



The Effect of IT Governance on Internal Audit Quality

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ABSTRACT

Effective IT management is crucial for an organization's progress, and inefficient management can lead to system inefficiencies. IT governance ensures an organization's IT systems are functioning as intended, provides oversight of IT operations, and mitigates related risks. Despite its importance, there is a lack of research on the impact of ITG on internal audit role, particularly in the context of internal control. This study aims to fill this research gap by investigating the relationship between ITG characteristics and IAF within IAF. The research examines the link between ITG and IAF, as well as ITG's impact on internal control practices. The study analyzes survey responses from 414 internal auditors in Iraqi companies using a statistical method. The results demonstrate a strong association between IT knowledge, internal auditing responsibilities, the degree of strength of the IAF-IT relationship, and the effectiveness of ITG processes. Additionally, there is a significant association between IT audit abilities and ITG mechanisms. Also, effective overall controls are positively associated with well-capitalized ITG processes and a strong relationship between IAF and IT. This research extends the earlier work on the role of ITG in auditing and focuses on the crucial importance of ITG in the creation of effective IT systems.

1. INTRODUCTION

IT governance is a key component of the overall governance of an organization and has a very major impact on quality internal audits. The governance related to IT systems and infrastructure has a very major role in the accuracy and reliability of the financial statements and overall performance of venture management and internal control operations. Effective IT governance enhances quality internal audits through the provision of a strong framework for the audit process, identification and mitigation of IT risks, and effective use of auditing resources. Alternatively, inadequate IT governance would imply weak IT processes or inadequate infrastructure, which would result in poor internal audit quality, inaccurate financial statements, and ineffective risk management exercised with poorly operating internal controls. After the 2000 Enron scandal, the US government implemented the Sarbanes-Oxley Act, and, from that, Section 404 was created, which “seeks to use a company’s work on its internal control to ensure an accurate and timely flow of information in financial reporting.” A major player in this procedure is information technology because it is one of the many sections of Sarbanes-Oxley compliance. In 2019, ISACA developed COBIT for effective IT governance and management by optimizing information technology resources as well as a framework to support and sustain strategic decisions for enablers. Despite these efforts, public companies continue to struggle with significant IT and communication system issues. A 2021 study explored the operational issues of publicly traded companies, revealing widespread difficulties. A 2020 report, commissioned by the Securities and Exchange Commission and conducted by KPMG, an accounting corporation, discovered that 35% of the identified problems were related to IT controls, a point noted by government regulators. KPMG published its findings in a 2021 report.

ITC issues can pose a significant risk to companies and the financial system, given their crucial role in ensuring the safety of these organizations. (Haislip et al.) In 2016, such issues led to inaccurate information in systems, which could result in poor decision-making by managers. Research by Stoel and Muhanna in 2011 revealed that companies with ineffective internal computer systems experienced poorer outcomes compared to those with well-functioning systems. With the current abundance of data and advanced technology, the absence of robust IT controls can lead to substantial financial losses, highlighting the importance of implementing strong and effective IT controls.

The study emphasizes the significance of ITG in ensuring the effectiveness of ITC, with numerous studies exploring ITG. However, there is a notable gap in research on the interplay between IAFs, ITG, and ITC. This triadic rapport has only recently begun to be studied by scholars. Héroux and Fortin (2013) studied the ‘role of IAFs in ITG’, examining how internal audits are used in IT governance and the specific characteristics of the functions of internal audit that interact with their involvement in IT governance. The study identifies two main factors that enhance IAF’s ITG capabilities: possession of

sufficient resources and expertise in IT auditing and adequately trained and certified IT staff.

According to Merhout and Havelka (2008), Inner Review Offices (IAD) play a vital role in improving data security by analyzing IT frameworks and recognizing zones for advancement. A comprehensive IT review can distinguish and screen vigorous security measures inside a computer framework. Although the current study focused on the impact of IT auditing, it did not examine the relationship between internal audit rule affiliation with the organization and IT control. This study aims to identify the key characteristics of the IAF that are essential for its role in the IT organization (ITG) and how the IAF relates to the ITG to internal control (ITC). The study focuses on two fundamental questions: first, what factors contribute to the IAF's success in attacking the ITG, and second, how this affiliation relates to the ITC.

The reason for this consideration is to assess the esteem of Inner Review Areas (IAS) in IT Administration (ITG) and investigate the ways in which their support progresses IT Compliance (ITC). The objective of the ponder is to help businesses optimize their inner review division to encourage ITG endeavors. Advanced advances, such as huge information, versatile gadgets, and social media, are crucial to various organizations. These incorporate apparatuses, frameworks, and gadgets that handle, store, or alter information. When utilizing these innovations, these businesses do, be that as it may, stand up to noteworthy security challenges. Finding and fixing vulnerabilities in their computerized scene is the biggest issue. KPMG (2021b) reports that the destinations of IT reviews these days are to assess cybersecurity dangers, information administration, and generally ITC. Agreeing with KPMG, the COVID-19 widespread has assisted computerized change plans for generally 67% of businesses in 2021.

