

Integrated auditing – an internal audit perspective

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ABSTRACT

An integrated audit approach entails an intentional audit design process that cohesively combines business process auditing and information technology (IT) auditing into a single, co-ordinated effort. However, due to the continuing influence of longstanding methods of performing audits, the internal auditing fraternity has been slow to evolve, neglecting to train internal auditors who are confidently able to perform audits that combine both the business process audits and IT audits into one seamless audit. This study found that although holders of the Certified Internal Auditor qualification, and other members of the IIA are perceived to have mastered the theoretical knowledge provided by the CIA certification programme and other training courses, the manner in which they perform audits does not demonstrate the practical application of this knowledge.

Key words

Integrated auditing; business auditor; IT audit; CIA certification;
application controls; general controls

1 INTRODUCTION AND BACKGROUND

Internal auditors performing business and information technology (IT) audits need to integrate their efforts because of the changing business environment (Chaney & Kim 2007; Brand & Sagett 2011). The changing business environment is manifesting as the increasing interconnectedness of processes and systems in business (Helpert & Lazarine 2009; IIA 2012a), and to gain a complete and holistic understanding of business risk, internal auditors also need to understand IT system risks (Jackson 2012; Helpert & Lazarine 2009; IIA 2012a). Integrated audit refers to an intentional audit design process that combines the auditing of business processes and IT systems into a single, cohesive and co-ordinated effort (Brand & Sagett 2011). This integrated internal audit results in a comprehensive assessment of the control environment that is far more informative than the more frequently presented collection of unconnected, compartmentalised views (Helpert & Lazarine 2009).

Therefore, the internal auditors tasked with both business and IT systems audits need to be groomed during tertiary education on how to conduct truly integrated audits. The curricula available to internal auditors should thus address the skills and expertise required to enable internal auditors to conduct integrated audits.

IT plays a fundamental role in the way modern organisations function. It has become integrated into business processes to the extent that virtually every type of audit requires some consideration of IT

issues, and therefore all internal auditors should be familiar with IT's requirements (Abu-Musa 2008). Businesses are accelerating the expansion of their use of automated systems (Green, Best, Indulska & Rowlands 2005). A survey by Ernst & Young found that 72% of Irish-based organisations cite the implementation of IT systems as having central importance for their internal auditing (IA) activity (Ernst & Young 2014). This finding is supported in the results of the latest State of the Internal Audit Profession survey conducted by PwC, which identified eight foundational attributes of IA, one of which was familiarity with technology. However, a very low percentage of internal auditors are leveraging technology effectively in the execution of their audit services (PwC 2014). This was confirmed in the most recent Global Audit Committee survey conducted by KPMG, where it was found that although IA should be assessing technology, 50% of the respondents stated that internal auditors do not have the requisite skills and resources to perform these reviews (KPMG Audit Committee Institute 2014).

The effectiveness of internal auditing activities is improved by increasing the auditors' knowledge of technology (Abu-Musa 2008). The areas of internal auditing that can be improved in this regard include procedures followed in obtaining a sufficient understanding of accounting and internal control systems; consideration of inherent risk and control risk through which the internal auditor arrives at the risk assessment; design and performance of tests of control, and substantive procedures (Abu-Musa 2008).

Directors rely on internal auditors to educate them on the changing nature of IT risks, and the actions taken to mitigate them (IIA – Audit Executive Centre 2014). Audit committees and executive management rank IT as one of their top four priorities (KPMG Audit Committee Institute 2014). According to the IIA's research in the March 2014 Pulse of the Profession, boards of directors' levels of concern arising from cyber-security risks have reached 64% for the past two years. As a result, directors expect internal auditors to be more actively involved in the audit of technology (IIA – Audit Executive Centre 2014), and this is consistent with the responses to the KPMG Global Audit Committee survey (KPMG Audit Committee Institute 2014). Despite this, the same KPMG Global Audit Committee survey found that the quality of information about cyber-risk, technology and innovation provided to audit committees is inadequate. While the audit committees believe that the pace of change in technology poses one of the greatest challenges, this issue does not receive sufficient audit committee time or attention (KPMG Audit Committee Institute 2014).

The risks associated with not having the skills to audit IT applications arise from the fact that only certain controls are then able to be tested and certain frauds (particularly financial frauds), can escape detection (Smith 2012). Therefore, internal auditors need to be pro-active in assessing information security risks and incorporating them into the internal auditing plan (IIA – Audit Executive Centre 2014). In a study conducted by Brazel (2005), it was found that auditors who pro-actively assess information security risks are better able to recognise inherent and control risks. Also, auditors who perceived themselves to have high levels of systems expertise provided higher-quality risk assessments and planned more effective substantive tests. Thus, improved IT knowledge makes internal auditing more effective.

There is a low level of confidence among internal auditors about the quality and appropriateness of their IT training, resulting in a continuing reliance upon IT audit specialists, rather than on their own training (Kotb, Sangster & Henderson 2014). When internal auditors do conduct IT audits, they usually conduct two reviews, one performed by the business or general internal auditor and one by the IT (specialist) internal auditor; these are then collated into one report (Helpert & Lazarine 2009). This approach arises as a result of internal auditors believing that technology is the exclusive sphere of (specialist) IT internal auditors (IIA 2012a). This segregation of business and IT internal auditors also results in two audits of a single area, producing two unrelated reports addressing the same process, that then go to two different stakeholders. The IT audit report goes to IT department management and the business process internal audit report goes to the business' management (Brand & Sagett 2011). This lack of integration of efforts between IT specialist and business internal auditors also results in the audit being disconnected, and promotes a growing gap between what business internal auditors know of a process and the system that supports that process (Chaney & Kim 2007).

