structures not just to be more efficient, but also to gain social acceptance and to conform to the rules and expectations of their environment. Contemporary applications of Institutional Theory in auditing research Khaled & Mustafa (2013), Vishwa et al. (2022), Drašček (2024) affirm that "organizations adopt and maintain IA functions not only because it is

technically efficient but also to achieve institutional legitimacy, comply with regulatory expectations, and signal to stakeholders a commitment to transparency and accountability. Therefore, the IAE is influenced by both technical skills and an organization's openness to the audit function. In Vietnam, public universities use IA not only because Decree No. 05/2019/ND-CP requires it, but also because adopting it demonstrates the institution's commitment to transparency, accountability, and modern governance practices aligned with international stan

The study also applies the RBV, incorporating empowerment to enhance IAE, treating scarce resources as internal auditor capabilities. The RBV assumes that organizations are unique and have distinct capabilities and resources (Barney, 1991). Ahmad (2015) notes that the RBV focuses on how an organization's resources affect its behavior and performance. Based on this, organizations strive to find distinctive attributes that can enhance their performance. The RBV is a sound and credible concept that provides a logical and convincing account of how internal resources contribute to the development of effective strategies, thereby leading to favorable performance in intellectual assets (Kifflee et al., 2013; Lutfi et al., 2022). Support from upper management, the level of cooperation from external auditors, the size of the IA department, the internal auditor's independence, and technological resources are empowering factors that may enhance IAE.

HYPOTHESIS AND RESEARCH MODEL DEVELOPMENT

Based on the literature review and the researchers' focus on the IAE in public universities, given that university governance in Vietnam is shifting strongly toward enhance autonomy, this study explicitly identified the IAE in public universities as a dependent variable; the independent variables are Independence of IA (IND); Management Support (MS); Auditors' Competence (AC); IT & AI Usage (IT). Therefore, the conceptual model and hypotheses are presented as follows: (Figure 1).

Therefore, the following hypothesis is proposed:

H1: Independence of IA has a significant positive impact on IAE

H2: Management support has a significant positive impact on IAE

H3: Auditor’ competence have a significant positive impact on IAE

H4: IT & AI Usage have a significant positive impact on IAE

The observed variables measure the factors shown in the Table 1.