Advanced turnover is the method of leveraging innovation to advance competence, diminish time utilization, reveal modern openings, and pick up a competitive edge over other companies. For instance, a few companies utilize cloud innovation to store and share archives and utilize counterfeit insights and machine learning to move forward operations and foresee client inclinations. Compelling IT administration (ITG) is pivotal in encouraging computerized change by setting up a clear arrangement for innovation speculations that adjusts to the company's targets. This approach empowers the distinguishing proof and moderation of dangers, as well as the creation and authorization of security and information security conventions. According to a report by KPMG in 2021, more than 19% of companies are in the first phase of preparing advanced changes. To minimize risk and maximize benefits, it's important to get investigators involved early. Dynamic support for people is necessary to achieve the main goals of the investments, which refers to the transformation of various businesses through innovation.

This inquiry points to examine the compatibility between the inner review part group and the IT administration group. Viable inner review capacities (IAFs) require a solid understanding of IT, capability in inner examining, and involvement with IT review strategies. By looking at their

collaborative endeavors and techniques, I can pick up an understanding of how IAFs administer IT. This thinks about utilizing common controls to survey IT capability (ITC) and applies the measurement strategy to approach to look at the information collected from the study. An analysis of 414 evaluators from large Iraqi corporations revealed that internal review teams with strong IT competencies and a clear understanding of their roles have significantly stronger relationships with IT departments. The combination of computer capability, information on inside review assignments, and IT reviewing abilities is useful for the Data Frameworks Review and Control Association's IT administration (IAF-ITG) forms. The unique viewpoint of inner review offices may contribute to the IAF's increased prominence in IT administration, which in turn may accelerate the implementation of IT control (ITC).

The function of internal audit functions (IAFs) in IT governance (ITG) and IT control (ITC) has been clarified by this research. While previous studies have explored the link between IT governance and internal audits, there is a gap in understanding how IAFs contribute to ITG and ITC. Internal audits are primarily conducted to evaluate and enhance an organization's operations, including its use of technology. To identify how IAFs can improve ITC, this study closes the gap by analyzing the relationship between IAFs and ITG about ITC. The results of this investigation can offer significant perspectives to establishments aiming to enhance their technology administration, ultimately simplifying the assessment procedure.

The study's conclusions can help businesses allocate resources more efficiently in their financial and accounting systems. Resources must be set aside to evaluate the risks associated with IT projects and improve technology use. This study clarifies the reasons behind participation in international volunteer programs. To improve IT governance (ITG), businesses should incorporate ISACA's IT auditing experience into the development and implementation of their IT governance (ITG) strategy. The study's conclusions are helpful to regulators and companies alike, as they provide direction on how to achieve ITG objectives and integrate information assurance and forensic services (IAFS) into ITG.

The following sections of this article explain the following: The second section presents the main ideas explored in this study and summarizes previous research. The research method and design used in Section 3. The conclusion of the study is in Section 4. In this section of the report, the research findings are summarized, interpreted, and possible directions for the study. Future for this field.

2. LITERATURE REVIEWS

2.1. Internal audit merit and the participation of IAFS in ITG

2.1.1 Involvement of IAFS in ITG

The main goal of IT management is to ensure alignment between the IT strategy and the overall business plan, thereby maximizing the return on IT investments. Research studies, including Lunardi et al., have investigated the impact of ITG on IT performance. In previous studies, such as Ali and Green (2012), Enfoka and Russo (2011), Bradley et al., and Wu et al. (2012), the effect of

ITG is investigated. Additionally, Wu's 2012 study examined the impact of organizational culture on firm performance. According to Pang (2014), ITG can change the relationship between IT costs and their effectiveness.

Internal controls are required to ensure that ITG operates efficiently. According to the Institute of Internal Auditors Standard 2110, the Internal Audit Function (IAF) is in charge of assessing and providing guidance to improve the governance process, thereby achieving a variety of goals. These goals include ensuring proper behavior and information sharing among company employees, as well as encouraging efficient operations and collaboration. The IIA Standard 2110.A2 (2012) emphasizes the importance of verifying whether an organization's ITG is consistent with its plans and objectives. Furthermore, the IIA (2018) defines internal auditing as evaluating an organization's ITG's ability to meet goal achievement standards and providing guidance to improve IT project performance.