An integrated audit approach is not only required, as detailed below, but has become inevitable. It entails an intentional audit design process that cohesively combines business process auditing and IT auditing into a single, unified and co-ordinated effort (Brand & Sagett 2011).

The IIA Standards require internal auditors to assess the adequacy of IT governance, to determine whether it sustains and supports the organisation's strategies and goals (IIA 2013). In addition, the South African Treasury Regulations require internal auditors to evaluate the controls that have been established over the information systems environment (RSA 2005). The King Code on Corporate Governance concurs with this, stating that directors must ensure that prudent and reasonable steps are being taken with regard to IT governance (IoDSA 2009).

The following section assesses the skills that are needed to give internal auditors the confidence to audit a process by considering both its IT and business process risks.

Specifically excluded from the scope of this paper are the tools that internal auditors use for auditing, like Audit Command Language (ACL) and Excel; the process of continuous auditing, and the use of audit documentation software like Teammate.

2 THE SKILLS NEEDED FOR AN INTEGRATED APPROACH

All internal auditors need to be able to evaluate all business process controls from end to end (Bellino, Wells, Hunt & Horwath 2009). IIA Standards require every internal auditor to be "aware" of IT risks and controls and to be proficient enough to determine if the implemented application controls have been appropriately designed, and are operating effectively enough to manage financial, operational and/or regulatory compliance risks (IIA 2012b).

The Public Oversight Board (2002) highlighted its concerns regarding the ability of internal auditors to properly assess risks arising from rapidly evolving information-processing systems. They encouraged internal auditors to expand their knowledge of new business-oriented information systems, and the associated risks and controls.

To become an internal auditor capable of designing and conducting an integrated audit, knowledge is needed of automated controls and of how to approach technology-based processes and risks (IIA 2012a). In addition, knowledge of general and IT application controls (which are controls over the IT environment), is required. This knowledge must include administration activities, and infrastructure and environment controls. Application controls apply to how the application processes information and passes it on to subsequent applications within the business system (Chaney & Kim 2007).

Internal auditors should understand how processes are automated and how applications enable information to flow through interfacing applications. The internal audit should be conducted by one unified

team (albeit with diverse and complementary skill-sets) with shared objectives. In addition, the team's findings should be integrated into a unified report, addressing all aspects of the process (Helpert & Lazarine 2009), rather than appearing as individual reports issued by the internal auditors of the business and of the IT aspects of the entity. Internal Auditors must be able to convey the message to management about the risks that the organisation is facing across a process, for both manual and IT risks (Jackson 2012). However, in reality the majority of chief audit executives (CAEs) are short of internal auditors who have the requisite IT skills (Kinsella 2014).

The IIA's International Professional Practices Framework (IPPF) provides guidance on the competencies which internal auditors should demonstrate in order to be judged effective professionals, and goes further in requiring that this knowledge and the associated skills and other competencies are demonstrated in the performance of their responsibilities (IIA 2012b). However, the Standards also state that there is no expectation that all internal auditors have the expertise of an IT internal auditor (IIA 2012b). This statement does not reflect the current requirement, which is that internal auditors conduct integrated audits that cohesively combine business process auditing with IT auditing in a single, co-ordinated and coherent effort (Brand & Sagett 2011).

Plant, Coetzee, Fourie and Steyn (2013) assessed the basic level of competence that internal auditors should have in terms of the Internal Audit Competency Framework (IACF), the Institute of Internal Auditors' (SA) Professional Training Program (IIA PTP), and the International Professional Practices Framework (IPPF). None of these frameworks requires individual internal auditors to be independently competent in routine situations, nor were internal auditors expected to be independently competent in unique and complex situations, for example with regards to "IT framework tools and techniques".

It was found that "IT framework tools and techniques" was given a rating of "low level of competence required" by the South African higher education frameworks, and yet internal audit leaders perceive this set of competencies as demanding a "medium" rating (Plant *et al* 2013). In other words, internal auditing management requires internal auditors to be at least "competent" in their application of IT framework tools and techniques, despite their formal training having only given them a basic, "low" level of competence. This is confirmed by Chambers (2014) and Kinsella (2014), who both found that most internal auditing functions actually outsource their IT audit commitments because of the challenge posed by their function's lack of IT skills.

Fourie (2014) performed a study on the gap between the internal auditing profession's expectations of the university training and the skills actually possessed by recent internal auditing graduates. The study concluded that there is an expectation gap between the industry's requirements and the universities' apparent ability to deliver with respect to the technical and behavioural skill capabilities of internal auditing graduates. Simply

put, universities in South Africa do not provide employers with internal auditing graduates who are fully work-ready.

Therefore, in summary, based on the above literature review, it is apparent that internal auditors should have the IT skills/knowledge to evaluate all business process application controls and general controls, and be aware of IT risks and the risks arising from the rapidly evolving information-processing systems. They also require knowledge of automated controls and an effective approach to the audit of technology-based processes and risks, and new business-oriented information systems' risks and controls. In addition they are expected to know how processes are automated, and how applications enable information to flow through interfacing applications.