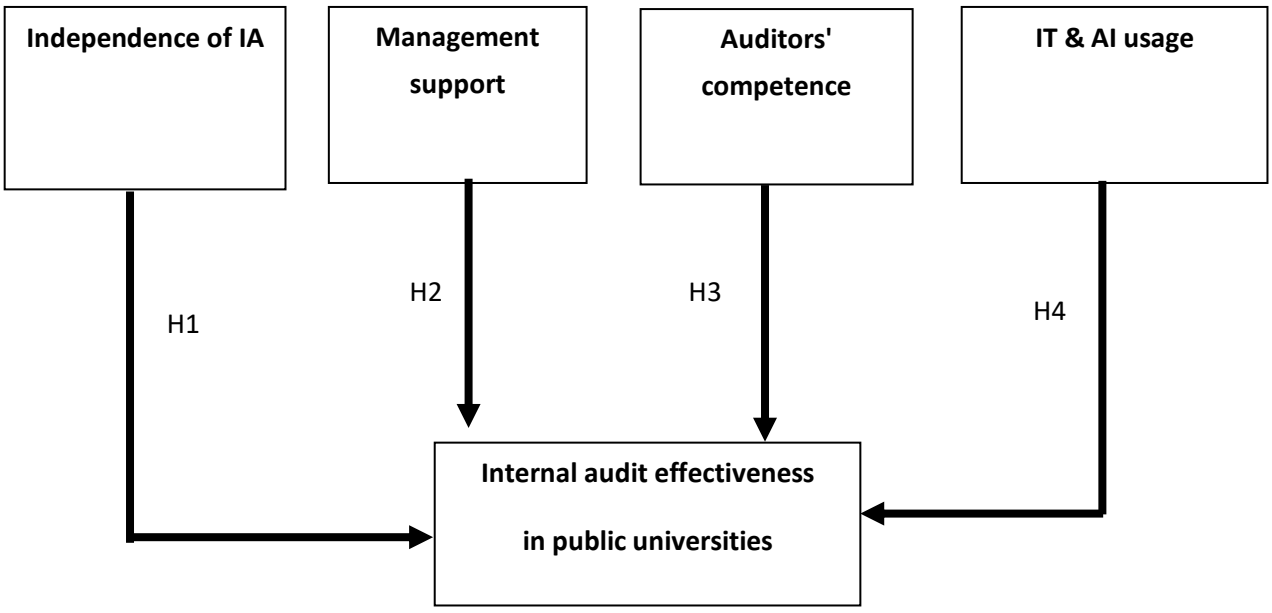


Figure 1. The research framework model

Table 1. Measurement scales for variables in the research model

Factors	Observation variable code	Observation variable	Sources
Independence of IA (IND)	IND1	The CAE (or person in charge of IA) reports functionally to the UC or an audit committee, not to the Rector.	Alqudah et al. (2023); Alzeban & Gwilliam (2014); Abdelrahim & Al-Malkawi (2022)
	IND2	IA is free from undue influence when selecting audit topics and designing audit plans.	
	IND3	Internal auditors can access all information, records, and systems necessary for their work without restriction.	
Management Support (MS)	MS1	The UC clearly expresses its support for the IA function	Cohen & Sayag (2010); Alkebsi & Aziz (2017); Mihret & Yismaw (2007)
	MS2	The UC ensures that IA has sufficient budget and staff to perform its responsibilities.	
	MS3	The UC (or its audit/audit–risk committee) regularly reviews IA reports and follows up on the implementation of recommendations.	
	MS4	When IA identifies significant issues, the UC requires management to take corrective actions.	
Auditors' Competence (AC)	AC 1	Internal auditors at my university have strong knowledge of accounting, finance, and internal control.	Oussii & Taktak (2018); Kifflee et al. (2023); Muguti et al. (2025)
	AC 2	Internal auditors participate regularly in professional training and continuing education programs.	
	AC 3	Internal auditors can use data analytics tools (e.g., Excel, audit software, BI tools) in their work.	
	AC 4	Internal auditors are comfortable auditing in IT and ERP environments (e.g., financial management systems, student information systems).	
IT & AI Usage (IT)	IT1	My university uses dedicated software or systems to plan, document, and follow up on IA engagements.	Lai Thi Thu Thuy et al. (2024); Wassie & Lakatos (2024); Zhang et al. (2024)
	IT2	IA uses data analytics to test large volumes of transactions instead of relying only on small samples.	
	IT3	IA uses or plans to use AI tools to detect anomalies or unusual patterns in university data.	
Internal Audit Effectiveness (IAE)	IAE1	Effective IA helps improve the quality of our IA work.	Chenjerai et al.(2024); Turetken et al. (2019); Grima et al. (2023); Thu Trang Ta & Thanh Nga Doan (2022)
	IAE2	IA helps my university identify important operational and financial risks at an early stage, detect irregularities, errors, or fraud in our activities.	

	IAE3	IA recommendations lead to noticeable improvements in internal controls and procedures.	
	IAE4	Senior management and the UC consider IA as a valuable and trustworthy partner.	
	IAE5	IA reports are issued promptly, allowing management to take corrective action without undue delay.	

RESEARCH METHODOLOGY

The proposed research methodology combines qualitative and quantitative approaches.

Qualitative Research Method

Qualitative methods are used to gather literature on IA and its effectiveness, as well as the factors influencing that effectiveness, drawing on domestic and international studies published in journals, scientific articles, and approved theses and dissertations. The team also uses qualitative methods to assess the appropriateness of the translation and refine the measurement scales for the model's variables, ensuring they align with the practical context in Vietnam. Next, the research team conducts a pilot survey to identify potential ambiguities, misinterpretations, or redundancies in the scales and makes necessary adjustments. This process results in the final measurement scales for the quantitative research phase.

Qualitative research process: After synthesizing relevant domestic and international studies, the authors identified factors influencing IA and adopted measurement scales from prior research. Next, they consulted experts to confirm whether they agreed or disagreed with the observed variables. The authors then consolidated the experts' feedback, refined the draft scales, and designed a pilot survey questionnaire. Finally, they conducted a pilot survey with a sample of the target population to verify and make final adjustments before finalizing the official questionnaire.

Quantitative Research Method

Data collection method: Survey using a detailed, refined questionnaire.

Survey subjects: Internal auditors and unit managers (school administrators/leadership and other managers).

Quantitative research process: The research team surveyed the subjects using the official questionnaire, distributed either directly or via Google Docs. A convenience sampling method was employed. After collecting responses, the team discarded unusable answers and performed data analysis.

Data analysis method: Statistical analysis techniques using SPSS 22.0 software were applied to generate research results, including descriptive statistics, scale reliability assessment (via Cronbach’s Alpha), and Exploratory Factor Analysis (EFA). Subsequently, correlation analysis and multiple linear regression were conducted to examine relationships between the dependent variable and each independent variable, as well as among the independent variables, to assess the fit of the regression model.

CONCLUSION

This study systematizes the theoretical foundations and proposes a model to measure IAE in Vietnamese public universities in the context of autonomy. The findings extend Agency and Resource-Based View (RBV) theories to the university context, offering administrators a practical tool for navigating digital transformation to enhance transparency and accountability. However, as the study is currently limited to a conceptual overview and model proposal, empirical validation is required to strengthen the reliability of the results. Future iterations of the model could also incorporate potential moderating variables such as organizational culture, regulatory pressures, or macroeconomic fluctuations.

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