This study investigates the relationship between IT and Internal Audit and Financial Services (IAF) in the context of IT governance (ITG). IT and IAF's working relationship reflects their collaboration. De Haes, De Hert, Deneffe, and van den Berghe's (2002) and (2013) research shows a strong link between International Affairs and Security (IAFS) and International Trade Governance. IT operations can be improved by collaborating closely with the IAF. Combining IT and internal audit roles can help to identify, monitor, and mitigate IT-related risks.

Furthermore, the collaboration between IT and internal audit managers is crucial in developing dynamic information policies and steps (Héroux and Fortin, 2013).

The ITG process involves making key decisions about technology and ensuring that existing systems and policies align with daily operations. The monitoring systems provide valuable insights to decision-makers. In IAF-ITG processes, organizations evaluate their IT planning, compliance with IT policies, technology performance, security, and asset management (Héroux and Fortin, 2013).

2.1.2. Internal audit merits

Studies on internal audit have examined the merits of internal audit functions (IAFs). Research by Ege (2015) suggests that internal audits conducted by experienced, licensed, well-trained, and independent teams can minimize instances of mismanagement. Similarly, Abbott and others have found a correlation between the quality of internal audits and the accuracy of a company's earnings, as seen in a 2022 study. Another study in 2016 analyzed the performance of internal auditing by evaluating the independence and expertise of the internal audit team, as well as the cost of their services, and found that companies with robust internal audit systems tend to generate more revenue.

In 2009, researchers, including Prawitt and his colleagues, conducted additional research on the subject. That year, a specific study looked at the relationship between internal audit quality and the extent to which companies

manipulate earnings. The quality of internal audits is assessed using factors such as the auditors' qualifications, education, and impartiality, as well as the time spent examining financial records and the resources allocated to the internal audit department. The findings suggest a link between the thoroughness of an organization's internal audit and its proclivity to manipulate earnings.

According to a 2015 study by Pizzini and colleagues, well-executed internal audits can significantly reduce the time it takes to complete. Internal auditing quality is determined by factors such as the auditors' expertise, ability to remain impartial, and the scope of the company's operations covered. Auditing proficiency requires the necessary skills, extensive knowledge gained through training, relevant certifications, and continuous improvement through practice. The IAF scale compares a company's operational expenses to its overall assets.

Héroux and Fortin's 2013 study looked at the relationship between the benefits of internal audit functions (IAF) and IAF stakeholders' participation in IT governance (ITG). To gather data, the researchers surveyed internal audit function managers, chief financial officers, and other relevant individuals. The findings revealed that certain factors, such as adequate IT resources, experience with IT audits, trained IT staff, and senior executives with auditing expertise, are associated with the extent of IAF involvement in ITG.

This research builds on earlier studies by examining new areas such as IT expertise, the function of internal auditing, and IT auditing abilities from the perspective of internal auditing. Merhout and Havelka (2008) state that it is crucial to take into account both the characteristics of the Internal Audit role and the IT auditing skills of internal auditors when assessing the efficacy of an IT audit. Merhout and Havelka (2008) also point out that internal auditors' computer skills can affect their performance in IT audits. Internal auditors must have a solid understanding of IT to assess IT system functionality and address potential IT-related risks that may affect the organization's objectives. As stated by the Institute of Internal Auditors (2012) and the ITG Institute (2013), experienced and trained IT auditors can comprehend information systems and identify control issues within them, enabling them to perform more effectively in auditing within a company. As a result, they are better suited to help plan and conduct IT audits because of their expertise in the field. A 2017 study found that internal auditors with a strong understanding of computer systems can improve IT audits, which can improve internal auditing.

The use of IAFS in business has both positive and negative consequences. According to Stewart and Subramaniam (2010), these systems can help organizations by providing useful insights and monitoring their operations. The Institute of Internal Auditors emphasizes the importance of internal auditors' roles in IT control audits, which require them to provide assurance and guidance. Havelka and Merhout (2013) recommend that when conducting IT reviews, the Worldwide Affiliation of Budgetary Segment (IAFS) ought to consider an organization's destinations and craved results, which can affect the review approach. Steinbart and his team's 2018 inquiry uncovered

that inside inspectors who embrace a more consultative approach tend to construct way better connections with the IT workforce being reviewed. In outline, cutting-edge inside inspectors recognize the significance of adjusting checking and prompting to move forward review quality and cultivate positive connections with IT staff.

The adequacy of the IAF's IT reviews is unexpected in the scope and meticulousness of the review, as inquired about by Héroux and Fortin (2013) has appeared. The IT evaluators inside the IAF are assumed to have broad ability and information in IT, empowering them to encourage made strides in association between the IAF and IT division, that way assisting the IT review preparation (Havelka and Merhout, 2013). This inquiry about analyzes the relationship between the IT Review team's aptitudes and their association with IT Administration. The IAF requires a solid understanding of IT, inside inspecting, and IT examining capability. It'll presently give a few foci for thought.