3 WHAT SKILLS ARE CURRENTLY BEING TAUGHT TO INTERNAL AUDITORS

The Institute of Internal Auditors (IIA), as the profession's international representative, continues to be recognised for its key role in internal auditing education (Palmer, Ziegenfuss & Pinsker 2004). The IIA was incorporated on 10 November 1941 (Palmer *et al* 2004). During its first 50 years, the IIA grew dramatically, expanding from one chapter with 24 members in 1941, to over 2 000 members worldwide in 1991 (Van Peursesem 2005). The growth has continued in the subsequent 25 years, with increasing numbers of internal auditors demonstrating their belief in the importance of professionalism as they strive to attain the Certified Internal Auditor (CIA) qualification (Van Peursesem 2005).

In South Africa the IIA's premier certification, the CIA, is the final step in the theoretical aspect of the professional internal auditing career path (IIA 2014). The CIA designation indicates to employers that the internal auditor has a solid foundation of internal auditing knowledge, and the ability to apply that knowledge in the workplace. The CIA is awarded after three international exam papers have been passed with a minimum of 75% per paper. The entrance requirements for the CIA exam are that candidates have passed through the Internal Audit Technician or Professional Internal Auditor training programmes, or have been assessed as competent through a recognition of prior learning (RPL) process (IIA 2014). These options are normally offered through universities in South Africa.

There are aspects of the CIA course that students are required to be "proficient" at, and others where they need only demonstrate "awareness". Achieving "proficiency" means the candidate should have a thorough understanding of and ability to apply the concepts listed below, while "awareness" means the candidate has a grasp of the terminology and fundamentals of the concepts listed below (Gleim 2012-2013).

IT knowledge is tested in Part 3 of the CIA exam, mostly at the "awareness" level (Gleim 2012-2013). The syllabus is outlined below:

- 1 Control frameworks
- 2 Data and network communications/connections

- 3 Electronic funds transfer
- 4 e-Commerce
- 5 Electronic data interchange
- 6 Functional areas of IT operations (e.g., data centre operations)
- 7 Encryption
- 8 Information protection
- 9 Enterprise-wide resource planning (ERP) software
- 10 Operating systems
- 11 Application development
- 12 Voice communications
- 13 Contingency planning
- 14 Systems security
- 15 Databases
- 16 Software licensing
- 17 Web infrastructure

The CIA syllabus provides essentially “satisfactory” coverage of the knowledge and skills required for success in Part 3 of the examination (Gleim 2012-2013). However, in the Global Audit Committee survey conducted by KPMG it was found that, although internal auditors should be assessing technology, 50% of the respondents stated that their internal audit functions do not have the requisite skills and resources to perform these assessments (KPMG Audit Committee Institute 2014).

As universities in South Africa offering internal audit courses are preparing students for the CIA examination, the syllabi are therefore largely based on the CIA syllabus.

4 RESEARCH QUESTION

Therefore, the question arises:

Is the IT knowledge gained by internal auditors through the CIA certification and tertiary education programmes practically utilised when conducting business process audits that cannot be separated from the IT system?

The preceding sections provide evidence that IT audit resources are scarce, and that the internal audits currently being conducted are usually not integrated (i.e., there is an absence of an intentional audit design that would cohesively combine business process auditing and IT auditing into a single, co-ordinated effort). This situation is contrary to the current requirements of business, in that while the business process is intertwined with the IT systems, the audits of the business and IT aspects remain separate and singular.

The educational framework needs therefore to provide training of internal auditing graduates that enables them to conduct truly integrated audits.

5 RESEARCH OBJECTIVE

The research question forms the basis for the following research objective:

To determine whether the IT knowledge gained by internal auditors through the CIA certification programme and tertiary education is utilised in a manner that

cohesively combines business process auditing and IT auditing into a single co-ordinated effort.

6 RESEARCH METHODOLOGY

The theoretical background presented in the previous sections was incorporated in the design of the research methodology and this is explained below. The objective of this section is to examine pertinent literature to describe and explain, with motivation, the research methodology applied in this research. In addition, the study’s research design, (a quantitative method was used to interrogate data the questionnaire generated) is explained and justified. The characteristics of the population from which the data was obtained are also described.

The research was based on a quantitative descriptive research method. This method was judged to be most effective for conducting a literature study to determine the status quo in the conduct of IT audits by internal auditors (including the requirements for internal auditors to conduct IT audits) and to compare this against the results obtained from the questionnaire emailed to IIA (SA) members.

A questionnaire was compiled and then pilot tested at the IIA (SA) Conference 2014 with five participants. The feedback from the participants was then used to amend the questionnaire. With the assistance of the IIA (SA), this final questionnaire was then e-mailed to all IIA (SA) members in the 2014 IIA (SA) database. These e-mails also contained an introductory letter and a letter of support from the IIA (SA), inviting participants to complete the questionnaire. A reminder was also sent out two weeks after the initial request. Respondents were required to e-mail their completed questionnaires directly to the researcher. Twenty-seven completed responses were finally received; the number of individuals contacted through the IIA was not formally disclosed, but anecdotal evidence places membership in excess of 500, meaning that the response rate was quite low. Recent research conducted found that the same conclusions would have been reached if data collection had been halted at earlier points in time. Therefore, the response rate is not predictive of a non-response bias (Meterko, Restuccia, Stolzmann, Mohr, Brennan, Glasgow & Kaboli 2015).

