AN ANALYSIS OF THE EVOLVING ROLE OF INFORMATION TECHNOLOGY WITH RESPECT TO SELECTED STANDARDS AND ITS IMPACT ON INTERNAL AUDIT

B. MARX[1] & H. RAVJEE[2]
[1]UNIVERSITY OF JOHANNESBURG, SOUTH AFRICA; [2]NETCARE LIMITED, SOUTH AFRICA

Abstract

Modern organizations are increasingly dependent on information technology (IT) for various reasons: to enhance their operational efficiency, reduce costs or even attain a competitive advantage. The role of information technology in the organization continues to evolve and this has an impact on the internal audit functions that serve these organizations.

This study investigated whether the King III report, Information Systems Audit and Control Association (ISACA) standards and Institute of Internal Audit (IIA) standards assist the internal audit function in addressing the impact of information technology on the organization and, as a result, the internal audit function itself. This was performed by way of a literature study on the internal audit function and the selected standards and corporate governance framework, the role of information technology in both the organization and the internal audit function, as well as an empirical study detailing a comparative analysis of the King III report, ISACA standards and IIA standards, utilizing key success factors.

The study identified an alignment of the key principles and elements identified in the King III report, ISACA standards and IIA standards, as well as support for IT-related reviews. The comparative analysis performed resulted in the formulation of key internal audit success factors, which compared favourably to those identified in the literature review. The study indicated that the King III report, ISACA standards and IIA standards assisted the internal audit function by addressing IT-related risks, controls and governance elements.

Keywords: Internal audit; Information technology (IT); Information systems (IS); Institute of Internal Audit (IIA) standards; Information Systems Audit and Control Association (ISACA) standards; King Code of Governance for South Africa (King III); Key internal audit success factors

1. INTRODUCTION

The role of information technology (hereafter IT) in the modern organization cannot be underestimated. It is pervasive and is invading all areas of personal and business lives.

Parker (2006:1.02) states that, “Increasing use of interconnected information systems (hereafter IS) for performance, productivity, and delivery of competitive advantage in organizations of all kinds means that they have become critical to survival. No longer to be considered 'merely' infrastructure support, today's computer related issues are business issues.”

Owing to the increasing importance of IT and IS in the organization, an internal audit function has to ensure that it has the required skills to discharge its responsibilities adequately. This sentiment is supported by KPMG (2009:4) and Moeller (2009:381), who emphasize that technology plays an ever-more critical role in the day-to-day running of organizations, increasing the vulnerability thereof to sabotage and underlying the importance for internal auditors to have a strong understanding of IT internal control techniques.

Historically, many organizations' IT systems were limited to accounting applications and were not particularly sophisticated. Internal auditors who were unfamiliar with data-processing technology would then audit 'around the computer'. Auditing around the computer involved inspecting input records, examining output reports generated by the computer system and determining whether the input and output information correlated. However, in the early 1970s a fraud discovered by a company's external auditors who utilized their self-developed audit software led to the American Institute of Certified Public Accountants (hereafter AICPA) and the Institute of Internal Auditors (hereafter IIA) to begin emphasizing the importance of auditing the data-processing and application controls (Moeller, 2009: 382). Reding, Sobel, Anderson, Head, Ramamoorti, Salamasick and Riddle (2009:7–the 3) are of the opinion that the increasingly pervasive impact of IT on organizations' business strategies and day-to-day operations has significantly affected the internal audit profession and that IT has changed the competencies that internal audit functions must possess and how they perform assurance and consulting services. Accordingly they emphasize that it would be almost impossible in today's business world for internal audit to provide value-adding services to their organizations unless they are highly proficient in their knowledge of IT risks and controls and have the capability to effectively apply technology-based audit techniques.

From the above discussion it is evident that IT and IS have an increasingly important role to play in any internal audit activity. The evolution and pace at which technological changes are introduced to an organization have an influence on the type and quality of service rendered by the internal auditor. Furthermore, entities are increasingly being regulated from legislative, governance and risk perspectives. It is therefore evident that there is a need for research both from a literature and empirical perspective on the role and impact of information technology on internal audit activity. The study identified an alignment of the key principles and elements identified in the King III report (Institute of Directors, 2009), the ISACA standards (ISACA, 2014) and IIA standards (IIA, 2012).