Internal auditors' expertise in information technology (IT) is inextricably linked to their involvement in IT Governance (ITG). The IAF's proficiency in IT contributes to a strong relationship between the two. Effective IAF-ITG processes rely on the IAF's IT capabilities. The involvement of IAFs in ITG improves the internal audit function. Internal audit involvement is linked to a strong rapport between the IAF and the IT department. The internal audit role is closely related to effective IAF-ITG processes. IT auditor skills are positively correlated with IAF participation in ITG. Audit competencies in IT are correlated with a good relationship between IT and IAF. The skills required for IT audits are tied to the ITG processes within the IAF.

2.2. Participation of IAFS in ITG and ITC

2.2.1 . The IAF-IT relationship and ITC

The collaboration between the Internal Audit role and IT department is decisive for a successful IT audit. According to Havelka and Merhout (2013), this partnership enables auditors to obtain necessary documents and facilitates effective communication, resulting in a smoother audit operation. This notion is supported by Steinbart and others, as well as Smith's research team. A 2018 study also emphasized the benefits of close cooperation between the International Affairs and Information Security departments, which enhances knowledge sharing and facilitates the implementation of security improvements. The IAFS can provide businesses with a better understanding of information security and assist information security managers in improving manager permission management (Steinbart et al.). Combining international accounting and financial standards with audited departments facilitates enhanced communication, knowledge sharing, and robust internal controls. Internal auditors require a thorough understanding of IT strategies, risks, procedures, and checkpoints to effectively oversee IT control responsibilities. A strong, trustworthy relationship with IT professionals is crucial for obtaining vital information from them (Donathan, 2012). A 2019 ponder looked at how coastlines are influenced by climate change. Meanwhile, a 2011 investigation

pushed how pivotal it is to work with information security masters to form beyond any doubt trade arrangements that comply with controls such as the Sarbanes-Oxley Act. According to Steinbart's 2012 research, auditors who have cordial relationships with information security specialists are better able to spot security flaws. The next year, Steinbart's team discovered that information security is greatly enhanced when internal auditors and information security personnel work closely together. Based on these findings, we propose that a strong relationship between the internal audit function (IAF) and information technology (IT) leads to a positive impact on internal control testing (ICT) activities.

2.2.2 . IAF-ITG processes and ITC

Effective ITG processes are required for agile operations and decision-making. The development and implementation of these activities require the establishment of clear guidelines and rules in information technology. These guidelines monitor, evaluate, and manage IT projects to ensure their effective implementation and budget allocation. According to De Haes et al., independent assessments and confirmations are important. (2013) and de Haas and van Grambergen (2009). In 2009, De Haes and Van Grembergen used a Delphi method to identify 33 factors related to ITG including IT experts, and classified them according to role. The performance and reliability of internal audits are an important part of an effective ITG that provides an assessment of IT management and control. A well-planned technology strategy is essential for companies to ensure trouble-free operations. It is important to include the International Accounting and Finance Association (IAFS) in IT implementation discussions to ensure the integrity of business and IT strategies. After IAFS have developed their applications, it is important that they thoroughly understand their IT systems and verify their security and effectiveness. Our decision-making activities include planning, managing day-to-day operations, mitigating risks, and ensuring compliance with IT management security in accordance with the organization's guidelines.

According to Codedre (2005), regular transaction reviews are required to ensure that internal control systems are functioning properly. This entails conducting specific tests to analyze transactions and evaluate the efficacy of control systems. This method allows the administrator Audit Executive to promptly notify the administration of any observation issues, allowing for timely resolutions. The process is divided into three main steps: identifying what needs to be controlled, determining which key controls to implement, and deciding on the best way to test the controls. The Internal Audit and Financial Services (IAFS) can help various organizational units identify their primary tasks, subtasks, and control objectives by determining what needs to be controlled. Developing effective control test analytics requires identifying the best approaches to evaluate each.

The Information Assurance Framework (IAF) is important to IT Management (ITG) as it continuously monitors and identifies risks and ensures alignment of IT and business strategies. Internal auditors can participate in

cross-functional meetings to discuss the company's IT strategy, threats, and vulnerabilities. IT audit planning entails using risk assessment methods, investigating IT activities and controls, and assessing the performance of information systems (Héroux & Fortin 2013). Hermanson and colleagues discovered a strong correlation between internal audit objectives and the characteristics that influence IT evaluations. Previous research has found that implementing IAF-ITG processes enhances IT control activities.

H5: IAF-ITG processes are positively connected with IT control activities.

3. METHODOLOGY

This part of the study describes the research method and assesses the reliability and validity of the results. It also analyzes the survey data used in the study.