7 FINDINGS

The purpose of this section is to analyse, interpret, describe and meaningfully present the findings of the research, in order to determine whether the IT knowledge gained by internal auditors through the CIA certification programme and other tertiary education is being utilised in a manner that cohesively combines business process auditing and IT auditing into a single co-ordinated effort. The answers to the questions record the respondents’ perceptions in respect of the levels of IT audit skills demonstrated by their internal auditors. The questionnaire was sent to holders of the CIA qualification who are members of the IIA.

7.1 Questions 1 – 3 – Description of respondents

The researcher received twenty-seven completed responses directly from the survey respondents. The

number of individuals contacted was not disclosed by the IIA, but the response rate can be assumed to be quite low. Survey respondents were separated into two groups, based on education.

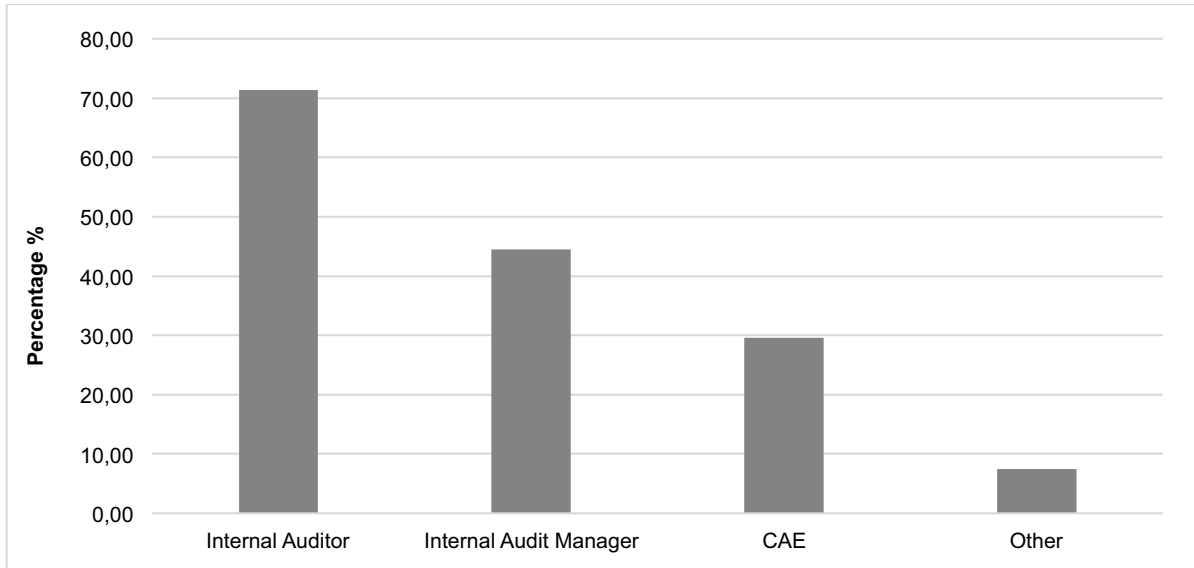
Of the respondents, 68% hold the CIA certification and 32% a variety of other qualifications; and 70% are from the private sector while the remaining 30% are from the public sector.

The majority of the responses (44%) came from internal audit managers. The remaining respondents

were chief audit executives (CAE) (30%), internal auditors (19%) and two (7%) respondents who had obtained the CIA certification but were no longer employed in the internal auditing field.

The first three questions were intended to identify the respondents by their position, education and whether they worked in the private or public sector. No correlation was drawn from the difference between private and public sector employment as the numbers were too small.

Figure 1: Percentage of respondents



7.2 Interview responses

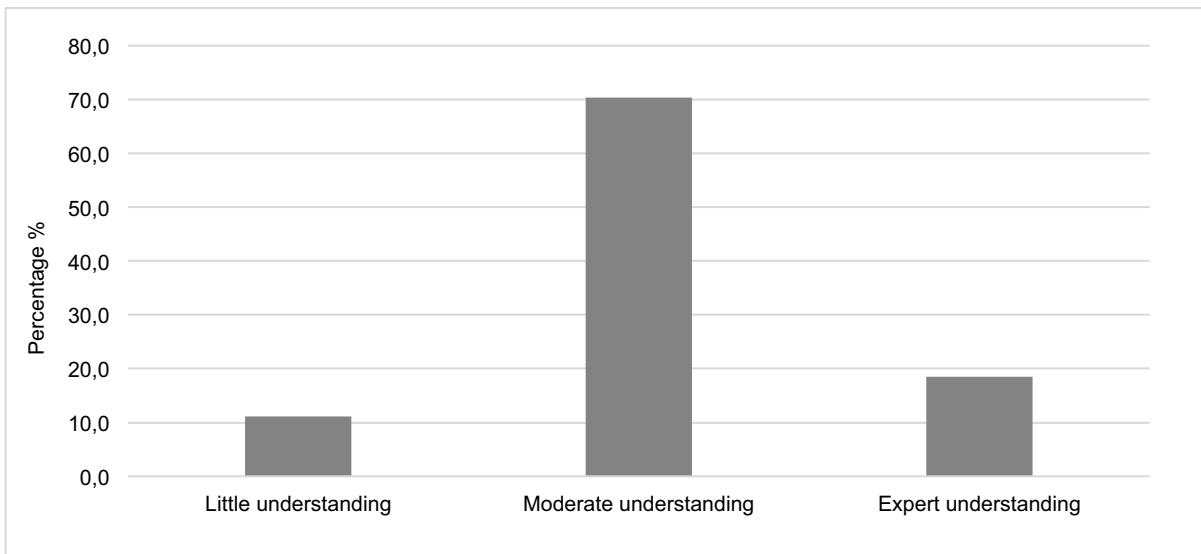
7.2.1 Question 4 – Understanding of integrated audits

Question 4 of the survey requested respondents to give an opinion on how well internal auditors within their audit activity understood the proposition that

business processes cannot be separated from IT systems. The response is reflected in Figure 2 below.