There was direct support for IT-related reviews in the King III report, ISACA standards and IIA standards. The comparative analysis performed between the King III report and IIA standards, as well as between the ISACA standards and the IIA standards, resulted in the formulation of key internal audit success factors. These key success factors compared favourably to those identified in the literature review. The study indicated that the King III report, ISACA standards and IIA standards assisted the internal audit function by addressing IT-related risks, controls and governance elements.

Following from the above, the remainder of the paper is organised as follows. The next section presents the objectives, scope and limitations of the study. The sections that then follow describe the theoretical background of the paper, the methodology applied and the empirical findings and deductions. Recommendations drawn from the study are then provided, and conclusions are presented in the last section.

2. LITERATURE REVIEW

2.1 An overview of the origin and evolution of internal auditing

Although historians have traced the history of internal auditing to centuries B.C., many people associate the genesis of modern internal auditing with the establishment of the IIA in 1941 (Reding et al., 2009:1-8–1-9; Swinkels, 2012). During the 1940s, when modern internal auditing had only just commenced, the organizations of that era required a very different skill-set from what organizations require at present. Organizations had very basic communication systems, whereas present-day organizations have complex and sophisticated embedded technology systems. This gave rise to the need for internal auditors to become specialists in various business controls, and has further evolved as a valuable part of organizations (Moeller, 2009:6).

In the early 1990s internal auditors performed operational reviews, performance reviews, financial reviews and fraud investigations. They came from diverse backgrounds and began to specialize in terms of specific industries. The internal audit profession evolved further as it responded to changes in the regulatory and legislative environments (Ramamoorti, 2003). The corporate collapse, business failures and fraudulent financial reporting of the 1990s and early 2000s also played an important role in focusing on the role internal audit can play as a mechanism in preventing such occurrences and also in addressing IT concerns (Marx, 2009:82-83; 279-280).

2.2 An overview of the development of standards and codes that impact on internal audit

All professions are underpinned by a set of standards that govern their ethics and the work performed.

The IIA is considered to be the leading global authority on internal auditing with its membership exceeding 180 000 members across 190 different countries and regions. The IIA is the internal audit profession's global voice, recognized authority, acknowledged leader and principal educator (IIA website: https://na.theiia.org/membership/Pages/Membership.aspx). As a result, the IIA standards as published and updated by the IIA are the global framework according to which internal audit functions around the world conduct their activities. Further acknowledgement and recognition of the IIA standards is provided in the King III report, which, as part of the recommended practice, requires that internal audit functions adhere to both the IIA code of ethics and the IIA standards.

ISACA was formed in 1969 and has in excess of 150 000 members in 180 countries. It is the global organization responsible for information systems assurance and auditing professionals and is entrusted with the formulation of standards for information systems assurance, auditing, governance and security professionals (ISACA, 2014:2). The Information Technology and Assurance Framework (ITAF) framework incorporates the ISACA standards and guidance that members and information systems audit and assurance professionals should adhere to when performing information system audit and assurance activities (ISACA, 2014:5).

In terms of good corporate governance practice, the King III report encourages all entities to adopt the principles contained in the report (Institute of Directors, 2009:16). The King III report is applicable to all organizations in South Africa (public, private and government entities). The objective of the report is to promote strong governance conduct by South African organizations through the adoption of the 'apply or explain' principle, which requires organizations to explain the non-adoption or implementation of recommended principles indicated in the King III report. The report details sections on internal audit, enterprise risk management and IT governance, all of which form an important element of the internal audit activity, either directly or indirectly, and support the execution of good governance practices.

The objective or purpose of an internal audit function is to a large extent driven by the definition stipulated in the IIA standards, as “a department, division, team of consultants, or other practitioner(s) that provides independent, objective assurance and consulting services designed to add value and improve an organization's operations. The internal audit activity helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of governance, risk management and control processes” (IIA, 2012:21). However, there are specific standards of the IIA that focus on the internal audit activity's roles and responsibilities with respect to IT. Standard 1200 states that internal auditors must perform any engagement with proficiency and due professional care (IIA, 2012:5).