The research framework examines the relationship between internal audit activities (IAF) and IT quality, as well as the governance mechanisms for IAF-IT. This section of the study describes the research methodology and assesses the reliability and accuracy of the findings. It also examines the survey data used in the research. It also looks at how IAF-IT and IAF-IT management practices (IAF-ITG) are related to IT management (ITC). We use a set of rules to assess the efficacy of technical controls. Computer systems are protected using general controls such as operating rules, system configuration, security features, and data management (Boritz et al., 2013, 2015). According to Havelka and Merhut (2013) and Steinbart et al., the IAF consists of a mix of IT skills, internal accounting responsibilities, and IT capabilities, as illustrated in Figure 1. The report ends with a suggestion for future research.

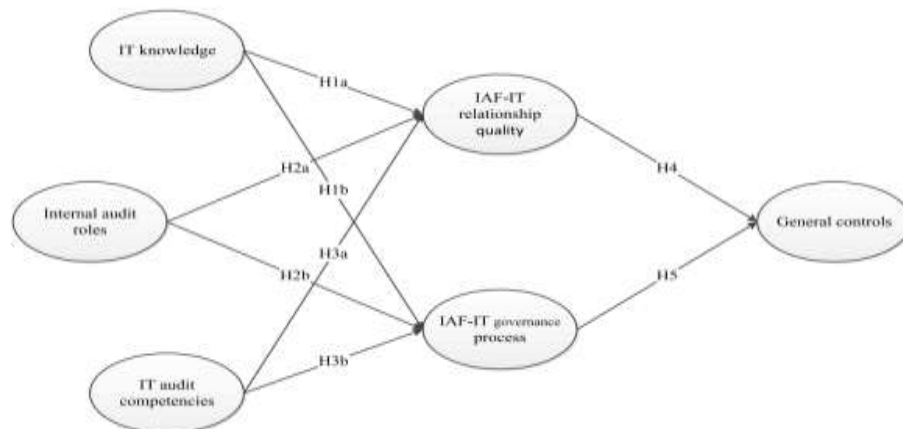


Fig. 1. Research model

3.1 Data and sample

The upcoming sections will outline the criteria for evaluating the elements of this study. A 7-point Likert scale will be used to rate all items, unless otherwise specified, with 1 indicating "strongly disagree" and 7 indicating "strongly agree." The operationalization and conceptualization of the five research constructs are summarized in Table 1.

Table 1 Sample and Sampling Adequacy

Construct	Operationalization	Source
IT knowledge	The level of expertise in four different IT areas is assessed using a seven-point Likert scale.	Steinbart et al. (2013)
Internal audit roles	The roles performed by IAF workers are assessed using a seven-point Likert scale.	Steinbart et al. (2013)
IT audit competencies	The proficiency of IT audit is assessed via four criteria: the quantity of IT audit staff, the quantity of staff with a CISA certification, the quantity of staff with an ISO27001 lead auditor certification, and the amount Employees who possess a computer science degree	H´eroux & Fortin (2013), Nicoletti (2013), Abdolmohammadi, & Boss (2010)
IAF-IT relationship quality	The seven-point Likert scale is used to assess the quality of relationships in three different contexts.	Steinbart et al. (2013)
IAF-ITG process	A seven-point Likert scale is utilized to evaluate the extent of six items associated with the ITG process.	H´eroux & Fortin (2013)
General controls	A seven-point Likert scale is used to assess the level of general control activities for six specific items.	Huang et al. (2011), ITGI (2007)

3.2 Research instrument

3.2.1. IT knowledge

According to Steinbart et al., the Internal Audit Function (IAF) possesses a solid grasp of information technology, encompassing aspects such as information security, database management, and risk management. In a 2013 survey, respondents were asked to evaluate the IAF's proficiency in IT, considering four key factors. The results indicated that the department excels in ensuring the confidentiality and integrity of information.

3.2.2. Internal audit roles

The internal audit's accountabilities include a set of tasks that management and employees have agreed to undertake, which are primarily centered around identifying and reporting problems, ensuring compliance with regulations, and facilitating inter-departmental collaboration. The company's quarterly earnings report shows a year-over-year drop in revenue and profit margins.

3.2.3. IT audit competencies

The IT audit skills and abilities are connected to the IAF's capabilities and can be evaluated by considering four key factors: the number of full-time IT audit staff, the number of CISA-certified employees, the number of ISO27001 Lead Auditor-certified employees, and the number of staff with degrees in information science or computer science. Research supports the importance of the latter criterion, as IT audit professionals with a background in information systems or computer science are more likely to allocate resources to IT audits and possess a deeper understanding of how IT works. The world is facing a climate crisis due to human activities such as burning fossil fuels, deforestation, and industrial pollution. This global problem requires immediate attention to reduce carbon emissions and preserve the environment for future generations.