The majority of the respondents have the perception that internal auditors have a moderate understanding that business processes cannot be separated from IT systems.

Figure 2: Perception of internal auditors that business processes cannot be separated from IT systems

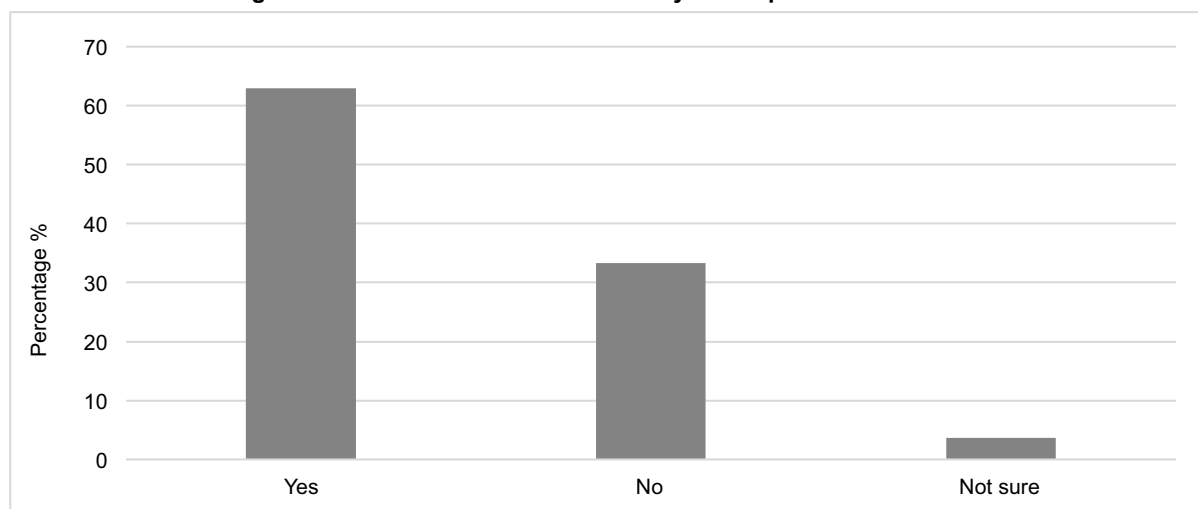


7.2.2 Question 5 and 6 – Specialist IT auditors and outsourcing of the IT audits

Question 5 sought to assess how many of the respondents have specialist IT auditors within their internal audit activity. Specialist IT auditors were defined in the questionnaire as being auditors who were familiar with and felt comfortable in auditing areas like security, electronic data engineering, business intelligence and data warehousing.

The majority – 63% of the respondents – stated that they have specialist IT auditors within the internal audit activity. However, this paper is aimed at assessing the application of knowledge of the non-IT specialist internal auditors. The fact that 63% of respondents indicate that their internal audit functions do have IT specialists might be an indication that for the rest of their team, their IT knowledge is low.

Figure 3: Does the internal audit activity have specialist IT auditors

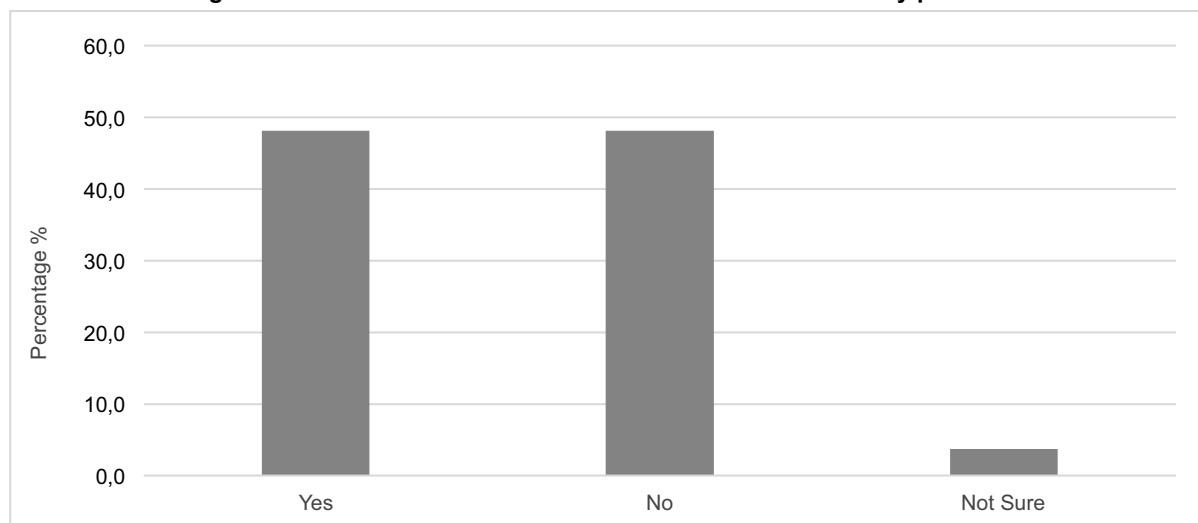


Question 6 asked whether the IT internal audit activity is outsourced. The analysis of this data was not used for this paper. Whether the internal audit activity is outsourced or not should not have a bearing on whether the internal auditors apply their IT knowledge. However, in the interests of completeness of the discussion of the survey results question 6 is recognised here.