Standard 1210 of the IIA (2012:5), which deals with proficiency, requires that internal auditors must possess the knowledge, skills, and other competencies needed to perform their individual responsibilities. This indicates that as a group or activity, the internal audit function should have the necessary skills and competencies to perform its duties. Standard 1210.A3 of the IIA (2012:5) requires that internal auditors must have sufficient knowledge of key IT risks and controls and available technology-based audit techniques to perform their assigned work. However, not all internal auditors are expected to have the expertise of an internal auditor, whose primary responsibility is information technology auditing. This indicates that internal audit functions as a collective entity must have the skills and knowledge to address IT risks and controls. In addition, Standard 1220.A2 of the IIA (2012:6) further requires that in exercising due professional care internal auditors must consider the use of technology-based audit and other data analysis techniques. Similarly, with respect to governance and IT governance, Standard 2210.A2 of the IIA (2012:11) states: "the internal audit activity must assess whether the information technology governance of the organization supports the organization's strategies and objectives." Accordingly this standard basically compels the internal audit function to consider, evaluate and report on the organization's IT governance processes to ensure that these are aligned with and assist in achieving the organization's strategic objectives.

2.3 An overview of IT and its role in business

The Information Technology Association of America (ITAA) has defined IT as "the study, design, development, application, implementation, support or management of computer-based information systems". IT enhances operational efficiencies within many organizations and today plays an important role in the day-to-day operations of many organizations. It holds many benefits, enhances business communication and is also of strategic importance and being at the forefront of product development and decision-making. However, together with opportunity and improvement also come the associated risks (Chan 2000:224; Vlaar, Van den Bosch and Volberda 2005:46; Mukherji 2002:505).

In order to maintain pace with the rapid changes in IT, internal auditors have had to equip themselves accordingly. Coderre (2009:2–3) expresses the sentiment that "these are exciting times for internal auditors, especially those who see themselves as agents of change within their organization. Change is occurring at a faster rate than ever, and this change is being driven by technological advances. Companies wishing to survive in these times must exploit new technologies in order to achieve a competitive advantage. These forces are creating a new audit environment, and audit professionals who understand how to evaluate and use the potential of emerging technologies can be invaluable to their organizations."

This is supported by KPMG's 2013 IT Internal Audit Survey (KPMG, 2013:8), which indicated that the demand for assurance over technology-related risks features prominently among many organizations who view internal auditing as a key resource to assist in understanding the IT risks faced by an organization, providing assurance over existing IT controls and highlighting areas for improvement.

2.4 Summative view of the importance of IT to both the organization and the internal audit function

From the literature study above it is evident that rapid changes in IT and IS have altered the traditional landscape of the internal auditor. This, coupled with resource constraints from the economic downturn experienced in many countries throughout the world, results in challenging times for many internal audit functions. In essence, internal audit functions are required to do more with fewer resources (Global Audit Information Network, 2009).

The importance of IT to both the organization and the internal audit function cannot be underestimated. Internal auditors need to recognize and utilize IT to assist them in discharging their responsibilities. However, internal auditors should recognize that IT in itself will not increase an internal audit function's effectiveness, but gaining an understanding of the objective of the review and then utilising appropriate methods and technologies to achieve the objective will (Ramamoorti and Weidenmier, 2004).

3. THE RESEARCH OBJECTIVE AND APPROACH TO THE EMPIRICAL STUDY

3.1 The research objective

As discussed in section two, there are various legislative and regulatory frameworks and standards that pertain to the internal audit function. The aim of this study is firstly to investigate the evolving role of IT in an organization and its impact on the internal audit function and secondly to determine if the IIA standards, King III and ISACA standards assist internal audit functions in addressing the risk posed by the evolving role of IT in an organization. In order to achieve this objective, a literature study was performed through which the role of internal audit was examined and the role of the organization and the importance of IT to the modern organization were assessed. Thereafter, the relevance and importance of IT to the internal audit function was considered thorough an analysis of selected regulatory standards and frameworks to determine their role in supporting an internal audit function in addressing the increased requirements relating to IT-related risks and reviews.

The research objective derived from the above is then to analyse whether selected standards and frameworks assist South African Internal Audit Functions in addressing the risks posed by the evolving role of information

technology in organizations and thereby assist the internal audit function with achieving its mandate.

3.2 Approach and findings to the empirical study

In order to determine whether the IIA standards, King III report and ISACA standards (as discussed in section 2.2) support the internal audit function in meeting its mandate, specifically regarding its increased involvement in IT, the following was performed:

i) Establishment of correlation criteria for utilization in the comparative analyses;
ii) A comparative analysis of the Internal Audit chapter of the King III report and the IIA standards;
iii) A comparative analysis of the IT Governance chapter of the King III report and the IIA standards;
iv) A comparative analysis performed between the ISACA standards and IIA standards;
v) Formulation of the final list of key success factors for an effective internal audit function;
vi) An analysis of the King III report, ISACA standards, IIA standards to the key success factors for an effective internal audit function; and
vii) An analysis of the King III report, ISACA standards, IIA standards in relation to the key success factors with specific relation to IT.