3.2.4. IAF-IT relationship quality

In 2013, Steinbart's research revealed that information security professionals appreciate the connection between Information Assurance Frameworks (IAFs) and information security. To ensure effective collaboration between IAF and IT professionals in internal audit and information security, the study emphasizes the need for IT auditors to establish strong relationships with IT staff. To achieve this, we apply the recommendations from Steinbart et al. and assess the strength of the IAF-IT connection. It's adapt the original 2013 study by replacing "information security" with "IT personnel" in the evaluations measuring the relationship's quality. As a result, more organizations benefit from the harmonious collaboration between internal audit and IT departments, with minimal conflict and close teamwork.

3.2.5. IAF-ITG process

The IAF-ITG process is examined through the lens of Héroux and Fortin's (2013) framework. The internal audit department's leader attends company-wide meetings discussing risks and strategies, with a focus on IT-related issues. Senior management shares plans for auditing the company's IT systems, and a risk assessment is conducted to facilitate in-depth evaluations of the organization's IT systems. The internal audit department reviews the IT plan to ensure its effectiveness. Its responsibility is to examine all critical IT activities and safeguards. The department also verifies that data and IT controls are functioning properly.

3.2.6. General controls

The primary responsibilities of IT management involve overseeing IT operations, implementing and monitoring systems and updates, supervising changes, ensuring system security, managing data, and managing end-user computing. Research conducted by the ITG Institute in 2007 and 2011 yielded similar results. One key aspect of this is increasing the efficiency of IT operations and usage. This can be achieved by creating user guides and training

programs for both users and IT staff to ensure using applications and infrastructure correctly.

4.1 Demographic analysis of the sample

The survey was sent to 556 participants, with 450 responses received. After reviewing the submissions, 414 were deemed suitable for analysis, while 36 were excluded because to incomplete information. The correct response rate was 74%. According to Table 2, 46% of respondents were male, while 80% identified as female. A significant 89% held a bachelor's degree, and 39% held a master's degree. The majority of participants (61%) fell within the 40-50 age range. Notably, 3% of respondents worked as internal audit managers, with 51.7% of them serving in that role.

4.2 Measurement model

The survey was refined through a pilot test with three subject-matter experts, whose feedback led to subsequent improvements. The diverse panel consisted of two academics with expertise in accounting systems and an audit manager from a company in Iraq. Following a rigorous review, the survey was ensured to be clear, concise, and user-friendly, thereby enhancing its reliability. This study examines the convergent validity of various measures by analyzing factor loadings, average variance extracted, and composite reliability. The results of the factor analysis, presented in Table 3, show that all factors exceed the minimum threshold of 0. As per Fornell and Larcker's 1981 study, the reliability of the different dimensions, as shown in the values in table 4 fall within a range of 0.815 to 0.924, exceeding the recommended benchmark of 0.7. The Cronbach's alpha values, also exceeding the recommended minimum of 0.7, range from 0.815 to 0.924. The average variance for the dimensions, between 0.600 and 0.714, indicates an average level of difference in the measurements. As suggested by Fornell and Larcker in 1981, the square root of AVE is higher than the correlation coefficients for each dimension, as shown in Table 6. Additionally, Table 4 shows that the loading for each individual construct is stronger than the loadings for all other constructs. Overall, the study finds that the examined constructs demonstrate convergent validity, as defined by Fornell and Larcker in 1981, with consistent, agreed upon, and different levels.

Table 3 Validity and reliability for constructs

Variable	CA	CR	AVE
ITK	0/923	0/943	0/775
IAR	0/953	0/957	0/653
ITAC	0/950	0/954	0/641
IAFITRQ	0/941	0/921	0/606
IAFITGP	0/945	0/964	0689
GC	0/975	0/965	0/621

Variable	ITK	IAR	ITAC	IAFITRQ	IAFITGP	GC
ITK	0/943					
IAR	0/611	0/775				
ITAC	0/344	0/523	0/645			
IAFITRQ	0/211	0/521	0/432	0/580		
IAFITGP	0/209	0/436	0/378	0/412	0/509	
GC	0/201	0/367	0/320	0/302	0/401	0/492

4.3 Structural Model

Structural model

The diagram illustrates the concept's framework. Two hypotheses, H1-H3, examine the connections between internal audit characteristics and the involvement of Internal Audit Function in IT Governance (IAFG). The results show a strong positive link between IT knowledge and both the quality of the relationship between the IT department and IAF (IAF-IT) and the governance process within IAF-IT, supporting Hypothesis 1. The study reveals strong positive correlations between the internal auditing role and both the quality of the relationship between IAF and IT and the governance process of IAF-IT, providing evidence for Hypothesis 2. In contrast, IT audit competencies do not show a significant correlation with the quality of the relationship between IAF and IT, but they display a positive association with the governance process of IAF-IT, supporting H4b but not H4a. The quality of the relationship between IAF and IT shows a statistically significant positive correlation with general controls, supporting H5. The IAF-ITG process demonstrates strong positive associations with general controls, providing evidence in support of H6.