7.2.3 Question 7 – Integrated audits performed

Question 7 is related to question 4 and requested respondents to give an opinion on whether internal auditors conduct audits that cohesively combine business process auditing and IT auditing into a single co-ordinated effort.

Figure 4: Extent to which business and IT audits are cohesively performed



There is an equal split between respondents who believe and those who don't believe that business audits and IT audits are cohesively combined into a single co-ordinated effort, as shown in Figure 4.

Conclusions drawn from responses to Questions 4 and 7:

Question 4 sought to assess the perception of the respondents regarding the theoretical knowledge of

their internal auditors - whether internal auditors were aware of the need to conduct integrated audits. The results show that the majority of the respondents believe that internal auditors are aware of this need; however, only 48% of the respondents stated that the audits of the business and of IT are performed as a cohesive whole by their internal auditors. This indicates that even though internal auditors have the theoretical knowledge that they need to conduct business and IT audits as a cohesive, single process, most of them are not doing so. The reasons for this were not specifically investigated, but probably include the situation that internal auditors do not know how to apply their theoretical knowledge, and/or that they have not yet been given the opportunity by the internal audit activity to perform such cohesive audits.

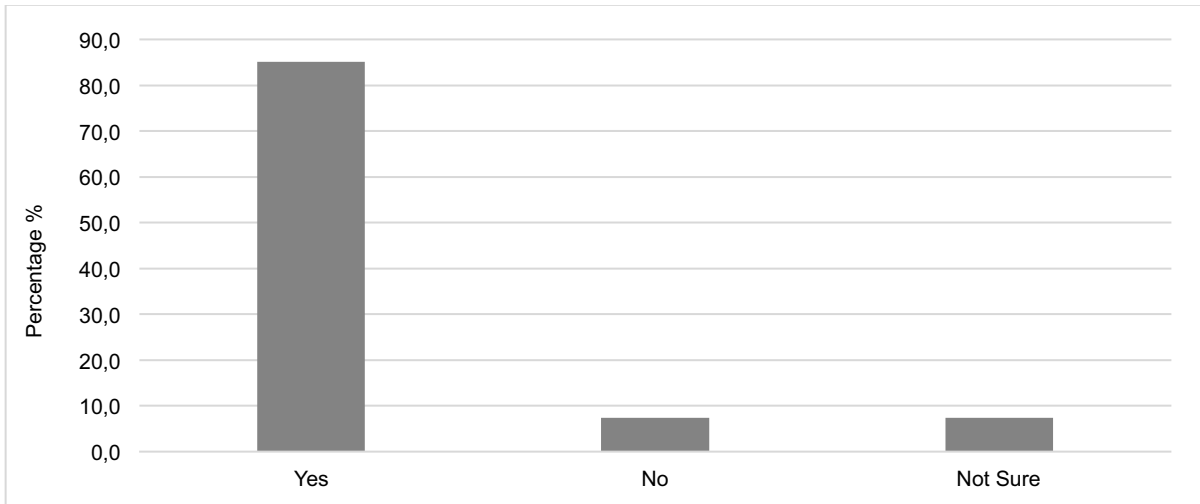
This is an area for further research.

7.2.4 Question 8 – Understanding the difference between general and application controls

Question 8 sought to assess whether the internal auditors understood the difference between general controls and application controls. Since this question does not refer to the **demonstration** of this knowledge, it was assumed that the responses were based on internal auditors' theoretical understanding of the difference between general and application controls.

Figure 5 shows that the majority of responders (81%) believe that the internal auditors do understand the difference between general and application controls.

Figure 5: Understanding the difference between application and general controls



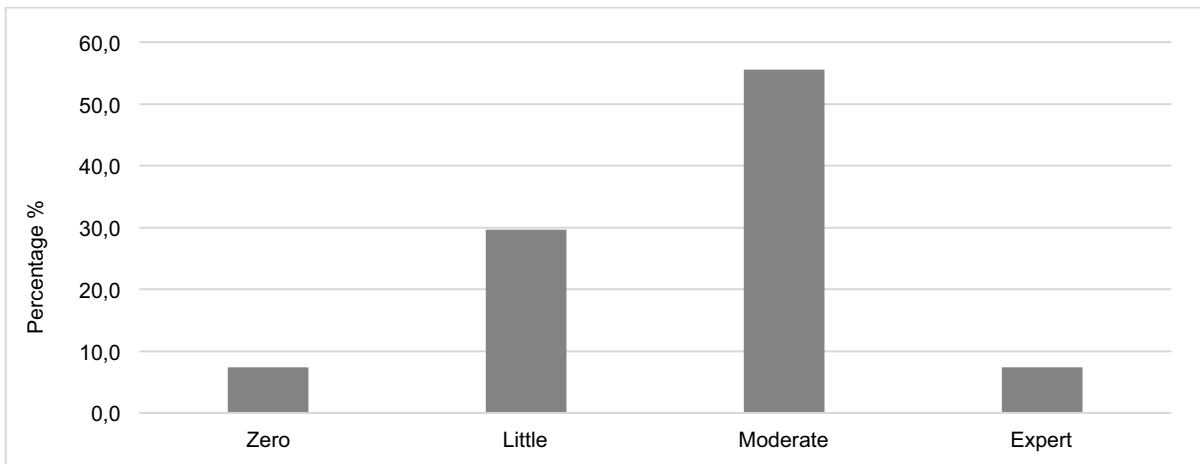
7.2.5 Question 9 – Ability to perform general controls testing

Question 9 assessed the respondent's perception regarding the statement that the internal auditors are able to perform general controls testing.