The comparative analysis was performed during the month of September 2015 and covered the standards as discussed issued to date. The summarized results of the comparative analysis as listed in ii) to iv) above are listed in Tables 1.1 to 1.5 below, and those of vi) and vii) are listed in Annexure 1.

- Findings of the comparative analysis between standards and frameworks

In order to analyse the level of correlation between the selected standards and frameworks, a correlation percentage was established by the researcher. The purpose of this correlation percentage was to determine the degree to which the applicable standards or frameworks being compared aligned with each other. The criteria for the percentage of correlation are reflected in Table 1.1 below:

Table 1.1: Percentage levels of correlation among the selected standards and frameworks

Level of Alignment	Correlation Percentage	Explanation
Strong	90%-100%	A 90% to 100% correlation percentage indicates that the resources (applicable standard or framework) being compared have a strong level of alignment.
High	80%-89%	An 80% to 89% correlation percentage indicates that the resources (applicable standard or framework) being compared have a high level of alignment.
Moderate	50%-79%	A 50% to 79% correlation percentage indicates that the resources (applicable standard or framework) being compared have a moderate level of alignment.
Low	49% and below	A 49% or below correlation percentage indicates that the resources (applicable standard or framework) being compared have a low level of alignment.

(Source: own deduction)

The correlation percentage achieved in the comparative analyses performed was compared to the rating criteria set out in Table 1.1 in order to determine the strength of the correlation. For the purposes of the empirical study:

1. A high to strong correlation percentage would be considered 'acceptable' in addressing the impact of IT on internal auditing.
2. A low to moderate correlation percentage would be considered 'unacceptable' in addressing the impact of IT on internal auditing.

Table 1.2: Total number of recommended internal auditing practices in the King III report traced to the IIA standards (reflected as a percentage)

King III Principle	Total number of King III recommended practices reflected in a specific principle (A)	No. of King III recommended practices traced to an equivalent IIA standard (B)	B divided by A reflected as a percentage (%)
7.1. The board should ensure that there is an effective risk-based internal audit.	7	6	86%
7.2. Internal audit should follow a risk-based approach to its plan.	5	5	100%
7.3. Internal audit should provide a written assessment of the effectiveness of the company's system of internal controls and risk management	6	6	100%
7.4. The audit committee should be responsible for overseeing internal audit.	7	6	86%
7.5. The audit committee should be responsible for	5	4	80%
Total	**30**	**27**	**90%**

(Source: own deduction) *N1*

Legend
N1 – indicates a strong level of alignment as per the criteria stated in Table 1.1.

The table indicates that 90% (27 out of 30) of the practices recommended by King III report were traced to an equivalent IIA standard. When compared to the correlation criteria established in Table 1.1, this equates to a strong correlation between the King III report principles and recommended practice and the IIA standards specifically relating to the Internal Audit chapter.

As detailed in Annexure 1, the following King III report recommended practices could not be traced to a specific IIA standard or standards:

- Companies should establish an internal audit function;
- The audit committee should be responsible for the appointment, performance assessment and dismissal of the CAE; and
- The CAE should have a standing invitation to attend executive committee meetings.

Table 1.3: Total number of King III report recommended practices for IT governance traced to the IIA standards (reflected as a percentage)

King III principle	Total number of King III recommended practices reflected in a specific principle (A)	No. of King III recommended practices traced to an equivalent IIA standard (B)	B divided by A reflected as a percentage (%)
5.1. The board should be responsible for IT governance	5	2	40%
5.2. IT should be aligned with the performance and sustainability objectives of the company	2	1	50%
5.3. The board should delegate to management the responsibility for the implementation of an IT governance framework	4	0	0%
5.4. The board should monitor and evaluate significant IT investments and expenditure	3	1	33%
5.5. IT should form an integral part of the company's risk management	2	0	0%
5.6.The board should ensure that information assets are managed effectively	4	0	0%
5.7. A risk committee and audit committee should assist the board in carrying out its IT responsibilities	4	2	50%
Total	**24**	**6**	**25%**

(Source: own deduction) *N1*

Legend: N1 – indicates a low level of alignment as per the criteria stated in Table 1.1.