Figure 2 Structural equation modelin

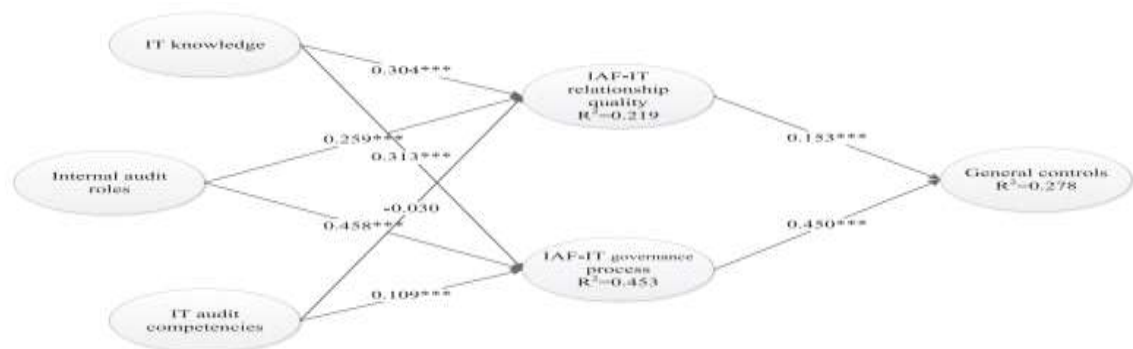


Figure 2

5. DISCUSSION AND CONCLUSION

Companies must prioritize internal IT controls (ITC) to avoid significant financial losses. (Association of Certified Fraud Examiners, 2016; Stoel & Muhanna, 2011). Research indicates that involving internal audit functions (IAFs) in IT governance (ITG) yields improvements in ITC. This provides valuable insights into the academic discussion on ITG. This study contributes to the debate on the connection between internal audit quality, information security, and IT controls. It also examines the quality of the relationship

between internal audit and IT, as discussed in Steinbart et al's research. The findings also shed light on how individual characteristics, group participation, and technology use are interconnected, as explained by Merhout and Havelka (2008).

The strength of the relationship between internal audit function (IAF) and IT is significantly influenced by the IT knowledge and roles of internal auditors within an organization, a finding that is supported by previous research. A 2013 study highlighted the importance of having information security knowledge in improving IAF's performance. However, a 2013 study found no significant impact of IAF on the quality of the relationship between IAF and information security. In contrast, our research suggests that IT knowledge, IAF, and IT auditing skills have a substantial effect on the IAF- IT governance approach. This discovery is consistent with a 2008 study that found a connection between IT staff, IT training or certification, and IAF's involvement in IT governance. The significance of IT control (ITC) cannot be overstated, as its failure can result in substantial financial losses.

The research discovered that involvement in international affairs and IT significantly enhances information technology capabilities, which is crucial for discussions on IT in educational institutions. The study explores the correlation between the quality of internal audit functions, information security, and information security controls. It also examines the relationship between internal audit functions and information technology, building on previous research by

Steinbart et al. The findings contribute to our understanding of how internal audit function features, their participation in IT governance, and IT controls interact, as researched by Merhout and Havelka (2008). The connection between internal audit functions and IT is strengthened when internal audit functions possess extensive IT knowledge and utilize IT in their operations, consistent with Steinbart's 2013 study. Furthermore, Smith's research (2013) suggests that understanding information security can improve internal audit functions. Steinbart's team found that enhancing information security in 2013 can lead to more effective internal audit functions. The 2013 study failed to observe a significant improvement in the integration of internal audits and financial system security due to the Information Assurance Frameworks (IAFs). However, our research revealed that IT knowledge, specific IAF roles, and IT auditing expertise significantly impact IAF's management of IT. This finding is consistent with Merhout and Havelka's (2008) discovery, which showed a strong correlation between IT audit and assurance professionals' involvement in IT governance and the presence of IT staff and training or certification. This study emphasizes the value of IT audit skills in allowing internal audit functions to participate in IT governance. While many organizations use COBIT to manage their IT, it is primarily focused on board members, senior management, and IT departments, leaving out the role of Internal Audit and Financial Systems. It is critical for international affairs and foreign service professionals to understand IT strategy, system operations, and associated risks. A lack of IT knowledge or the ability to audit IT systems within IAFs can pose risks. This study emphasizes the importance of recognizing the critical role

of IAFs in IT governance and ensuring their active participation in implementation efforts.