The perception of the majority of the respondents regarding the general controls testing ability of internal

auditors was deemed to be moderate. However, 60% of this majority stated that the internal auditors do not conduct audits that cohesively combine business process auditing and IT auditing into a single coordinated effort. This implies that even though the internal auditors are able to perform general controls testing, in practice they do not utilise this knowledge (Figure 6).

Figure 6: Ability to perform general controls testing



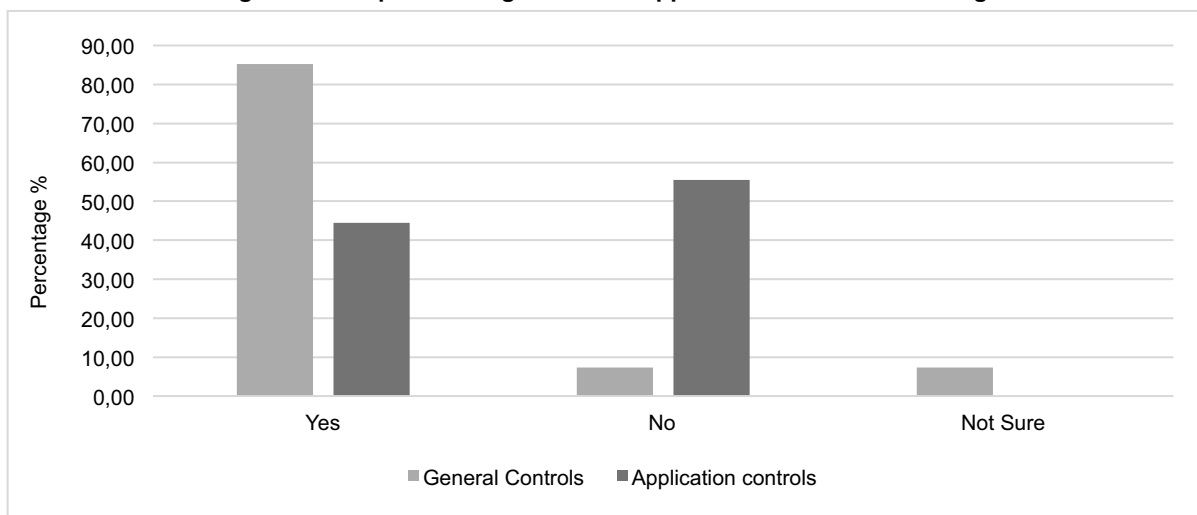
7.2.6 Question 10 – Comparison

Question 10 sought to determine whether the internal auditors understand the process for auditing application controls. Of the respondents, 41,7% said that internal auditors did not understand the process for auditing application controls (refer to Figure 7: Comparison of general and application controls knowledge, while 44% of the respondents said that internal auditors did understand the process for auditing application controls. However, four of these

latter respondents stated that they did not conduct audits that cohesively combined business process internal auditing and IT internal auditing into a single, co-ordinated effort; therefore, this could be referring to theoretical knowledge that is not applied.

There was also a greater number of internal auditors who understood general controls better than they did application controls, as reflected in Figure 7 below.

Figure 7: Comparison of general and application controls knowledge



Source: Conclusion drawn from responses to Questions 8, 9 and 10

The results reflect that internal auditors have a greater knowledge of general IT controls than they do of application controls; however, these controls are not always tested by the internal auditors in practice.

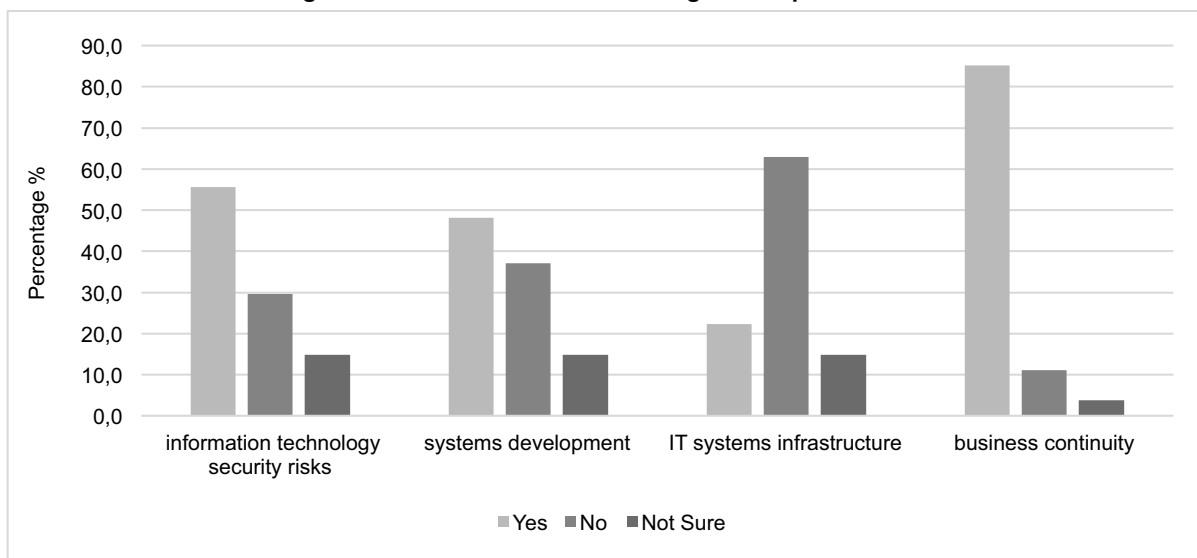
and were intended to assess whether internal auditors practically demonstrate their knowledge of specific technical aspects of IT that are covered in Part 3 of the CIA syllabus or other tertiary institutions.