The results of this comparative analysis are reflected in Table 1.3 above, where 25% (6 out of 24) of the practices recommended by the King III report were traced to an equivalent IIA standard or standards. From the comparative analysis performed it is evident that there are limited similarities between the King III report principles and recommended practice and the IIA standards, when compared to Table 1.2. Although this percentage seems particularly low when compared to the results in Table 1.2, further inspection of the details of the practices recommended by the King III report could not be traced to an equivalent IIA standard, which indicated that these recommended practices related specifically to the board members and management of the organization. This would explain the minimal association with the IIA standards. The practices recommended by the King III report in which there was reference to the IIA standards related to the provision of assurance services.

Table 1.4: Total number of ISACA standards traced to the IIA standards (reflected as a percentage)

Total no. of ISACA standards	No. of ISACA standards traced to equivalent IIA standards	Percentage of ISACA standards traced to equivalent IIA standards
44	38	86%

(Source: own deduction)

The results of this comparative analysis are reflected in Table 1.4 above, where 86% (38 out of 44) of the ISACA standards were traced to an equivalent IIA standard. This indicated a high correlation percentage between the two resources following the criteria established in Table 1.1.

- Key success factors for an effective internal audit function

The success factors crucial to an effective internal audit function were identified as part of the literature review (Cochran (2008), Moeller (2009:731-737), the 2102 survey conducted by Ernst and Young of CAEs, executive management and board members and PricewaterhouseCoopers (2014:13) as part of their 2014 State of the Internal Audit Profession. These success factors as per the literature review were then combined with those as per the comparative analysis performed in Tables 1.2 to Tables 1.4 above and are listed in Table 1.5 below.

Table 1.5: Key success factors for an effective internal audit function

No.	Key Success Factors for an Effective Internal Audit Function
1	Implements a strategy that is aligned with the organizational strategy.
2	as an approved audit charter.
3	Is independent and objective.
4	Ensures appropriate supervision over activities.
5	Adopts a risk-based approach and plan.
6	Plans appropriately both at the overall organization al level (audit plan) and individual engagement level.
7	Reports to an appropriate independent authority (e.g. audit committee).
8	Considers the impact of information technology on the organization and its resultant impact on internal auditing.
9	Utilizes a risk assessment to determine the reviews to be performed.
10	Evaluates IT risks.
11	Provides independent assurance over IT controls.
12	Utilizes appropriate technology to assist with the execution of reviews and attaining efficiency.
13	Considers the utilization of the work of an expert where necessary.
14	Ensures objective, accurate and timely reporting.
15	Evaluates the effectiveness of corporate governance in an organization.
16	Provides independent assurance over the IT governance process.
17	Has the requisite knowledge and skills and undertakes regular training to remain proficient.
18	Adopts an appropriate report follow -up system to track progress on action plans.

The overall findings of the comparative analysis performed on the King III report, ISACA standards and IIA standards are discussed in section four.

4. FINDINGS FROM THE EMPIRICAL STUDY

4.1 An analysis of the King III report, ISACA standards, and IIA standards in relation to the key success factors for an effective internal audit function

i) Objective of the comparative analysis

The objective of the comparative analysis was to determine if the selected standards and frameworks support the internal audit function in addressing the impact of information technology on the function.

ii) Findings

Table 1.6 below presents the findings of the analysis between the King III report, ISACA standards, and IIA standards and their relation to the key success factors. (The details of the comparative analysis of the King III report, the ISACA standards and the IIA standards utilizing the key success factors formulated are set out in Annexure 1.)

Table 1.6: Correlation between the King III report, ISACA standards, and IIA standards in relation to the key success factors

	King III	ISACA	IIA
Total number of key success factors for an effective internal audit function	18	18	18
Total number of key success factors included in the standard/framework	12	14	17
Total number of key success factors not included in the standard/framework	6	4	1
Total number of key success factors included in the standard/framework reflected as a percentage of all key success factors	67%	78%	94%
Key success factors included reflected as an average percentage of the three applicable standards and frameworks	80%		

The findings identified include the following:

- King III report: From a total of 18 key success factors listed, 12 feature in the King III report, indicating a correlation percentage of 67%. When compared to the levels of correlation set out in Table 1.1, this equates to a moderate level of alignment between the key success factors and the King III report.
- ISACA standards: From a total of 18 key success factors listed, 14 feature in the ISACA standards, indicating a correlation percentage of 78. When compared to the levels of correlation set out in Table 1.1, this equates to a moderate level of alignment between the key success factors and the ISACA standards.
- IIA standards: From a total of 18 key success factors listed, 17 feature in the IIA standards, indicating a correlation percentage of 94%. When compared to the levels of correlation set out in Table 1.1, this equates to a strong level of alignment between the key success factors and the IIA standards.