This study showed that the use of ITG can increase the effectiveness of ITC, a finding consistent with previous studies. A 2016 study by the Audit and Regulatory Group and Protiviti found that most companies have fewer than six internal auditors at any given time, and many are from Asia and the United States. North Korea is hesitant to expand its accounting staff. The study found that a common limitation for the IAFS to conduct IT audits is the need for external or external expertise. Our research shows that the IAF's IT knowledge and audit skills can improve ITG. Companies ought to guarantee their IT workforce has the imperative aptitudes and preparation. Selecting staff with progressed computer aptitudes, IT review certifications and important capacities can be an important technique. By leveraging the diverse IT information, encounters, and abilities of workers, we will improve ITG.

Inner evaluators ought to be mindful that their part is affected by an organization's decision-making forms and adherence to arrangements. The board and administration must have an intensive understanding of the Inside Review Work Measures (IAFS) and its work in fortifying organizational justification through persuasive administration oversight. It recommends that key staff members assign additional responsibilities to the IAFS to enable internal auditors to gain a deeper understanding of their role and develop their skills. Future studies may investigate the relationship between the tasks delegated to auditors by the board or management and their corresponding duties, as well as their utilization of ITG. This study could help determine the optimal integration of the IAF into an organization's ITG framework.

This research contributes to the academic community by demonstrating the importance of adhering to international accounting and financial standards in IT governance (ITG) for proper implementation of international transfer pricing regulations. A 2016 study by ISACA and Protiviti revealed that 68% of organizations link technology projects to IT audits, with 65% experiencing difficulties after project initiation. In the last three years, half of all IT auditors have conducted project reviews after the implementation phase, while 48% reviewed them during implementation. IT auditors are responsible for ensuring the effectiveness of control measures in many companies. Our study shows that collaboration between IT audit teams and IT governance processes leads to improved information technology control. Therefore, organizations should incorporate IT auditors into their ITG processes. Currently, most organizations involve IT auditors in ITG processes post-implementation, but for optimal outcomes, they should be involved in every stage, from planning to implementation. Internal auditors require in-depth knowledge of information systems and the ability to assess them to ensure their effectiveness. The internal auditors should possess the necessary skills to identify and recommend effective control measures, ultimately enhancing the company's performance. This strategy improves the general innovation administration system and boosts the probability of victory in organizational innovation ventures.

Companies should prioritize IT governance (ITG) to ensure that their internal systems operate efficiently, which strengthens corporate governance. This study found that strong collaboration between HR and IT departments leads to improved overall communication within the organization. Top leaders and board members must examine the relationship between IT and internal audit functions in order to improve IT governance. Improving this relationship will help the internal audit function better understand complex data systems. This is especially important when dealing with systems that require customized solutions, as documenting steps and information can be difficult. Improving the IT-IAF connection can help businesses improve communication, increase IT process efficiency, and strengthen internal controls.

The biggest problem in any company comes from a lack of internal control procedures. Recent studies have confirmed a strong relationship between internal audit procedures and information technology management (IAF-ITG) and internal control (ITC). It is necessary to focus on the evaluation of information systems for international purposes. These activities can help companies identify vulnerabilities in their software, develop effective remediation plans, and ensure overall security. One of the ways that IAF experts can contribute is by participating in meetings with other departments to discuss IT strategies, policies, risks, audits, and compliance, and to assess the effectiveness of technology. The International Association for Information Technology Auditing and Control (IAFS) can improve an organization's IT risk management by strengthening IT governance and internal control systems. It will be discussed how IT departments in Iraqi companies monitor and manage their operations, which may have implications for any business due to the rapid development of Iraq. Although it is possible, it is important to understand that these are not completely relevant in all areas, and further research is required to obtain elements in these areas. Past inquiries have appeared that IT review strategies are steady over organizations, notwithstanding of area, with a center on common IT controls and forms. An overview found that most companies, including those in Asia and North America, conduct chance appraisals for IT reviews and depend intensely on inside reviews to control extortion, with a few territorial contrasts. In Iraq, companies are required to have the least number of inner inspectors and standardized work necessities inside their inner review capacities.

Examining the Iraqi experience can offer useful lessons for European and US companies, as Iraqi firms have developed skills in managing staff to strengthen IT controls. This research has the potential to offer valuable insights to businesses worldwide. In summary, integrating Information Assurance and Forensic Science into IT governance can improve internal IT control mechanisms. Future studies can explore how different aspects of IT governance, such as aligning IT strategy with business objectives, delivering value, managing risks, resources, and performance, affect the work of internal auditors and the overall effectiveness of IT governance. These projects are expected to highlight the importance of international agreements on financial stability.

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