7.2.7 Questions 11, 12, 13 – Knowledge of specific technical IT aspects

The remaining questions addressed IT security risks, systems development, and IT system infrastructure,

Figure 8 reflects that internal auditors have more knowledge of business continuity than they do of the other IT-specific areas. They have the least amount of knowledge in respect of IT systems infrastructure.

Figure 8: Internal auditors' knowledge in IT-specific areas

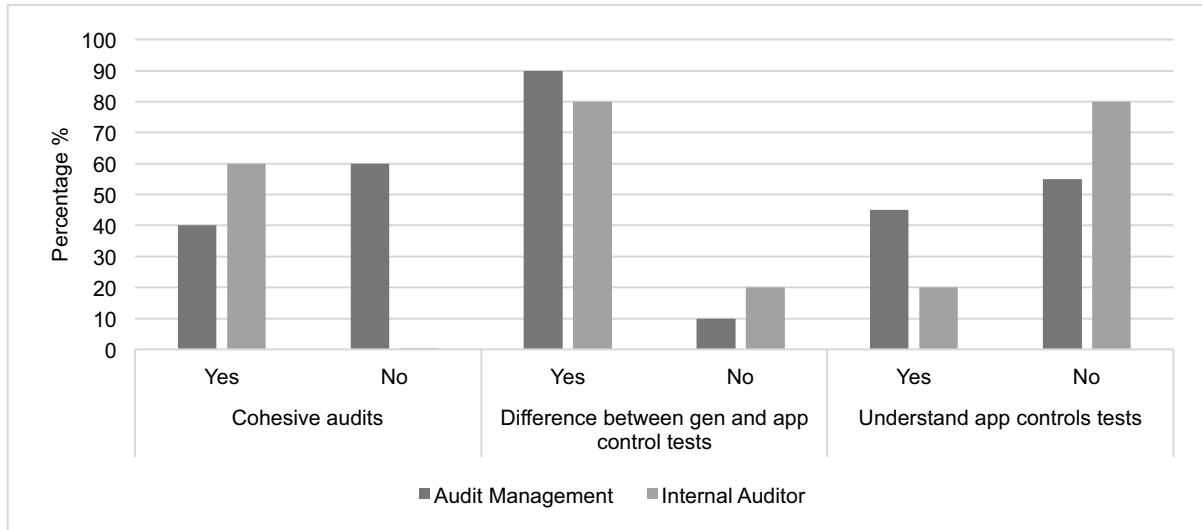


7.2.8 Management’s assessment vs internal auditor’s response

Management of the internal audit activity is taken to be the responsibility of the CAE and the internal audit manager. 20 of the respondents indicated that they were employed at an internal audit management level. Respondents who identified themselves as internal auditors were deemed to function at that level

within their organisations. Participants were asked whether the internal audit activity conducts audits that cohesively combine business process auditing and IT auditing into a single, co-ordinated effort, and whether internal auditors understand the difference between general and application controls. An analysis of the response offered by management is compared with that of the internal auditors in Figure 9 below.

Figure 9: Audit management vs internal auditor perceptions



The audit management level is more confident than the internal auditor level that internal auditors understand the difference between general and application controls, and that they also understand application controls. However, audit management appears less confident that internal auditors can conduct audits that cohesively combine business process and IT auditing into a single, co-ordinated effort.

8 CONCLUSION

Based on the literature review, the IT skills needed by internal auditors included the ability to evaluate all business process controls, be aware of IT risks and controls and to understand application controls and the risks arising from rapidly evolving information processing systems. Other areas requiring IT skills included new business-oriented information systems’ risks and controls; knowledge of automated controls and an approach to technology-based processes and

risks; general IT controls; how processes are automated, and how applications enable information to flow through interfacing applications.

This study aimed to determine whether the IT knowledge gained by business and IT auditors through their participation in the CIA certification programmes and other IT training, is utilised in a manner that cohesively combines business process auditing and IT auditing into a single co-ordinated and cohesive effort. From the results of the survey, to which 27 IIA members responded, it can be concluded that the majority of the respondents were aware of the need to conduct integrated audits. However, only 48% of the respondents stated that business and IT audits are actually being performed in an integrated and unified manner. This reflects that even though internal auditors have the theoretical knowledge that they need to conduct business and IT audits as an integrated unit, they are mostly not doing this.

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