The overall correlation percentage was 80%. When compared to the levels of correlation set out in Table 1.1, this equates to a high level of alignment between the key success factors and the selected standards and frameworks.

Per the criteria set out in Table 1.1, a high to strong correlation percentage would be considered 'acceptable' in addressing the impact of IT on internal auditing. This provides confirmation that the King III report, ISACA standards and IIA standards assist the internal audit function in addressing the impact of information technology.

4.1 Key IT-specific success factors identified for an effective internal audit function

The comparative analysis presented in 4.1 reveals that four key success factors for an effective internal audit function specifically refer to IT. These success factors and their comparative results are presented in Table 1.4 below.

Table 1.7: Key success factors for an effective internal audit function – IT elements

Key Success Factors for an Effective Internal Audit Function - IT Elements	King III	ISACA	IIA
Considers the impact of information technology on the organization and its resultant impact on internal auditing.	✔	✔	✔
Evaluates IT risks.	✔	✔	✔
Provides independent assurance over IT controls.	✔	✔	✔
Provides independent assurance over the IT governance process.	✔	x	✔
Total number of key IT success factors	**4**	**4**	**4**
Total number of key IT success factors included in the standard/framework	**4**	**3**	**4**
Total number of key success factors not included in the standard/framework	-	**1**	-
Total number of key success factors included in the standard/framework reflected as a percentage of all key IT success factors	**100%**	**75%**	**100%**
Key success factors included reflected as an average percentage of the three applicable standards and frameworks	**92%**		

(Source: own calculation)

Legend
✔ – Key success factor included in applicable standard or framework.
x – Key success factor not included in applicable standard or framework.

The King III report and IIA standards indicated that all four of the key success factors were included in the relevant standard/framework, thus indicating a

100% correlation with respect to the IT-specific key success factors. The ISACA standards indicated that three of the four key success factors are reflected in these standards, indicating a 75% correlation with respect to the IT-specific key success factors. The overall correlation percentage for the three resources is 92%. Assessing this against the criteria listed in Table 1.1 shows that there is a strong alignment with the key IT success factors.

These findings confirm that the King III report, ISACA standards and IIA standards collectively support the internal audit function's role in addressing the impact of information technology on the function. These relevant frameworks and standards assist with the appropriate planning, execution and reporting of internal audit reviews irrespective of the nature of the review. They thus collectively ensure that they assist the internal audit function in meeting its objective.

5. DEDUCTIONS AND RECOMMENDATIONS

5.1. From the literature study

The significant findings from the literature study include:

- Internal audit forms an integral part of the corporate governance structure of organizations in South Africa. This is supported by the King III report, which requires adherence to the IIA code of ethics and the IIA standards as part of its recommended practice.
- The King III report is a well-recognized and prominent corporate governance framework, which incorporates leading global corporate governance practices for utilization by organizations in South Africa. Its emphasis on good corporate governance is enhanced by including, among other things, dedicated chapters on internal auditing, risk management and IT governance.
- The IIA standards promulgated assist internal audit functions around the globe in meeting their mandate.
  Key success factors for internal audit functions were identified in the literature review and aligned with those formulated in the empirical study, which resulted in a final list of key success factors for utilization by internal audit functions.
- Information technology has an integral role to play in the modern organization. IT is viewed as a key business enabler.
- It was established that IT was as important to the internal audit function as it was to the organization in general. Recent surveys conducted by PricewaterhouseCoopers (2014) and Thomson Reuters (2014) concur with the importance of IT and the impact that it has on internal audit functions. In support of the impact of IT on the internal audit function, the following IIA standards were included as part of the overall list of standards:

- IIA Standard 1210.A3, which indicates that internal auditors and internal audit functions must have sufficient knowledge of information-technology-related risks and controls; and
- IIA Standard 1220.A2, which indicates that internal auditors and internal audit functions when exercising due professional care must consider using automated audit and data analysis techniques.

- As a result of the impact of IT on an internal audit function, the function is required to perform IT-related reviews. The leading globally recognized body for IS audit and assurance reviews is ISACA. ISACA standards are contained in ITAF together with recommended guidance and are recommended when IS assurance or audit-related reviews are performed.

5.2. From the empirical study

The comparative analysis performed on the King III report, ISACA standards and IIA standards produced an 80% correlation rate, indicating a high level of correlation to the key success factors. Furthermore, four IT-specific key success factors were identified, and the correlation rate achieved when comparing those four key success factors was 92%, thus indicating that overall these three resources support an internal audit function's role in addressing information-technology-related requirements.

5.3. Recommendations and areas for further research

Based on the findings of the study it is recommended that internal audit functions in South Africa adopt the King III report, the IIA standards and the ISACA standards to assist them in meeting their mandate and addressing information-technology-related risks and requirements.

In August 2014, the IIA made the document titled Potential Enhancements to The International Professional Practices Framework available to all IIA members for comment (IIA, 2014). Once feedback has been received and consolidated, it will probably result in a revised set of IIA standards. In addition, reports indicate that a task team has been set up by the King Committee to enhance the King III report, which will inevitably result in a revised King Code of Corporate Governance (HR Future, 2014). Based on these proposed developments, areas for future research could include a comparative analysis of the revised IIA Standards and revised King Code of Corporate Governance Report.

6. CONCLUSION

This study investigated the impact of IT on an internal audit function and whether the King III report, ISACA standards and IIA standards support the

internal audit function in addressing the impact of IT on the function. It was established that there was strong alignment between the King III report, ISACA standards and IIA standards, and that they collectively assist in addressing the impact IT has on the internal audit function with respect to meeting its mandate.

7. REFERENCES

Coderre, D. (2009). Internal Audit: Efficiency through Automation. Hoboken, New Jersey: John Wiley & Sons, Inc.

Chan, S.L. (2000). Information technology in business processes. Business Process Management Journal, 6(3): 224-237.

Global Audit Information Network. (2009). The Financial Crisis and Its Impact on the Internal Audit Profession. Altamonte Springs, Florida: The Institute of Internal Auditors Research Foundation (IIARF). Available from: http://www.theiia.org/guidance/global-financial-crisis/. (Accessed 26 March 2011).

HR Future. (2014). King Committee sets wheels in motion for King IV. HR Future, South Africa. Available from: http://www.hrfuture.net/news/king-committee-sets-wheels-in-motion-for-king-iv.php?Itemid=812. (Accessed 06 November 2014).

Institute of Directors Southern Africa. (2009). King Code of Governance for South Africa. Johannesburg. Institute of Internal Auditors (IIA). (2012). International Standards for the Professional Practice of Internal Auditing. Altamonte Springs, Florida: The Institute of Internal Auditors.

Institute of Internal Auditors (IIA). (2012). International Standards for the Professional Practice of Internal Auditing. Altamonte Springs, Florida: The Institute of Internal Auditors.

Institute of Internal Auditors (IIA). (2014). Potential Enhancements to The International Professional Practices Framework. Available from: https://global.theiia.org/standards-guidance/Public%20Documents/IPPF-Exposure-Draft-English.pdf. (Accessed 06 November 2014).

ISACA (2014). Information Technology Assurance Framework (ITAF): A Professional Practices Framework for Information Systems (IS) Audit/ Assurance, third edition. Rolling Meadows, IL: ISACA. Available from: http://www.isaca.org/Knowledge-Center/Research/Documents/ITAF-3rd-Edition_fmk_Eng_0614.pdf. (Accessed 15 July 2014).

KPMG International. (2009). KPMG's 2009 IT Internal Audit Survey. United Kingdom: KPMG.

KPMG International. (2013). KPMG's 2013 IT Internal Audit Survey. United Kingdom: KPMG.

Marx, B. (2008). An analysis of the development, status and functioning of audit committees at large listed companies in South Africa. Unpublished thesis submitted in fulfilment of the requirements for the degree Doctor Commercii in the Faculty of Economic and Financial Sciences. Johannesburg: University of Johannesburg.

Moeller, R. (2009). Brink's Modern Internal Auditing: A Common Body of Knowledge. Hoboken, New Jersey: John Wiley & Sons, Inc.

Mukherji, A. (2002). The evolution of information systems: their impact on organizations and structures. Management Decision, 40(5): 497-507.

Parker, X.L. (2006). Information Technology Audits. Chicago, Illinois: CCH.

PricewaterhouseCoopers. (2014). PricewaterhouseCoopers 2014 State of The Internal Audit Profession Study. Canada: PricewaterhouseCoopers.

Ramamoorti, S. (2003). Internal Auditing: History, Evolution, And Prospects. Altamonte Springs, Florida: The Institute of Internal Auditors Research Foundation (IIARF). Available from: https://global.theiia.org/iiarf/Public%20Documents/Chapter%201%20Internal%20Auditing%20History%20Evolution%20and%20Prospects.pdf. (Accessed on 13 July 2012).

Ramamoorti, S. & Weidenmier L.M. (2004). The Pervasive Impact of Information Technology on Internal Auditing. Altamonte Springs, Florida: The Institute of Internal Auditors Research Foundation (IIARF). Available from: https://global.theiia.org/iiarf/Public%20Documents/Chapter%209%20The%20Pervasive%20Impact%20of%20Information%20Technology%20on%20Internal%20Auditing.pdf. (Accessed 03 March 2012).

Reding, K.F., Sobel P.J., Anderson, U.L., Head, M.J., Ramamoorti, S., Salamasick, M. & Riddle, C. (2009). Internal Auditing: Assurance & Consulting Services. Atlamonte Springs, Florida: The Institute of Internal Auditors Research Foundation (IIARF).

Swinkels, W. (2012). Exploration of a theory of Internal Audit: A study on the theoretical foundations of internal audit in relation to the nature and the control systems of Dutch public listed firms. Netherlands: University of Amsterdam (PhD.-thesis). Available from: http://www.iia.no/filestore/Fag_og_tema/Internrevisjon/9789059727014_content_UBpdf.pdf. (Accessed 22 July 2014).

Thomson Reuters. (2014). State of Internal Audit Survey 2014: Adapting to Complex Challenges. USA: Thomson Reuters.

Vlaar, P.W.L., Van den Bosch F.A.J. & Volberda H.W. (2005). On the Relation between Information Technology and Interorganizational Competitive Advantage: A Competence Perspective. Advances in Applied Business Strategy, 8: 45-68.

ANNEXURE 1

AN ANALYSIS OF THE KING III REPORT, ISACA STANDARDS AND IIA STANDARDS WITH RESPECT TO THE KEY SUCCESS FACTORS FOR AN EFFECTIVE INTERNAL AUDIT FUNCTION

No.	Key Success Factors for an Effective Internal Audit Function	Standards and Framework		
		King III	ISACA	IIA
1	Implements a strategy that is aligned to the organizational strategy.	x	x	x
2	Has approved audit charter.	✔	✔	✔
3	Is independent and objective.	✔	✔	✔
4	Ensures appropriate supervision over activities.	x	✔	✔
5	Adopts a risk-based approach and plan.	✔	✔	✔
6	Plans appropriately both at overall organizational level (audit plan) and individual engagement level.	x	✔	✔
7	Reports to an appropriate independent authority (e.g. audit committee).	✔	✔	✔
8	Considers the impact of information technology on the organization and its resultant impact on internal audit. **(N1)**	✔	✔	✔
9	Utilizes a risk assessment to determine the reviews to be performed.	✔	✔	✔
10	Evaluates IT risks. **(N1)**	✔	✔	✔
11	Provides independent assurance over IT controls. **(N1)**	✔	✔	✔
12	Utilizes appropriate technology to assist with execution of reviews and attain efficiency.	✔	x	✔
13	Considers the utilization of the work of an expert where necessary.	x	✔	✔
14	Ensures objective, accurate and timely reporting.	x	✔	✔
15	Evaluates the effectiveness of corporate governance in an organization.	✔	x	✔
16	Provides independent assurance over the IT governance process. **(N1)**	✔	x	✔
17	Has the requisite knowledge and skills and undertakes regular training to remain proficient.	✔	✔	✔
18	Adopts an appropriate report follow-up system to track progress on action plans.	x	✔	✔
	Total number of key success factors included in the standard / framework	**12**	**14**	**17**
	Total number of key success factors not included in the standard / framework	**6**	**4**	**1**
	Total number of key success factors included in the standard / framework reflected as a percentage of all key success factors	**67%**	**78%**	**94%**
	Key success factors included reflected as an average percentage of the three applicable standards and frameworks	**80%**		

Legend:
✔ – Key success factor included in applicable standard or framework.
x – Key success factor not included in applicable standard or framework.
N1 – Indicates an IT specific key success factor.